

TRADE AND DEVELOPMENT BOARD
Ad Hoc Working Group on
Trade, Environment and Development
Third Session
Geneva, 6 November 1995

6 November 1995
ENGLISH ONLY

TRADE, ENVIRONMENT AND DEVELOPMENT
LESSONS FROM EMPIRICAL STUDIES:

The case of Poland

Synthesis report by the UNCTAD secretariat

* This synthesis report is based on Boguslaw Fiedor, Stanislaw Czaja, Andrzej Graczyk and Jerzy Rymarczyk, Interlinkages between environment and trade: a case study of Poland.

TD/B/WG.6/Misc.10

GE.95-53700

Contents

	<u>Paragraphs</u>
I. INTRODUCTION	1 - 4
II. BACKGROUND TO POLAND'S ECONOMY	5 - 13
III. DOMESTIC ENVIRONMENTAL POLICY-MAKING	14 - 35
A. State of the environment	14 - 21
B. Environmental legislation in Poland	22 - 29
C. Trade impacts of domestic environmental policy	30 - 35
IV. EFFECTS OF EXTERNAL ENVIRONMENTAL REQUIREMENTS ON TRADE	36 - 50
A. Vulnerability to external environmental requirements	36 - 40
B. Specific requirements affecting Poland's exports	41 - 45
1. Regulatory measures	41
2. Voluntary developments	42 - 45
C. Opportunities for marketing environmental goods and services	46 - 50
V. EFFECTS OF MULTILATERAL ENVIRONMENTAL AGREEMENTS ON TRADE	51 - 58
VI. EFFECTS OF TRADE POLICIES ON THE ENVIRONMENT	59 - 69
A. Trade liberalisation	59 - 66
B. Environmental impacts of export production	67 - 69
VII. CONCLUSIONS AND RECOMMENDATIONS	70 - 77

I. INTRODUCTION

1. The study "Interlinkages between environment and trade: a case study of Poland" was conducted as part of the UNCTAD/UNDP project on "Reconciliation of environmental and trade policies" by a research team of the Wroclaw Academy of Economics, Department of Economics. The research team consisted of Prof. Dr. Boguslaw Fiedor, Dr. Stanislaw Czaja, Dr. Andrzej Graczyk, and Dr. Jerzy Rymarczyk. The study was completed in 1994. The present report, prepared by the UNCTAD secretariat, summarises and updates the findings of the study.

2. The study focuses on the trade and environment issues related to the market reforms that have been central to the economic changes in Poland during the period of transition to a market economy. In assessing the trade and environmental impacts, the study does not try to distinguish between these reforms and trade liberalisation, something that would be very difficult to do since trade liberalisation is an integral part of the overall reforms.

3. The transition to a market economy and the endeavour to join the European Union in the future represent a tremendous challenge for the Polish economy. A need to take a leap to upgrade domestic environmental policies relatively quickly to correspond to those in the European Union further adds to the challenge. Short-term adjustment costs to the Polish economy may thus be significant; the long-term costs will depend on how Poland succeeds in the adaptation process.

4. The reasons for environmental damage in Poland are not trade-related; in fact, the state of the environment in Poland seems to vindicate the theory that closed economies are often more polluted than economies open to international trade.

II. BACKGROUND TO POLAND'S ECONOMY

5. For over forty years, the Polish economy was based on a centrally-planned system whose major features included membership of the CMEA (Council for Mutual Economic Assistance), rapid industrialisation with promotion of heavy industry, and foreign trade controls. The system resulted in the considerable isolation of the Polish economy from international markets, and, according to a recent GATT/WTO report, instead of letting the economy develop based on comparative advantage, produced a disproportionately large and diversified industrial sector dominated by State-owned enterprises operating at low levels of efficiency.¹ The political decision to concentrate on heavy, energy and raw material intensive industry was facilitated by Poland's abundant raw material deposits.

6. During the 1980s, many reforms took place especially concerning Poland's foreign trade system and foreign investment regime. In 1990, Poland embarked on an all-encompassing economic reform programme that aimed at a transformation from a centrally planned economy to a full market economy. The most important elements of the programme relating to international trade were the introduction of internal convertibility of the Polish currency for current account transactions, and passing laws and regulations that practically eliminated most export and import restrictions and removed the state monopoly in foreign trade, i.e. the introduction of liberal foreign trade.

7. The removal of state monopoly in currency transactions enabled enterprises to maintain direct economic relations with foreign trading partners and thus uncovered the differences in domestic and world market prices. In order to achieve price comparability, it was also crucial to cancel subsidies to most goods and services. Poland's openness to free trade in goods was preceded by the removal of barriers preventing the inflow of foreign capital into Poland. Some results of the reform programme are already to be seen in that domestic prices have become more in line with world prices. For example, between the end of 1989 and the beginning of 1992, the average domestic coal price experienced an 18-fold increase in nominal terms. During the same period, nominal gas prices increased 12 times for industrial users and 80 times for households. Also, the supply of goods has improved due to import liberalisation, competition has strengthened and the private sector has expanded.² In 1995, the Polish economy was growing

fastest in Europe, and the country had attracted around US\$ 6 billion worth of foreign direct investment between 1990 and mid-1995.³

Poland's external debt

Poland started reforming its economic system with a large external debt; at that time Poland was the world's fourth largest debtor country (after Brazil, Mexico and Argentina). However, after debt reductions agreed to in the Paris Club of official creditors and the London Club of commercial bank creditors, the remaining Polish debt stood in January 1995 at roughly US\$ 1,000 per capita.¹ Earning foreign currency through exports is an important avenue for Poland to service the debt. Also, debt-for-environment swaps, where creditor countries cancel a part of Polish debt if a corresponding amount of money is spent for environmental protection in Poland, have been concluded e.g. with the Governments of the United States and France.

¹ "In search of foreign finance", Financial Times Survey, Poland, March 28, 1995.

8. The transition process in foreign economic relations was and still is negatively influenced by many aspects of Poland's economic structure resulting from past central planning activities: domination of heavy industries, obsolete technology, low productivity and small innovation propensity.

9. Polish industry has also been characterized by high energy and raw material intensity leading to high direct pollution intensity, and by the poor quality of most goods and the consequent lack of competitiveness in international markets. Finally, Poland typically exports low value added goods where competition is keen and international prices have been falling, which makes it difficult to pass on environmental costs in product prices.

10. High energy intensity is an important feature of the Polish economy with repercussions to trade and environment linkages.⁴ Many factors have led to the high energy intensity in Poland. These include the environmentally disadvantageous, energy intensive industry structure; obsolete and energy intensive industrial technology resulting in wastage and inefficiency; shortcomings in the common energy policy of the former CMEA; and low effectiveness of state environmental protection policy. In particular the consequences of the energy policy followed over four decades by the CMEA are of a very persistent character, and e.g. major infrastructure investments are needed to overcome the problems created by the system.

11. There have also been external phenomena that complicate Poland's foreign trade relations. These are the decay of the former USSR (which was Poland's most important trading partner) and the consequent virtual collapse of trade with it; the dissolution of the CMEA and the reunification of Germany. To Poland, all these events meant breaking off traditional links between Polish enterprises and partners from former CMEA countries who accounted for more than half of Polish foreign trade. This was particularly important considering that many goods that were produced for this market did not meet the requirements of other markets. However, it can be noted that among the economies in transition, Poland has been among the first to divert its exports to the European Union and other market economies.

12. The direction of Poland's foreign trade has indeed undergone a major reorientation towards market economies, especially the European Union: the share of Central and Eastern European countries has declined while the share of European Union countries has grown (see Table 1). Bearing in mind the enlargement of the European Union in 1995, the European Union now accounts for an even larger share of Polish trade. However, though Poland's foreign trade concentrates in

Europe, a noticeable growth of the import and export share of other areas, in particular Asia and North America, can also be observed.

Table 1
Regional changes in Polish foreign trade
(share in percentage)

	1980	1985	1990	1991	1992	1993	1994
Exports							
European Union	22.8	22.6	46.7	55.5	57.9	63.5	62.6
Countries with economies in transition	52.4	40.7	22.1	16.8	15.4	9.6	14.5
Imports							
European Union	19.7	19.5	42.5	49.9	53.1	57.2	57.5
Countries with economies in transition	52.9	47.9	25.2	19.0	16.3	10.7	14.3

Source: UNCTAD, based on COMTRADE database. For 1994, Central Statistical Office, Warsaw.

13. Particularly worth noting in the gradual opening of the markets of highly developed countries to Poland is the 1991 Association Agreement with the European Union, aimed at establishing free trade in industrial goods and a partial liberalization of agricultural trade between the signatories before the year 2002. Poland's ultimate goal is to achieve full membership of the European Union in the future.

III. DOMESTIC ENVIRONMENTAL POLICY-MAKING

A. State of the environment

14. Some of the past economic activities have resulted in harmful impacts on the Polish environment. The state of Polish environment is most critical in areas that Polish environmental statistics identify as environmentally hazardous regions. In 1990 such areas comprised 11 per cent of the country's area and 35 per cent of population. An overwhelming share of these regions are located near enterprises in the fuel-energy sector. However, at the same time, 27 per cent of the country was in a natural or close to natural state.⁵

15. When considering the state of the environment in Poland, it is necessary to emphasise the spatial concentration of many pollution sources. Although high spatial concentration is harmful for the environment whose local carrying capacity may be exceeded, the concentration may in cases also be a positive feature in that it may facilitate cost-efficient cooperative pollution prevention investments.

16. Atmospheric air pollution in Poland is characterised by the domination of stationary source emissions; mainly burning hard coal and lignite in the energy sector. Coal-fired power plants account for about 70 per cent of sulphur dioxide emissions. Poland is also a large emitter of carbon dioxide (CO₂). The spatial distribution of air pollution in Poland is highly uneven due to the concentration of the major emission sources as well as the transboundary pollution to the southern and western territories. Large urban-industrial agglomerations belong to the most polluted areas. However, the atmospheric emissions have lately been decreasing, and, for example, there is now an ongoing programme funded by the Global Environment Facility (GEF) to switch from coal heating to gas and electric heating. This should result in significant improvements in local air quality in most big urban agglomerations.⁶

17. Transboundary air pollution is mainly received from Germany, Czech Republic and Slovakia. However, during the past two years, the import of air emissions

(mostly SO₂) from Germany has noticeably decreased due to the technological reconstruction of power plants in the former East Germany. Air pollution from Polish sources, in turn, is transported by the winds e.g. to Scandinavian countries. Studies in these countries have indicated that for receiving countries such as Finland and Sweden it may be more cost-effective to invest in air pollution prevention in Poland than in their own countries.

18. Over 40 per cent of towns and ca. 98 per cent of villages in Poland have no sewage treatment facilities; for example, many towns with a population exceeding 100,000 inhabitants do not possess municipal sewage treatment plants. Merely 52 per cent of industrial plants discharge waste water into their own sewage treatment facilities. Existing facilities, both municipal and industrial, are often out-of-date and overloaded. Lack of water resources in Poland are already becoming an essential impediment of the country's development. For example, there are difficulties in supplying some regions with drinking water. Since most surface waters are heavily polluted, there is a tendency to use good quality groundwater for industrial purposes. Partly as a result of environmental policies, partly as a reflection of slowing economic activity, the pressures on water quality through household, municipal and industrial discharges has started to decrease.⁷

19. Almost all water from Polish territory runs into the Baltic Sea, and Poland is the largest contributor to Baltic Sea pollution. The Baltic Sea has suffered severe environmental damage: the sea bottom has become partly lifeless, and spawning grounds and some plankton species have decreased, which in turn has resulted in decreasing productivity of Baltic Sea fisheries. In order for Poland to reduce the pollution from Polish rivers into the Baltic Sea by (a reduction by 50 per cent has been agreed to), cooperation with neighbouring countries in the framework of the Baltic Sea Convention is indispensable. For example, ca. 30 per cent of biological contaminants and ca. 60 per cent of heavy metals discharged to the Baltic Sea by the Vistula and Odra rivers originate from sources outside Poland.

20. The forests in Poland have been perhaps most severely damaged in Europe: 75 per cent of all trees in Poland show some damage from atmospheric pollution.⁸ Also, for 40 years the wood harvest level exceeded the cutting plan, which has led to a skewed age distribution of trees. A project for forest protection called Green Lungs of Europe is underway in collaboration with GEF.

21. Polish industry generates yearly ca. 120 million tons of wastes, of which only 50 per cent is being used for economic purposes. The small utilisation rate results mostly from the high share of post-flotation sludge in wastes, but also from a shortage of waste processing installations. The legislative process aiming at introducing a bill on waste management and establishing recycling targets has been started. Although industrial waste still remains one of the major environmental challenges for Poland, the volume of such waste has recently been decreasing. However, at the same time, the volume of municipal waste has been increasing.

B. Environmental legislation in Poland

22. With the economic reforms, liberalised foreign trade, and the increasing significance of OECD markets, Polish products have become more exposed to environmental requirements in the export markets as well as to world price levels of energy and raw materials. This has necessitated stricter domestic environmental policy measures and improved enforcement, whose impacts are likely to be felt in improved environmental quality but in some cases also in increased production costs. The responsibility for environmental administration and legislation lies mainly within the Ministry of Environmental Protection, Natural Resources and Forestry, although several other ministries and other authorities also deal with environmental issues within their specific domains.

23. In particular, major changes are taking place in Poland's domestic environmental policy-making as a result of the Association Agreement with the European Union that requires, inter alia, the approximation of Poland's

environmental standards and regulations with those of the European Union in a foreseen time frame of 10 years.⁹ The Polish Government has expressed its intention to move towards meeting European Union environmental standards and legal norms as soon as possible. According to Article 68 of the Association Agreement, Poland shall use its best endeavours to ensure that future legislation is compatible with European Union legislation. Thus Polish law is to be modified progressively and adapted to conform, first with the spirit of European Union directives, and, as far as possible, with their details whenever this does not entail excessive costs.¹⁰ Bearing in mind Poland's goal of achieving full membership in the European Union, eventually it will have to harmonise its legislation with that of the European Union.

24. The subsidiarity principle of the European Union implies that Poland does not have to introduce into its national legislation all the detailed regulatory provisions of the European Union, but only those that would ensure implementing the Union's objectives in the sphere of environmental protection and make Polish environmental legislation consistent with the main principles of European Union environmental policy.¹¹

25. The main legal instruments used for environmental policy-making in the European Union include regulations, directives, decisions and recommendations, of which only regulations and directives are binding instruments of European Union law. Regulations are binding to member States as such. Directives are also binding as to their goals, but the ways of achieving those goals can be selected by the member State. Decisions are issued in individual matters and bind only the specific entity concerned (e.g. an enterprise). Finally, recommendations have no binding power.

26. The most important environmental instruments of the European Union, with which Poland will have to ensure the compatibility of its existing and future legislation, include directives and regulations relating to the following:

- ambient air standards with respect to sulphur dioxide (SO₂), suspended dust, nitrogen oxides (NO_x) and lead;
- SO₂, NO_x and dust emissions by industrial facilities, thermal power plants, and existing and constructed municipal waste incinerators. Particularly important for Poland is here the directive on large combustion facilities that, in addition to setting limit values on emissions of individual facilities, also defines maximum emission levels for member countries;
- pollution emitted by mobile sources, including the directives on unleaded gasoline, car and truck flue gas emissions, and catalytic converters;
- drinking water quality;
- industrial and municipal sewage treatment plants;
- reduction of surface water pollution by fertilizers and pesticides;
- solid waste disposal and management;
- the use, disposal and storage of hazardous / toxic wastes;
- packaging;
- Environmental Impact Assessment; and
- the availability of environmental information to the public.

27. The harmonisation of Polish environmental legislation with that of the European Union, in particular emission, technology and product standards, may have serious general economic consequences through increased environmental

protection costs and essential impacts on the export competitiveness of specific branches and enterprises. This is particularly true since the harmonisation process is proceeding parallel to the consolidation of many standards and norms within the European Union, which is expected to result in the introduction of more stringent standards. It is very likely that some Polish exporters will not be able to meet those standards in the short run and thereby may lose markets both in Poland and within the European Union.

28. The German Institut für Wirtschaftsforschung (ifo) has estimated that the overall costs that Poland would have to bear in order to achieve environmental quality comparable to European Union standards would amount to ca. US\$ 30 billion.¹² Taking an example from the energy sector, Polish analysts have estimated that ca. US\$ 5 to 10 billion (depending on the emission abatement scale) would have to be spent to achieve the European Union emission standards for SO₂, NO_x and dusts on fuel combustion in the energy sector by 1998. This would obviously result in increased costs and electricity prices; cost increases averaging 10 per cent and reaching 100 per cent in some thermal power plants can be expected. Though these standards would be comparable to the European Union directive on large combustion facilities, they could still be insufficient in the context of planned total emission ceilings to be achieved by certain member countries by the years 1998 and 2003.

29. There are thus areas of environmental policy-making where the harmonisation of Polish regulations with those of the European Union may be very costly and difficult. However, there are also domains where Polish regulations do not significantly diverge from their European Union counterparts or are stronger than the latter, but their enforcement may be relatively lax. It should also be noted that when Poland started its transition towards a market economy, it also adopted a new environmental policy based on the polluter pays principle and the concept of sustainable development. This facilitates the harmonisation process both in conceptual, legislative and cost terms.

C. Trade impacts of domestic environmental policy

30. The tightening of environmental standards is of particular significance to the electroenergetic sector, where power plants will have to install flue gas desulphurization facilities before the year 1999. Calculating production cost increments on the basis of German experience in implementing a similar programme, one can expect the production costs in thermal power plants to increase by ca. 30 to 40 per cent. Should an overall technological reconstruction of Polish power plants take place, with both SO₂ and NO_x emission abatement, the cost increase would certainly be higher. For instance, the third largest power plant in Poland, Turów (located in the "Black Triangle" area¹³), would need approximately US\$ 1.2 billion to carry out such a modernization programme. This would allow a radical decline in SO₂ and NO_x emissions but, most likely, result in the triplication of the current price of electricity generated by the power plant. This, in turn, would inevitably lead to the overall collapse of electricity exports by Turów which is the largest Polish electricity exporter.

31. Stricter emission standards and their improved enforcement may also influence the exports of hard coal (one of Poland's most important export products¹⁴) and hard coal intensive products. The sector is already facing major financial difficulties; at current production and transport cost levels and with increasing supply from low-cost foreign competitors it is approaching the limit of export profitability. Also, strict enforcement of environmental standards and regulations could lead to limitations of hard coal extraction in some large and technologically outdated mines or even to the closing down of these mines. If all the current and proposed environmental standards and regulations were implemented and enforced, it is estimated that Polish hard coal exports could fall from 23 million tons in 1993 to 7 to 10 million tons in the year 2000.

32. A case in point are also the new restrictive regulations concerning the emissions of air pollutants from cokeries. Modernization costs of cokeries (replacing wet coke quenching with the dry method) will be tremendous, but the modernization should bring considerable environmental improvements by reducing

atmospheric air pollution by 80 to 90 per cent in a few years. Since Polish coking coal still remains cheaper than imported coal, it is likely that despite increased prices domestic buyers may continue buying it. The most important consequence of higher domestic coke prices will be the increased production costs of pig iron and the resulting higher prices of steel and steel products.

33. One of the underlying premises for the ten-year technological modernization programme in Polish metallurgy is the high energy, labour and pollution intensity of the sector. In the context of the restructuring programme, some of the country's 26 steel plants will be closed based on technological and ecological grounds, and in some other plants, production capacity will be reduced.¹⁵ The implementation of the programme should result in reducing harmful environmental impacts by 70 to 80 per cent; steel production would be reduced by 5 million tons from the launching of the programme. At the same time, production costs are expected to decrease by US\$ 20 to 25 per tonne. This should enable the Polish metallurgy branch to retain its competitiveness in the international markets.

34. The increase in electricity prices due to more rigid environmental standards would also influence production costs and prices of many energy-intensive goods and thus their export competitiveness. Therefore, the exports of the following products might decrease: fertilizers, plastics, organic chemicals, products and semi-products made of non-alloy steel, rolled products, zinkified plates, low-processed copper products, cement, and some building materials. The current joint share of these products (together with electricity exports) of Polish exports can be estimated at 15 per cent. For some of these products, such as steel and copper metallurgy and cement products and electricity, substantial free production capacity exists. However, the tightening environmental standards may prevent the branches from increasing their exports.

35. In the cement industry, a complete technological reconstruction will be implemented within ten years, leading to the abandonment of the energy intensive wet technology. It is expected that this will not only enable the cement branch to reduce its energy intensity and cement and clinker related dust emissions by 70 to 80 per cent, but also reduce production costs, help to avoid atmospheric emission fees, and increase export competitiveness.

IV. EFFECTS OF EXTERNAL ENVIRONMENTAL REQUIREMENTS ON TRADE

A. Vulnerability to external environmental requirements

36. The composition of Polish exports is highly geared towards energy and raw material intensive products with polluting processes. This results in two-fold implications: firstly, the exports are vulnerable to external environmental standards, and secondly, export production places a negative burden on the Polish environment.

37. Along with the economic reforms, as the trade regime has shifted from a centralised, partially barter system, to one of decentralised commercial trade, and as domestic prices were liberalised, Poland has seen a drop in the exports of electrical and engineering goods and an increase in that of "light industry goods" (clothing, knitting and leather), wood and paper, and metallurgical goods. At the same time imports of almost all items have increased, particularly chemicals, wood and paper, food items and agricultural products. Table 2 shows the development of the composition of Poland's imports and exports both in value and relative terms over the period 1980-1993.

Table 2
Total exports and imports of Poland
by main commodity groups, 1980-1993
(share in percentage)

Commodity groups:	1980	1985	1990	1991	1992	1993
Imports:						
Food and agr. products	19.1	15.4	10.7	15.1	14.1	13.5
Fuels	18.1	22.2	21.9	18.9	16.8	12.4
Ores and metals	5.7	5.6	4.5	2.5	3.3	3.0
Manufactured goods	51.0	56.1	62.4	61.1	64.2	69.5
Exports:						
Food and agr. products	8.9	11.2	15.3	17.9	18.0	14.3
Fuels	13.2	15.7	10.7	10.7	10.6	8.8
Ores and metals	7.2	8.1	9.3	9.0	11.3	8.9
Manufactured goods	60.7	62.0	58.3	54.5	59.0	66.1

Source: UNCTAD, based on COMTRADE database

Note: Food and agricultural products consist of SITC 0+1+2+4 less(27+28); fuels consist of SITC 3; ores and metals consist of SITC 27+28+68; manufactured products consist of SITC 5+6+7+8 less 68.

38. The destination of exports also has a bearing on the vulnerability to external environmental requirements. Typically, in OECD markets and especially in the European Union environmental requirements are stricter than in many other markets. Within the European Union, Poland's two largest export markets are Germany and the Netherlands; both are countries with particularly strict environmental protection requirements. Of private sector exports, as much as 41.9 per cent were destined to Germany in 1994.¹⁶ Table 3 shows Poland's exports in 1993 by commodity groups and markets.

Table 3
Poland's exports by commodity groups and markets, 1993
(millions of dollars)

	World	OECD countries ¹			Coun-tries with econom-ies in transit- ion	Develo- ping coun- tries
		Total	of which			
			United States and Canada	European Union		
Total	14044.1	10124.6	452.5	8916.1	1353.6	1635.3
Food and agr. products	2005.2	1399.9	61.2	1235.2	360.5	131.6
Food	1546.8	1024.8	59.9	892.6	353.0	115.8
Agr. raw materials	458.4	375.1	1.3	342.6	7.6	15.8
Fuels	1241.1	815.6	3.4	650.8	88.3	106.1
Ores and metals	1252.9	929.3	19.8	805.4	71.8	121.7
Manufactured goods	9279.2	6886.0	362.9	6180.1	780.4	1232.6
of which:						
Chemicals	948.3	535.4	37.7	450.9	198.6	127.1
Textiles and clothing	1885.1	1741.6	77.8	1599.1	72.3	44.7
Leather	122.6	118.6	0.4	116.9	1.5	0.2
Footwear	109.4	87.8	15.6	69.6	18.2	0.6
Machinery and equipm.	2887.0	2010.9	131.0	1794.1	352.3	398.5
Other man. products	3326.8	2391.7	100.4	2149.5	137.5	661.5

Source: UNCTAD, based on COMTRADE database

¹ Data for OECD do not include Austria, Iceland, Mexico, Norway, Turkey.

39. Finally, to estimate the vulnerability of Polish exports to environmental regulations, it is necessary to look at to what extent products sensitive to environmental requirements are exported to environmentally conscious markets. The UNCTAD secretariat has identified some sectors sensitive to environmental regulations based on environmental regulations applicable in OECD markets to each sector. Table 4 shows the destination and value of Poland's exports in those of the identified sensitive product categories that are of most significant export interest to Poland.

Table 4
Poland's exports of selected goods sensitive to
environmental regulations by destination, 1993
(millions of dollars)

	World	OECD countries ¹			Countr-ies with econom- ies in transit- ion	Develo- ping coun- tries
		Total	United States	European Union		
Textiles & text. prod.	1878.3	1756.7	70.6	1600.8	70.3	44.2
Cars	675.5	607.1	16.9	574.6	38.4	19.1
Wood & wood products	547.4	521.9	5.4	457.4	4.5	5.3
Fruit	391.5	296.7	0.7	243.4	81.6	28.1
Plastics & plast. prod.	196.2	154.8	0.5	139.2	21.3	9.7
Paper & paper prod.	145.8	97.9	0.8	85.3	9.0	29.4
Leather & leather prod. excluding footwear	117.2	113.6	0.6	103.1	2.3	0.5
Fertilizers	110.5	97.7	15.1	79.7	0.0	9.9
Footwear	109.4	89.2	14.8	69.6	18.2	0.6
Chemicals	105.4	46.9	0.1	38.3	2.8	45.0
Beverages	102.2	88.5	3.6	77.2	13.4	1.9
Appliances	91.2	82.5	0.4	73.0	1.9	4.6
Lamps	86.2	76.8	9.2	65.9	1.1	7.2
Fish	68.9	60.1	0.6	58.0	4.8	0.9
Tyres	66.1	56.5	2.3	51.2	4.3	5.0
Freezers	26.3	14.6	0.0	11.4	9.7	1.1
Cosmetics	17.6	5.2	0.1	4.4	10.9	0.2
Dyes and pigments	14.0	10.1	2.9	5.5	0.5	3.3
Insecticides	13.7	7.7	0.1	7.6	2.4	3.4
Shrimp & shrimp prod.	12.1	12.0	0.0	11.9	0.1	0.0
Batteries	11.7	1.9	0.0	1.4	7.8	2.5

Source: UNCTAD, based on COMTRADE database

¹ Data for OECD do not include Austria, Iceland, Mexico, Norway, Turkey.

40. All in all, US\$ 4804 million, or 34 per cent of total exports were in products identified as sensitive to environmental regulations in 1993. In the OECD market, the share of exports which may already be facing environmental requirements of total exports was 39.8 per cent; in the European Union market this share was 42.2 per cent.

B. Specific requirements affecting Poland's exports

1. Regulatory measures

41. As can be seen from the vulnerability analysis above, the most important external environmental regulations potentially affecting Polish exports are those that exist in the European Union markets. However, Poland finds itself in a particular situation in that through the Association Agreement, Poland is bound to approximate its environmental regulations with those of the European Union. Thus, the main external environmental regulations have already been or will be incorporated in the domestic environmental policy-making (analysed in Chapter III).

2. Voluntary instruments

42. Although voluntary instruments are in principle noncompulsory, they may in practice nevertheless have an impact on Polish exports. The most important voluntary measure with a potential impact on Poland's exports is the European Union eco-labelling scheme. In general, voluntary requirements in the European Union markets (including consumer preferences) cannot, naturally, be under similar harmonisation requirements than are regulatory measures.

43. Table 5 shows that many of the categories for which criteria are being set under the eco-labelling programme of the European Union are of export interest to Poland. Further, the European Union is for Poland clearly the most important export market for these products.

Table 5
Poland, 1993: exports of products
earmarked for eco-labelling in the European Union
(millions of dollars)

Product category	Exports to:		
	World	European Union (EU)	EU share of Polish exports (%)
<u>Final products</u>			
Tissue paper	14.4	9.8	68
Copying and writing paper	0.8	0.6	75
T-shirts	310.8	299.3	96
Bed linen	28.6	25.2	88
Footwear	109.4	69.6	64
Ceramics ¹	4.2	3.2	76
Lamps	87.1	66.3	76
Refrigerators ¹	14.8	10.7	72
Furniture ¹	470.2	397.0	84
<u>Raw materials</u> (themselves not directly subjected to eco-labelling)			
Wood pulp			
Leather	28.7	15.3	53
Cotton	61.6	58.8	95
	4.4	4.1	93

Source: UNCTAD, based on COMTRADE database, and "A statistical overview of selected eco-labelling schemes", TD/B/WG.6/Misc.5, 2 June 1995

¹ Included in national eco-labelling programmes

44. According to one study, Polish producers are concerned over the potential impact of the European Union eco-labelling scheme on their exports.¹⁷ Knowledge on the requirements, particularly those related to the life cycle of products, is weak among producers. Further, the difficult financial situation of many companies may prevent adaptation to the criteria. For companies with the most difficult financial circumstances, even the testing and other costs related to the application process may represent a critical obstacle.

45. Relevant ministries are now discussing setting up an eco-labelling scheme in Poland. This scheme would take the life-cycle approach and adopt essentially the same criteria as the European Union eco-labelling scheme does, but allow for less stringent criteria for domestic manufacturers in the beginning. The main objectives of the planned scheme would be to help Polish producers to increase competitiveness in both domestic and international markets, to hamper the uncontrolled use of eco-labels in Poland, and to improve the ecological image of Polish commodities in the European Union markets. However, at present, still very few Polish consumers are affected by eco-labels in their purchasing decisions. Especially if prices of eco-labelled products include a premium, these products may be less competitive in the domestic market.

C. Opportunities for marketing environmental goods and services

46. Tightening environmental standards and regulations in Poland promote the development of branches supplying environmental goods and services. Compared to other economies in transition, Poland started producing environmental protection technologies relatively early, and developed many original pollution control technologies that are often cheaper than environmental protection technologies from OECD countries. Assuming that other countries with economies in transition will intensify their efforts in the domain of environmental protection, environmental goods and services to this market may become an important export item for Poland.

47. Regarding Polish agricultural exports, the low consumption of fertilizers and pesticides (compared to European Union average) and the opulence of relatively cheap manpower in the Polish rural population create potentially favourable conditions for the development of an environmentally friendly agricultural segment. The fact that even before the market reforms, 80 per cent of agriculture in Poland was in the hands of small-scale private farmers has greatly facilitated the adaptation of the sector to market economy conditions.¹⁸

48. Although the market niche for environmentally friendly agricultural products in the European Union still remains small, it is expected to quickly expand. All the programmes of environmentally friendly agricultural development in Poland are to a significant extent based on export aspirations to the European Union market. However, considering that agricultural trade between Poland and the European Union is only partially liberalised under the Association Agreement, and that Polish producers have already found it difficult to compete against subsidised European Union agricultural products even in the domestic market, to what extent these aspirations can be achieved remains to be seen.

49. Further, exporting "green" agricultural products to developed countries would have to confront strong competition from other producers, lacking necessary professional skills in Poland and strict regulations concerning such products in most Western countries. The study also notes that environmental pollution from past activities has resulted in the contamination of ca. 10 per cent of agricultural land in Poland.

50. The policy followed by some developed countries regarding the exportation of domestically prohibited pesticides to Poland, and their aggressive marketing there, may also become an obstacle for the development of environmentally friendly agriculture in Poland.¹⁹ Many Polish farmers may purchase these pesticides because they are cheaper and because the farmers do not have sufficient information on their potential harmful environmental effects. Contamination of Polish soils and plants with such pesticides might set back the efforts of exporting environmentally friendly agricultural products to the European Union.

V. EFFECTS OF MULTILATERAL ENVIRONMENTAL AGREEMENTS ON TRADE

51. Multilateral Environmental Agreements (MEAs) have become an essential component of international cooperation in environmental protection. Poland is signatory to ca. 40 such agreements, although Poland's broader participation in these agreements started only after the year 1990. Regional environmental agreements to address regional problems, such as those concerning the Baltic Sea or the "Black Triangle" also play an important role for Poland. Through participation in MEAs, Poland environmental policy is integrated with that of the international community, including European Union member States.

52. Due to Poland's late participation in MEAs, it is as yet hard to find examples of their influence on Polish exports. Some agreements, like the Basel Convention, have already had direct impacts on the Polish economy. Others are anticipated to have an impact, like the Climate Change Convention which may reduce Poland's coal exports through discouraging the use of fossil fuels.

53. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal resulted in amendments to Polish legislation, introducing a total prohibition of importing hazardous wastes in Poland. The amendments only allow the import of hazardous wastes to be used for strictly defined economic purposes with individual permits and under certain conditions. Branches particularly affected by restrictions in waste exports and imports are the forest products and metallurgical industries: import limitations in waste paper and scrap iron are likely to lead to price increases of these secondary materials in the domestic market and, ultimately, to increased production costs.²⁰

54. As a signatory to the Montreal Protocol on Substances that Deplete the Ozone Layer, Poland must completely abandon the use of freons and halons by the year 2000. Poland does not produce these compounds but their domestic use accounts for 1 per cent of world consumption. Freons can be relatively easily eliminated from aerosol containers, but their removal from the production of polyurethane foams can cause temporary cost increases in the Polish furniture branch, thus aggravating to some extent the export competitiveness of upholstered furniture.

55. It has also been suggested that Poland's commitment to cease the use of freons in refrigerators, freezers and freezing counters could bring about, at least in the short run, reductions in the exports of these products, since Poland does not have the technology to eliminate ozone depleting gases and the import of such technology would place increased costs for the refrigerating industry. For the same reason, the production costs of frozen food, i.e. fruit, vegetables, meat and creamery products could also increase. However, in the face of import competition, Polar, the domestic monopolistic manufacturer of refrigerators, freezers and washing machines, has been able to completely remove freons from its refrigerators. These refrigerators are now sold both in Poland and in the European Union markets.

56. There are also a number of regional treaties that may influence Poland's structure of industrial and agricultural production and hence its foreign trade. The Convention on the Protection of the Marine Environment of the Baltic Sea Area requires the control and restriction of, *inter alia*, pollution from land-based sources into the Baltic Sea. In the context of the Baltic Sea Environmental Action Programme adopted in 1992, 119 "hot spots" will be addressed in a cooperative manner, of which 38 are in Poland. Large investments (in the range of US\$ 8 billion) will be required to fulfil Poland's commitments to reduce the pollution load into the Baltic Sea. A programme of construction of 111 sewage treatment facilities at a cost of US\$ 300 million is already in progress.

57. An important regional agreement for Poland is the cooperation with the Czech Republic, Germany and the European Union in the "Black Triangle" area to reduce SO₂ emissions. The area generates one third of European SO₂ emissions, which has led to substantial forest damage. The agreement has resulted in reduced sulphur emissions from power stations, the costs of which are reflected in higher electricity prices and reduced electricity exports from Poland (see section III.C on the Turów power plant). The long run objective of the programme is compliance with European Union environmental standards in the region.

58. Finally, Poland has concluded or is concluding several bilateral environmental agreements with its neighbouring countries Germany, Czech and Slovak Republics, Ukraine, Belarus, Lithuania and Russia. These agreements relate mainly to water management and nature protection.

VI. EFFECTS OF TRADE POLICIES ON THE ENVIRONMENT

A. Trade liberalisation

59. In addition to the internal reforms that include trade liberalisation, Poland has also been part of the international trade liberalisation process. Poland has been a member of the General Agreement on Tariffs and Trade, participated fully in the Uruguay Round and is now a member of the World Trade

Organisation.

60. In general, it is expected that the market reforms taking place in Poland should improve the state of the environment, particularly in the longer term as inefficient and polluting companies are forced to close down. Also, the Association Agreement with the European Union and the consequent need to strengthen environmental requirements and their enforcement in Poland should result in a cleaner environment.

Imports

61. Environmentally friendly imported products can have a positive impact on the Polish environment in two ways: by replacing more polluting alternatives, and by forcing Polish suppliers to improve the environmental qualities of their products. A case in point have been the imports of cleaner petrols and engine oils.

62. Also, the access of Polish companies to cleaner technologies and resources is ameliorated by freer trade. The reforms opened a new opportunity for Polish enterprises to buy machines, spare parts and raw materials abroad directly, without the compulsory intermediation of state owned foreign trade enterprises. Owing to the generally better quality and higher technology level of most imported goods, these imports became a significant factor contributing to the modernization of many Polish enterprises. The other side of this occurrence, however, is the domestic production displaced by increased import competition.

63. The study also lists several cases where environmentally harmful products were exported to Poland by developed countries. Such products included, for example, domestically prohibited pesticides, asbestos and CFC-containing used refrigerators. Further, the increased imports of consumer products like food and cosmetics have been accompanied by an inflow of packaging waste that frequently is difficult to recycle or reuse.

64. Theoretically, international trade makes it possible for a country to reduce local environmental pollution to an extent by importing goods whose production significantly loads the environment instead of producing them domestically. However, it seems that Poland is not receiving such relative environmental benefits through international trade. On the contrary, in 1990-1992, environmentally disadvantageous changes took place in Poland's industrial exports and imports. The share of pollution intensive goods of total exports increased during the period. Simultaneously, industrial imports consisted to a growing extent of goods whose domestic manufacturing would not significantly damage the natural environment. As a consequence, one can speak of a special "division of labour" between Poland and other countries, in particular European Union countries: to a growing extent, Poland is importing manufactured goods whose production does not cause major dangers to the environment. In its exports, Poland is specializing in goods whose production significantly loads the natural environment.

Foreign direct investment

65. Capital available through foreign direct investment is crucially needed for the restructuring and modernisation of the Polish economy. However, the study raises the question whether "dirty industry" tends to migrate to Poland, especially since the Polish institutional and legal environmental framework is not yet fully developed. There are several examples of FDI into Poland that relate to the establishment of production lines for products that face several environmental requirements in the European Union: e.g. polyurethane foams, PVC bottles, aluminium cans and phosphate-containing detergents. But, there are also several examples where foreign direct investment has contributed to environmental improvements in Poland. The study concludes that the FDI into Poland has been neither systematically negative nor positive for the domestic environment.

66. There is a problem related to privatisation negotiations between the Government and foreign investors, namely the division of economic liability for

past contamination, and the payment of any outstanding environmental fees and fines. As regards the costs of clean-up, two solutions have been used: the reduction of the selling price by clean-up costs, or the State assuming the liability for past contamination. The study reports that the latter solution has been more commonly used. In 1992, an interministerial committee was established to deal with environment-related issues in the capital privatisation procedure.²¹

B. Environmental impacts of export production

67. The environmental resources have been very intensively used in Poland; both as raw materials and as a recipient for pollution and wastes. The majority of pollution in Poland is generated by the industry, and mostly four sectors: the fuel-energy, metallurgical, chemical and mineral industries. Some of the environmental damage may in the long run be setting constraints to economic growth, for example in the form of reduced productivity of agriculture and fisheries, lack of clean water, and health problems.

68. Hard coal, the extraction of which has major harmful environmental impacts, belongs to Poland's most important export products. In the first half of the 1970s coal exports reached the magnitude of ca. 40 million tonnes and Poland became the second largest hard coal exporting country in the world. In the 1980s, despite radical political changes, a new programme of coal extraction development was designed. However, the implementation of the programme was impossible due to both the general economic difficulties of that time and the pressure of other emerging interest groups, including national and regional environmental groups. Hard coal exports thus fell during the whole period of economic reforms in Poland. Although the industry will be forced to undertake certain environmental protection activities in the future, it would be highly recommendable from the environmental point of view to decrease Poland's dependency on coal exports.

Hard coal consumption in Poland

The Polish economy has a strong dependency on solid fuels consumption and has also been characterized by a very stable fuel mix structure for the past thirty years. Whereas in many developed countries there has been a remarkable absolute and relative increase in the utilization of crude oil, gas and non-conventional energy, the Polish economy has showed a quite opposite trend of a very high and almost constant solid fuel share (hard coal and lignite) of primary energy carriers.

It has been recognised in Poland that it would be necessary both from an economic and environmental point of view to reduce coal consumption and switch to increased gas consumption. However, the composition of Poland's fuel endowments (large coal deposits), and the lack of foreign currency to import fuels have in practice prevented adopting such a policy without the help of foreign aid. A natural factor that could accelerate the process of reducing coal dependency in the future is the gradual aggravation of environmental conditions in hard coal mines, and the subsequent decrease in the price competitiveness of hard coal. Polish energy policy now aims at doubling gas consumption by the year 2000.

69. Within the metallurgical industry, hot rolled products, whose production is highly energy and raw material intensive, are major export products. A large proportion of the production of the chemical industry is also exported. Most chemical industry products such as organic chemicals, fertilizers and plastics are energy intensive, and their manufacture tends to be polluting especially in terms of effluent discharges. Thus, the production and export of chemical products contributes strongly to the pollution of the natural environment in

Poland.

VII. CONCLUSIONS AND RECOMMENDATIONS

70. The case of Poland is a clear and interesting example of how economic and environmental policies may be mutually reinforcing. On one hand, the past economic system produced both an inefficient economy and a polluted environment. On the other hand, the reforms now being undertaken in Poland should lead both to improved economic efficiency and a cleaner environment.

71. The need to harmonise a number of Poland's environmental standards with those of the European Union coincides with internal economic reforms and difficulties, accentuating the pressures facing the domestic economy. The harmonisation costs may raise to US\$ 30 billion. The crucial question is therefore how Poland will succeed in the economic transition and a simultaneous upgrading of environmental policies.

72. A cost-effective strategy should be developed for the harmonisation of Polish environmental regulations with those of the European Union and their strengthened enforcement, paying attention to the general economic conditions of the Polish economy. In the harmonisation process, also Poland's environmental priorities must be considered. Elements of such a cost-effective strategy might entail a broader use of economic tools, and focusing on pollution prevention, although clean-up of past pollution will also be needed. The European Union has also expressed its willingness to assist Poland financially, technologically and organisationally in the efforts to improve environmental protection, and funds for this purpose are for example available through the PHARE programme.

73. Implementing a pricing reform and diverting production towards a less pronounced dependence on energy and raw material intensive goods are sound policies from the point of view of trade, environment and economic growth. New standards could be phased in gradually, accompanied by mitigating policies to minimise any undesired impacts of a rapid harmonisation of environmental standards with the European Union.

74. With a view to the partly lacking and partly overloaded environmental infrastructure in Poland, investments in this area would also be important. Such investments would complement those aiming at upgrading the technology used by individual firms.

75. Since Poland traditionally concentrated on heavy, pollution and raw material intensive industries, there have been no incentives for innovation towards resource conservation, and new policies are needed to promote environmentally friendly innovation. Foreign investment policy is one of the important instruments for supporting innovation and it could be directed to promoting the use of environmentally sound technologies. Also, an efficient mechanism for the development and diffusion of cleaner technologies should be developed.

76. As an economy in transition, Poland faces special difficulties regarding the implementation of Multilateral Environmental Agreements since it does not qualify for assistance available under some of these agreements. Further, while economies in transition are trying to advance in their industrialisation process, they must simultaneously also revise longstanding misallocations in economic structures.

77. At present, due to financial difficulties, many companies are forced to use polluting technology which is also technologically obsolete and economically inefficient. The restructuring of Polish economy should also result in an improved financial situation for Polish enterprises, thus enabling them to better comply with tighter environmental standards as well as meet the obligations coming from MEAs. Such improvements should also enhance the export potential of these companies.

Notes

1. Trade Policy Review, Poland 1992, Volume I, General Agreement on Tariffs and Trade, Geneva, 1993.
2. In the beginning of 1995, the share of private enterprises in total industrial production was more than 38 per cent, in construction almost 86 per cent, in retail trade about 89 per cent, in exports over 51 per cent and in imports 66 per cent. The private sector employed about 61 per cent of the total labour force in the economy and accounted for about 56 per cent of GDP. Central Office of Planning, Poland 1995. Information on the economic situation in the first quarter with short-term forecast, Warsaw, May 1995.
3. "Poland is rising at full speed", Talouselama, No. 28, 1995, Finnish only, and Quarterly Report by Polish Foreign Direct Investment Agency, Third Quarter, Warsaw, 1995. Note also that exports by companies with foreign participation have been showing an increase: their share in total exports rose from 10 per cent in 1992 to 16.4 per cent in 1993. In absolute figures the value of those exports rose more than twice. Foreign Trade Research Institute, Foreign investments in Poland, Warsaw, 1995.
4. Poland's energy intensity (British Thermal Units/\$1987 GNP) has been in the range of 76,374; this is the 7th highest figure in the world. World Resources Institute, The 1992 Information Please Environmental Almanac, Houghton Mifflin Company, Boston, 1992.
5. OECD, Environmental performance reviews, Poland, 1995.
6. However, the fact that the number of cars in Poland has more than doubled in the past six years has resulted in considerable increase in harmful atmospheric emissions from mobile sources.
7. OECD, 1995.
8. World Resources Institute, 1992.
9. The Association Agreement notes that the task of combating the deterioration of the environment has been judged to be a priority among the Parties to the Agreement (Article 80).
10. OECD, 1995.
11. These include the polluter pays principle, the prevention principle, the public participation principle, the subsidiarity principle, and the principle on transboundary environmental protection.
12. Other estimates suggest a cumulative total of US\$ 35 to 50 billion; considering the 1992 environmental investment expenditure as the equivalent of US\$1 billion outlines an approximate time horizon for the task, given current efforts. However, there is room to speed up the process of convergence, with increased cost-effectiveness of environmental expenditure and integration of environmental concerns in economic and sectoral policies. OECD, 1995.
13. The border region of Poland, Germany and the Czech Republic has been called the "Black Triangle" due to significant air pollution in the region, particularly by SO₂ emissions.
14. In 1991, exports of coal, coke and briquettes accounted for 8.5 per cent of total exports.

15. Ministry of Industry and Trade, Restructuring of the iron and steel industry in Poland in the years 1993-2002, Warsaw, 1993.

16. Foreign Trade Research Institute, Selected data on Polish foreign trade, Warsaw, 1995.

17. This section is based on Dr. Zbigniew Jakubczyk, "Ecolabelling schemes in Poland", presented to the UNCTAD Workshop on Eco-labelling and International Trade, Geneva, 28-29 June 1994. The study was funded by the International Development Research Center, Canada.

18. "Living museum on the land", Financial Times Survey, Poland, March 28, 1995.

19. For example, in 1990 Poland received US\$ 60 million worth of foreign aid in the form of pesticides, some of which were prohibited or strictly regulated in the donor countries.

20. Waste paper falls under the waste categories covered by the Basel Convention due to the deinking sludge that is generated in the process of recycling waste paper.

21. It has been suggested that the prospect of high environmental costs (particularly those related to cleaning up past contamination) have inhibited foreign direct investment in Central and Eastern Europe. Zamparutti and Klavens, "Environment and foreign investment in Central and Eastern Europe: results from a survey of Western corporations", Environmental policies and industrial competitiveness, OECD, 1993.