Pilot survey for environmental protection investment and current expenditures in the manufacturing industry Reference year 2001

Eurostat Work Plan: Statistics on Environment expenditure

Final Report to Eurostat

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Introduction

Statistics on environmental expenditures are important for two reasons:

(a) To be aware of the* costs *of environmental regulations and the effect they cause on competitiveness and economic performances.

(b) To be aware of the* opportunities *for the environmental protection sector

In order to increase the minimum EU level on the statistics available to industry, EU approved a regulation (Structural Business Statistics no. 58/97) that requires member countries to make yearly statistical reports about pollution treatment. or pollution prevention investments and operational expenditure of it.

Background -Purpose

National Statistical Service of Greece had conducted two surveys on industrial environmental expenditure with reference years 1995 1996 . (Working document Doc.gover/97/3)
The experience gained from those surveys stressed our attention to the main problems of the task.

To estimate the environmental element of an investment

To calculate the operational and maintenance expenditure of equipments and measures and distribute it to environmental domains.

Both problems increased the uncertainty of provided figures and drove accountants in no response

Someone has also to add the considerable burden to capture and tabulate data and furthermore the conceptual and definitional problems.

Since 1996 we collect environmental investments data through the industrial survey and response rates has been rather low.

The extension of the regulation Structural Business Statistics no. 58/97 with environmental variables on current and preventive expenditure was the starting point. We have to reconsider all these so that to provide the necessary environmental variables.

So the purpose of our survey was:

- **To explain among the accountants of enterprises what we count as environmental and how we approach expenditure .**
- **To understand the possible adaptations of operational and accounting systems of enterprises and to integrate them in our scope.**
- **To establish an understanding with our partners in industry for the necessity of such data with the proportional efforts.**

IDENTITY OF 2001 ENVIRONMENTAL SURVEY

We cover all expenditure incurred in financial year 2001-2001. Industries that have been surveyed are those in NACE sections C, D and E in accordance with the EU Regulations, in enterprise level .

DEFINITION OF ENVIRONMENTAL EXPENDITURE

The definition of environmental expenditure used for this survey has been established by EUROSTAT and is defined as:

> '*Environmental protection expenditure is the sum of capital and current expenditure for the undertaking of environmental protection activities. Environmental protection is an action or activity (which involves the use of equipment, labor, manufacturing techniques and practices, information networks or products) where the main purpose is to collect, treat, reduce, prevent, or eliminate pollutants and pollution or any other degradation of the environment resulting from the operating activity of the company. Environmental protection expenditure may include activities, which generate marketable by-products, results in savings or are financed by subsidies or capita allowances. In such cases, environmental protection expenditure should be reported gross of any such cost offsets*.'

Expenditure figures are provided for:

- Treatment capital investments; which is defined as expenditure on equipment used to treat, handle, measure or dispose of emissions and wastes from production
- Preventive or 'clean' technology capital investments; relates to new or modified production facilities designed to integrate environmental protection into the production process..
- In house operating costs (including research & development, etc); includes the operating costs of the company's own environmental protection equipment
- Payments for environmental services (, regulatory charges etc);

The expenditures are also reported by environmental domain, as below:

Air – Monitoring, prevention or reduction of gaseous, liquid or particulate emissions to the atmosphere.

Waste water – Collection, transport and monitoring of waste water, the prevention or reduction in quantity of waste water and of substances in waste water, the prevention of incidental water pollution, the treatment of cooling water before draining to the surface or groundwater and monitoring of surface water.

(Solid) Waste the prevention or reduction of waste, the collection, transport, treatment and disposal and monitoring of waste dumps.

Other – Includes the protection of soil and groundwater, measures to decrease noise and vibration. , Protection of species, landscapes and habitats.
Protection of the workplace is excluded

MODIFICATIONS INTRODUCED IN THE 2001 SURVEY

With the experience gained from 1995 1996 surveys, a number of modifications were introduced in 2001 survey, in order to reduce the burden on enterprises but also to the statistical service .

1. The investments were reported in total and not in detail .We choose to check the consistency of them during the interview.

2. We omitted activities concerning savings of resource or environmental income, as the accountants couldn't calculate accurate data.

3. We asked only for the extra cost of preventive investments.

4. We excluded separate questions on personnel cost.

5. The statistical unit was enterprise.

6. We didn't post the guidance list with examples of possible environmental investments. But we distributed such a list to the interviewers.

7. The environmental domains were limited to four from six according to the provisions of the regulation

QUESTIONNAIRE DESIGN –SURVEY OF DATA SOURCES

The questionnaire designed so that to improve the clarity, understanding and presentation of the survey form, but also to be flexible enough in calculating variables.

We kept the four-page approach we had in pervious surveys but we integrated the definitions-instruction page in it.

We tried the page with instructions on equipment and measures, to be clear as possible but also not exhaustive. That was just to bring in mind analogies from the enterprise's operating systems.

We wanted the difference between wastewater (liquid wastes) and solid waste to be clear, as we've seen a lot of misconceptions in previous surveys.

Another point of attention was the use of contractors for operational activities. Usually payments to thirds were confused with in house expenditure. It was also difficult to provide figures on their cost since the contractors could be paid by by- products or as cleaning services.

Special care was taken to introduce the difference between treatment and preventive investments and extra cost as simple as possible. In previous surveys the wording was an extra obstacle for responders.
We wanted our correspondents in enterprise to memorize the four categories of expenditure so that to include as many in their accounting standards. The same reason was that we asked for certain payments for thirds even if that limited the flexibility of these variables.

We ask for years 1997-2000 investments voluntary so that to fill the missing gaps of previous Years.

No other survey was compiled since 1996 from any other organization in Greece.
Only one concerning the

"IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT SYSTEMS STANDARDS: IMPORTANT FACTORS IN CORPORATE DECISION MAKING" KONSTANTINOS I. EVANGELINOS
Journal of Environmental Assessment Policy and Management Vol. 4, No. 3 (September 2002) pp. 311–328

According to it only 70 industrial enterprises use *Environmental Management Accounting* and even they not in full development. Primary contacts with industrial corporations or ministries weren't efficient.

So we design our questionnaire with the experience of other statistical services or the previous surveys of us

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SAMPLING METHODOLOGY

In 1995 a census of all companies with employment over 20 employees was used .An amount of 2500 were interviewed .The distribution of total environmental expenditure between small and larger companies was as follows

Distribution Of Total Environmental Expenditure Between Small And Larger Companies in 1995 survey

NACE	50+	20 - 50
	EMPLOYEES	
10-14	99,6%	0,4%
15-16	69,8%	30,2%
17-19	78,2%	21,8%
20	85,3%	14,7%
21-22	73,0%	27,0%
23	100,0%	0,0%
24-25	87,4%	12,6%
26	85,4%	14,6%
27	92,4%	7,6%
28	55,6%	44,4%
29-36	78,4%	21,6%
Total	81,7%	18,3%

According to the regulation (Structural Business Statistics no. 58/97) we have to include all companies .
Bringing together cost, variation between sectors, and distribution of expenditure between small and large companies

We decided:

1. to include all enterprise over 50 employees
2. To take a sample of the companies under 50 employees and over 10.
3.To exclude companies fewer than 10 employees

Identity of the sampling methodology

Registers used

The Business Register of NSSG is coming from the VAT Register of the Ministry of Economy and Finance. This Register has not the information for the number of employees for each enterprise so we took additional information from the annual Structural Survey conducting in industrial enterprises. This Register coming from that Survey is updated every year .
We consider the sampling frame used of good quality and the employment variable accurate

Sampling unit

The sampling unit was the enterprise

Coverage

The survey covered all the requested sections of NACE Rev.1,that is ,sections C,D,E, and was conducted for the "whole" country .The reference period of the survey was 2001 .A more analytical geographical stratification was not possible as in such a case a much greater sample size would be required.

Sampling method

The sampling method used was stratified systematic sampling without replacement within each stratum.
The strata used are:

- Enterprises with employment over than 10 and less than 50 employees
- Enterprises with employment over than 50 employees. This stratum was surveyed exhaustively.

The allocation of the sample is described in the table below

Sector	Enterprises over 50 employees	No response	Enterprises over 50 employees Respond	Enterprises 10-49 employees in registry	Sample	No response	In sample respond	TOTAL response	Failed in validation
10	2	0	2	2	2	0	2	4	
11	1	0	1	1	1	0	1	2	
13	2	0	2	2	2	1	1	3	
14	22	1	21	133	46	11	35	56	
15	229	36	193	497	171	54	117	300	4
16	7	2	5	5	5	5		5	
17	83	19	64	182	63	15	48	112	8
18	81	8	73	278	96	2	94	167	7
19	11	0	11	88	30	5	25	36	4
20	14	3	11	76	26	1	25	36	2
21	39	10	29	69	24	8	16	45	1
22	67	9	58	149	51	7	44	102	2
23	6	2	4	5	5	1	4	8	1
24	81	13	68	144	50	17	33	101	
25	53	2	51	135	46	7	39	90	1
26	51	3	48	281	97	18	79	127	1
27	42	6	36	53	18	6	12	48	1
28	51	6	45	212	73	7	66	111	
29	39	7	32	174	60	5	55	87	6
30	1	0	1	1	1	0	1	2	
31	31	11	20	65	22	3	19	39	
32	8	2	6	13	4	1	3	9	
33	6	2	4	14	5	0	5	9	
34	8	0	8	23	8	1	7	15	
35	29	5	24	50	17	3	14	38	2
36	26	4	22	214	74	10	64	86	5
40	1	1	2	2	2	2		2	
41	22	3	19	36	12	0	12	31	
TOTAL	1013	153	860	2905	1011	190	821	1681	45

Grossing up procedure

In the 1996 survey we noticed a greater correlation between employment and expenditure than number of enterprises and expenditure. Because of the discrepancies in refereed number of employees we choose and the fact that the expenditure reported from small size enterprises was about 2% of the total expenditure, except chemicals and metal products that was about 6% we choose the number of enterprises as grossing up parameter

The relation gives the grossing up factor that was used for the 1-50 employees size band:

$$w_h = \frac{N_h}{n_h} \quad ,$$

N_h is the number of enterprises of registration in strata h and

n_h the number of enterprises of sample in strata h.

Because the size of sample is relatively small we replaced grossing up factor with an estimator , that is given by the relation:

$$v_h = \frac{N_h}{m_h} \quad ,$$

N_h is the number of enterprises of registration in strata h and

m_h the number of enterprises of sample in strata h. that gave valid responses.

We assumed as valid responses all the responses that gave an answer at least on payments to thirds for waste treatment even for a local unit only.

In great size band we did not gross up the results.

DATABASE DESIGN

A database was designed in Microsoft Access 97 to store information for the survey.

The database was intended for use by:

A .Personnel validating information from questionnaires,

B. Personnel conducting statistical analysis and comparison with previous years.

The database was similar to the one used in previous surveys. So it was easily accessible to stuff in comparing inconsistencies and also we could easily achieve cross tabulation with previous years. Some fields were added to the forms and underlying tables to allow immediate validation of certain information.
That was the employment refereed in standard industrial survey. So we could ensure if data refereed to a part of the enterprise or to the whole

Also operational expenditure refereed in 1996 environmental expenditure survey was visible so that to validate related information.
Vat number was used as a connection with standard industrial survey .
Weekly we checked figures that were 10 times greater than the average according to size and NACE.
We also compare zero or low investments with previous year responses

Data entry was done by keyboard. The tab order of the fields on each form was altered to allow keyboard only data entry .

The time consumed in database creation and in some validation analysis was 160 hours

CONDUCTING THE SURVEY

The questionnaire was mailed in MAY 2003 as a package consist of a cover letter , two survey forms ,and a free return envelope.
It was stressed the attention that this questionnaire has to be filled under the cooperation of an accountant and an operational manager.
One month later trained interviewers visited the enterprises and searched the person in charge.
Seminars have been organized so that the interviewers understand the exact meaning of the variables that should be collected. They were all experienced persons that have already worked in data collection of other surveys in enterprises .
Their priority was to help managers find the environmental equipment or measures in their enterprise and then ensure the cost of it.
So they were supplied with a list of examples of investments that we used in 1996 updated with more prevention investments and in house current expenditure examples.
The principle was that no figure was worst than a bad figure.

Validation Procedures

Two validation checks were taken after the data had been entered into the database.

First we compared employment refereed in standard industrial survey and environmental expenditure survey so that to ensure that enterprise was used as a unit . Also total investments amount were compared with environmental investments amount. About 70 enterprises were rechecked by telephone as they suspected as local units. In the larger ones we try to include at least the investments of the enterprise .As far as operational cost it wasn't possible to calculate at this stage of the survey .In sampled enterprises the cases were fewer and we filled them by contacting them.

A second check was introduced concerning responses of enterprises on different domains that were 10 times greater than the average according to size and NACE . As far as large enterprises they were errors in data entry, but as far small ones and especially in house expenditure it was attributed to overestimation of stuff expenditure and we changed the entry by contacting the enterprises.

ANALYSIS OF RESPONSES

From 2024 companies, the total number of responses was 1681 giving a valid response rate of 83 per cent. This was similar to the response rate (82,0 per cent) achieved in the 1995 survey and 77 per cent in 1996.

The response rate was smaller in the companies over 50 employees(81,2 per cent to 84,9 per cent) whilst there was a slight increase in the response rate for larger companies as far as investments concern (18.14 per cent to 5,97 per cent). It should be noted that in the 1995 and 1996 survey, a similar effect was apparent and it was attributed to the uncertainty of provided figures that droved accountants in no response.

The principle "no figure is worst than a bad figure" reduced the failed in validation check responses (companies with zeros, not relevant etc) to 45 but the absence of organized environmental departments in enterprises is apparent in the investments response rates.

Having in mind the number of enterprises that filled the environmental investments question in the standard industrial questionnaire in 1996 –2000 period it is apparent that a separate environmental questionnaire in annual base is necessary for the future.

The table below summarizes the response rates Figures.

Response rates by kind of expenditure ,activity and no of employees

	10-49 employees								
	Sample	Non response	Response	Response rate	Investment response	Investment response rate	Current response	Current response rate	No of employees of respond enterprises
Mining quarrying	51	12	39	76,5%	14	35,9%	34	87,2%	694
Food bever.tobacco	176	59	117	66,5%	6	5,1%	115	98,3%	2752
Text clothing leather	189	22	167	88,4%	2	1,2%	159	95,2%	3867
Wood &Products	26	1	25	96,2%	0	0,0%	25	100,0%	518
Pulp printing	75	15	60	80,0%	1	1,7%	60	100,0%	1532
Coke petroleum	5	1	4	80,0%	0	0,0%	4	100,0%	65
Chemicals Rubber&plastics	96	24	72	75,0%	7	9,7%	72	100,0%	1814
Non met. Minerals	97	18	79	81,4%	9	11,4%	78	98,7%	1886
Basic Metals	18	6	12	66,7%	1	8,3%	12	100,0%	295
metal products	73	7	66	90,4%	2	3,0%	66	100,0%	1445
Machinery equipment other	191	23	168	88,0%	7	4,2%	165	98,2%	3660
Electricity gas water	14	2	12	85,7%	0	0,0%	11	91,7%	387
TOTAL	1011	190	821	81,2%	49	6,0%	801	97,6%	18915

	50+ employees								
	Population	non response	response		Investment response	Investment response rate	Current response	Current response rate	No of employees of respond enterprises
Mining quarrying	27	1	26	96,3%	20	76,9%	25	96,2%	10126
Food bever.tobacco	236	38	198	83,9%	42	21,2%	198	100,0%	46115
Text clothing leather	175	27	148	84,6%	15	10,1%	142	95,9%	22738
Wood &Products	14	3	11	78,6%	2	18,2%	11	100,0%	2829
Pulp printing	106	19	87	82,1%	3	3,4%	87	100,0%	15732
Coke petroleum	6	2	4	66,7%	4	100,0%	4	100,0%	3382
Chemicals Rubber&plastics	134	15	119	88,8%	27	22,7%	118	99,2%	18344
Non met. Minerals	51	3	48	94,1%	10	20,8%	48	100,0%	8067
Basic Metals	42	6	36	85,7%	7	19,4%	35	97,2%	11121
metal products	51	6	45	88,2%	6	13,3%	45	100,0%	7193
Machinery equipment other	148	31	117	79,1%	17	14,5%	115	98,3%	30962
Electricity gas water	23	2	21	91,3%	3	14,3%	21	100,0%	17710
TOTAL	1013	153	860	84,9%	156	18,1%	849	98,7%	194319

TOTAL EXPENDITURE

An estimated total of 207.571.688 € was spent by industry in the Greece for environmental protection.

Excluding electricity sector that we haven't surveyed then, we can compare 2001 and 1996 1995 results

There is an increase of 14% on the 1996 figure of 102.464.053€ and 23% on 94.531.492 € of 1995 accordingly.

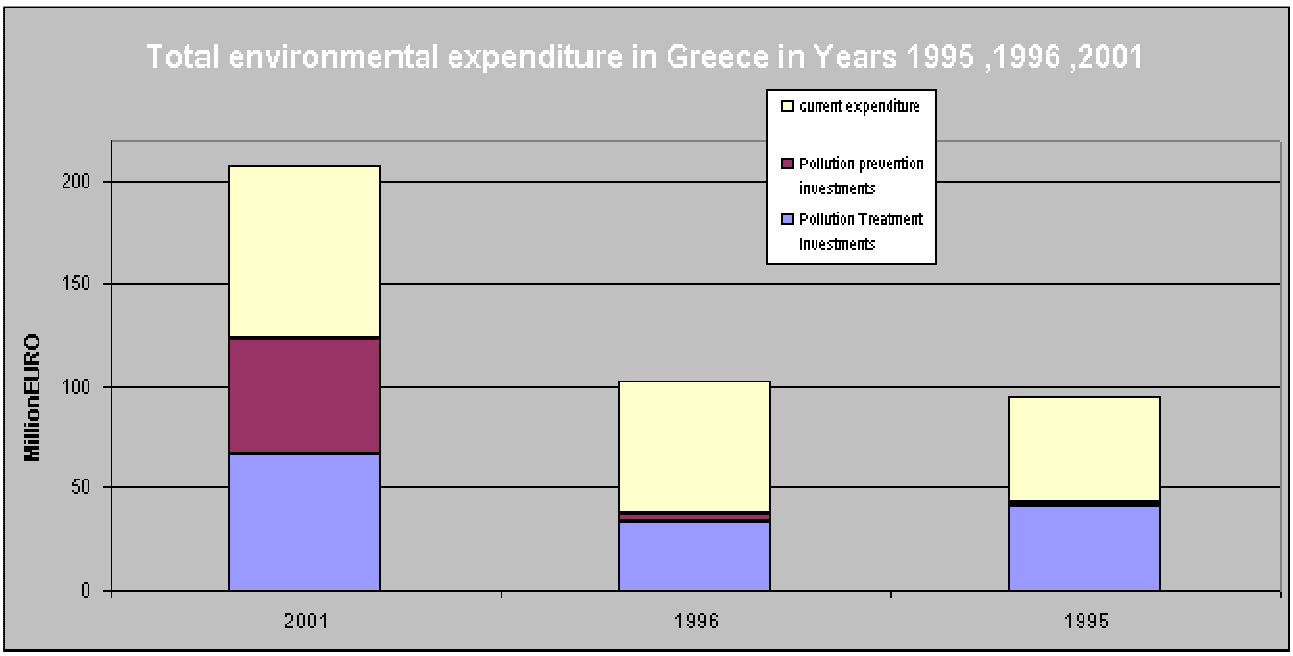
As far as Pollution Treatment Investments we note a 48 % and 30% increase from 1996,1995 but as far as Pollution prevention investments concern a greater increase of 157% and 591 % from 1996,1995. The later shows that environmental investments are not the purpose but a good opportunity for investments.

As far as current expenditure we note a 6 % decrease from 1996 and 18% increase from 1995 The decrease in current expenditure it was attributed to the fact that in cement, chemical and petroleum industry enterprises accountants haven't account current expenditure for all local units .So for those sectors the results are underestimated.

A summary of total expenditure is presented in the following table in conjunction with equivalent data from the 1996 and 1995 surveys for comparison

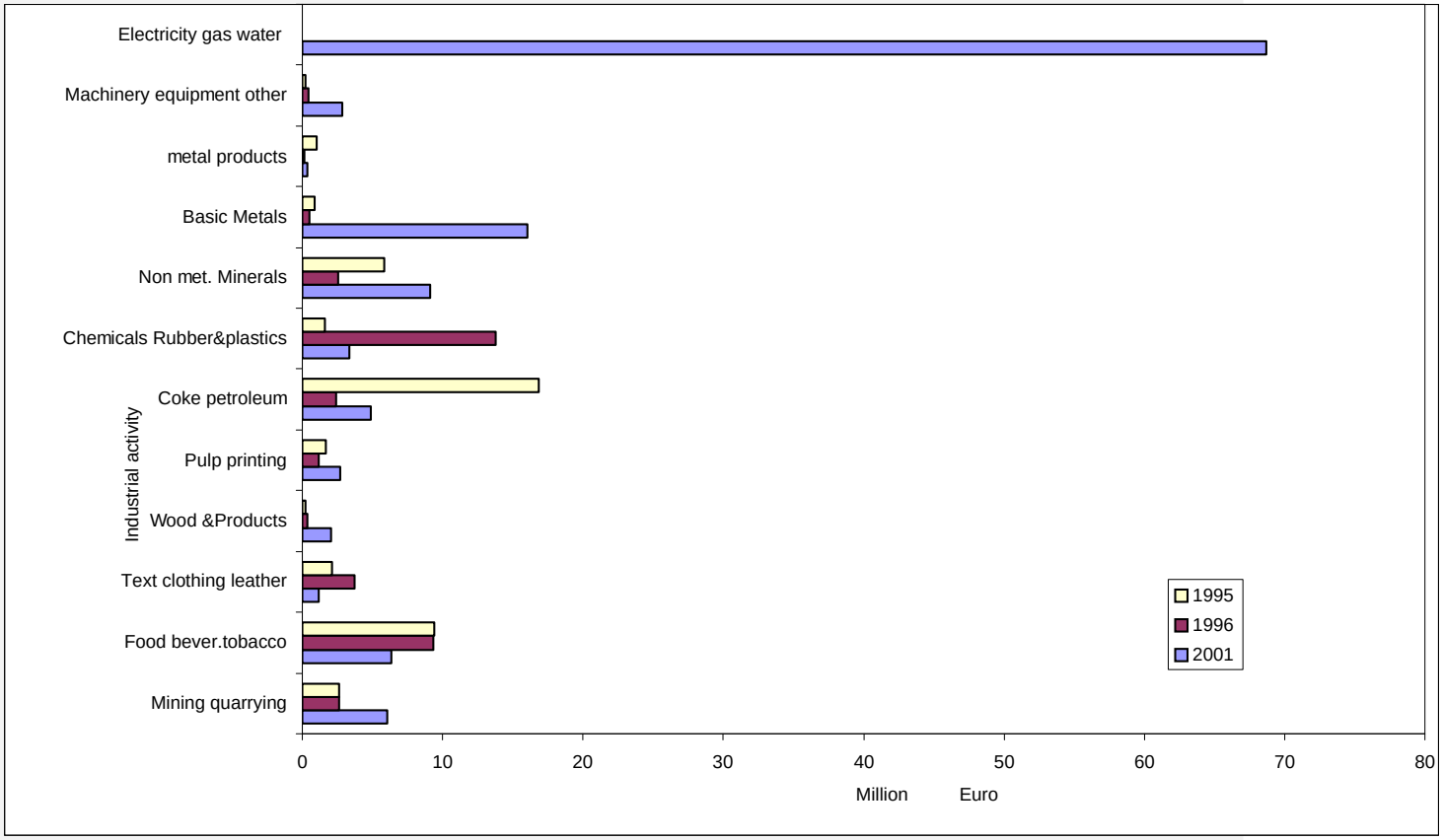
Environmental expenditure by industry in Greece in years 1995 ,1996 ,2001 in EURO

	2001			1996			1995		
	Pollution Treatment Investments	Pollution prevention investments	Current expenditure	Pollution Treatment Investments	Pollution prevention investments	Current expenditure	Pollution Treatment Investments	Pollution prevention investments	Current expenditure
TOTAL	66.029.359	57.665.588	83.876.741	33.190.261	4.031.001	65.242.791	40.858.439	1.499.454	52.187.485
By industrial activity									
Mining quarrying	5.976.835	55.768	3.243.424	2.508.515	131.145	1.863.513	2.508.515	131.145	1.863.513
Food bever.tobacco	4.850.270	1.505.866	15.957.016	8.615.483	711.667	11.154.479	8.998.215	378.606	10.083.490
Text clothing leather	978.333	174.394	5.794.360	2.923.566	826.355	4.786.064	2.044.866	48.990	4.378.392
Wood &Products	599.155	1.467.567	1.115.917	43.593	345.183	700.977	101.409	149.912	624.318
Pulp printing	2.511.457	196.270	3.363.817	990.972	204.285	2.598.110	1.609.269	33.076	2.460.881
Coke petroleum	3.232.005	1.683.338	3.126.751	1.647.370	765.994	6.642.342	16.828.882	0	2.240.311
Chemicals									
Rubber&plastics	2.528.623	833.384	6.821.807	13.366.898	411.156	10.805.635	1.276.768	318.365	6.486.507
Non met. Minerals	7.972.159	1.115.951	4.673.567	2.366.854	215.797	11.358.427	5.509.387	351.247	11.654.062
Basic Metals	13.237.699	2.826.341	11.060.770	478.430	58.189	11.132.213	830.925	64.632	8.946.789
metal products	303.743	74.799	1.493.748	106.366	69.739	838.946	961.943	23.481	701.796
Machinery equipment									
other	2.450.131	428.146	4.969.108	142.216	291.491	3.362.084	188.259	0	2.747.426
Electricity gas water	21.388.948	47.303.763	22.256.459						



Environmental investments by activity for years 1995,1996,2001 in euro

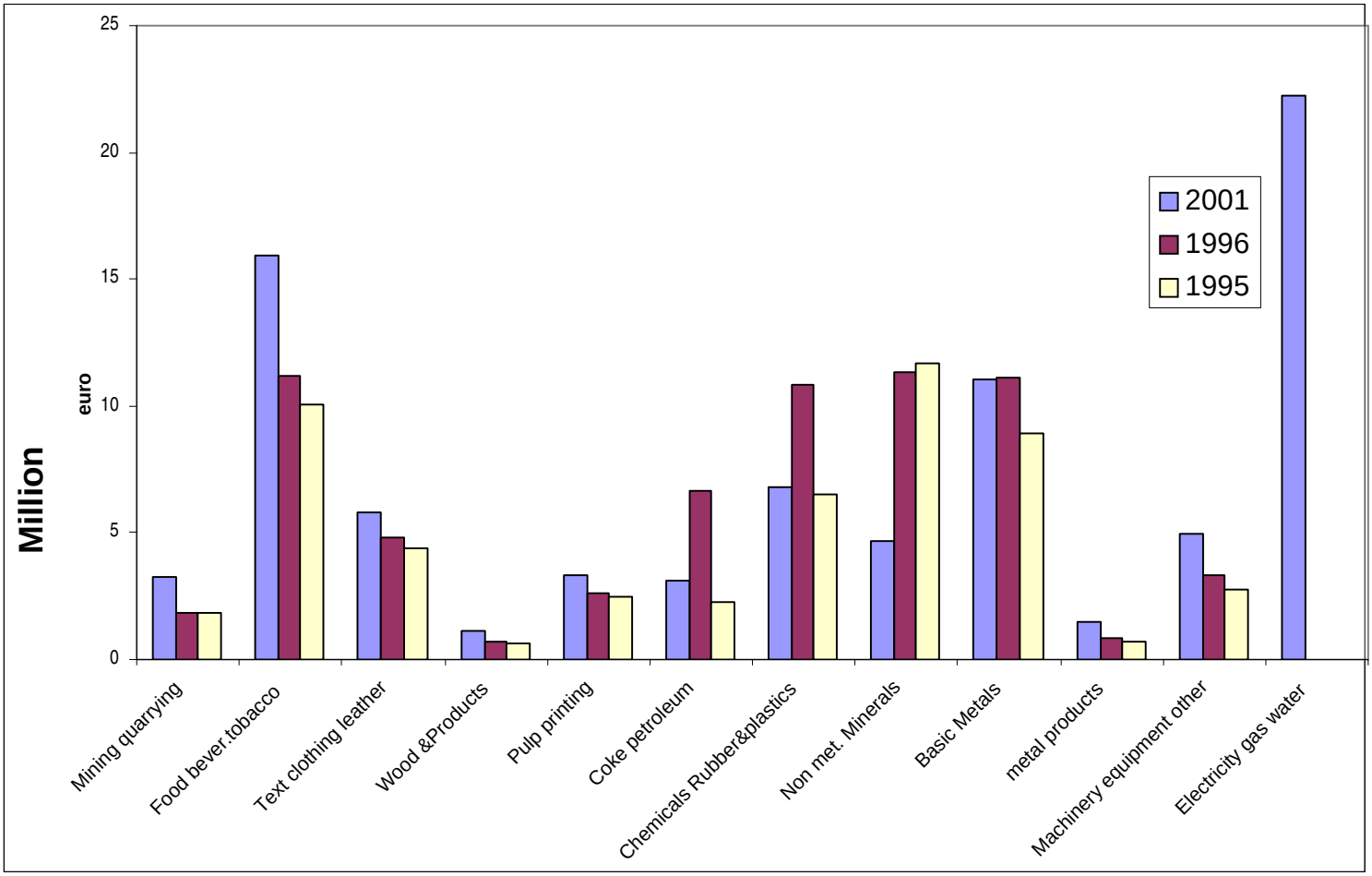
The primary spending sectors in investments were Electricity distribution 68.692.711 € followed by basic metals 16.061.682 € and non metallic minerals 9.086.777 €



Environmental investments by activity for years 1995,1996,2001 in euro

	2001	1996	1995
Mining quarrying	6.032.603	2.639.660	2.639.660
Food bever.tobacco	6.356.136	9.327.150	9.376.821
Text clothing leather	1.152.727	3.749.921	2.093.857
Wood &Products	2.066.722	388.776	251.321
Pulp printing	2.707.727	1.195.257	1.642.345
Coke petroleum	4.915.343	2.413.364	16.828.882
Chemicals Rubber&plastics	3.362.007	13.778.054	1.595.134
Non met. Minerals	9.088.111	2.582.650	5.860.634
Basic Metals	16.064.040	536.619	895.556
metal products	378.542	176.105	985.424
Machinery equipment other	2.878.277	433.707	188.259
Electricity gas water	68.692.711	0	0

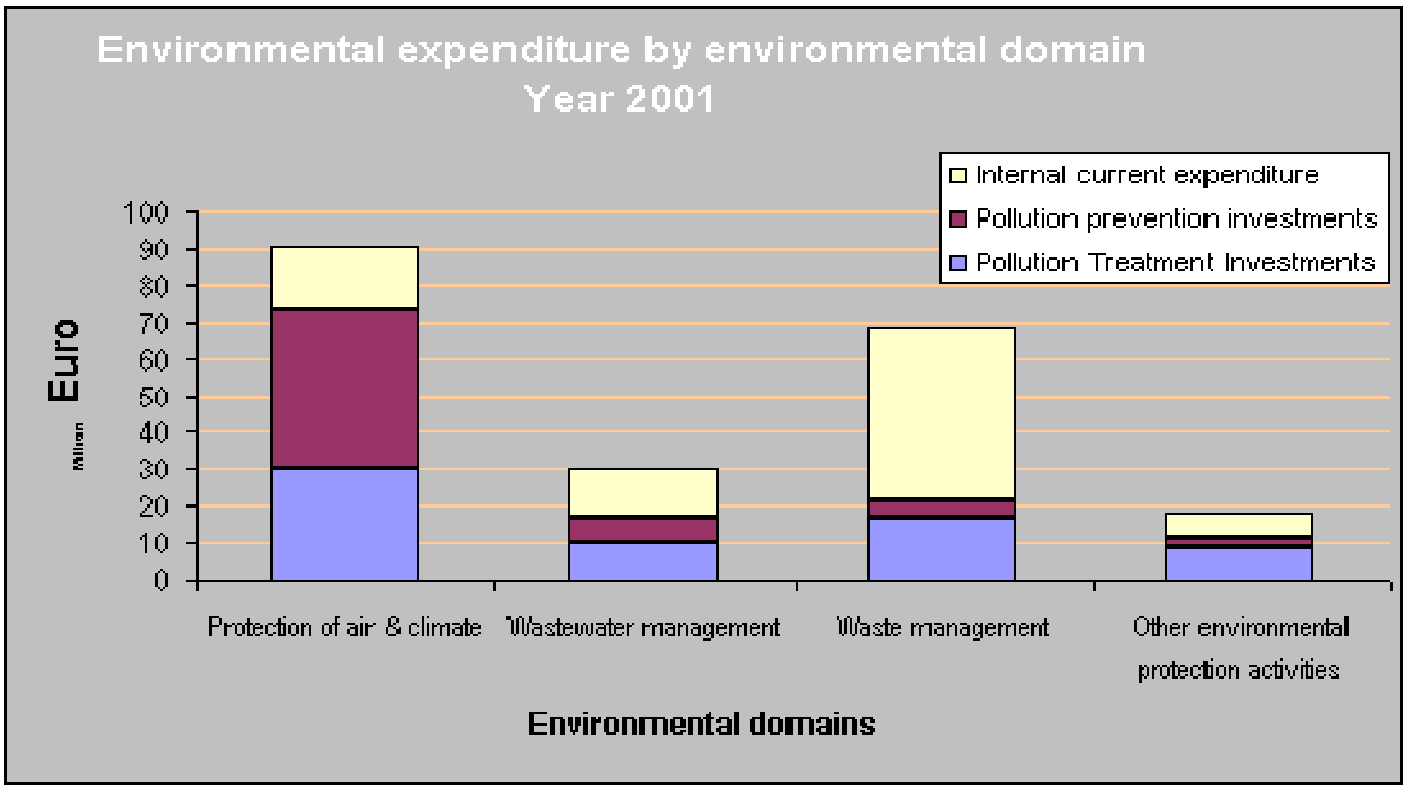
Environmental operational expenditure by activity for years 1995,1996,2001 in euro			
	2001	1996	1995
Mining quarrying	3.243.424	1.863.513	1.863.513
Food bever.tobacco	15.957.016	11.154.479	10.083.490
Text clothing leather	5.794.360	4.786.064	4.378.392
Wood &Products	1.115.917	700.977	624.318
Pulp printing	3.363.817	2.598.110	2.460.881
Coke petroleum	3.126.751	6.642.342	2.240.311
Chemicals Rubber&plastics	6.821.807	10.805.635	6.486.507
Non met. Minerals	4.673.567	11.358.427	11.654.062
Basic Metals	11.060.770	11.132.213	8.946.789
metal products	1.493.748	838.946	701.796
Machinery equipment other	4.969.108	3.362.084	2.747.426
Electricity gas water	22.256.459		



By environmental domain the investments were greater for Protection of air and climate but current expenditure was greater for waste management.

Environmental expenditure by environmental domain in Greece in years 1995 ,1996 ,2001 in EURO

	2001			1996			1995		
	Pollution Treatment Investments	Pollution prevention investments	Internal current expenditure	Pollution Treatment Investments	Pollution prevention investments	Internal current expenditure	Pollution Treatment Investments	Pollution prevention investments	Internal current expenditure
TOTAL									
	66.029.359	***20.237.126***	***83.876.741***	***33.190.261***	***4.031.001***	***65.242.791***	***40.852.443***	***1.499.234***	***52.187.485***
By environmental domain									
Protection of air & climate	30.282.347	43.343.163	17.001.797	15.109.988	1.014.538	18.664.919	24.521.737	1.247.457	14.354.347
Wastewater management	9.955.197	7.315.474	13.130.152	12.561.192	2.424.335	20.973.798	13.489.388	80.681	15.175.081
Waste management	17.027.013	4.653.401	46.693.808	2.548.761	280.338	20.029.172	711.795	104.244	20.179.495
Other environmental protection activities	8.764.802	2.353.549	7.050.985	2.970.320	311.790	5.574.902	2.129.523	66.853	2.478.562



CONCLUSIONS NEXT STEPS

Industrial federations and contractors of environmental services are interested on environmental expenditure. They understand the treatment preventive approximation we introduce but they don't agree with the resources saving exclusion. They pointed that it will be difficult to include extra cost and distribution over domains in their accounting standards. Also the calculation of in house operational expenditure will be always difficult to be accurate.

Treatment investments and services bought do exist in accounting systems .So it was easy for our interviewers to guide managers and evaluate their figures. Preventive investments and in house current expenditure always has to be estimated. So the responses are always affected by the burden cause to busy managers and their good will.

There is a relation between turnover and operational expenditure. But as environmental care is increased the environmental measures also change. Unfortunately some of the services bought are blurred with cleaning services and recycled wastes and their value tend to be difficult to calculate. In all cases in the sectors that had high investments figures 5 years before this time the situation as far as operational expenditure was more complex.

So we believe that no estimation procedure is possible at the moment. We hope that time series will increase data quality.

The expenditure in relation to size of enterprise shows that only 4% of the total expenditure was refereed by enterprises under 50 employees. But the relation increase to 10 percent as far as services bought. So we can assume that our sampling methodology was adequate.
Of coarse response bias may have been occurred. Small enterprises may have given underestimated answers because of the absence of organized environmental system but we did not investigate such a case.

National statistical service of Greece, because of the lack of resources, chooses to integrate environmental variables in the industrial survey questionnaire.
We will improve our approach by rechecking enterprises that will give a great amount of investment for a certain year but not a proportional for environmental investment. We will also sent last year's environmental operational expenditure prefilled for evaluation from the enterprises And we will stressed the attention of accountants in enterprises with increased environmental investments to calculate the deriving operational expenditure. We hope these measures will increase the response rates in next years .

It will also be necessary to be included some expenditure data in emissions reporting system. That could increase industrial federation's involvement in environmental expenditure surveys. That in connection to the establishment of EMAS in Greek industries will improve the quality of industrial environmental expenditure data. After all the absence of any other survey in environmental expenditure concerning Greek industries is the main obstacle to their development.

GREEK REPUBLIC
MINISTRY OF FINANCE AND ECONOMY
GENERAL SECRETARIAT
NATIONAL STATISTICAL SERVICE GREECE
ADDRESS OF STATISTICS
SECONDARY SECTOR
DEPARTMENT OF STATISTICS
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The answers in the questionnaire are CONFIDENTIAL and the supply of the information is OBLIGATORY, according to the N.D 3627/56 and the N.2392/96.

PILOT SURVEY OF ENVIRONMENTAL PROTECTION EXPENDITURE

YEAR 2001

A1.Name.....

A2.address.....

A3. Telephone.....

e-mail…….…….

A4. VAT NUMBER ……

A5. Medium annual employment ……..

They are filled by N.S.S.G

A/A of bulletin | | | | | |

Nace Rev. 1 | | | | |

strata | |

1. **The data should be reported for the total of enterprise**
2. **If you do not know the precise figure of some expenses, give the better possible estimate**
3. **In department A of questionnaire you will enter the investments that your** enterprise **realized in 2001 for the protection of environment.**
4. **In department B you will enter the current expenses that your enterprise realized for the maintenance and operation of environmental equipment.**
5. **In department C you will enter the payments of enterprise to third (Municipality or private individuals) for certain environmental services.**

The expenses with main objective the hygiene and safety in the working places as well as the reduction of natural resources consumption are not included

- **THE ANSWERS WILL BE GIVEN BY THE PERSON IN CHARGE OF ACCOUNTS DEPARTMENT IN COLLABORATION WITH RESPONSIBLE FOR THE ENVIRONMENT**
- **PLEASE RETURN THE QUESTIONNAIRE EVEN WITH SMALL AMOUNTS IN 20 DAYS**

DEFINITIONS AND EXAMPLES OF ENVIRONMENTAL EQUIPMENT

A1 **Pollution treatment investments**	A2 **Pollution prevention investments**
We ask for investments for equipment that does not affect the production process It consist of distinct, components supplementing the equipment used in production. Their purpose is to take care of and to treat the impact on the environment caused by the activities of the enterprise, to prevent the spread of and measure the level of pollution. Examples in different environmental domains. **Protection of air** Different types of filters, scrubbers, cyclones, centrifuges, Coolers and condensers to treat process gases Equipment for thermal and catalytic combustion of process gases and other measures involving combustion technology Measures to restrict dust problems in connection with transport and storage Measurement equipment. **Management of sewages and water protection** All investments in own wastewater treatment plants Dams and tanks for storage of wastewater Oil separators, sedimentation basins, neutralization basins ,etc. Taking care of and treating sludge Costs associated with connection to municipal wastewater treatment plants Measurement equipment **Management of solid waste** Equipment for own storage and transport, e.g. special Vehicles, containers, transshipment stations, sorting Equipment Equipment for own treatment, e.g. compressors and all investments in own landfill Management of chemical and dangerous waste. **Other activities** Noise pollution: Various materials and metres that decrease the noise pollution, eg fencing of equipment, sound - proofing, obstacles of noise, etc Earth and underground waters: Disinfections and protection of soil and underground waters from the pollutants, eg dykes that stabilize the surfaces, etc Landscape and biodiversity: Measures in order to they are protected or are restored the biotopes and the natural regions, eg wetlands, streams, meadows and remaining. Research for the protection of environment. General management of environment.	We ask for investments for equipment (new or modified).that affect the production process itself Its purpose is: a. To reduce the emissions or the waste that is created at the process of production. b. To use raw material or recovered materials, with less impact on the environment. c. It imports new processes that have less effect in the environment. Often the above equipment is completely incorporated in the production. In this case you give the better possible estimate of environmental expense (only the additional cost) Examples in different environmental domains. **Protection of Air** Closed production processes, re-circulation of process gases Measures involving combustion technology, control systems and optimization of operations Measures involved in switching to less polluting raw materials and fuels, e.g. water-based products, substitutes for fossil fuels Replacement of coolants Encapsulation of equipment **Management of sewages and water protection** Closed water systems, closed cooling systems, re-circulation of process water Measures involved in switching to less polluting production inputs Reduced discharges achieved e.g. by control equipment for reduced and more efficient water use and reduced losses of solid substances Maximization of water circulation Multi-stage feeding of chemicals **Management of solid waste** Increased recovery, use of recovered materials in production processes Reduced use of raw materials, utilization of waste Switch to less polluting production inputs to make waste less hazardous **Other activities** Noise pollution: low-noise machinery Soil and groundwater: measures involved in switching to less polluting production inputs

A INVESTMENTS FOR the PROTECTION of ENVIRONMENT YEAR 2001

We ask the investments for: The purchase of land and buildings (new or extensions), the purchase of instruments and equipment (adaptations or improvements), the purchase of transportation means and all other investments made wholly or partly to reduce impacts on environment. It is also included the cost of planning, study, connection and manufacture of investment, even in the case of shelf construction

TABLE A

(Definitions and examples for the completion of table are given in the page 2)

TYPE INVESTMENT in Drs	ACTIVITIES OF ENVIRONMENTAL PROTECTION			
	Protection of air	**Management of sewages**	**Management of solid waste**	**Others activities (eg noise pollution, earth and underground waters, biodiversity)**
A1 Pollution treatment Investments	374	375	376	377
A2 Pollution prevention Investments " (Only the additional cost)	381	382	383	384

Report, the investments made from your enterprise for the protection of environment during the previous years:

Year	Total investments in Drs
1997	971
1998	981
1999	991
2000	900

B CURRENT EXPENDITURE of ENVIRONMENTAL PROTECTION YEAR 2001

It is included **the cost of personnel that has the responsibility for the operation of environmental equipment and the management of environmental systems (administration, measurements, research, education, waste sorting'). In case that this personnel is not occupied exclusively in the above activities, calculate the cost in question in base of man-hour employment.**

It is also included **the payments of rents, the payments for goods and services (energy, raw material, transports, repairs), the cost of operation and maintenance of installations of environmental protection, but also for the application of environmental measures that is not connected with some installation (eg separate collection of waste, measurements of pollutants, transport with own means of solid waste or sewages, operation of disposal of waste, the administrative educational and research activities relative with the protection of environment etc).**

It is not included: **The VAT., the settlements of loans, the consumption of capital and the payments of taxes that are connected with emissions of pollutants (taxes in fuels, fines etc).**

TABLE B

DOMAIN OF ENVIRONMENTAL PROTECTION	OPERATIONAL EXPENDITURE OF ENVIRONMENTAL PROTECTION IN DRS	
Protection of air		391
Management of sewages		392
Management of solid waste		393
Other activities		394
TOTAL		

TABLE C PAYMENTS TO THIRD FOR PURCHASING ENVIRONMENTAL SERVICES YEAR 2001

It is included: **The payments to third for purchasing environmental services eg services that are related with the collection, the transport or the treatment of waste or sewages of your enterprise, services for the recovery of materials from waste, services relative with measures, studies, consultancy etc**

TABLE G

PAYMENTS IN THIRD IN DRS		
1. Municipal fees (via electricity payments or not)		491
2. Transport of solid waste with third person's means		492
3. Fees of sewerage (via account DEYA or not)		493
4. Transport of sewages with third person's means		494
5. Environmental Studies and consultancy		495
6. other payments to third for environmental protection		496

Person to contact

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No Tel.: ……..…….. FAX: ……