

***OECD EAP Task Force Secretariat  
and the Moldova Ministry of Environment, Construction  
and Territorial Development***

**Environmental and Natural  
Resources Management  
Expenditure in the Republic of Moldova**

***Final Report***

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# Introduction

1. Environmental expenditure statistics are an important element in creating effective and efficient environmental policies. Improved knowledge of investments and current expenditure by enterprises, municipalities and the state budget as well as their sources of funding will help strengthen and focus environmental policies. Moreover, improved environmental expenditure information can raise public awareness of environmental issues and secure needed public support for effective and priority policy actions.

2. More specifically at the macro level, comprehensive information systems for regular gathering of environmental expenditure data, including type of expenditures and investment, should assist authorities in evaluating if enough resources are devoted to environmental domains considered as priorities in the national strategies for environmental protection. National and local authorities are best placed to identify the most appropriate activities for increasing the efficiency of environmental expenditure programmes and designating trade-offs between investments and maintenance of the existing capital assets.

3. When linked to physical data on pollution levels, information on environmental expenditure could help in developing indicators for monitoring sustainable development. The description of the different sources of financing of environmental expenditure will show the effective burden supported by each economic actor for environmental protection activities. This information is essential for analysing the levels of resources allocated to the environmental sector and for identifying new sources of financing for environmental projects

4. At the enterprise level, improved understanding of environmental expenditure is essential for evaluating the profitability of environmental investments under different angles and for identifying the activities with larger impact on environmental protection expenditure.

5. Previous surveys from the New Independent States (NIS) showed that statistics on environmental expenditure are commonly of poor quality, reflecting problems of severe budget shortfalls, weak institutions, poor regulatory frameworks and a low level of political support. The current study on environmental expenditure in Moldova will provide further answers to some of the questions raised in previous studies and secure needed information on domestic environmental related expenditures for tracking the Environment for Europe process initiated in 1991.

## ***1.1 Objective of the expenditure survey***

6. The main objective for undertaking a survey on environmental and natural resources management expenditure in Moldova is to provide information and analysis on developments on environmental financing in the private and public sectors. The results will assist in facilitating reporting and provide recommendations for the report on “Financing Trends in the NIS” for the Environmental for Europe - Kiev Conference in May 2003<sup>1</sup>. The current report is expected to have a supportive role in Moldova by analysing the current environmental financing situation for discussions of future policy options in the country. Additionally, the report suggests methods to strengthen reporting of environmental financing in Moldova.

7. The report explores developments within traditional environmental financing and natural resources management (including water supply) from domestic sources. Throughout the report these expenditures

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<sup>1</sup> The Aarhus Conference, in 1998, provided the scene for refocusing OECD Task Force activities towards the NIS, with specific focus on integrating environmental concerns into economic development.

will be discussed as environmentally related expenditures. The report follows innovative work conducted in 2000/01 on environmental financing in the NIS and broadening the OECD Pollution Abatement and Control methodology (PAC) to better suit reporting on environmental expenditures in the NIS.<sup>2</sup>

## **1.2 Expenditure survey process**

8. In November 2001 the Ministry of Environment, Construction and Territorial Development of the Republic of Moldova (MECTD) requested a case study on national environmental expenditure under the EAP Task Force Secretariat project “Environmental Financing in the NIS”. The case study was the first of three to be undertaken in 2001/2002. The study is funded jointly between the OECD Task Force for the Implementation of the Environmental Action Programme for Central and Eastern Europe (EAP Task Force) Secretariat and MECTD.

9. The study was prepared by Elena Laur (DSS of the Republic of Moldova (DSS)), Tatiana Plesco (MECTD), Victor Zubarev (Ministry of Economy of the Republic of Moldova), Zsuzsanna Lehoczki (COWI Hungary) and the EAP Task Force Secretariat (Carla Bertuzzi and Ulrik Weuder). The study was implemented through close co-operation between the MECTD and the DSS with inputs from employees from the Ministry of Economy and Ministry of Planning. The co-operation of all parties is gratefully acknowledged.

10. The results of the study are solely based on official statistics from the DSS and MECTD. The data has been collected through a questionnaire and direct interviews with officials of the above mentioned institutions. The reported data, however, has not been checked through in-depth analysis nor verified by the suppliers of the expenditure data.

11. Data and information in this report have been collected during a mission to Chisenau from the 6–10 December 2001. The main purpose of the mission was to review the official statistics and to improve understanding of data coverage, collection methods, and data reliability. The mission was followed up with the compilation of environmental expenditure statistics into input sheets, developed by the EAP Task Force Secretariat in co-operation with Zsuzsanna Lehoczki. Further discussions have taken place during the four months of preparation of this report.

12. The report provides an overview of environmental expenditure in the Republic of Moldova. Section 2 provides general macro economic information on the Republic of Moldova – mostly collected from international sources. Section 3 provides information on data collection, coverage of expenditure data and recommendations for improving the data. Section 4 provides an analysis and comparison of the expenditure data collected, while Section 5 provides recommendations on collection of expenditure data.

13. This report is prepared within the framework of the work programme of the OECD EAP Task Force Secretariat. The conclusions and opinions presented are those of the authors, and do not necessarily reflect the views of the EAP Task Force, the OECD or the Republic of Moldova. Further information of the work of the EAP Task Force may be found on the website <http://www.oecd.org/env/eap>.

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<sup>2</sup> OECD, 2001 Overview of Environmental Expenditure in the NIS CCNM/ENV/EAP(2001)1. Since 1996, PAC expenditure data were collected through a joint OECD/Eurostat questionnaire, which has been revised in 2002 to foster harmonisation and minimise countries reporting burden. The new joint questionnaire focuses on “Environmental Protection Expenditure and Revenues” -- defined accordingly to the Classification of Environmental Protection Activities (CEPA) – and includes activities related to nature protection and research & development not covered by the PAC concept used in the earlier questionnaires.

## 2. Macro Economic Developments in Moldova

14. The purpose of this section is to provide key macro-economic data to support the analysis of the environmental expenditure presented in Section 4. All data included in this section have been taken from either Technical Assistance to the Commonwealth of Independent States (TACIS) economic-trends report on Moldova or the European Bank for Reconstruction and Development (EBRD) Transition Report 2001. For a more detailed analysis of the data please refer to the above mentioned publications.

**Table 1: Macro Economic Data**

|  | 1995   | 1996   | 1997   | 1998   | 1999   | 2000   |
|--|--------|--------|--------|--------|--------|--------|
| Population (millions)                      | 3.60   | 3.60   | 3.65   | 3.65   | 3.65   | 3.64   |
| GDP per capita (USD)                       | 400    | 472    | 528    | 465    | 322    | 354    |
| GDP (Lei at 2000 prices)                   | 17 544 | 16 883 | 17 043 | 15 833 | 15 669 | 15 980 |
| GFCF (million Lei at 2000 prices)          | 4 364  | 4 093  | 4 058  | 4 096  | 3 586  | 3 557  |
| Government expenditure, % of GDP           | 32     | 32     | 36     | 39     | 33     | 31     |
| Consumer Prices, annual average (% change) | 30.2   | 23.5   | 11.8   | 7.7    | 39.3   | 31.3   |

15. Since Moldova's independence in 1991 the economy has contracted drastically. However, since 1995, the economy -- although still in decline -- has only contracted by 9% in real terms and in the latest year of record (2000) an increase of 2% was recorded. The Gross Fixed Capital Formation fell by nearly 20% in the same period, thus not contributing to stimulating economic recovery. Consumer-price inflation gradually decreased from an annual growth rate of 30% in 1995 to 8% in 1998, but has since returned 30%.

16. Government spending has decreased in the last two years of record both in nominal terms and as a percent of GDP. Government spending until 1998 increased as a percentage of GDP.

## 3. Environmental Data Collection System

17. The environmental expenditure data collection system in Moldova is inherited from the Former Soviet Union. The system was developed in the 1980s and only minor changes have been introduced since. The changes relate to method of compiling data and presentation of the aggregated data. This section includes an overview of the environmental expenditure data collection system in Section 3.1 - including the legal framework, the official reporting forms and the procedure for reporting on environmental expenditure. In Section 3.2 a description of the methodology and an evaluation of the data collection system, including an overview of recommendations for improvements is presented.

### 3.1 Environmental expenditure data collection system

18. The Law on Statistics of the Republic of Moldova (no. 412-XII of 18.12 1990) defines responsibilities for providing statistical reports on environmental expenditure. The Law regulates the submission of statistical data without indicating which specific environmental areas are to be included. The Law prescribes that "the state statistics agencies have the right to require and obtain statistical reporting from all legal entities and private individuals irrespective of their form of ownership".

19. As per Decree No. 988 of September 26, 1998, statistical reporting forms 1-NEF and 1-LEF concerning the funding and allocation of resources from national and local environmental funds were developed and approved jointly by the DSS and the MECTD. In general the responsibility for preparing, amending and approving the statistical reporting forms is assigned to the DSS in close co-operation with

the MECTD. These institutions are also responsible for the process of collection, analysis and validation of the statistical information.

20. On an annual basis the DSS prepares and submits an environmental statistical report to MECTD for approval. Once the MECTD makes amendments and adjustments these forms are subject to final approval by DSS. The environmental expenditure data is made public through the official statistical yearbook in aggregated form. The data is also presented in a more detailed form (aggregated data by reporting form) for the relevant ministries. These publications are also public accessible.

### ***Reporting Forms***

21. The environmental expenditure data collection system is based on three principal forms: 18KS for environmental investments, 1OS for current environmental expenditures and forms 1-NEF and 1-LEF for expenditures from Environmental Funds. In addition to the above mentioned forms, statistical forms 2-Waste, 1-Water supply and sewage, 2-KS "Commissioning of facilities, capital assets and use of investments in the fixed capital" are provided wherein respective expenditures are reflected.

22. Form 18-KS includes capital investments in building environmental projects. Where as form 2-KS includes capital investments in building projects in all sectors of the economy. As the methodology used in Moldova to keep records of expenditures under the heading "Environmental Protection" does not include water supply, statistical reporting forms 2-KS and 1-water supply-sanitation have in this report been used to obtain data on capital investments in the water sector.

### ***18KS - Environmental investments form***

23. Form 18-KS covers capital investment expenditure, including construction and installation operations for environmental protection and rational use of natural resources. Construction and installation operations are classified as capital investments and reflect costs of construction operations and costs of installing (assembling, erecting) equipment. This form also indicates sources of financing capital investments (the state budget, local budgets, environmental funds) and data on the commissioning of environmental facilities in accordance with the approved date of acceptance.

24. The Decree No. 22 of 27 May 1994 regulates reporting on capital construction, including environmental investments. These key provisions include instructions on capital investments and their breakdown by environmental media. This form also makes a reference to the sources of funding of capital investments (national budget, local budgets, environmental funds) and information on commissioning of the environmental facilities under the approved acceptance acts. All enterprises (and organisations-developers), as well as entities characterised by collective type of ownership including municipal utilities that have environmental investment expenditures are obliged to prepare the report for the territorial statistical bodies. The forms are prepared annually. The categories of environmental expenditure are:

- ◆ Protection and rational use of water resources.
- ◆ Air protection.
- ◆ Protection and rational use of soil.
- ◆ Protection and rational use of forest resources.
- ◆ Protection and reproduction of fish resources.
- ◆ Underground protection and rational use of mineral resources.
- ◆ Protection and reproduction of wild life and birds.

### ***1OS - Expenditure form***

25. Reporting form 1OS covers current expenditure for environmental protection activities, including nature protection and information on pollution charges, and natural resources taxes. All enterprises

(including municipal utilities) with fixed environmental assets and/or that pay polluter charges, environmental taxes or user fees are obliged to report their expenditure to the territorial statistical bodies. The forms are prepared annually.

26. The definition of current expenditure covered by the form includes:

- Expenditures for capital maintenance and repair of fixed environmental assets.
- Average annual cost of environmental fixed production assets.
- Pollution charges.
- Fines, claims, collection and compensation of damage inflicted by environmental laws violation.
- Since 2001 - running costs of the environmental authority (expenditures from the state budget to support the staff of the Ministry, the State Environmental Inspectorate and its regional branches, the Hydromet, the National Institute of Ecology).

27. The categories of environmental expenditure are:

- Protection and rational use of water resources.
- Air protection.
- Land resources protection from pollution from industry and domestic waste.
- Land re-cultivation.

### ***1-NEF and 1-LEF - Environmental Funds forms***

28. These reporting forms cover revenues and expenditures by Environmental Funds. The report covers all Environmental Funds – one on the national and 11 on regional level. The forms are prepared quarterly and include the following data (1-NEF).

Revenues:

- Receipts from local environmental funds.
- Fees for pollution discharges from mobile sources powered by ethylene/non-ethylene gasoline and diesel fuel.
- Voluntary donations from legal entities and individuals.
- Receipts from recovery of damage inflicted to fish resources.
- Others.

Expenditures:

- National programme development and implementation.
- Equity participation in R&D, clean technologies introduction and environmental facilities construction.
- Cleanup after environmental disasters effects.
- Financial assistance to local environmental funds.
- Programme grant-based funding to NGOs.
- Others (a total of 14 items of expenditure).

### ***2-Waste statistical report “On Waste Generation and Use”***

29. Companies and organisations - including education and health care institutions - involved in the production and disposal of waste complete these forms. Waste is classified in accordance with the General Nomenclature of Waste attached to the Methodological Guidelines on Form 2-waste Completion. The form indicates the spending for waste storage, removal and elimination. Some expenditures are also presented in Form 1-OS in Chapter “Protection of Land from Production and Consumption Waste”.

Steps have been taken to ensure that no double accounting has taken place in the data presented in this report between reports 2-Waste and 1-OS

### ***1-Water supply-sanitation statistical report***

30. Statistical reports on the operation of water supply and sanitation systems are filed by enterprises that have their own separate facilities. They are also filled out by enterprises that deliver water to the general public, households and industrial sectors; and by enterprises that perform wastewater disposal for the household sector, public utilities, industries and organisations.

31. The form reports all detailed expenditures incurred by the enterprise to abstract, transport, treat and distribute the water (water supply) and all the expenditures to dispose of and treat wastewater (sanitation) over the year. The water supply system covers a multitude of water abstraction and treatment facilities and distribution networks designed to provide water to the general public, enterprises and organisations. The sanitation system covers a multitude of facilities to dispose of wastewater from the territory of a populated area or a part of it, with a disposal network of pipes, collectors (canals) and its own discharge.

32. Expenditures for wastewater treatment are reflected in reporting form 1-water supply-sewage “On Operation of Water Supply and Sewage Systems”. Furthermore, they are included in Form 1-OS.

33. Data on public access to sanitation services are calculated quarterly by the DSS on the basis of a random survey of households’ budgets. Households surveys carried out in 1999 and 2000 proved that 31 – 32 % of the national population uses water from the central water supply system (72-75% in urban areas and 1-2% in rural areas), accordingly about 30 % of the population has access to the sewage system.

### ***Reporting on Foreign Direct Investment***

34. Reporting referring to foreign investments (applying to all sectors of the economy) is reflected in the statistical form 2-KS “Commissioning of facilities, capital assets and use of investments in the fixed capital”. This form reflects the investments breakdown by MECTD and by the type of operation at the expense of: the republican budget, local budgets, companies’ own funds, the government’s reserve fund, bank loans, foreign investments, etc.

### ***Procedure of reporting on environmental expenditure***

35. As discussed above, all enterprises (including municipal utilities that have environmental capital investments, fixed environmental assets and/or are paying environmental taxes or charges have to report their environmental expenditure. The territorial statistical bodies, annually, forward the environmental expenditure forms to enterprises based on lists prepared by the territorial environmental inspectors and based on previous years reporting. The forms forwarded by the territorial statistical bodies include instructions, which describe the variables in the forms. The numbers of statistical forms collected are presented below. In general reporting is viewed as widespread and satisfactory.



**Table 2: Environmental Expenditure Forms Submitted<sup>3</sup>**

| Reporting form | Submitted in 2001 |
|----------------|-------------------|
| 18KS           | 21                |
| 1OS            | 860 <sup>4</sup>  |
| 2-waste        | 1.271             |

36. Enterprises submit reporting forms on environmental expenditure statistics (2-waste, 1-water, 1-OS) to territorial environmental agencies for data validation and approval. However, environmental agencies do not validate the accuracy of data pertaining to current costs in form 1-OS as companies report current expenditure based on bookkeeping accountancy data, which makes it difficult for inspectors to verify.

37. Apart from form 18KS all reports must be discussed and approved by the environmental agencies before submission. The environmental inspectors likewise, on their inspections, verify the reliability of the submitted data. The environmental inspectors inspect polluting enterprises, but emphasis hazardous polluting enterprises. In 2001 17 507 inspections were undertaken by the State Environmental Inspection (though far from all of inspections were related to the control of statistical forms completion and submission). Apart from the environmental inspectors cross-referencing reports and on-site visits the statistical bodies can also conduct selective control of reliability of the data.

38. The local statistical body forwards the submitted forms to the DSS, which is responsible for compiling data, and prepares summary reports for the MECTD. The DSS is responsible for the development and approval of the statistical forms, prepared by the legal entities, as well as for information dissemination and analysis. The DSS takes into account possible comments from relevant parties including MECTD.

39. Enterprises that do not report can be prosecuted according to article 199.2 of the Code of Administrative Offence of the Republic of Moldova. The article stipulates that enterprises failing to report or reporting inaccurate information can be held administratively liable and is subject to penalties. The DSS and the territorial environmental agencies are responsible for imposing sanctions. Law enforcement agencies and judicial instances are responsible for the collection of penalties.

### **3.2 Evaluation of the data collection system and recommendations for improvements**

#### ***Moldavian methodology compared to OECD/Eurostat methodology for environmental protection expenditure***

40. The methodology for environmental expenditure data collection inherited from the NIS differs significantly from the OECD/Eurostat<sup>5</sup> methodology for environmental protection expenditure. The methodologies are different in terms of coverage, breakdowns and definition; however, comparison is possible through a disaggregation and regrouping data or at a highly aggregated level of data. Previous environmental expenditure surveys, in the NIS, have shown that there is severe underreporting of environmental expenditure in the NIS methodology. In the Novgorod Oblast in Russia the surveyed environmental expenditures were over four times the value of the official reported expenditures. Some of

<sup>3</sup> Only enterprises with environmental expenditure are required to report.

<sup>4</sup> In 2000, 800 forms were returned.

<sup>5</sup> Annex 2 presents a discussion of differences between the methodology of the FSU and OECD/EUROSTAT.

the expected reasons for this are that there are in general no incentives to report correct data, that the methodology does not cover integrated processes<sup>6</sup>, etc., and that due to lack of resources the collection system is deteriorating.

41. The purpose of this survey is to report on the official data and not to examine possible over or under reporting of environmental data. Through the discussions during the mission it, however, became clear that Moldova has a system of cross-referencing and that they perform quality control of the reported data for the most polluting enterprises.

### ***Collection rates and quality control***

42. Data coverage in general is believed to cover most enterprises with environmental expenditures as major polluters provide more regular reporting. It is difficult to determine the percentage of companies covered by the statistical reporting as over 150 thousand economic entities have been registered to date, while the number of enterprises is constantly changing.

43. One issue of concern is that the list of enterprises from which data are collected is based on existing knowledge from local enforcement agencies. Eventhough it is very positive that lists are generated from local enforcement officers' knowledge, it is also a reason of concern as enforcement officers usually mainly focus on heavy polluting enterprises compared to all enterprises. Thus there may be a situation where not all relevant enterprises that have environmental expenditure are reporting. The enforcement of the Law on Environmental Pollution Charges has brought about a significant expansion of the number of companies obliged to submit respective statistical reporting.

44. Another issue that may be of increasing concern is that enterprises that report zero expenditure one year are not asked to report the following years – however, the local environmental agencies can, if aware of the new expenditures, reinstate these firms on the list of distribution. In the long run this could prove a problem as more and more enterprises could, in the future, have environmental expenditures, especially if enforcement of environmental legislation is increased.

45. During the discussions concern was also raised on the lack of information provided to the local enforcement agencies on newly established enterprises and on enterprise closures. This affects the coverage of data collection, as some enterprises undertaking environmental expenditures may not be reporting.

46. During the mission concern was also raised on reporting on integrated environmental investments. Little knowledge exists on these issues and would usually not be reported.

47. The so-called integrated investments differ from the traditional end of-pipe or curative environmental investments as they fundamentally affect the production process. These investments can be undertaken with the main purpose of reaching environmental objectives or they can be driven by commercial or other interests. In principle the existing general definition of environmental protection covers only the activities that have as main purpose to protect the environment. However, in most cases enterprises in transition countries tend to replace out-dated and most polluting equipment through multi-purpose investments, which bring, as secondary effects, substantial, or minor, environmental benefits. In these cases, only the environmental share of the total investment should be considered. The OECD/Eurostat methodology suggests to estimate the extra costs related to the annexed environmental benefits by comparisons with an equivalent standard reference technology. Difficulties arise, however, in defining the benchmark for comparisons of investments.

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<sup>6</sup> Clean Technologies – is typically integrated in the production cycle and may result from the modification of existing equipment for the explicit purpose of reducing output of pollutants or from the purchase of new equipment whose purpose is dual, both industrial and for pollution control. The difficult issue is often separating environmental expenditure from commercial expenditure.

48. Finally, issues such as severe funding shortages and need for institutional strengthening (capacity building and additional human resource) at the DSS and territorial statistical bodies are increasing concerns for the coverage and credibility of the data.

#### ***Recommendation for improvements to the data collection system***

49. It is recommended that, given the current system of data collection of expenditure, efforts be made to ensure that all enterprises with possible environmental expenditure be requested to report. The current system is based on local statistical and enforcement agencies' knowledge of enterprises. This makes it possible to make use of local knowledge and experience, although leaving reporting dependant on the capabilities of the territorial statistical and the local environmental agencies. Although it is suggested that this is adequate at present, it may not be so in the future. It is therefore recommended that a reporting system based on the national enterprise registration system be set up.

50. In 1999, the DSS created a National Registry of Statistical Units. All enterprises having a legal entity status are registered. This registry could be used to ensure universal reporting from enterprises. A reporting system based on the national enterprise registration system would also ensure that newly established enterprises would be required to report. However, due consideration must be given to finding a cost-efficient solution to levels and solutions to reporting - as a limited number of enterprises provide 80-90% of the expenditures. A universal system would increase the cost of administering and given the current situation this would not be feasible.

51. A reporting system could be established in various ways. This could include, as the present system, mandatory reporting for all enterprises or surveying of enterprises as is done in many OECD countries, or a mixture of both. Such a system would have to be introduced taking into consideration the resources and institutional capacity of the DSS and other involved agencies.

52. It is suggested that in the medium to long run an official methodology be developed that would take into consideration investment expenditure on integrated processes. Depending on future developments in Moldova and efforts with EU approximation a new methodology should be introduced based on the Eurostat SERIEE reporting system.

53. Finally it is recommended that possible initiatives to improve the data collection system take into consideration the institutional capacity and the resources available for data collection and data treatment.

## **4 Environmental Expenditure**

54. In the previous chapter data collection and the official statistical system for environmental expenditure have been discussed. This section refers to the official data collected by the Bureau of Statistics. The data include expenditure for environmental protection activities and natural resource management (including spending for water supply, forestry and land protection). As discussed, there are coverage problems with the official environmental data, and not all environmentally related expenditure is covered by the data (i.e. waste sector). Section 4.1 presents and discusses the data collected and trends from 1995–2000. Trends will be discussed in comparison to national economics trends, expenditure on environmental media and finally between categories of financiers. Annex 1 includes a presentation of all data collected. All data in Section 4.1 have been transposed to Lei in constant 2000 prices.

In the report, environmental expenditure includes:

- Air protection.
- Water resources protection.
- Waste management.
- Nature protection.
- Noise.
- Others (including administration).

Other activities that are included in the term “environmentally related expenditure” but which are not environmental expenditures are<sup>7</sup>:

- Water management including water supply.
- Other natural resource management (including forest resources and fisheries).

A more detailed explanation of the activities included in environmental expenditure is included in Annex 2.

## ***4.1 Environmentally related expenditures***

55. It would not seem that environmentally related expenditures have fallen drastically in Moldova over the past six years in real terms – except for 2000 (the latest year of record). However, a more in-depth analysis of the expenditure data shows that this is only due to an increasing level of water resource management expenditure until 1999 (see table 3).

56. Total environmentally related expenditures have been constant at about 3% of GDP over 1995–99. However, for 2000 their share in GDP fell by 0.7%. Although environmentally related expenditures are constant as a percentage of GDP, GDP has over the same period contracted by almost 9%. Of the total environmentally related expenditures, environmental expenditures amount to 0.8–0.6 % of GDP, whereas natural resources management expenditures account for approximately 2% of GDP, falling to 1.8% in 2000. Over the 6 years, environmentally related expenditures have fallen from 140 to 104 Lei per capita in real terms.

57. Total expenditure for environmental protection activities have declined steadily in real terms since 1995. The decline over the period until 2000 is almost 40% and nearly 13% within the last year. Over the period from 1995 – 2000 the total expenditure on natural resource management has fallen by 20%, but all occurred in 2000. Environmentally related expenditure showed a slowly decreasing level of expenditure from 1995 – 2000, except for in 1999. Environmentally related expenditure fell by 25% in constant terms over the six years.

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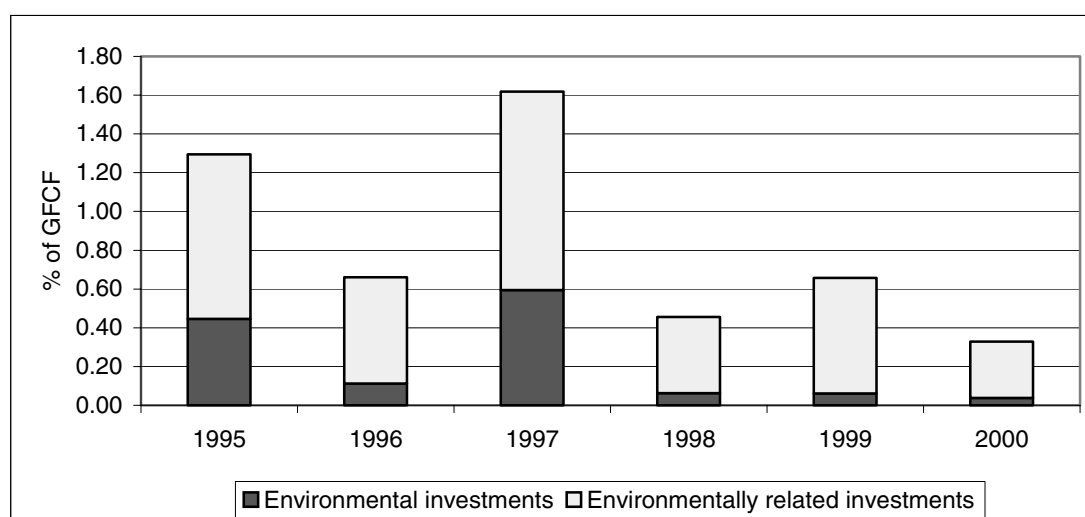
<sup>7</sup> Expenditure for water supply and the management of other natural resources are not environmental expenditure, as they are not undertaken for the main purpose of protecting the environment. However, given the relevance of this information for the development of sound policy measures and financing strategies for this sector in the NIS these expenditures have been included in this survey and the term "environmentally related expenditure" has been used to cover both environmental expenditure and natural resources management expenditure

**Table 3: Trends in Environmentally Related Expenditure, 1995 - 2000**

| Million Lei at 2000 Prices  | 1995        | 1996        | 1997        | 1998        | 1999        | 2000        |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| Total environmental protection expenditure                                | 145         | 136         | 143         | 117         | 104         | 91          |
| Total natural resources management expenditure                            | 358         | 352         | 334         | 356         | 383         | 288         |
| <b>Total environmentally related expenditure</b>                          | <b>503</b>  | <b>488</b>  | <b>477</b>  | <b>473</b>  | <b>487</b>  | <b>379</b>  |
| <b>Environmental Expenditure as a share of GDP</b>                        | <b>0.8%</b> | <b>0.8%</b> | <b>0.8%</b> | <b>0.7%</b> | <b>0.7%</b> | <b>0.6%</b> |
| Natural resources management expenditure, share of GDP                    | 2.0%        | 2.1%        | 2.0%        | 2.2%        | 2.4%        | 1.8%        |
| <b>Environmentally related expenditure, share of GDP</b>                  | <b>2.9%</b> | <b>2.9%</b> | <b>2.8%</b> | <b>3.0%</b> | <b>3.1%</b> | <b>2.4%</b> |
| Environmental Expenditure per capita (Lei, 2000 prices)                   | 40          | 38          | 39          | 32          | 29          | 25          |
| Natural resources management expenditure per capita (Lei, 2000 prices)    | 99          | 98          | 91          | 98          | 105         | 79          |
| <b>Environmentally related expenditures per capita (Lei, 2000 prices)</b> | <b>140</b>  | <b>136</b>  | <b>131</b>  | <b>130</b>  | <b>134</b>  | <b>104</b>  |

58. Overall investments have been decreasing in Moldova since 1995. For environmentally related investments this decline has been even faster than investments in general. In 1995 investments in the environmentally related category accounted for 1.3% of Gross Fixed Capital Formation in Moldova, of which environmental investments was 0.4% of the total. In 2000 environmentally related investments had fallen to 0.3% and environmental investments to 0.04% of the total GFCF. In 1997 a one-time increase of investments occurred, increasing environmentally related investment by 0.6% of GFCF over the previous year. The reason for this increase was a one-time investment in the water sector.

**Figure 1: Share of environmental investment in Gross Fixed Capital Formation, 1995-2000**



### *Environmentally related expenditure by sector*

59. Of the total environmentally related expenditures, water resource management (mainly water supply) accounts for the main share of expenditures - around 64%. Water protection expenditure (mainly wastewater treatment) is the second largest at around 20%. Forest resources management accounts for about 10% whereas the last three components account for between 1 and 3 % of overall expenditures each: air protection, land protection and others. However, only expenditure for industrial waste management is reported in official data. Expenditure for waste management usually accounts for around 15–20% of the total environmental expenditure in the NIS.

60. Throughout the six years (1995–2000) investments have gradually fallen from 7.1% of the total environmental related expenditures to only 2.7%. Investments have decreased continually, except for in 1997 when a large investment in water protection increased investment expenditures to almost 9%. The only sector that shows some variation, except for water protection in 1997, is water resource management where investments increased until 1999. Below is a detailed description of the 3 media that account for about 90% of overall expenditures from 1995–2000.

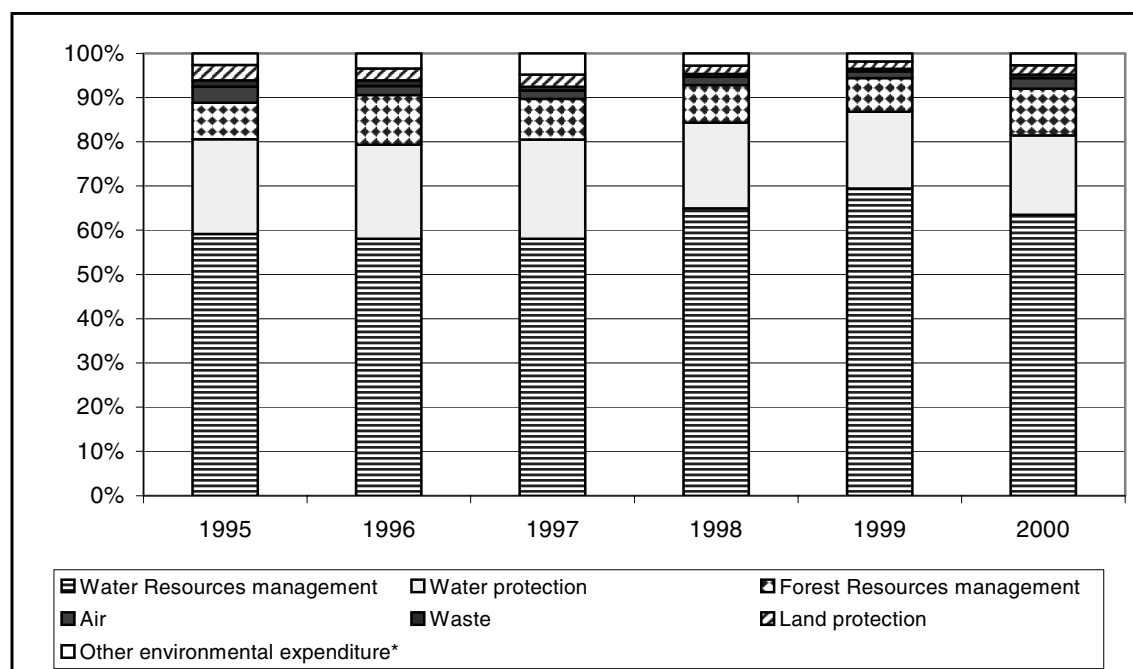
61. **Water resources management** has over the six year period fluctuated between 59 – 70 % of all environmentally related expenditure. The resource allocations in real terms fell in 1995 – 1997 by 8% but increased for 1998 and 1999 by 11% of the initial year 1995. In 2000, the expenditure, in real terms, fell by 30%, year on year, which is 20% lower than the 1995 level. The expenditure for water resource management was highest in 1999 with 324 m Lei (2000 prices) and bottomed out at 236 m Lei in the year 2000. Water resource management has, however, kept its high level of overall environmental expenditure due to falling overall spending. Investments in the sector are between 1.8% to 4.1% of the total expenditures, with the highest in 1999 with 14 m Lei (2000 prices) and the lowest in 2000 with only 4 m Lei spent.

62. **Water protection** expenditure has over the six-year period fluctuated between 18–22 % of all environmentally related expenditure. The resource allocations in real terms have fallen constantly over the period and in total fell by 37%. The largest decrease was recorded for 2000, when expenditures fell by 20% over the previous year. The total expenditure in 1995 was 108 m Lei (2000 prices) and bottomed out at 68 m Lei in the year 2000. Investments in the sector have in the given period fluctuated between 2–22% of the water protection expenditure. Two years have high allocations of investments: 1995 and 1997 with 18 m Lei and 24 m Lei (22% of expenditures) in 2000 prices. For other years investments have gradually been decreasing from 3% in 1996 to 1% in 2000.

63. **Forest resources management**, relative to other sectors, received an increasing share of decreasing overall environmentally related expenditure. In relative terms, the sector's share over the six-year period increased from 8% to 11% with fluctuations. Due to decreasing expenditure across all sectors, however, absolute expenditure on the sector decreased by 4% over 1995–2000: absolute expenditure increased by over 30% in 1996, and decreased by the same amount over 1997–1998. In 1998 and 1999, absolute expenditure decreased further by 9% and 8% year on year. In 2000 expenditures once again almost returned to 1996 levels. Peak 1996 expenditures on the sector were 55 m Lei (2000 prices), and lowest expenditures were in 1999 at 37 m Lei (2000 prices). Investments in the sector have occurred only in 1996 and 1997 and amounted to 3 and 2 m Lei respectively (2000 prices) or around 6% of expenditures in the sector.

64. For further details on the expenditures in the remaining environmental domains, please see Annex 1.

**Figure 2: Environmentally related expenditure by media, 1995–2000, percentage shares**



\*) Data include expenditure for monitoring and information systems; research and other administrative expenditure.

## 4.2 Environmental expenditure in public and private sectors

65. This section discusses the financiers of environmental expenditures. Natural resources management expenditures are not covered in this section, as it is impossible from the data to distinguish between public and private financing. The public sector includes current and investment expenditures undertaken by the public sector and subsidies to private sector. The private sector includes all utilities independently of type of ownership (public or private).

### *Public – private financing*

66. From 1995–2000 the public sector has financed 18-10% of total environmental expenditures. Until 1997 the share of public resources showed an increasing trend up to 18%, but decrease to 10% in 1999 and then increased again to 12% in 2000. These trends go along with a general decrease of expenditures by 36% (see Section 2 and 4.1 for an in-depth discussion on the decrease in overall environmentally related expenditures). Private sector financing has generally decreased over the period, except for in 1997 when there was a minor increase. The environmental expenditures by the private sector have fallen from 87% of overall expenditures to 82%. The decline in private sector and public sector spending has to some extent been offset through increasing funding from Environmental Funds, which have increased their share of expenditures from 0.2 % to 7%.

67. Overall there has been a continue decline in investments compared with current expenditures. Investments have for the public sector decreased 31.5 times from 6.3 in 1995 to only 0.2 m Lei in 2000. Investments in the private sector have fluctuated, but are in general two to three times the level of public sector investments. The private sector has over the period decreased by 12 times from 13.2 to 1.1 m Lei.

Environmental Funds. The Environmental Funds have only recently made environmental investment expenditures.

68. The table below shows in detail changes over the six-year period between public, private and Environmental Funds environmental expenditures.

**Table 4: Environmental expenditure in the public and business sector, 1995-2000**

| Million Lei at 2000 Prices                          | 1995         | 1996         | 1997         | 1998         | 1999         | 2000        |
|---|--------------|--------------|--------------|--------------|--------------|-------------|
| <b>Public sector</b>                                | <b>18.8</b>  | <b>20.5</b>  | <b>26.1</b>  | <b>14.3</b>  | <b>10.7</b>  | <b>10.6</b> |
| <i>Current</i>                                      | 12.5         | 17.1         | 22.6         | 12.8         | 10.3         | 10.4        |
| <i>Investments</i>                                  | 6.3          | 3.4          | 3.5          | 1.5          | 0.4          | 0.2         |
|   |              |              |              |              |              |             |
| <b>Business sector</b>                              | <b>126.7</b> | <b>116.0</b> | <b>116.9</b> | <b>102.9</b> | <b>94.9</b>  | <b>80.3</b> |
| <i>Current</i>                                      | 113.6        | 114.8        | 96.2         | 101.8        | 93.1         | 79.2        |
| <i>Investments</i>                                  | 13.2         | 1.2          | 20.6         | 1.1          | 1.8          | 1.1         |
|   |              |              |              |              |              |             |
| <b>Environmental Funds<sup>8</sup></b>              | <b>1.4</b>   | <b>1.0</b>   | <b>0.6</b>   | <b>0.8</b>   | <b>6.1</b>   | <b>7.1</b>  |
| <i>Current</i>                                      | 1.4          | 1.0          | 0.6          | 0.8          | 5.6          | 5.8         |
| <i>Investments</i>                                  | 0.0          | 0.0          | 0.0          | 0.0          | 0.5          | 1.3         |
|   |              |              |              |              |              |             |
| <b>Total environmental expenditure by financier</b> | <b>146.9</b> | <b>137.4</b> | <b>143.6</b> | <b>118.0</b> | <b>111.7</b> | <b>98.1</b> |

## 5 Conclusions and Recommendations

69. The current review of Moldova's environmentally related expenditure statistics and the analysis of the existing system for data collection has been valuable in identifying a series of options for strengthening the information system. The analysis of the expenditure data has likewise revealed trends that in the future most likely will have severe consequences for the environmental sector and level of environmental infrastructure services.

### *Data collection system:*

#### 70. *Findings*

- a) Environmental expenditure data is collected on six separate data forms. Some of these registrations are identical among reporting forms. Unawareness of this double reporting could lead to double accounting.
- b) At present it would seem that available data includes most environmental expenditures and that in general the data is reliable. However, the collection system is based on local knowledge of environmental inspectors – a regular system based on an official list of enterprises has only recently been put in place.

<sup>8</sup> National Environmental Fund. In 2000 National Fund received approximately 75% of the total of all Funds resources.



- c) The quality control of the information collected has a built in verification mechanism and relevant ministries can comment on data.
- d) Methodology is different from OECD/Eurostat methodology (please see Annex 2).

#### *Recommendations*

- a) Secure consistency between reporting forms on environmental expenditure.
- b) A more systematic process of identifying enterprises that need to report could be put in place.
- c) Steps should be taken to increase the coverage of the environmental domains- at present waste data is collected in different forms and with a different focus than is the case with other environmentally related expenditures.
- d) Cost-effectiveness should be considered in selecting method data collection given the resources available to the DSS.
- e) Conducting a comprehensive survey of enterprises (e.g., once in five years) should be considered. At other times, mathematically grounded random statistical monitoring exercises could be organised.
- f) The Republic of Moldova could also consider gradually transferring to the Eurostat methodology in the framework of PCA agreements with the European Union in the area of pollution control and prevention.
- g) There is a medium term need to provide institutional strengthening to DSS on both the level of capacity and resources.

#### *Domestic expenditures:*

##### 71. Findings

- a) Until 1999 environmentally related expenditure was constant at about 3% of GDP, however this fell to 2.4% in 2000.
- b) Environmental expenditure amounts to between 0.8 – 0.6 % of GDP, whereas expenditure for natural resource management covers the rest.
- c) In real terms total environmentally related expenditure has fallen by 25% from 1995–2000. Of this environmental expenditure alone fell by almost 40% in the same period.
- d) Environmentally related expenditure fell from 140 to 104 Lei per capita over 1995–2001 in real terms.
- e) The investment component has fallen from 7.1% of environmental related expenditures to 2.7% in 2000.
- f) Water resources account for about 65 % of overall expenditures, water protection about 20% of expenditures and wood resource management about 10% of the expenditures. The remaining 5% went to air, waste, land protection and others.
- g) Private sector financing has gone from 87 % of all expenditures in 1995 to 82% in 2000.

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## Annex 1

### Environmentally Related Expenditure Moldova Official Data

**Table 1 Trends in environmental expenditure, 1995-2000**

| million Lei at 2000 prices      | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---------------------------------|------|------|------|------|------|------|
| Total environmental expenditure | 145  | 136  | 143  | 117  | 104  | 91   |
| Current expenditure             | 126  | 132  | 119  | 115  | 102  | 90   |
| Investment expenditure          | 19   | 5    | 24   | 3    | 2    | 1    |

**Table 2 Trends in natural resource management expenditure**

| million Lei at 2000 prices                     | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|--|------|------|------|------|------|------|
| Total natural resources management expenditure | 358  | 352  | 334  | 356  | 383  | 288  |
| Current expenditure                            | 340  | 334  | 317  | 343  | 364  | 279  |
| Investment expenditure                         | 18   | 18   | 17   | 14   | 19   | 9    |

**Table 3 Investment and current environmental expenditure by media, 1995-2000**

| million Lei at 2000 prices       | 1995       | 1996       | 1997       | 1998       | 1999       | 2000      |
|----------------------------------|------------|------------|------------|------------|------------|-----------|
| <b>Total</b>                     | <b>145</b> | <b>136</b> | <b>143</b> | <b>117</b> | <b>104</b> | <b>91</b> |
| <b>Water protection</b>          | <b>108</b> | <b>104</b> | <b>107</b> | <b>92</b>  | <b>85</b>  | <b>68</b> |
| Current expenditure              | 90         | 100        | 84         | 90         | 83         | 67        |
| Investment expenditure           | 18         | 4          | 24         | 3          | 2          | 1         |
| <b>Air</b>                       | <b>18</b>  | <b>10</b>  | <b>9</b>   | <b>9</b>   | <b>7</b>   | <b>9</b>  |
| Current expenditure              | 16         | 10         | 9          | 9          | 7          | 9         |
| Investment expenditure           | 1          | 1          | 0          | 0          | 0          | 0         |
| <b>Waste</b>                     | <b>7</b>   | <b>6</b>   | <b>4</b>   | <b>3</b>   | <b>3</b>   | <b>3</b>  |
| Current expenditure <sup>1</sup> | 7          | 6          | 4          | 3          | 3          | 3         |
| Investment expenditure           | 0.03       | 0.02       | 0.04       | 0.02       | 0.00       | 0.02      |
| <b>Others <sup>2</sup></b>       | <b>13</b>  | <b>17</b>  | <b>23</b>  | <b>13</b>  | <b>9</b>   | <b>10</b> |
| Current expenditure              | 13         | 17         | 23         | 13         | 9          | 10        |
| Investment expenditure           |            |            |            |            |            |           |

Notes: 1) Industrial waste only. 2) Data include expenditure for monitoring and information systems; research and other administrative expenditure.

**Table 4 Environmental investments by media and by sector**

| Million 2000 Lei                           | 1995        | 1996       | 1997        | 1998       | 1999       | 2000       |
|--|-------------|------------|-------------|------------|------------|------------|
| <b>Air</b>                                 | <b>1.2</b>  | <b>0.6</b> | <b>0.3</b>  | <b>0.0</b> | <b>0.0</b> | <b>0.0</b> |
| state budget                               | 0.4         | 0.6        | 0.0         | 0.0        | 0.0        | 0.0        |
| municipal budget                           | 0.0         | 0.0        | 0.3         | 0.0        | 0.0        | 0.0        |
| Business                                   | 0.9         | 0.0        | 0.0         | 0.0        | 0.0        | 0.0        |
| <b>Wastewater collection and treatment</b> | <b>18.2</b> | <b>4.0</b> | <b>23.8</b> | <b>2.6</b> | <b>2.2</b> | <b>1.3</b> |
| state budget                               | 5.2         | 2.8        | 2.4         | 1.5        | 0.4        | 0.2        |
| municipal budget                           | 0.7         | 0.0        | 0.8         | 0.0        | 0.0        | 0.0        |
| Business                                   | 12.3        | 1.2        | 20.6        | 1.0        | 1.8        | 1.1        |

**Table 5 Investment and current natural resource management expenditure by media**

| Million 2000 Lei                                       | 1995       | 1996       | 1997       | 1998       | 1999       | 2000       |
|--|------------|------------|------------|------------|------------|------------|
| <b>Water resource management</b>                       | <b>298</b> | <b>284</b> | <b>277</b> | <b>307</b> | <b>338</b> | <b>240</b> |
| Current  | 292        | 277        | 269        | 299        | 324        | 236        |
| Investments  | 5          | 6          | 8          | 9          | 14         | 4          |
| <b>Protection and rational use of forest resources</b> | <b>42</b>  | <b>55</b>  | <b>44</b>  | <b>40</b>  | <b>37</b>  | <b>40</b>  |
| Current  | 42         | 53         | 41         | 40         | 37         | 40         |
| Investments  | 0          | 3          | 2          | 0          | 0          | 0          |
| <b>Land protection</b>                                 | <b>18</b>  | <b>13</b>  | <b>13</b>  | <b>9</b>   | <b>8</b>   | <b>8</b>   |
| Current  | 6          | 4          | 6          | 4          | 3          | 3          |
| Investments  | 12         | 9          | 7          | 5          | 5          | 5          |

**Table 6 Environmentally related expenditure by type and media**

| Million Lei at 2000 Prices                         | 1995       | 1996       | 1997       | 1998       | 1999       | 2000       |
|--|------------|------------|------------|------------|------------|------------|
| <b>Water protection</b>                            | <b>108</b> | <b>104</b> | <b>107</b> | <b>92</b>  | <b>85</b>  | <b>68</b>  |
| Current expenditure                                | 90         | 100        | 84         | 90         | 83         | 67         |
| Investment expenditure                             | 18         | 4          | 24         | 3          | 2          | 1          |
| <b>Air</b>   | <b>18</b>  | <b>10</b>  | <b>9</b>   | <b>9</b>   | <b>7</b>   | <b>9</b>   |
| Current expenditure                                | 16         | 10         | 9          | 9          | 7          | 9          |
| Investment expenditure                             | 1          | 1          | 0          | 0          | 0          | 0          |
| <b>Waste</b>                                       | <b>7</b>   | <b>6</b>   | <b>4</b>   | <b>3</b>   | <b>3</b>   | <b>3</b>   |
| Current expenditure 1                              | 7          | 6          | 4          | 3          | 3          | 3          |
| Investment expenditure                             | 0.03       | 0.02       | 0.04       | 0.02       | 0          | 0.02       |
| <b>Other environmental expenditure<sup>2</sup></b> | <b>13</b>  | <b>17</b>  | <b>23</b>  | <b>13</b>  | <b>9</b>   | <b>10</b>  |
| Current expenditure                                | 13         | 17         | 23         | 13         | 9          | 10         |
| Investment expenditure                             | 0          | 0          | 0          | 0          | 0          | 0          |
| <b>Water Resources management</b>                  | <b>298</b> | <b>284</b> | <b>277</b> | <b>307</b> | <b>338</b> | <b>240</b> |
| Current expenditure                                | 292        | 277        | 269        | 299        | 324        | 236        |
| Investment expenditure                             | 5          | 6          | 8          | 9          | 14         | 4          |
| <b>Forest Resources management</b>                 | <b>42</b>  | <b>55</b>  | <b>44</b>  | <b>40</b>  | <b>37</b>  | <b>40</b>  |
| Current expenditure                                | 42         | 53         | 41         | 40         | 37         | 40         |
| Investment expenditure                             | 0          | 3          | 2          | 0          | 0          | 0          |
| <b>Land protection</b>                             | <b>18</b>  | <b>13</b>  | <b>13</b>  | <b>9</b>   | <b>8</b>   | <b>8</b>   |
| Current expenditure                                | 6          | 4          | 6          | 4          | 3          | 3          |
| Investment expenditure                             | 12         | 9          | 7          | 5          | 5          | 5          |
| <b>Total environmentally related expenditure</b>   | <b>504</b> | <b>489</b> | <b>477</b> | <b>473</b> | <b>487</b> | <b>378</b> |

Notes: 1) Industrial waste only. 2) Data include expenditure for monitoring and information systems; research and other administrative expenditure.

## Annex 2

### OECD/Eurostat methodology for Environmental Protection Expenditure - NIS Expenditure Methodology

#### **ENVIRONMENTAL PROTECTION ACTIVITIES**

According to the OECD/Eurostat questionnaire, environmental protection “includes all purposeful activities directly aimed at the prevention, reduction and elimination of pollution or any other degradation of the environment resulting from the production process or from the use of goods and services.” The scope of environmental protection activities is defined according to the Classification of Environmental Protection Activities, which has been revised in 2000.

For the purpose of this survey of environmental expenditure data in the NIS, the following definitions have been used:

**Air:** definition of expenditure for air comprises:

- Prevention of air pollution linked to the production process; installation of non-polluting technologies (clean technologies and clean products used in the production process).
- Elimination of emissions at the source: dedusting equipment, filters.

Measures undertaken for cost-saving reasons (i.e. energy saving) should not be included.

This expenditure category can be approximated by the atmospheric air protection expenditure row in 18 KS form and in 4 OS form.

**Water resources protection:** definition of expenditure on water protection comprises:

- Collection and purification of wastewater (in collective and public as well as individual systems).
- Transport of wastewater, storm water systems and sewerage networks.
- Wastewater treatment plants (including pre-treatment plants and a special plant for wastewater from certain industrial processes).
- Combating pollution of the marine environment, including measures to combat discharges into the sea and the raising of wrecks (e.g. clean up of oil spills).
- Prevention, control and monitoring of surface water pollution.
- Combating pollution of inland surface waters other than collection and purification of wastewater.
- Prevention and combating of thermal pollution of water.
- Abatement of groundwater pollution.
- Abatement of soil pollution, including measures to combat uncontrolled releases and tipping and the re-absorption of pollutants.

Expenditure related to the supply of drinking water should not be included.

This expenditure category can be approximated by the protection and rational use of water resources protection expenditure row – with the exception of expenditure on re-circulating water supply systems - in

the 18 KS form and protection and rational use of water resources protection expenditure row in the 4 OS form.

**Waste:** For the purposes of the questionnaire waste includes municipal waste as well as industrial waste, which in turn includes hazardous waste, ordinary waste and inert or heavy waste (waste from the extractive industries and power stations, demolition waste). It includes sewage sludge but excludes wastewater.

Definition of expenditure on waste comprises:

- Preventive measures to limit the amounts and harmful effects of waste generated by the final consumption of goods and to limit the production of industrial waste or lessen its harmful effects.
- Collection and transport.
- Treatment and disposal.
- Exploitation of waste: unprofitable operations with the purpose of replacing the disposal of waste (i.e. discharge into the environment) by processes for reinserting the corresponding objects or substances into the economic cycle (in the form of raw material or energy) and recovery (process integrated with activity concerned).

This expenditure category can be approximated by the installations for the production waste utilisation and processing (including households waste) expenditure row and toxic waste management expenditure row in 18 KS form and protection of environment from the production and consumption waste expenditure row in 4 OS form.

**Nature protection:** Expenditure for nature protection should include expenditure directed at protection and rehabilitation of species, landscapes and habitats. It should include outlays on national parks and wildlife, on the protection against forest fires as well as on related monitoring, management and administration.

A list of possible activities is:

- Protection of species (flora and fauna).
- Conservation of threatened species of flora and fauna.
- Other related activities.
- Protection of landscapes and habitats.
- Protection of outstanding ecosystems and habitats.
- Protection of landscapes for their aesthetic value.
- Other related activities.
- Protection of forests.
- Protection against forest fires.
- Rehabilitation of species populations and landscapes.
- Measurement, control, laboratories, etc.
- Related management and administration activities.
- Management and development of national parks.
- Other related activities.

This expenditure category can be approximated by the 'organisation of reservations and other environmental territories' expenditure row and the 'protection and reproduction of wild animals and birds' expenditure row in 18 KS form and similar spending category in the government budget.

**Noise:** this expenditure comprises:

- Preventive action at source:
- Soundproofing of machinery.
- Use of soundproofed machinery and equipment.
- Construction of anti-noise installations.

- Construction of buffer zones or anti-noise screens around airports or other sources of noise.
- Soundproofing work.

Excluded are measures mainly aimed at reducing industrial process noise for workplace protection.

**Other:** this expenditure is related to other types of pollution control such as abatement and control of non-radioactive radiation, multi-functional environmental protection activity and general administration of the environment. When this category is filled in, countries are asked to specify the nature of these expenditures. Note, however, that expenditure should be confined to pollution control.

**Research and development expenditure** related to the causes, effects and prevention of pollution.

**Environmental charges:** the actual sums of payments made by the enterprises for environmental pollution and for the use of natural resources, as well as the sums of action payments, collected from the enterprise as a compensation for damages, and fines for the violation of the requirements of the environmental legislation.

It can be approximated by the “payment for permissible” and “for excess emission” row in 4 OS form.

**Rational/sustainable natural resource management.** It is expenditure on natural resource mobilisation, which is connected not only to the exploitation but to the sustainable use of those resources. An important part of these expenditures are administrative and monitoring expenses.

This expenditure category can be approximated by the “protection and rational use of soil” and “protection and rational use of forest resources” and “protection and rational use of fish resources” expenditure row in 18 KS form. Current expenditure and water resource expenditure data needs to be obtained from other form.

**Payment for other enterprises for environmental services:** **this** expenditure category can be approximated by the “sums paid to other enterprises for reception and treatment of wastewater” and by the “sums paid to other enterprises for reception storage and destruction of waste” expenditure row in 4 OS form.

### **Financing vs. abater principle**

Environmental expenditure for a particular sector can be evaluated according to the financing principle (who pays for the activity) or according to the abater principle (where the activity occurs). Expenditure figures collected according to these principles will typically differ when transfer payments between the private and the public sector take place (subsidies, fees or charges for environmental purposes. It is intended to carry out the following calculations for each environmental sector (air, water etc.):

| <b>Public sector</b>                          | <b>Private sector</b>                         |
|---|---|
| Investment expenditure                        | Investment expenditure                        |
| + Current expenditure                         | + Current expenditure                         |
| <b>= Expenditure I (abater principle)</b>     | <b>= Expenditure I (abater principle)</b>     |
| + Subsidies to private sector                 | – Subsidies from public sector                |
| – Fees/charges from private sector            | + Fees/charges to public sector               |
| <b>= Expenditure II (financing principle)</b> | <b>= Expenditure II (financing principle)</b> |

## Definitions of enterprises in public ownership

**Publicly owned environmental utilities** are the enterprises with the state ownership code in the economic sector ISIC 41 and 90.

**Business sector** (based on ISIC rev. 3/NACE rev. 1):

| <b>Name</b>                                | <b>ISIC code</b>   |
|--|--|
| Agriculture, forestry, hunting and fishing | 01-05  |
| Mining and quarrying                       | 10-14  |
| Manufacturing                              | 15-37  |
| Electricity, gas and water                 | 40-41, except public sector as defined above               |
| Construction                               | 45   |
| Transport, storage and communications      | 60-64  |
| Other services                             | 50-52, 65-67 and 9, except public sector as defined above. |