

Final Report
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Environmental Accounts

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Introduction

The main objectives of this project are:

- (i) to start establishing environmental protection expenditure accounts for the government sector;
- (ii) to improve the reporting of the joint questionnaire for environmental protection and expenditure and revenues (JQ-EPER) to the government sector as well as to related government specialised producers.

The Environment and Resources Unit staff, guided by Eurostat experts, took a dynamic approach in order to set up a work programme for the collection of environment expenditure accounts data. The project is sub-divided into five phases, and commenced on 1 January 2009. To date, the project has been completed and a summary of work done during the past eighteen months is described in this report.

Approach

The Environment and Resources Unit took a dual approach to this specialised data collection. The first approach was to consult with the existing in-house systems for reporting to the COFOG classification. The second step was to analyse a series of data sets regarding the environmental expenditure by enterprises and to browse through data which relates to specialised producers. All these data sets were provided by the Structural Business Statistics Unit within the National Statistics Office (NSO).

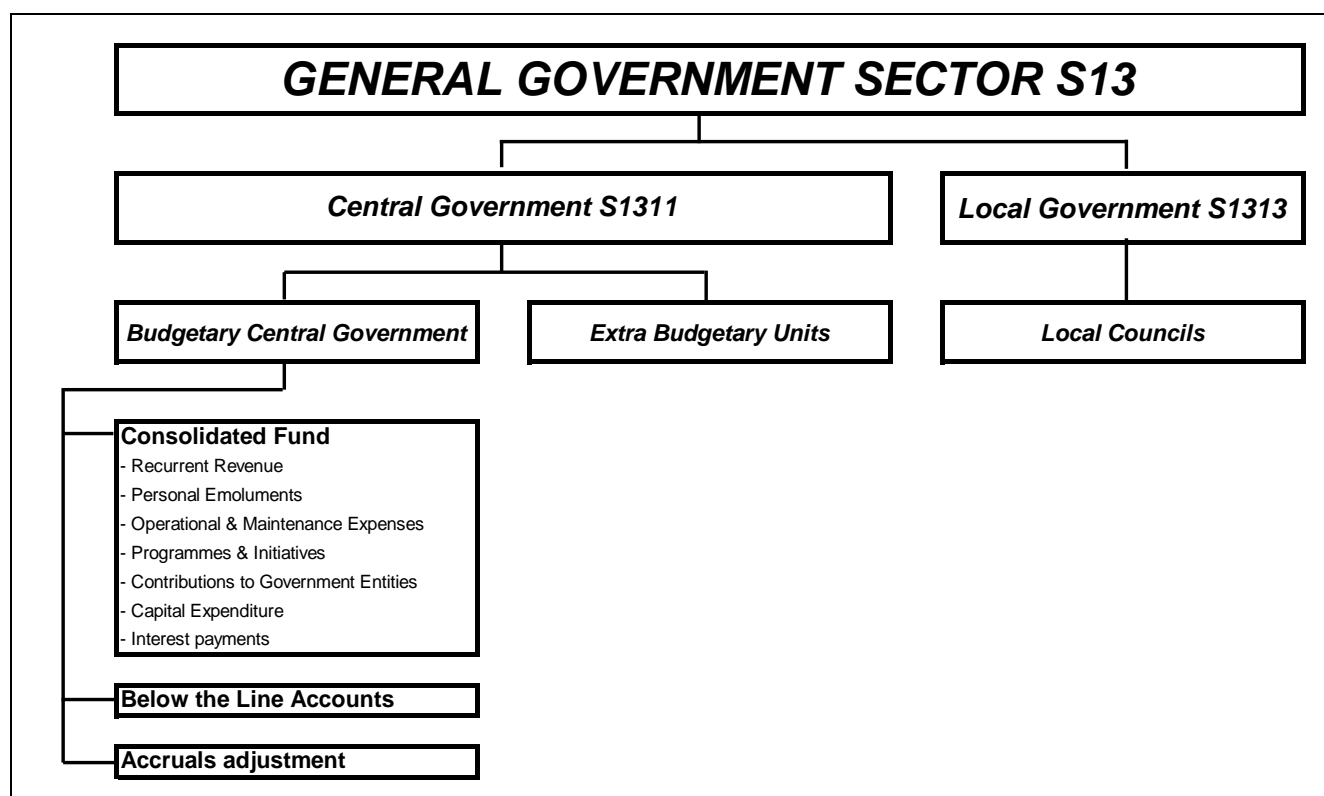
Methodology

Phase 1: Investigating existing data

Phase 1 commenced with an investigation of existing data within the national statistical institute regarding the government accounts and budgets. Copies of the national and any relevant local or regional figures as well as budgets were obtained and analysed in detail.

The expenditure is classified according to the Classification of the Functions of Environment Protection Activities (CEPA), as elaborated in the European

System for the Economic Information on the Environment (SERIEE), published by Eurostat. Therefore, total Government Environmental Expenditure can be defined as Total Recurrent Environmental Expenditure plus Total Capital Environmental Expenditure as structured in the outlined table outlined below.



It is understood that the COFOG classification expenditure is harmonised across the General Government sector. As far as counterpart information is concerned, NSO has accessibility to data both from Central Government (as regards transfers), and from the Central Bank of Malta (as regards financial transactions).

Having reviewed the system of Government expenditure, the Environment and Resources Unit held several meetings with the Public Finance Unit in order to correlate the environment-related COFOG divisions with the CEPA Classifications. These meetings yielded the results as shown in Table 1:

Table 1 Correlations between the COFOG and CEPA Classifications		
COFOG (05- Environment Protection ESA 95)	COFOG Code Government Finance	CEPA 2000 (SEEA, EPEA, JQ)
05.1.0 Waste management	CG 0501	3. Waste Management
05.2.0 Wastewater Management	CG 0502	2. Wastewater Management
05.3.0 Pollution Management	CG 0503	1. Protection of ambient air and climate
		4. Protection and Remediation of Soil, groundwater and surface water
		5. Noise and Vibration abatement
		7. Protection against radiation
05.4.0 Protection of biodiversity and landscape	CG 0504	6. Protection of biodiversity and Landscape
05.5.0 Research and Development Environment protection	CG 0505	8. Research and Development
05.6.0 Environment Protection n.e.c.	CG 0506	9. Other Environmental Protection activities

Environment Protection is further segmented into sub-sections comprising different variables for each sub-section. The detailed description of the specific environmental expenditure COFOG headings is included in Appendix 1 of this report. These give an account of what information exists for each specific sector as listed in the table above.

After such correlations were made, a series of data sets was generated for the years 2000-2008. For the purpose of this report, these have been translated into the relevant data tables and are annexed in Appendix 2.

Phase 2: Training Session

The second phase of the grant consisted of a two-day training session organised by Eurostat at NSO (Malta). Eurostat expert Ms Julie Hass gave a detailed description of what environmental accounts consist of and what data should be collected for the specific variable data sets which are listed in the JQ Environment Expenditure Questionnaire.

A thorough explanation of the CEPA classifications and how they can be attached to the COFOG classification list was also delivered. This was important for Maltese statisticians, since data could subsequently easily be collected from the already established data collection systems existent at NSO.

Discussions and guidance on how to collect the data from private producers were also held. This was also a milestone for the Environment and Resources Unit since it is acknowledged that some of the data can in fact be collected from the existing registers without the need to conduct other additional surveys. In this way, the burden on respondents is not increased.

This training session was not only attended by the Environment and Resources Unit personnel, but also by the staff of the Structural Business Statistics, Public Finance and National Accounts Units.

This visit gave a much needed kick-start to the project and provided guidelines on how to collect the required data in the appropriate manner.

Minutes of this training session are annexed in Appendix 3.

Data Compilation

The initial data collection attempt was to collect the data regarding the Government environment expenditure. Such data was derived from the data bases which are compiled and maintained by the Public Finance Unit. The data sets are being compiled from the National Government Accounting system. These extracted data sets are annexed in Appendix 2.

Following this data collection, an attempt was made to extract data from the Business Register with a particular reference to NACE 37 and 90 of the Rev. 1.1 classification. These two NACE categories are directly related to the waste and wastewater activities in Malta. Preliminary tables were generated and the results are annexed in Appendix 4.

Environmental Protection Expenditure and Revenues (EPER) Joint questionnaire – Data Compilation

Following the initial data extraction from the National Government database, it resulted that data could be extracted from 2001 to 2008. The availability of such data resulted in almost full completion of Table 1 of the questionnaire which relates to the Public Sector. Thus data reporting for this table was drastically improved.

Data collection for other tables in the questionnaire, in particular Tables 4 and 4A, was accomplished with the assistance of the Structural Business Statistics Unit. This was possible since the business statistics questionnaires have a generic question related to current expenditure on environment protection which an enterprise has incurred during that particular operating year. In fact preliminary data was extracted for these tables for the years 2004 up to 2007.

No data could be extracted for the past years with regards to specialised producers, but an attempt was made to collect 2008 data. This was possible by amending the Business Statistics Questionnaire in which enterprises were asked to submit information on the expenditure related to waste, wastewater, noise, soil and groundwater.

This was done so as to compile the required data in Table 2 and Table 4B of the joint questionnaire.

RESULTS AND ANALYSIS

Table 2: Business Sector

Questionnaires were mailed to enterprises by the NSO in February 2010 and by the end of May, only 73 companies out of 1,305 enterprises had reported data on their environmental expenditure for 2008. A total of €913,505 was spent by these enterprises, where around 92 per cent of this amount was directly spent on solid waste management. Expenditure related to wastewater amounted to 5 per cent. Moreover environmental expenditure relating to noise, air pollution prevention and soil and ground water amounted to 3 per cent.

The NACE classification system (NACE Rev. 2) was applied to categorise these 73 enterprises. It resulted that 49 different NACE categories were applied. A list of the classified enterprises is presented in Appendix 5.

The data compiled from this exercise show that 67 per cent of the total expenditure on environment by these enterprises was undertaken by construction of residential and non-residential buildings (NACE 41.20). This was followed by the Manufacture of pharmaceutical preparations category (NACE 21.20) (4.9 per cent), and by Construction of roads and motorways (NACE 42.11) (4.6 per cent). The rest of the categories' environmental expenditure ranged between €25,233 and €100.

Table 4B: Private specialised producers of EP Services

By end of May the Environment and Resources Unit also managed to analyse the limited replies of the specialised producers of Environmental Protection Services which had been received. Such individuals were previously listed under Nace 37 and 90 using the Nace Rev 1.1 classification.

This involved the compilation of a number of variables, namely: Total Current Expenditure on Environment Protection, Total Gross Wages, Total Purchases, Rent/lease on building, Rent/lease on land, Hire/charges for plant/machinery,

Hire charges for vehicles, Work given out to subcontractors, Payments to/for Agency workers, Expenditure on marketing, Other operating Income, Financial Income, Subsidies, Capitalised Production, Investments, and Total Turnover.

This information which is regularly compiled by the Structural Business Statistics unit was useful in filling data for Table 4B of the EPER Joint questionnaire.

From a total of 1,305 respondents only 20 were categorised as being specialised producers of EP services. Only 3 out of these 20 specialised producers reported environmental expenditure by their enterprise. Their main activities were related to the provision of waste disposal and refuse collection service.

During the grant period, it was only possible to collect partial data from the Business statistics questionnaires since not all the enterprises had submitted their replies to the office by the end of May. Thus only the available data were inputted into the joint questionnaire.

However, it is foreseen that by the end of 2010, the questionnaires will be collected and the data inputted into the relevant databases from where they can be extracted as required.

Difficulties Encountered

Several difficulties were encountered after receiving and analysing the business statistics questionnaires.

Not all the enterprises reported data for the environment expenditure question in the questionnaire. In fact the replies amount to only 5.6 per cent and were inputted into the respective Joint Questionnaire data sheets.

Validity and quality checks were also performed. These related mainly to particular sectors of the economic activity where, in some instances, several

enterprises which were likely to have incurred expenses related to environmental protection had to be re-checked. Such confirmations were conducted by telephone, to inquire about the submitted data and also to obtain any missing information. This process took approximately three weeks to achieve the expected results after contacting the individuals involved.

Another problem encountered was related to the question regarding the environment expenditure by enterprises, since this did not specify whether the environment expenditure was investment or current expenditure *per se*. Therefore the data was inputted into Table 4B, Section B (Total Current Expenditure) since most of the results were related to waste disposal fees. In view of this, in the near future the business statistics questionnaire will be fine-tuned.

Technical Visit

During this grant period a technical visit to the office by ISTAT was planned. The aims of such assistance were to acquire guidance and supervision at the work which was being done by the NSO in this field. Several attempts were made with ISTAT to send over a technical person but this did not materialise since the expert who was initially going to participate in this mission was unavailable to visit Malta during this year, as originally scheduled.

Conclusions

During this period substantial progress was registered and in the near future the Environment and Resources unit will intensify its collaboration with the Structural Business Statistics Unit to collect more data from the enterprises. The data collected will be in the form of a census for those enterprises having five employees or more.

With regard to public data, the existing data will be further segmented to have more detailed information. This work will be done in collaboration with the Public Finance Unit.

This grant project has proved very fruitful for our office since it gave us the much needed assistance to initiate the data collection for environmental accounting. The experience gained will be used for further data collection in this sector.

APPENDIX 1

05. ENVIRONMENTAL PROTECTION

The breakdown of environmental protection is based upon the Classification of Environmental Protection Activities (CEPA) as elaborated in the European System for the Collection of Economic Information on the Environment (SERIEE) of the Statistical Office of the European Communities (Eurostat).

05.1 WASTE MANAGEMENT

This group covers collection, treatment and disposal of waste. Waste collection includes sweeping of streets, squares, paths, markets, public gardens, parks, etc.; collection of all types of waste, whether selective by type of product or undifferentiated covering all waste, and their transport to place of treatment or discharge. Waste treatment includes any method or process designed to change the physical, chemical or biological character or composition of any waste so as to neutralize it, to render it non-hazardous, to make it safer for transport, to make it amenable for recovery or storage or to reduce it in volume. Waste disposal includes final placement of waste for which no further use is foreseen by landfill, containment, underground disposal, dumping at sea or any other relevant disposal method.

05.10 Waste management (CS)

- Administration, supervision, inspection, operation or support of waste collection, treatment and disposal systems;
- grants, loans or subsidies to support the operation, construction, maintenance or upgrading of such systems.

Includes: collection, treatment and disposal of nuclear waste.

05.2 WASTE WATER MANAGEMENT

This group covers sewage system operation and waste water treatment. Sewage system operation includes management and construction of the system of collectors, pipelines, conduits and pumps to evacuate any waste water (rainwater, domestic and other available waste water) from the points of generation to either a sewage treatment plant or to a point where waste water is discharged to surface water.

Waste water treatment includes any mechanical, biological or advanced process to render waste water fit to meet applicable environment standards or other quality norms.

05.20 Waste water management (CS)

- Administration, supervision, inspection, operation or support of sewage systems and waste water treatment;
- grants, loans or subsidies to support the operation, construction, maintenance or upgrading of such systems.

05.3 POLLUTION ABATEMENT

This group covers activities relating to ambient air and climate protection, soil and groundwater protection, noise and vibration abatement and protection against radiation.

These activities include construction, maintenance and operation of monitoring systems and stations (other than weather stations); construction of noise embankments, hedges and other anti-noise facilities including the resurfacing of sections of urban highways or railways with noise reducing surfaces; measures to clean pollution in water bodies; measures to control or prevent the emissions of greenhouse gases and pollutants that adversely affect the quality of the air; construction, maintenance and operation of installations for the decontamination of polluted soils and for the storage of pollutant products; transportation of pollutant products.

05.30 Pollution abatement (CS)

- Administration, supervision, inspection, operation or support of activities relating to pollution abatement and control;
- Grants, loans or subsidies to support activities relating to pollution abatement and control.

05.4 PROTECTION OF BIODIVERSITY AND LANDSCAPE

This group covers activities relating to the protection of fauna and flora species (including the reintroduction of extinct species and the recovery of species menaced by extinction), the protection of habitats (including the management of natural parks and reserves) and the protection of landscapes for their aesthetic values (including the reshaping of damaged landscapes for the purpose of strengthening their aesthetic value and the rehabilitation of abandoned mines and quarry sites).

05.40 Protection of biodiversity and landscape (CS)

- Administration, supervision, inspection, operation or support of activities relating to the protection of biodiversity and landscape;
- Grants, loans or subsidies to support activities relating to the protection of biodiversity and landscape.

05.5 R&D ENVIRONMENTAL PROTECTION

Definitions of basic research, applied research and experimental development are given under (01.4) and (01.5).

05.50 R&D Environmental protection (CS)

- Administration and operation of government agencies engaged in applied research and experimental development related to environmental protection;
- Grants, loans or subsidies to support applied research and experimental development related to environmental protection undertaken by non-government bodies such as research institutes and universities.

Excludes: basic research (01.40).

05.6 ENVIRONMENTAL PROTECTION N.E.C.

05.60 Environmental protection n.e.c. (CS)

- Administration, management, regulation, supervision, operation and support of activities such as formulation, administration, coordination and monitoring of overall policies, plans, programs and budgets for the promotion of environmental protection; preparation and enforcement of legislation and standards for the provision of environmental protection services; production and dissemination of general information, technical documentation and statistics on environmental protection. *Includes:* environmental protection affairs and services that cannot be assigned to (05.1), (05.2), (05.3), (05.4) or (05.5).

APPENDIX 2

Environment Protection for 2003 in Lm thousands	TRANSACTION	Gross capital formation	Acquisitions less disposals of non-financial non-produced assets	Compensation of employees	Subsidies	Property income (1),(3)	Intermediate consumption	Other taxes on production + Current taxes on income, wealth, etc.+ Adjustment for the change in net equity of households in pension funds reserves	Other current transfers (1),(3)	Capital transfers (1),(3)	of which, Investment grants (3)	Total expenditure	Final consumption expenditure
	Transaction Code	TRP5	TRK2	TRD1	TRD3	TRD4	TRP2	TRD29+TRD5+TRD8	TRD7	TRD9	TRD92	TRTE	TRP3
	SECTOR	General government											
	Sector Code	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13
COFOG	COFOG Code												
Environment protection	CG050	3,787.958	0.000	11,019.277	0.000	0.000	10,965.258	0.244	292.190	0.000	0.000	26,064.927	22,070.472
Waste management	CG0501	377.325	0.000	5,043.737	0.000	0.000	4,323.723	0.244	288.217	0.000	0.000	10,033.246	9,170.353
Waste water management	CG0502	3,399.435	0.000	4,265.089	0.000	0.000	723.610	0.000	0.000	0.000	0.000	8,388.134	5,203.318
Pollution abatement	CG0503	0.000	0.000	3.530	0.000	0.000	5.706	0.000	0.000	0.000	0.000	9.236	18.650
Protection of biodiversity and landscape	CG0504	0.569	0.000	0.000	0.000	0.000	4,052.461	0.000	0.000	0.000	0.000	4,053.029	4,101.285
R&D Environmental protection	CG0505	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Environmental protection n.e.c.	CG0506	10.629	0.000	1,706.922	0.000	0.000	1,859.757	0.000	3.973	0.000	0.000	3,581.281	3,576.868

Environment Protection for 2004 in Lm thousands	TRANSACTION	Gross capital formation	Acquisitions less disposals of non-financial non-produced assets	Compensation of employees	Subsidies	Property income (1),(3)	Intermediate consumption	Other taxes on production + Current taxes on income, wealth, etc.+ Adjustment for the change in net equity of households in pension funds reserves	Other current transfers (1),(3)	Capital transfers (1),(3)	of which, Investment grants (3)	Total expenditure	Final consumption expenditure
	Transaction Code	TRP5	TRK2	TRD1	TRD3	TRD4	TRP2	TRD29+TRD5+TRD8	TRD7	TRD9	TRD92	TRTE	TRP3
	SECTOR	General government											
	Sector Code	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13
COFOG	COFOG Code												
Environment protection	CG050	3,600.722	0.000	6,021.486	0.000	0.000	17,159.816	0.779	4.000	0.000	0.000	26,786.803	22,392.788
Waste management	CG0501	1,327.003	0.000	5,972.449	0.000	0.000	8,075.992	0.779	0.000	0.000	0.000	15,376.223	12,888.805
Waste water management	CG0502	2,259.591	0.000	44.371	0.000	0.000	4,820.283	0.000	0.000	0.000	0.000	7,124.245	5,183.513
Pollution abatement	CG0503	0.000	0.000	2.695	0.000	0.000	10.509	0.000	0.000	0.000	0.000	13.204	21.719
Protection of biodiversity and landscape	CG0504	14.128	0.000	0.000	0.000	0.000	3,530.667	0.000	0.000	0.000	0.000	3,544.795	3,565.198
R&D Environmental protection	CG0505	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Environmental protection n.e.c.	CG0506	0.000	0.000	1.972	0.000	0.000	722.365	0.000	4.000	0.000	0.000	728.337	733.553

Environment Protection for 2005 in Lm thousands	TRANSACTION	Gross capital formation	Acquisitions less disposals of non-financial non-produced assets	Compensation of employees	Subsidies	Property income (1),(3)	Intermediate consumption	Other taxes on production + Current taxes on income, wealth, etc.+ Adjustment for the change in net equity of households in pension funds reserves	Other current transfers (1),(3)	Capital transfers (1),(3)	of which, Investment grants (3)	Total expenditure	Final consumption expenditure
	Transaction Code	TRP5	TRK2	TRD1	TRD3	TRD4	TRP2	TRD29+TRD5+TRD8	TRD7	TRD9	TRD92	TRTE	TRP3
	SECTOR	General government											
	Sector Code	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13
COFOG	COFOG Code												
Environment protection	CG050	7,949.497	0.000	5,577.147	0.000	0.000	16,589.128	0.712	13.142	0.000	0.000	30,129.627	19,138.716
Waste management	CG0501	3,730.324	0.000	5,559.871	0.000	0.000	6,621.777	0.712	9.142	0.000	0.000	15,921.826	9,010.897
Waste water management	CG0502	3,993.257	0.000	8.407	0.000	0.000	4,812.313	0.000	0.000	0.000	0.000	8,813.978	4,894.480
Pollution abatement	CG0503	0.000	0.000	5.369	0.000	0.000	1.759	0.000	0.000	0.000	0.000	7.128	14.224
Protection of biodiversity and landscape	CG0504	5.091	0.000	3.500	0.000	0.000	4,177.858	0.000	0.000	0.000	0.000	4,186.449	4,219.590
R&D Environmental protection	CG0505	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Environmental protection n.e.c.	CG0506	220.824	0.000	0.000	0.000	0.000	975.422	0.000	4.000	0.000	0.000	1,200.246	999.526

Environment Protection for 2006 in Lm thousands	TRANSACTION	Gross capital formation	Acquisitions less disposals of non-financial non-produced assets	Compensation of employees	Subsidies	Property income (1),(3)	Intermediate consumption	Other taxes on production + Current taxes on income, wealth, etc.+ Adjustment for the change in net equity of households in pension funds reserves	Other current transfers (1),(3)	Capital transfers (1),(3)	of which, Investment grants (3)	Total expenditure	Final consumption expenditure
	Transaction Code	TRP5	TRK2	TRD1	TRD3	TRD4	TRP2	TRD29+TRD5+TRD8	TRD7	TRD9	TRD92	TRTE	TRP3
	SECTOR	General government											
	Sector Code	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13
COFOG	COFOG Code												
Environment protection	CG050	9,224.089	0.000	5,418.499	0.000	0.000	18,446.335	1.123	3.466	0.000	0.000	33,093.512	23,084.651
Waste management	CG0501	5,653.427	0.000	5,403.215	0.000	0.000	8,776.832	1.123	0.000	0.000	0.000	19,834.597	13,777.710
Waste water management	CG0502	3,401.167	0.000	9.156	0.000	0.000	5,209.432	0.000	0.000	0.000	0.000	8,619.756	4,773.122
Pollution abatement	CG0503	121.191	0.000	0.569	0.000	0.000	117.816	0.000	0.000	0.000	0.000	239.576	133.373
Protection of biodiversity and landscape	CG0504	4.882	0.000	0.000	0.000	0.000	3,697.960	0.000	0.000	0.000	0.000	3,702.841	3,733.867
R&D Environmental protection	CG0505	0.515	0.000	5.559	0.000	0.000	0.172	0.000	0.000	0.000	0.000	6.246	5.767
Environmental protection n.e.c.	CG0506	42.908	0.000	0.000	0.000	0.000	644.122	0.000	3.466	0.000	0.000	690.496	660.813

Environment Protection for 2007 in Lm thousands	TRANSACTION	Gross capital formation	Acquisitions less disposals of non-financial non-produced assets	Compensation of employees	Subsidies	Property income (1),(3)	Intermediate consumption	Other taxes on production + Current taxes on income, wealth, etc.+ Adjustment for the change in net equity of households in pension funds reserves	Other current transfers (1),(3)	Capital transfers (1),(3)	of which, Investment grants (3)	Total expenditure	Final consumption expenditure
	Transaction Code	TRP5	TRK2	TRD1	TRD3	TRD4	TRP2	TRD29+TRD5+TRD8	TRD7	TRD9	TRD92	TRTE	TRP3
	SECTOR	General government											
	Sector Code	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13	SES13
COFOG	COFOG Code												
Environment protection	CG050	15,065.177	5.800	3,318.455	0.000	0.000	16,714.526	2.815	11.839	0.000	0.000	35,118.612	19,254.480
Waste management	CG0501	9,219.750	5.800	3,290.703	0.000	0.000	7,755.972	2.815	9.915	0.000	0.000	20,284.954	9,861.992
Waste water management	CG0502	5,703.337	0.000	10.148	0.000	0.000	5,013.831	0.000	0.000	0.000	0.000	10,727.316	5,354.143
Pollution abatement	CG0503	85.400	0.000	3.222	0.000	0.000	30.418	0.000	0.000	0.000	0.000	119.039	53.050
Protection of biodiversity and landscape	CG0504	1.397	0.000	0.000	0.000	0.000	3,801.899	0.000	0.000	0.000	0.000	3,803.296	3,835.342
R&D Environmental protection	CG0505	5.710	0.000	14.382	0.000	0.000	1.417	0.000	0.000	0.000	0.000	21.509	16.189
Environmental protection n.e.c.	CG0506	49.583	0.000	0.000	0.000	0.000	110.989	0.000	1.924	0.000	0.000	162.497	133.764

APPENDIX 3

Environmental Accounting Training Session – April 2009

Date: Wednesday 1st April and Thursday 2nd April

Venue: National Statistics Office Malta

Foreign Expert: Dr. Julie L. Hass (Eurostat)

Environment and Resources Unit (NSO) staff: George Said, Sabrina Zammit, Jeffrey Galea

Other NSO Staff: Michael Pace Ross (Director General), Joseph Bonello (Director Economic Statistics), James Briscoe (Structural Business Statistics Unit), Mark Galea (Public Finance Unit), Caroline Porter (National Accounts Unit)

1. Minutes: Wednesday 1st April

The first training Session started with a brief introduction about the work which is currently being performed by each participant. The topic of waste statistics was discussed in depth and it was understood that many countries are in fact encountering difficulties when compiling data about waste generation by NACE. Dr. Hass explained that in Norway, data gaps in the waste generation table are addressed by gathering information from the waste collection invoices of private enterprises.

The training session given by Dr. Hass proceeded with the explanation of various topics which are relevant to environmental accounting.

1.1 CEPA Classification

CEPA (Classification of Environment Protection Activities) is classified into 9 different categories:

1. Air and Climate
2. Wastewater
3. Waste
4. Soil and Ground/Surface water
5. Noise and Vibration

6. Biodiversity and Landscape
7. Radiation
8. Research and Development
9. Other

This classification, which was developed in the 1990s focuses on environment protection, and thus it does not cover adequately issues of resource management. This deficiency is now being addressed through the development of the CRUMA classification, which shall be described later on.

1.2 COFOG 2005 Classifications

COFOG (Classification of Functions of Government) is classified into various categories and sub-categories. Category 5 deals with the environment. The following are the related sub-categories:

- 5.1 Waste
- 5.2 Wastewater
- 5.3 Pollution abatement
- 5.4 Biodiversity and Landscape
- 5.5 Research and Development for the Environment
- 5.6 Other

Sub-categories 5.1, 5.2, 5.4, 5.5 and 5.6 of COFOG are very similar to categories 3, 2, 6, 8 and 9 of CEPA. On the other hand the COFOG sub-category 5.3 is generalised and corresponds to categories 1, 4, 5 and 7 of CEPA.

1.3 Joint Questionnaire

The OECD/Eurostat Joint Questionnaire classifies Environmental expenditure into 8 categories:

1. Air
2. Wastewater
3. Waste
4. Soil and Groundwater
5. Noise

- 6. Biodiversity and Landscape
- 7. Other
- 8. Total

The use of COFOG is necessary for filling in this questionnaire. However so as to refrain from reporting a sizeable portion of environmental expenditure under the section 'Other', the COFOG sub-category 5.3 should be split up according to its components. This will reflect better the CEPA and Joint Questionnaire classifications. The following is an example of such a breakdown:

5.3.1 Pollution Abatement 'Air'

5.3.2 Pollution Abatement 'Groundwater'

5.3.3 Pollution Abatement 'Noise'

5.3.4 Pollution Abatement 'Radiation' (not applicable for Malta)

1.4 CRUMA Classification

CRUMA (Classification of Resource Use and Management Activities) is still in its conceiving phase and up to date has not been implemented. Its categories continue to build upon those of CEPA. The following is a table of equivalence between CRUMA and COFOG:

CRUMA	COFOG
10. Use and management of water resources	4.2.1 Agriculture – irrigation drainage
	6.3.1 Water supply
11. Use and management of natural forest resources	4.2.2 Forestry
12. Use and management of wild flora and fauna	4.2.3 Fishing and hunting
13. Use and management of fossil energy	4.3 Fuel and energy
14. Use and management of minerals	4.4.1 Mining of mineral resources

15. R & D for resource use and management	4.8.2 R & D for agriculture and fishing
	4.8.3 R & D for fuel and energy
	4.8.4 R & D for mining and manufacture
	6.5 R & D for housing and community services
16. Other	

The development of CRUMA is meant to complement the CEPA classification. Thus, when classifying expenditure, statisticians should investigate why expenditure was made so as to classify it appropriately either as environmental protection or as resource management. Countries which have worked out their environmental expenditure accounts have found out that on average 70 per cent of all environment protection expenditure falls under the waste and wastewater classes.

Previous experience has shown that when it comes to expenditure from private enterprises, it is difficult to distinguish expenditure from investment and from environment protection. In order to overcome such classification problems, Italy has developed a tailor made classification system based upon the Joint Questionnaire tables.

1.5 Environmental Taxes

Environmental taxes are classified into three main categories: Energy taxes, Transportation taxes and Resource taxes.

Data about Energy taxes is the most difficult to calculate since different fuel types have different tax rates associated with them. Tax rates may also vary depending upon fuel quantities and use.

The category of Resource taxes is quite vague since it includes all natural resources except those which are utilised for energy purposes. Countries include a wide array of taxes in this category.

1.6 Environmental Goods and Services

From this year onwards a voluntary data collection exercise about Environmental Goods and Services is set to begin. These statistics cover the employment activities and services related to the environment. Data about environmental goods and services include coverage regarding:

1. Non-market services – non-profit organisations which are mostly state owned;
2. Market services – profit making specially dedicated organisations;
3. Secondary activity producers – organisations with multiple functions having environmental services as a secondary function.

The Questionnaire about Environmental Goods and Services includes 12 different tables, which are structured according to NACE. Data for filling in this questionnaire are to be based upon the National Accounts data and the Structural Business Statistics.

Due to the great variation which exists in this sector across all EU countries, the questionnaire includes a wide array of variables. It is expected that on a country level the majority of such variables shall have '0' values assigned to them since they would otherwise not be applicable.

2. Minutes: Thursday 2nd April - Environmental Expenditure from the Private Sector

The second training session focused upon the environmental expenditure from the private sector. In a short introduction Dr. Hass explained that the National Accounts is the system upon which a number of satellite accounts have been based. Such satellite accounts include those about environmental protection, environmental expenditure, and resources and management. Currently Eurostat collects data through the EPER (Environment Protection, Expenditure and Revenue) Joint Questionnaire. By 2010 all EU countries should report their data for this questionnaire.

Data for the Joint Questionnaire originate from the government expenditure accounts (COFOG), from the Business Register and the Structural Business Statistics (SBS).

2.1 The Business Register and Structural Business Statistics

In Malta's Business register, economic units are classified according to the enterprise. According to this system WasteServ Malta Ltd. would be classified as a single unit under NACE 37. A more accurate alternative to this would be the Kind of Activity Units (KAU), whereby economic units are classified according to the nature of activities which they carry out. For example in a KAU based register, WasteServ would be broken down according to its various activities (Landfill, incineration, recycling, waste collection facilities). In the Business Register, industries specifically tied to environment are 90.01, 90.02, 90.03 and 37. In the questionnaire these industries are referred to as specialised producers.

Structural Business Statistics are collected through an appositely designed survey. Through this survey data about investment expenditure and current expenditure from manufacturing and service industries are collected. Various countries have included the following data requests into their SBS survey so as to collect information about environmental expenditure:

1. Expenditure for waste disposal,
2. Expenditure for wastewater treatment
3. Internal expenditure relating to these activities.

Ideally the SBS should also include questions about the expenditure relating to air pollution reduction. In practice, it is unlikely that the data collection process for such variables in Malta shall be easy. This is because certain expenses relating to these variables are inexistent (as in the case of wastewater) or unknown by the businesses due to the lack of previous experience in calculating such expenses.

2.2 The EPER Joint Questionnaire

In the Joint Questionnaire, environmental expenditure data is collected by sector: public sector, business sector, special producers, and households. In the case of the business sector separate tables, according to economic activity, are supplied.

As regards Malta, not all of these tables can be compiled by using the information which is supplied by the SBS survey, since this survey covers only the Manufacturing and Services sector. On the other hand, data about the turnover and

investment expenditure of the specialised producers is available locally through the SBS survey.

In Malta public entities not operating at a profit, such as the Works Division, are included in the Business Register. However such entities are not covered by the SBS survey, so as not to distort statistics about commercial enterprises. On the other hand profit making organisations which are government owned are included in the SBS survey. Thus when filling out the Joint Questionnaire, it should be decided which enterprises may be covered by the public sector table, and which should be covered by the business tables.

2.3 Expenditure on Clean-air technology

The Joint Questionnaire also includes a section about the expenditure related to clean air technology. By definition, only the expenses which are extra to standard technology should be reported. However due to widespread use of tailor made technological devices across all industrial sectors, reporting such a requirement is no easy task. In fact countries which sent out questionnaires for enterprises to fill out on their own, have received incomplete data or crude estimates.

The Netherlands has consequently opted to cover this part of the questionnaire by employing environmental engineers to survey enterprises which make a certain amount of investment expenditure. These engineers investigate which portion of the investment expenditure was allocated for environmental purposes. The results are then utilised to produce a model for the whole country.

In Norway, an environmental expenditure survey revealed that in the private sector recurrent expenditure is higher than capital expenditure. Sweden has also prepared a questionnaire on environmental expenditure and resource management in the private sector. On the left hand side of the booklet one can find the questions whilst on the right hand side guidance notes can be found.

2.4 Actions and Conclusion

Ultimately it was agreed that by the end of May, the Environment and Resources Unit and the Structural Business Statistics Unit should collaborate so that new questions are included in the SBS questionnaire set up. These questions should

cover the environmental expenditure divided by investment and current expenditure for waste, wastewater and clean air technology.

It was also agreed that the Environment and Resource Unit should help the Government and Finance Unit so that section 5.3 of the COFOG is subdivided into its various component parts. This data should then be utilised for producing Environmental Protection Expenditure Accounts and for filling in the Joint Questionnaire on Environment Protection, Expenditure and Revenue.

The training session was concluded after a brief comparison between statistics and accounts. Dr. Hass explained that accounts tried to eliminate double counting and adjusted system boundaries so that flows were taken note of. In the case of waste, it would be necessary to know the origin of waste materials by source. This means that it would be necessary to know which waste was imported or exported, and which industries generated the waste by NACE. In doing so one would be able to know how the waste flowed from producer to treatment and disposal.

APPENDIX 4

Total Turnover for NACE 37 and 90 - 2006		
Nace	Total turnover in €	Activity
37.1	5,913,574.95	gasparell, hompesch, metalco
37.2	3,428,688.20	waste oils, paper Malta, construction and demolition, paper Malta, biorem international, waste and recycling
90	5,435.89	cleaning services
90.01	1,126,312.68	waste & cleaning & recycling services
90.02	8,348,676.59	refuse collectors, transporters, construction services, environmental services, cleaning cooperatives, skips
90.03	36,820.99	beach cleaning Gozo, public cleansing Gozo

Note: Data is Provisional

APPENDIX 5

Table A Environmental Expenditure by Private Enterprises -2008. (Data includes environmental expenditure by specialised producers)								
		(EUROS)						
Business Register No.	NACE Rev 2	Total Current Exp. On Env. Protection	Waste	Air Pollution Prevention	Wastewater	Noise	Soil & Groundwater	Other
10452	41.20	605,405	605,405	0	0	0	0	0
10248	42.11	32,393	32,393	0	0	0	0	0
5819	21.20	30,623	0	0	30,623	0	0	0
43748	52.1	19816	19816	0	0	0	0	0
16089	46.38	18,541	18,541	0	0	0	0	0
6679	20.41	17,115	17,115	0	0	0	0	0
29495	56.3	16207	16207	0	0	0	0	0
72392	21.20	13,802	3,180	1,500	9,122	0	0	0
54187	52.24	10256	10256	0	0	0	0	0
9205	32.40	10,171	10,171	0	0	0	0	0
45590	52.10	10,040	0	0	0	0	0	0
28281	55.10	9,058	9,058	0	0	0	0	0
80314	47.30	9,006	1,017	2,189	4,122	602	1,076	0
77067	38.11	8,244	8,244	0	0	0	0	0
66582	55.10	7,685	3,013	0	4,672	0	0	0
18102	46.46	7,049	7,049	0	0	0	0	0
5753	10.72	6540	4377	1156	1007	0	0	0
28242	55.10	5,590	5,590	0	0	0	0	0
9592	42.11	4,363	4,363	0	0	0	0	0
9564	42.11	4,133	4,133	0	0	0	0	0
22697	47.73	3,992	3,992	0	0	0	0	0
16137	46.38	3593	2909	0	0	0	0	684
16757	46.46	3,407	3,407	0	0	0	0	0
52817	56.1	3396	0	0	180	0	0	3216
41715	38.11	3196	3196	0	0	0	0	0
15275	46.74	2,915	2,915	0	0	0	0	0
60812	62.01	2900	300	2600	0	0	0	0
28314	55.1	2900	2900	0	0	0	0	0
59059	25.73	2,876	2,876	0	0	0	0	0
15553	46.74	2,600	2,600	0	0	0	0	0
10280	41.20	2593	2593	0	0	0	0	0
15075	96.02	2,000	2,000	0	0	0	0	0
84032	46.18	1924	1924	0	0	0	0	0
54309	46.73	1,882	1,882	0	0	0	0	0
8328	31.09	1,880	1,880	0	0	0	0	0
38319	43.21	1,715	1,715	0	0	0	0	0
25466	47.41	1,300	1,300	0	0	0	0	0
54744	47.11	1,258	1,258	0	0	0	0	0
16816	46.46	1,204	1,204	0	0	0	0	0
54614	96.01	1,200	1,200	0	0	0	0	0
15098	10.39	1,171	1,171	0	0	0	0	0
59380	22.29	1,082	1,082	0	0	0	0	0
61877	43.22	1040	1040	0	0	0	0	0
7571	25.99	1,000	1,000	0	0	0	0	0
6701	20.42	962	962	0	0	0	0	0
14292	45.20	854	854	0	0	0	0	0
9466	35.11	841	0	0	0	0	0	0
6463	18.12	838.49	838.49	0	0	0	0	0
10434	42.11	824	824	0	0	0	0	0
15143	47.91	792	792	0	0	0	0	0
55819	20.42	773	773	0	0	0	0	0
39126	56.10	712	712	0	0	0	0	0
28928	56.10	704	704	0	0	0	0	0
28586	56.10	670	670	0	0	0	0	0
51314	92.00	574	574	0	0	0	0	0
10033	41.20	550	550	0	0	0	0	0
9541	43.11	549	549	0	0	0	0	0
17129	74.20	535	535	0	0	0	0	0
28842	56.10	526	526	0	0	0	0	0
54702	47.52	510	510	0	0	0	0	0
71650	10.71	420	420	0	0	0	0	0
42454	60.20	400	400	0	0	0	0	0
9555	43.12	400	400	0	0	0	0	0
6455	18.12	383	383	0	0	0	0	0
6528	46.76	365	365	0	0	0	0	0
16786	47.41	350	350	0	0	0	0	0
28483	56.10	150	150	0	0	0	0	0
22907	47.73	150	150	0	0	0	0	0
54472	27.12	150	0	0	0	0	0	0
6146	14.13	122	122	0	0	0	0	0
16723	46.41	120	120	0	0	0	0	0
16570	20.42	120	120	0	0	0	0	0
37958	71.11	100	100	0	0	0	0	0
EUROS TOTAL		913,505	839,725	7,445	49,726	602	1,076	3,900

Table 2 Total Enterprises - 2008			
	Description of nace	Total Current Exp. On Env. Protection	% of total
1	Construction of residential and non-residential buildings	608,548	66.62
2	Manufacture of pharmaceutical preparations	44,425	4.86
3	Construction of roads and motorways	41,713	4.57
4	Hotels and similar accommodation	25,233	2.76
5	Wholesale of other food, including fish, crustaceans and molluscs	22,134	2.42
6	Warehousing and storage	19,816	2.17
7	Manufacture of soap and detergents, cleaning and polishing preparations	17,115	1.87
8	Beverage serving activities	16,207	1.77
9	Wholesale of pharmaceutical goods	11,660	1.28
10	Collection of non-hazardous waste	11,440	1.25
11	Cargo handling	10,256	1.12
12	Manufacture of games and toys	10,171	1.11
13	Warehousing and storage	10,040	1.10
14	Retail sale of automotive fuel in specialised stores	9,006	0.99
15	Manufacture of rusks and biscuits; manufacture of preserved pastry goods and cakes	6,540	0.72
16	Restaurants and mobile food service activities	6,158	0.67
17	Wholesale of hardware, plumbing and heating equipment and supplies	5,515	0.60
18	Dispensing chemist in specialised stores	4,142	0.45
19	Computer programming activities	2,900	0.32
20	Manufacture of tools	2,876	0.31
21	Hairdressing and other beauty treatment	2,000	0.22
22	Agents specialised in the sale of other particular products	1,924	0.21
23	Wholesale of wood, construction materials and sanitary equipment	1,882	0.21
24	Manufacture of other furniture	1,880	0.21
25	Manufacture of perfumes and toilet preparations	1,855	0.20
26	Electrical installation	1,715	0.19
27	Retail sale of computers, peripheral units and software in specialised stores	1,650	0.18
28	Retail sale in non-specialised stores with food, beverages or tobacco predominating	1,258	0.14
29	Other printing	1,221	0.13
30	Washing and (dry-)cleaning of textile and fur products	1,200	0.13
31	Other processing and preserving of fruit and vegetables	1,171	0.13
32	Manufacture of other plastic products	1,082	0.12
33	Plumbing, heat and air-conditioning installation	1,040	0.11
34	Manufacture of other fabricated metal products n.e.c.	1,000	0.11
35	Maintenance and repair of motor vehicles	854	0.09
36	Production of electricity	841	0.09
37	Retail sale via mail order houses or via Internet	792	0.09
38	Gambling and betting activities	574	0.06
39	Demolition	549	0.06
40	Photographic activities	535	0.06
41	Retail sale of hardware, paints and glass in specialised stores	510	0.06
42	Manufacture of bread; manufacture of fresh pastry goods and cakes	420	0.05
43	Television programming and broadcasting activities	400	0.04
44	Site preparation	400	0.04
45	Wholesale of other intermediate products	365	0.04
46	Manufacture of electricity distribution and control apparatus	150	0.02
47	Manufacture of other outerwear	122	0.01
48	Wholesale of textiles	120	0.01
49	Architectural activities	100	0.01
	Total	913,505	100.00

Table C Specialised Producers																										
No.	BR No.	Nace rev 2	Activity	Total Current Exp. On Env. Protection	Waste	Air Pollution Prevention	Wastewater	Noise	Soil & Groundwater	Other	Total Gross wages	Total purchases	rent/lease on building	rent/lease on land	hire/charges for plant/machinery	hire charges for vehicles	Work given out to subcontractors	Payments to/for Agency workers	Expenditure on marketing	Other operating Income	Financial Income	Subsidies	Capitalised Production	Investments	Total Turnover	
1	41757	38.11	Skip hire	0	0	0	0	0	0	0	74012	204885	14863	0	0	0	0	0	0	5933	0	0	0	0	932,276	596,356
2	41715	38.11	Refuse collection Service	3,196	3,196	0	0	0	0	0	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
3	64383	38.11	public convenience	0	0	0	0	0	0	0	0	640	0	0	0	0	0	0	0	0	0	0	0	0	0	3,494
4	45415	38.11	Sewage Cleaning & Maintenance	0	0	0	0	0	0	0	0	4,517	0	0	0	0	0	0	0	0	0	0	0	0	0	12,050
5	66014	37	Attendant Public convenience	0	0	0	0	0	0	0	0	2,074	0	0	0	0	0	0	0	0	0	0	0	0	0	1,199
6	84073	38.11	P/T Drainage	0	0	0	0	0	0	0	0	775	0	0	0	0	0	0	0	0	0	0	0	1,800	1,504	
7	9456	38.32	sale/export scrap metal	0	0	0	0	0	0	0	44,333	1,118,407	3495	0	0	0	0	0	0	0	0	0	0	0	70,869	1,337,554
8	9460	38.32	recycle of scrap material	0	0	0	0	0	0	0	48,131	1706021	699	0	0	0	0	0	0	0	0	6320	0	0	1,102,357	2476924 (tons)
9	77067	38.11	provision of waste disposal	8,244	8,244	0	0	0	0	0	13,540	80,845	0	0	0	7,813	0	0	822	0	0	0	0	0	82,525	216,527
10	9466	40.11	importation & distribution of petroleum products	841	0	0	0	0	0	0	5,268,012	576,174,331	0	367,404	1,361	25,363	330,747	0	668	2,261,878	136,495	0	0	0	133,761,017	689,223,173
11	32070	38.11	scammal driver	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	92351	37	waste collection	0	0	0	0	0	0	0	0	8,031	0	0	0	0	0	0	0	0	0	0	0	0	0	64,896
13	41734	38.11	refuse collection driver	0	0	0	0	0	0	0	8218	11727	0	0	0	0	5,277	0	0	0	0	0	0	3778	31,485	
14	45940	38.11	greengrocer	0	0	0	0	0	0	0	0	51,485	3019	0	0	0	0	0	0	0	0	0	0	0	1,963	62,070
15	65913	38.11	load carrier	0	0	0	0	0	0	0	0	45,093	0	0	0	0	7,390	0	0	0	0	0	0	54,123	67,484	
16	58100	38.11	coach transport	0	0	0	0	0	0	0	0	18,393	0	0	0	0	0	0	0	0	0	0	0	37,370	35,984	
17	72494	38.11	construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,584	
18	43749	38.11	farmer & farm tractor service	0	0	0	0	0	0	0	0	120	0	0	0	0	0	0	0	0	0	0	0	10,000	33,115	
19	76224	37	waste recycling	0	0	0	0	0	0	0	0	1,880	6988	0	0	0	0	0	0	0	0	0	0	0	0	0
20	88128	38.11	Waste Disposal	0	0	0	0	0	0	0	0	2,871	0	0	0	0	0	0	0	0	0	0	0	10,000	10,563	
Total Euros				12,281	11,440	0	0	0	0	0	5,456,246	579,432,095	29,064	367,404	1,361	33,176	343,414	0	7,423	2,261,878	142,815	0	0	136,068,078	691,706,038	

