Implementation of the Shared Environmental Information System principles and practices in the Eastern Partnership countries (SEIS East) - Part on waste statistics

Country Fact Sheet (CFS) Check-List

Framework Contract EuropeAid 132633/C/SER/multi,
LOT 11 - MACRO ECONOMY. STATISTICS, PUBLIC FINANCE MANAGEMENT
SPECIFIC CONTRACT NR 2015/367-903 - ESTAT NR CONTRACT 14465.2015.002-2015.829

15 May 2017

"This report has been prepared by Wim Van Breusegem and Jürgen Gonser. Its contents are the sole responsibility of ADE and Gopa and can in no way be taken to reflect the views of the European Commission."

Introduction

The present Country Fact Sheet (CFS) check-list is designed to list all relevant issues that should be considered when describing the existing situation with regard to waste statistics in general and municipal waste statistics in particular in EaP countries.

The check-list shall serve a three-fold purpose within the project:

1. It shall help to collect in a well-structured way all information that is needed for the preparation of the Country Fact Sheets;
2. During the country visits, the check-list will be used as guidance, to ensure a structured discussion on the existing waste management information situation in the countries;
3. Finally, the list can serve as guidance to countries that want to assess that national waste management information system.

The check-list consists of two parts:

Part 1 aims to provide an overview on the production of waste statistics and indicators in general. It addresses mainly the legal basis for waste statistics, the institutional framework, the scope of data collection and the classifications used.

Part 2 focusses on municipal waste statistics. The check-list covers the whole production chain from basic definitions to data collection and to data dissemination and quality assurance.

The checklist is mainly based on the following documents:

- Eurostat, 2016: Guidance on municipal waste data collection
- Eurostat, 2016a: Municipal waste reporting (Data Quality / Methodology Report)
- Eurostat, 2016b: Template for the Quality Report on waste statistics for the reference year 2014.
- Eurostat, 2014: ESS handbook for quality reports (2014 edition)
- Eurostat, 2013: Manual on waste statistics. A handbook on data collection on waste generation and treatment (2013 edition)
- Joint Questionnaire: OECD/Eurostat Joint questionnaire on the state of the environment – Waste.
- Eurostat, 2010: Guidance on classification of waste according to EWC-Stat categories. Supplement to the Manual for the Implementation of the Regulation (EC) No 2150/2002 on Waste Statistics (version 2 from Dec 2010)
- 1445/2005/EC: Commission Regulation (EC) No. 1445/2005 of Sep. 2005 defining the proper quality evaluation criteria and the contents of the quality reports for waste statistics for the purposes of Regulation (EC) No 2150/2002 of the European Parliament and of the Council

Check-list

Theme & topics	Description	Explanations and examples
Part I: Overview of existing waste surveys		
Legal basis for waste statistics	▪ What is the legal basis for waste statistics: - statistical legislation and/or - waste legislation (in case of administrative data sources). ▪ Provide references and give an overview of the main provisions ▪ Do you use the definitions laid down in the waste legislation for the production of statistics or do you use other definitions? ▪ Are there any legal obligations of waste generators, waste collectors, transporters or operators of treatment facilities to keep records on types and amounts of waste generated, transported, managed, imported, exported, etc.?	
Overview of waste surveys / data sources	▪ Please name the established statistical surveys used for the production of waste statistics ▪ Please name administrative surveys / data sources on waste and specify which ones are used for the production of waste statistics ▪ Is the reporting under the surveys named above? ▪ What is the frequency of the surveys? ▪ Since when established (first reference year)?	
Institutions involved	Describe responsibilities of and the relationship between institutions: ▪ Which institutions are involved in the surveys and in the production of waste data/waste statistics? ▪ Role and responsibilities of each institution involved? Which is the lead institution for each survey? ▪ Collaboration or competition/conflicts between involved institutions? ▪ Number of staff working on waste statistics in each institution	

Theme & topics	Description	Explanations and examples
	▪ Organisation structure: regional offices involved?	
Classifications used	Which classifications are used for: - Economic activities - Waste types - Waste treatment operations - Other ▪ To what extent are the classifications used aligned with the corresponding international (including European) classifications?	Relevant classifications (EU and international): ▪ Economic activities: NACE Rev.2, ISIC Rev.4 ▪ Waste types: European List of wastes (Dec. 2000/532/EC), EWC-Stat version 4 (Reg. 849/2010/EU), categories acc. to Basel Convention (green and amber list) ▪ Waste treatment operations: R and D operations listed 2008/98/EC and used by OECD and for waste shipment data (Basel Convention)
Waste indicators	▪ Which waste indicators are regularly produced?	Waste indicators produced by Eurostat: ▪ Municipal waste generation & treatment, by treatment method (kg/cap) ▪ Generation of waste excluding major mineral wastes (kg/cap) ▪ Generation of hazardous waste, by economic activity (kg/cap) ▪ Management of waste excluding major mineral wastes (pilot data) (t, %) Waste core indicator (I1) agreed under ENPI-SEIS: ▪ Annual generation of municipal / household waste per capita

Theme & topics	Description	Explanations and examples
Part II: Municipal Waste (MW) statistics		
Municipal waste management		
Municipal waste management	▪ Who is legally responsible for - MW collection - MW treatment ▪ Who carries out MW collection in practice: - Municipalities municipal services), - Public enterprises, - Public-private partnership (PPP) companies - Private companies ▪ By whom are the waste collectors contracted: local government, households, others?	Understanding the organisation of MW collection and management shall help to identify all relevant stakeholders
Purpose and use of the data	▪ Who are the main users and what is the main purpose and of the MW data?	Possible use of data: ▪ Waste management planning ▪ Monitoring of waste policies ▪ Evidence-based investment decisions
Definition and scope		
Existing definition(s)	▪ How is municipal waste defined? ▪ Any specific municipal waste streams that are defined (e.g. biodegradable waste, bulky waste, packaging waste, ..) ? ▪ Where are each of the definitions established: legislation, policy document, etc..? Please provide the respective legislation /documents. ▪ Do you believe that the definitions comply with the EU and UN definitions? Specify deviations.	References: ▪ Eurostat, 2016: Guidance on municipal waste data collection ▪ Joint Questionnaire: OECD/Eurostat Joint questionnaire on waste ▪ UNSD/UNEP questionnaire on waste 2016
Scope of data collection: Waste types	▪ For which waste types are data collected? For example: - Mixed municipal waste - Bulky waste - Waste from markets	The detailed list of waste types that are covered by the EU/OECD MW definition are listed in Table 1 of the Annex to the check-list. Table 1 is an adapted version of the table to question 1.3c in the Eurostat MW quality report, and shall be

Theme & topics	Description	Explanations and examples
	- Separately collected waste - Specific waste streams, such as packaging waste, hazardous waste, etc. ▪ Does data collection cover waste streams that do not fall under the MW definition? (e.g. C&D waste, sewage sludge, ..) ▪ How important are those waste types in terms of quantity? ▪ Does (official) separate collection exist to an extent that it should be covered by data collection? For which materials? ▪ How important is the separate collection, in terms of quantity and in terms of coverage (percentage of population covered)?	used to document the MW data coverage in EaP countries.
Scope of data collection : Origin of waste	▪ Specify the origin of the MW covered by data collection for each of the types of MW listed above: - Households - Small enterprises, restaurants, .. - Office buildings / institutions - Public services - Others	Table 1 in the Annex to the check-list shall be used to specify the origin of waste covered by MW data collection.
Data / information collected	▪ Which qualitative (textual) and quantitative (numerical) data are collected on: - Reporting units - Waste collection - Waste treatment - Data quality	Examples: ▪ Reporting units: General data like address, contact information, ID number, NACE code, ▪ Waste collection: collected amounts, no. of inhabitants served, origin of waste ▪ Waste treatment: treated quantities, type of treatment, imports/exports for treatment ▪ Data quality: type of measurement (weighing, estimation,..), conversion factors, A more detailed list of relevant data and information on MW collection and treatment is shown in Table 3 below.
Time schedule of survey	▪ What is the time schedule of the survey? Please describe the key steps from the start of the survey to the publication of the data.	Key steps: ▪ Information of reporting units ▪ Sending of questionnaires

Theme & topics	Description	Explanations and examples
		▪ Deadline for reporting units ▪ Data processing (entry, validation, compilation) ▪ Publication
Documentation on survey methodology	▪ Is there a document that fully describes the survey methodology? ▪ If yes, what are the references? ▪ Any document in English?	
Data collection		
Data sources(s) / reporting unit	▪ From which reporting units/sources are the MW data collected ? ▪ Which sources are used to identify the reporting units (e.g. Statistical Business Register; administrative register of companies with permits for waste collection, etc.) ▪ Are there problems to identify the reporting units, e.g. in case of suc-contracting? ▪ How is the list of reporting units kept up-to-date? ▪ Do you use additional data sources: - for specific waste types, e.g. for market wastes or street cleaning wastes? - for (specific) treatment operations, e.g. for recycling of for landfilling?	Most common reporting units for municipal waste: ▪ waste collectors (public or private?), ▪ municipalities, ▪ other public bodies (e.g. districts, associations of municipalities), ….
Data collection methods	▪ How are municipal waste data collected? Please describe the method(s) briefly: - Statistical data collection or administrative data source? - Full survey or sample survey? In case of sample survey: describe the sampling approach, i.e. sample size, stratification, sampling rate, etc..	
Frequency	▪ Frequency of data collection: annual, biennial, other intervals?	
Data collection tools	▪ Which data collection tools are used? ▪ Primary data collection: - self-completion paper questionnaires - personal interviews	

Theme & topics	Description	Explanations and examples
	- electronic tools (online-reporting; spreadsheets, ...) - other ▪ Depending on data collection tool: - Has the collection tool been tested with stakeholders? - How are the interviewers prepared/trained for their work? ▪ Do you use secondary data? If yes: - Which type of data? - What is the data source, e.g. research studies, census and population statistics, literature review of government documents, internet sources, , etc.?	
Data collection process	▪ How are the reporting units informed on their reporting obligation? What triggers the reporting? ▪ What support is provided during the data collection (e.g. help-desk, guidance)? ▪ How is the follow-up of non-responses organised? ▪ What measures are taken to ensure a high data return, e.g. sending of reminders, telephone contact, fines in case of non-reporting? ▪ What is the timeline for data collection?	
Data processing		
Data entry	▪ How are the data entered into the electronic data processing (EDP) system? Automatically or manually? In case of manual entry: Which institution(s) is/are entering the data?	
Data validation	▪ How are you validating the data? ▪ Do you have a validation plan, i.e. a set of defined validation checks/procedures, that aims at identifying possible errors in a systematic way? ▪ What kind of validation checks do you apply, e.g. checks for completeness, logical checks, comparison with previous year(s), comparison between reporting units, ..? ▪ Is (potentially) incorrect or incomplete information checked by	Types of checks: ▪ Formal checks, include for example - checks the technical integrity of the data set, e.g. valid data type, field length, characters. - checks for completeness (data reported: yes/no) ▪ Logical checks, include for example: - checks relations between different cell in the data set (e.g. cell 1 =,>, < cell 2; IF-THEN relations ;

Theme & topics	Description	Explanations and examples
	contacting the reporting unit concerned? ▪ How is the validation process and its outcome documented?	total = sum of breakdown) - checks for correct classification ▪ Arithmetical checks, may aim at logical relation or at data consistency and are based on numerical calculation. Such checks include for example comparison with previous years.
Data compilation	▪ How are non-responses (unit and item non-responses) and other missing data handled? - Are the non-responses simply ignored? - Are the missing data imputed? If yes, how is the imputation done? ▪ How are missing codes (waste codes, ISIC codes, treatment codes, ..) handled? ▪ How are data converted, if reported in volume (m^3) or pieces? Which conversion factors are used? ▪ In case of sample survey: how are the data grossed up (extrapolated), i.e. on the basis of inhabitants, households, other? ▪ How is the uncollected MW, i.e. the waste that is generated by the population not covered by MW collection, estimated? ▪ Are the same quantities reported by different reporting units? If yes, how do you avoid double-counting?	Imputation is the process used to determine and assign replacement values for missing, invalid or inconsistent data. In a sample survey or census the reasons for imputation could be non-response (usually item non-response) or to correct values affected by measurement or processing errors. (Eurostat, 2014: ESS handbook for quality reports)
Data quality		
General aspects	▪ Do you follow a defined quality policy? Please specify.	The quality policy encompasses all measures aiming at a high data quality during the whole production chain, i.e. starting with the planning of data collection and ending with dissemination of data and related meta-information.
Relevance	▪ Do the data meet the needs / requirements of the users?	The definitions of the quality criteria are based on the 'ESS

Theme & topics	Description	Explanations and examples
		handbook for quality reports.′
Completeness	▪ Are you able to produce a complete data set? ▪ Are there variables for which you cannot produce data? ▪ What measures are envisaged produce a complete data set in future?	
Accuracy	Sampling error (if applicable): ▪ Any sampling errors known? ▪ What are the coefficients of variation for MW collection and treatment?	Coefficient of varation (CV): The CV is a standardised statistical measure of data variation (spread of data) and the . The CV is expressed as a percentage, and is defined as the ratio of the standard deviation to the mean lower the CV the less the variation and the lower the sampling error there is.
	Coverage errors : ▪ Does the survey cover 100% of the collected and treated waste? If not, please specify areas not covered (e.g informal recycling, non-licensed and/or illegal landfills, …) ▪ How do you make sure that the list of reporting units is always complete and up-to-date? ▪ Do you produce an estimate to cover MW that is not collected by the reporting units ?	
	Measurement errors : ▪ How are the collected and treated amounts determined (weighing, volume-based estimation of the weight)? ▪ What part of the collected and treated amounts is determined by weighing and what part by other means? ▪ Is there a significant impact of the conversion factor(s) used on the quality of the data (e.g. through inaccurate factor or through the absence of agreed factors)? ▪ Are there incentives for the stakeholders for over- or under-reporting (e.g. for tax reasons)?	
	Non-response errors: ▪ Which response rates are achieved?) ▪ How big is the assumed impact of non-responses on data quality? ▪ What measures are envisaged to minimise non-responses errors?	

Theme & topics	Description	Explanations and examples
	Processing errors : ▪ Which processing steps can lead to processing errors? Describe. ▪ Which processing errors are known? ▪ What measures are taken to minimise and detect processing errors?	Examples for processing errors: ▪ Data entry errors ▪ Coding errors, e.g in the coding of economic activity, waste type, type of treatment operation ▪ Imputation error
Timeliness and punctuality	▪ Is the timeliness of the results sufficient for the data users? ▪ Do you comply with your own schedule? ▪ Do you comply with deadlines of international reporting obligations (if applicable)? ▪ Envisaged measures for improvement?	
Comparability and coherence	▪ Comparability over time: Have there been any changes in definitions, in data coverage or in methodology that have a significant impact on the time series of the produced data? ▪ Regional comparability: Are the produced data comparable across the whole country or are there regional particularities?	
Accessibility and clarity; dissemination	▪ How are the data made available to the users/to the public: - online database accessible to the general public, - regular or ad-hoc publications - press releases? ▪ Do you make documents/information on the methodology available? ▪ Do you document and publish information on data quality (e.g. quality reports)?	
Cost and burden	▪ Is the data collection a significant burden to the reporting units? ▪ What do you do to minimise the burden?	This topic is usually more relevant for industrial waste surveys than for the municipal waste survey
Confidentiality	▪ Are there legal provisions in place that limit the disclosure of data? ▪ Which rules are applied to ensure statistical confidentiality (e.g. controlled rounding, cell suppression, aggregation of disclosed information, …)	

Theme & topics	Description	Explanations and examples
Data management and storage		
Data management	▪ In what type of system are the data entered and processed? - Database management system - Spreadsheets (Excel or similar) - Other? ▪ To which degree are the data processing steps (validation checks, imputation procedures, data aggregation, disguise of confidential data, etc.) programmed and which work has to be done manually? ▪ Are the master data of the reporting units (company name, address, contact data, identification number(s), economic activity, etc.) stored and updated centrally within the database system?	
Data storage	▪ How are the survey data stored? Are data from previous data collections easily available and usable for data comparison with previous years and the	
Main areas for improvement		
Methodological		
Operational		
Barriers to improvement		
Human resources		E.g. lack of staff; knowledge; skills; loss of know-how or problems to build capacity because of high staff turnover
Infrastructure		
Financial resources		
Other		▪ e.g. the reluctance of stakeholders to provide data that are perceived as being confidential/sensitive
Recommended actions		
To improve data collection:		The recommended actions shall address the methodological and operational challenges, with for each action: ▪ identification of the lead organisation that should
To improve		

Theme & topics	Description	Explanations and examples
validation and processing:		undertake the action: a country organisation, the Project, Eurostat/EEA and of the organisations that could provide support/TA ▪ In the short (1 year), medium (3 years) or long term (6 years)
To improve data sharing/ dissemination:		

Table 1: Municipal waste by type of waste and by sources (tool to document the coverage of MW data collection)

Type of waste	List of Waste code Com. Dec. 2000/532/EC	Generated by				
		Households	Small enterprises/ Restaurants, etc	Office buildings/ institutions	Public Services	Others (please specify)
Mixed municipal waste	20 03 01, 15 01 06					
Bulky waste	20 03 07					
Municipal park and garden waste	20 02 01, 20 02 02, 20 02 03					
Waste from markets	20 03 02					
Street sweepings (street-cleaning residues)	20 03 03					
Paper and cardboard	20 01 01, 15 01 01					
Metals	20 01 40, 15 01 04					
Plastic	20 01 39, 15 01 02					
Glass	20 01 02, 15 01 07					
Wood	20 01 38, 15 01 03					
Textiles	20 01 10, 20 01 11, 15 01 09					
Biodegradable kitchen and canteen waste	20 01 08, 20 01 25					
Mixed packaging, composite packaging	15 01 05, 15 01 06					
Batteries	20 01 34, 20 01 33*					
Discarded equipment	20 01 21*, 20 01 23*, 20 01 35*, 20 01 36					
Hazardous household waste	20 01 13* - 15*, 20 01 17*, 20 01 19*, 20 01 26* - 27*, 20 01 29*, 20 01 31*, 20 01 37*					
Municipal waste not mentioned above (please specify)						

Table 2: Municipal waste coverage by WStatR categories

Number of countries indicating the cell as being included/partly included in municipal waste (N=16)

Waste	hazard	01 - 02 / A01-A03	03 /B	04 - 13 / C10-C33	14 /D	15 -16 / E36-E39	17 /F	18 / G-U_X_G4677	19 / G4677	20 / EP_HH	20 / HH, share by EWC-Stat, EU27 2004 to 2008
01.1 - Spent solvents	HAZ									8	0.0%
01.2 - Acid, alkaline or saline waste	NHAZ										
01.2 - Acid, alkaline or saline waste	HAZ									7	0.0%
01.3 - Used oils	HAZ									7	0.0%
01.4 - Spent chemical catalysts	NHAZ										
01.4 - Spent chemical catalysts	HAZ										
02 - Chemical preparation wastes	NHAZ									7	0.0%
02 - Chemical preparation wastes	HAZ									10	0.0%
03.1 - Chemical deposits and residues	NHAZ										
03.1 - Chemical deposits and residues	HAZ										0.0%
03.2 - Industrial effluent sludges	NHAZ										
03.2 - Industrial effluent sludges	HAZ										
05 - Health care and biological wastes	NHAZ							6			0.0%
05 - Health care and biological wastes	HAZ										0.0%
06 - Metallic wastes	NHAZ							9		14	1.5%
06 - Metallic wastes	HAZ										
07.1 - Glass wastes	NHAZ							9		14	3.6%
07.1 - Glass wastes	HAZ										
07.2 - Paper and cardboard wastes	NHAZ							10		14	7.8%
07.3 - Rubber wastes	NHAZ										
07.4 - Plastic wastes	NHAZ							10		14	0.9%
07.5 - Wood wastes	NHAZ							8		12	1.3%
07.5 - Wood wastes	HAZ									9	0.0%
07.6 - Textile wastes	NHAZ							7		13	0.3%
07.7 - Waste containing PCB	HAZ										
08 (not 8.1, 8.41) - Discarded equipment (excluding discarded vehicles)	NHAZ							8		12	0.3%
08 (not 8.1, 8.41) - Discarded equipment (excluding discarded vehicles)	HAZ							7		10	0.2%
08.1 - Discarded vehicles	NHAZ										0.0%
08.1 - Discarded vehicles	HAZ										0.6%
08.41 - Batteries and accumulators wastes	NHAZ							8		10	0.0%
08.41 - Batteries and accumulators wastes	HAZ							9		11	0.0%
09 (not 9.11, 9.3) - Animal and vegetal wastes	NHAZ							11		14	9.4%
09.11 - Animal waste of food preparation and products	NHAZ										
09.3 - Animal faeces, urine and manure	NHAZ										
10.1 - Household and similar wastes	NHAZ	6	7	7	7	8	7	13	6	16	68.1%
10.2 - Mixed and undifferentiated materials	NHAZ							11		10	2.7%
10.2 - Mixed and undifferentiated materials	HAZ							6			0.0%
10.3 - Sorting residues	NHAZ										
10.3 - Sorting residues	HAZ										
11 (not 11.3) - Common sludges (excluding dredging spoils)	NHAZ									6	0.1%
11.3 - Dredging spoils	NHAZ										
12.1 to 12.5 (not 12.4) - Mineral wastes	NHAZ							6		10	2.2%
12.1 to 12.5 (not 12.4) - Mineral wastes	HAZ										0.0%
12.4 - Combustion wastes	NHAZ										
12.4 - Combustion wastes	HAZ										
12.6 - Contaminated soils and polluted dredging spoils	HAZ										
13 - Solidified, stabilised or vitrified wastes	NHAZ										
13 - Solidified, stabilised or vitrified wastes	HAZ										
total - Total Waste	TOTAL										100%

Legend and Notes:

6 to 9
10 to 13
>13

Table 3: Overview of relevant data / information for municipal waste surveys

Topic	Type of data / information	Explanation
MW collection/generation		
	Amount of MW collected	By type of waste
	Source of waste	Households, small enterprises/restaurants, office buildings/institutions, public services, others (% of MW collected or tonnes)
	Type of waste collection	Door-to-door, bring system, civic amenity sites (% of MW collected or tonnes)
	Destination of collected waste	Treatment type; specification of facility to which the waste is delivered
	Population covered by MW collection	No. of inhabitants; no. of households, …
MW treatment		
	Total amount of MW received by treatment plant	By type of waste
	Collection company who delivers the waste and amount of waste	
	Regional origin	Municipality or more specific information on the origin of the waste
	Amount of waste for material recycling	
	Amount of waste for composting / digestion	
	Amount of waste for incineration / energy recovery (R1)	
	Amount of waste for incineration / disposal (D10)	
	Amount of waste for landfilling	Broken down by landfill standard, if feasible (e.g. controlled /uncontrolled landfilling)
	Amount of waste for other treatment	Treatment should be specified
	Amount of waste for temporary storage	Stock at the beginning and end of the year
	Waste transferred to other treatment facilities	
Information on data quality		
	Type of measurement	Weighing, volume
	Conversion factors used	