Country Fact Sheet ***Armenia***

Introduction

This Country Fact Sheet (CFS) provides an overview of the situation of waste statistics, as of 1 August 2017. The CFS has been completed by the Consultant for the project *Implementation of the Shared Environmental Information System principles and practices in the Eastern Partnership countries (SEIS East) - Waste Statistics.*

"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."

The CFS has been completed mainly on the basis of:

- A desk based review of existing international reports on the waste statistics situation in the country. However, the information derived from these reports has been replaced with more recent and comprehensive information obtained from the countries directly, in particular during a country visit. A list of publications that were reviewed is included as Annex 1, at the end of this CFS.

- Information resulting from the validation by the Consultant of the UNSD questionnaire that was completed by the Country. The validation resulted in a Country Data Validation Report, which is attached to the Final Report of the Project.

- Information provided by the country, during the country visit and following the review of the draft CFS by the country. The draft CFS was submitted to the country for comments following the country visit, with the request to provide additional information or to confirm information that was supplied during the country visit. The country has sent comments and additional information, which allowed the Consultant to finalise the CFS. A list of officials that were met during the country visit, is included as Annex 2, at the end of this CFS.

Part I: Overview of existing waste surveys

Theme & topics	Description
Administrative division	- The Republic of Armenia has a three-tier governance system – central state governance, regional state governance (10 marzes & Yerevan), and local self-governance (communities). - Yerevan is treated separately and granted special administrative status as the country's capital. The chief executive in each of 10 marzes is the marzpet, appointed by the government of Armenia. In Yerevan, the chief executive is the mayor, appointed by the president. - Within each province, there are communities (hamaynkner, singular hamaynk). - Each community is self-governing and consists of one or more settlements (bnakavayrer, singular bnakavayr). - Settlements are classified as either towns (kaghakner, singular kaghak) or villages (gyugher, singular gyugh). - Armenia is divided into 795 communities, of which 48 are considered urban and 747 are considered rural. The capital, Yerevan, also holds the status of a community. Additionally, Yerevan is divided into twelve semi-autonomous districts. About 68% of the country's population lives in an urban area, i.e. in one of the 48 cities, and about 32% in a rural area. The largest cities (2012) include Yerevan (with more than 1 million residents, which means about 1/3 of the country's population lives in the capital), Gyumri (more than 120 000 residents), and Vanadzor (more than 90 000 residents). These cities account for approximately 65% of the urban and 40% of the total population of Armenia. An administrative re-organisation is ongoing. By the end of 2017, the new number of communities will be known.
Legal basis for waste statistics	▪ Law of the Republic of Armenia (RA) on Waste (dated 24.11.2004), Chapter 13 ("State normatization, issuance of waste passports, statistical reporting and standardization in the area of waste management"), regulates data collection. ▪ The Law on waste provides that waste state inventory and passportization is carried out in accordance with the procedure established by the RA Government: The procedures were adopted by the following Decrees: o RA Government Decree No 1739-N (dated 07.12.2006) on "Defining Procedure for State Registration of Waste". The decree stipulates that state registration of waste is carried out based on annual reports of the legal entities that are engaged in producing hazardous waste and waste utilization. The purpose of the decree is the establishment of database on the volume of waste production. o RA Government Decree No 47-N (dated 19.01.2006) on "Defining Procedure for Waste Passportization" regulates the drafting, coordinating and submitting for approval of passports of hazardous waste by legal entities and private entrepreneurs. ▪ The Law on Waste states: o the state authorized body in the environmental protection area (which is the MNP) shall develop a sample of an administrative statistical report, as well as an instruction on its completion based on the state waste classification system" (Art. 13, part 4).

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	The MNP developed and approved the sample of an administrative statistical report and instruction on its completion in Ministerial Order No 112-N (dated 22.08. 2002). o defines the state waste cadastre that comprises waste classification system, lists of waste production, reprocessing and recycling structures, as well as a database on waste utilization and disinfection technologies (Article 14). The state waste cadastre is carried out by the MNP. The procedure for maintaining state waste cadastre has been established by RA Government Decree No 144-N (dated 18.01.2007). o that a register, providing information on waste index names, production quantities, qualitative and quantitative characteristics, waste treatment, reduction of waste volumes and risk level shall be kept ((Article 15, part 1). For receiving, processing, storage and analysis of information on waste production, reprocessing and recycling structures The procedure for keeping the register is defined by RA Government Decree No 500-N (dated 20.04. 2007) and the obligation to keep the register is imposed on the MNP (article 15, part 2 of the Law on Waste). ▪ Decision of the Government of RA (N°. 1343-N; dated 14.09.2006) 'On Establishing the Procedure for Accounting Waste Generation, Disposal (Liquidation, Utilization, Placement) and Use', covering all waste, both industrial and municipal. ▪ Waste classifications: o Government Decree N°. 874-N ; on "Approval of the List of hazardous wastes of RA" (dated 08.05.2004) o Order of the Ministry of Nature Protection No342-N on "List of production and consumption wastes generated on the territory of RA" (dated 26.10.2006) o Order of the Ministry of Nature Protection N°430-N, on "List of wastes classified by hazard" (dated 25.12.2006) ▪ Reporting forms o Decree of the Minister of Nature Protection of RA (N° 451-N, dated 16.12 2008), introducing the reporting form for the collection of data on industrial waste. o State Statistical Council Decision (N° 208 of 10.11.2002) approved the reporting form "1-Specialized Transport – Mechanical Sanitary Cleaning of Cities", after which the form was registered by the Ministry of Justice as a normative act. The registration by the Ministry of Justice does not prevent the State Council of Statistics to revise the form. "On Defining the Form and Procedure for Completing the Form1 Waste "On the Complete Report on Waste Generation, Utilization and Removal"".
Overview of waste surveys / data sources	<u>Municipal waste survey</u> ▪ The NSS carries out an annual statistical municipal waste survey. ▪ MW information is already collected for many years; however the date on the reporting form is 2002, because with the 2000 Law on National Statistics, all forms were approved again. ▪ Legal basis: The reporting form is defined by the Council State of Statistics and is registered at the Ministry of Justice. It is thus a normative act and reporting is thus obligatory for the municipalities.

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	▪ Data on municipal waste (primarily urban waste) is provided by organisations that collect and transport waste, which are either the municipalities or their contractors. ▪ The data that are provided cover waste generated in urban areas, as the reporting form is only completed by urban settlements. ▪ This is the data source for completion of the tables R3, R3a, R5 and line 7 in R1 of the UNSD-questionnaire ▪ The NSS conducts a "Household's Integrated Living Conditions Survey", which is an integral screening of households. From the data collected, the NSS derives information on the coverage of the MW collection system and on the conversion factors. <u>Industrial waste survey</u> ▪ The Ministry of Nature Protection (MNP) conducts an annual administrative data collection survey. ▪ Reporting form is defined by Decree No. 451-N from 2008 (see above) ▪ Scope: Waste of the primary (extraction of raw materials), secondary (manufacturing) and the tertiary (services) sector. Nearly 99% of the total waste report comes from mining. ▪ Data source for completion of the tables R1, R1a and R2 of the UNSD-questionnaire ▪ Partial data on industrial waste have been collected since 1998. As of 2000, comprehensive data are being collected. The NSS started in 1997 with a complete survey on industrial waste. Before, a survey was already conducted, but in 1997, the NSS tried to bring it in line with Eurostat requirements. The NSS produced official statistics. However, for reasons of confidentially, the NSS could only provide aggregated information to policy makers, SEI and other users. Therefore the responsibility for collection of information has been transferred to the MNP, which conducts the survey since 2001.
Institutions involved	<u>National Statistical Service of the Republic of Armenia (NSS)</u> The NSS is part of the Presidential administration, and is thus independent from the government. The NSS has a supreme board of governance, i.e. the State Council, with 6 members. The State Council has the right to approve laws, decisions and forms, which can be published by the Ministry of Justice as normative acts. ▪ Carries out the annual statistical survey on municipal waste. In addition it receives data from the MNP on MW collection in rural areas. ▪ Publishes data on municipal waste, by city, and on industrial waste in regular publications and on its web-site. ▪ Receives and publishes the data on industrial waste from the MNP. ▪ Environmental data are collected and processed by the Social and Environmental Statistics Division where 1 person is assigned to the task; however not full time. <u>Ministry of Nature Protection of the Republic of Armenia (MNP)</u> (http://www.gov.am/en/structure/5/ ▪ The MNP is in charge of development and implementation of waste policy. It has several sub-divisions and subordinated agencies with

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	waste management responsibilities: ▪ Division of Hazardous Waste Substances ▪ Waste and Air Emissions Management Agency. ▪ Collects administrative data on industrial waste: : Waste generator/owner companies provide primary data to the regional offices of the State Environmental Inspectorate of the MNP (SEI) on an annual basis, using the reporting form provided for by Decree No 451-N (and approved by the Ministry of Justice). ▪ Waste collection companies, who collect waste in rural areas, will report to the MNP by completing the reporting form, which has code for municipal waste. Similarly industrial companies will report on their waste which is similar to household waste as municipal waste. ▪ The SEI verifies the data, after which the reporting forms are sent to the Waste Policy Division of the MNP for data processing, entry and analyses. The MNP prepares summary reports for submission to the NSS. ▪ Maintains an administrative register on production and consumption waste. ▪ The Waste Research Centre, established by Decision of the Government of RA (No. 670-N dated May 19, 2005), supports the MNP in among other classifying the waste generated, recycling and utilisation (recovery) units, collection sites, as well as in the collection and analysis of data.
Definitions	▪ The Law on Waste (24.11.2004; AL-159-N):) in Article 4 defines "waste" as both "industrial" and "consumption" waste, and defines hazardous waste: o Industrial and consumption wastes, hereinafter – wastes, are remains arising in the process of industrial or household consumption of raw materials, compounds, products and by-products, other production or food processing remains, as well as manufactured goods (products) that lost the initial consumer properties; o Hazardous wastes are wastes, the physical, chemical or biological characteristics of which pose or can arise danger to Human Health and damage to the Environment and require special methods, procedures, and means for their management; ▪ Industrial waste is defined in the Government Decree 874-N as follows: 'As a result of manufacturing of products and provision of services for the society, very often, remains of raw materials, production or prods are generated, which are not used by the producers in the future. These remains are called production waste. In some cases these materials can be integrated into technological process as a raw materials and be utilized either for generation of energy or manufacturing of products.' ▪ The term "Household waste" is not used in legislation, neither is the term Municipal Waste, which is not defined. In publications, the data are labelled sometimes as solid household waste and sometimes as solid municipal waste which reflects the unclear scope of the data and the lack of a clear definition.
Classifications used	<u>Economic activities:</u> The NSS uses the National Classification of Economic Activity of RA (approved by the Resolution of the Minister of Economy of RA on 11.10.2011, No. 772-N), which is based on NACE Rev. 2. While the 4th digit (class level) of the national classification is fully consistent with the

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	European classification, in sub-class, the level of the detailing is done by not breaking the NACE Rev.2 classification principles. Not all the classes are detailed. If the class level activity is not detailed, then the sub-class is marked with 0. <u>Industrial and consumption waste; Hazardous waste:</u> ▪ Government Decree N97 on "Regulating the Import, Export and Transboundary Movement of Hazardous and Other Types of Waste in the Territory of RA" (dated 08.12.1995): o Contains a definition of waste that is similar to that of defined by the EU Waste Framework Directive (2008/98/EC): "'waste' means any substance or object which is discarded or intended or is required to discard". o Separates waste in two types: ▪ "hazardous waste", defined as "waste that threatens human health and the environment"? ▪ "other waste", defined as "waste collected from residential areas and residue resulting from combustion utility waste". ▪ Based on this Decree, the MNP issued Order N96 (dated 10.08.1999), providing a list of waste classified as hazardous waste. The list is meant for registration, environmental supervision and regulation of the waste management sector. This includes licensing, provision of permissions for transboundary movement of waste, design of environmental facilities, implementation of environmental protection measures as well as for assessment of risks of accidents or material damages caused as a result of waste management. ▪ Government Decree 874-N "On Approving the List of Hazardous Wastes of RA" (dated 20.05.2004) has been adopted to ensure Armenia's compliance under the Basel Convention. The Decree: o reissues the list of hazardous waste. The list includes the designation of the wastes, generation of wastes by type of industry and a code reflecting the degree of hazard. o assigns the MNP to approve the <u>list of industrial and consumption wastes</u>. ▪ The MNP adopted the following two lists of waste: o The list of industrial and consumption waste by Order 342-N (dated 26.10.2006). This provides the codes for municipal solid waste, construction waste, food wastes and etc., but does not define those any further. However, this classification does not seem to be used in the regular publications (see section 'Dissemination') and in the online-database ArmStatBank. The publications include no tables that would show the breakdown of waste by waste type. o The list of waste that is classified as hazardous by the Order No-430-N (dated 25.12.2006). The document lists different types of waste that are classified as hazardous waste and provides name, description of the physical form and origin of the mentioned waste. ▪ The hazardous waste classification system, which is based on the level of hazard. The system defines five classes of hazard and divides wastes according to these classes: I class – extremely hazardous wastes; II class – highly hazardous wastes; III class – moderately hazardous wastes; IV class – slightly hazardous wastes; V class – non-hazardous wastes. ▪ Household waste belongs to hazard class IV and is therefore reported as hazardous waste in table R2 of the UNSD questionnaire The NSSS justifies the classification of MW as hazardous waste, by referring to the lack of source separated collection of hazardous municipal

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	waste, which will thus be included in the single, MW stream, and to the lack of the necessary infrastructure and procedures (such as laboratories) to assess whether MW is hazardous or not. To report all household waste as hazardous waste does not comply with the EU and UNSD definition. Waste which is included in Class V is inert waste, such as for example construction and demolition waste, glass, soil or concrete slabs. Armenia does not use the European Waste Classification for Statistics (EWC-Stat) (despite this is stated in the UNSD-Q2016, table R7). <u>Waste treatment:</u> ▪ It is not clear if, and if yes, to what extent, Armenia uses the R & D codes of the EU Waste Framework Directive.
Waste indicators	▪ NSS publishes the following waste indicators in its database : - Area cleaned - Municipal waste generation, kg per capita - Municipal waste generation, kg per capita of the urban population - Total waste generation (including also MW), tonnes per capita - Waste generation per unit of GDP at purchasing power parity (PPP, 2011), tonnes/$1000 - Waste generation: tonnes of waste generated per square km

Part II: Municipal waste survey

Theme & topics	Description
Municipal waste management	▪ Municipalities are responsible for the collection and management of waste that is generated on their territory. ▪ Municipalities either collect and transport (to a dumpsite) the waste themselves, through their Communal Services Dpt, or they contract a waste management company. If waste collection is done by contractors, they will sign an agreement with each household – in the case of individual housing- or with organisations that manage apartment buildings, from which they collect waste. Citizens pay to the municipality for the service, which pays the contractor. ▪ Collection coverage: all of the urban population is covered by a collection system; while 67 % of the rural population has access to a collection system. ▪ Waste that is collected in urban areas will be transported and disposed of in of the 48 municipal landfills (one per city). ▪ Many of these landfills (other than the largest one in Yerevan) are poorly managed. In addition, there are a higher number of open landfills, that do not comply with any environmental and hygiene standards. These are basically waste dumps in which waste is frequently burned in open air, resulting in significant air pollution. ▪ Collection systems in rural areas will differ from those in urban areas. o Collection will be less frequent, for example once or twice a week. This is justified because: ▪ the quantities of waste generated in rural areas are lower; ▪ food waste will be used as animal feed and organic waste will be composted. ▪ A portion of the waste will be buried in courtyards or will be burnt. o The municipality will send one of its trucks to collect the waste and to send it to a managed dumpsite (often a canyon). ▪ All municipal waste is collected and transported by the same vehicle. There is no source separated collection of household waste. ▪ All waste is landfilled, without prior classification or sorting. Recycling of MW is thus very limited. ▪ The share of biodegradable waste is high, i.e. around 50-60% (of which approximately 45% is food waste), which results in significant methane emissions from landfills. Financing: While industrial enterprises have to pay "waste charges" for the waste they generate (differentiated by class of hazardousness), which they either store on-site or dispose of in landfills/dumpsites, households do not pay charges for their waste which goes to landfills, but they pay user fees for waste collection.
Purpose and use of the data	▪ The data are not collected for a specific user or purpose, but a wide range of ministries are using the data. Private companies and prospective investors may also use the data. ▪ The primary user of the data is the MNP; who maintains a National GHG Inventory.
Scope	

Theme & topics	Description
Existing definition(s)	See Part I, section 'Definitions'
Scope of data collection: Waste types	▪ The MW waste data include data on all waste collected in the cities, including: o waste generated by households o waste similar to household waste generated by organisations (such as commerces, service companies, small enterprises, institutions, offices) that is also collected by the organisations that report. o waste from sweeping and cleaning roads, pavements and public land (given that the organisations responsible for waste collection are also responsible for "sanitation"). o small quantities of construction and demolition waste from house renovation activities as there is no other disposal option available at the moment in Armenia for this particular waste stream. ▪ The survey covers only the waste that is landfilled. Data on the recycling of household waste, which is in any case very limited, are not collected. ▪ There is significant collection of recyclables by the informal sector. However, since the activities of the informal sector are illegal, no registration or reporting is undertaken and it is thus not possible to make a reliable estimate of the size of the informal sector and the amount of recyclable waste that is diverted from landfilling.
Scope of data collection : Origin of waste	There is no separate collection of waste from households and organisations (such as shops or offices,). Often the same containers are used for street sweepings. Therefore, it is not possible to distinguish between waste from households and waste from other sources.
Data / information collected	The information on solid household waste is collected includes among other: ▪ Area cleaned in a mechanised way (in 1 000 m^2) ▪ Waste transported during the year (in m^3) *(Waste transported equals the waste collected)* ▪ Average transportation distance (in km) ▪ Surface area of solid household waste accumulation site (*i.e. a dumpsite*) (in ha) ▪ Total volume of waste which is transported to dumpsites ▪ Financial information: waste management costs and income from waste management. ▪ Number of collection trucks ▪ Waste fee collection rates (i.e. the fees paid to the municipality)
Time schedule of survey	Please see below the data collection process.
Documentation on survey	There is an instruction on the website of MNP on how to complete the form (in native language only). There is however no document that fully describes the survey methodology.

Theme & topics	Description
methodology	
Data collection	
Data sources(s) / reporting unit	▪ Data are collected from municipalities, if they perform waste collection themselves or from collection companies (UNSD-Q2016) that the municipalities have contractual agreements with for the collection of waste and general cleaning of public space ("sanitation"). The organisations that collect waste, either municipal or private, are obliged to report annually to the NSS. The summary information is published by urban settlement. ▪ The NSS only collects data from urban areas, i.e. from the 48 cities. ▪ The NSS argues that the collection of information on the relatively low quantities of waste which are produced in rural areas would not be worth the investment. ▪ In addition, for areas on which no information is available, the NSS estimates the amounts of waste generated, based on waste generation factors that have been developed by the MNP.
Data collection methods	▪ A full statistical survey. All 48 cities are covered by the survey. ▪ Rural areas are not covered by the statistical survey. ▪ But the NSS uses a secondary source of information on MW collection in rural areas: About 45% of the villages submit information on waste management to the MNP, as part of the survey on industrial waste. Organisations that collect waste in these areas only complete the sections of the form which cover municipal waste. The MNP provides the NSS with the data, which is used to complete the MW data from urban areas, and as such, the NSS can prepare a relatively comprehensive overview of MW management in the country.
Frequency	Annual
Data collection tools	Special reporting format "1-Specialized Transport – Mechanical Sanitary Cleaning of Cities', which is a self-completion paper questionnaire.
Data collection process	▪ The reporting units can download the form from the website of the NSS. They are not informed every year on their reporting obligation, but all organisations are aware of their obligations. ▪ Organisations can at any time contact the regional or the central office of the NSS, if they would need help or guidance on the completion. ▪ The forms must be submitted to the regional offices (in the marzes) or directly to the central office of the NSS, by the 5th February ▪ The regional offices will perform a first check of the data, and submit the paper forms to the central office of the NSS, where another check is performed. As for the information on MW in rural areas, this is submitted by the MNP to the NSS before the 20th of February. The NSS will subsequently check and summarise the information.
Data processing	
Data entry	The data are entered manually into the electronic data processing (EDP) system, by the central office of the NSS.

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Data validation	▪ The NSS is applying both manual and computerised validation checks. This could for example be: ▪ Formal checks, include for example o checks the technical integrity of the data set, e.g. valid data type, field length, characters. o checks for completeness (data reported: yes/no) ▪ Logical checks, include for example: o checks relations between different cell in the data set (e.g. cell 1 =,>, < cell 2; IF-THEN relations ; total = sum of breakdown) o 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. ▪ The NSS is controlling the quantities that are reported, by using waste generation norms (i.e. estimated per capita waste generation). ▪ Potentially incorrect or incomplete information will be checked by contacting the reporting unit concerned, which is done frequently by the NSS. ▪ The NSS does not have a validation plan, i.e. a set of defined validation checks/procedures, that aims at identifying possible errors in a systematic way.
Data compilation	▪ MW is reported by the cities in 1000m3, which is converted to tonnes by the NSS. The information on waste in rural areas that the NSS gets from the MNP is already in tonnes. Conversion from m^3 to tonnes is done by the NSS using as an average factor 250 kg/m^3 (UNSD-Q2016). This is an average factor. For some cities a different conversion factor is used. For example, for Yerevan and Sevan the conversion factor 0.28 (280 kg/m3) is used. ▪ The NSS must not deal with non-responses (unit and item non-responses), given that the response rate is 100% for urban settlements. As for data from rural areas, the NSS receives them from the MNP. For the areas for which there is no information at all available, the NSS makes an estimate of the quantities of waste generated. (around 12% in 2015), using waste generation factors. ▪ It is not possible that the same quantities of waste are reported by different reporting units. Double-counting is excluded.
Data quality	
General aspects	▪ The NSS is not following a defined quality policy, that 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. ▪ There is no overall quality management system in place and thus no systematic monitoring and management of quality is being implemented.
Relevance	The NSS does not have any indication that the data that it collects and the information that it publishes does not meet the needs and requirements of the users.
Completeness	According to the UNSD questionnaire and the related clarification requests, no data can be produced on recycling, composting, incineration and on the imports and exports of MW.

Theme & topics	Description
Accuracy	Coverage: ▪ The MW survey only covers waste from urban settlements. Information on the quantities of waste collected in rural areas is provided to the NSS by the MNP. For the rural areas for which no information is provided, the NSS produces an estimate to cover MW that is not collected (and not reported). ▪ The NSS does not have data on recycling, neither on official recycling nor on informal recycling.
	Measurement errors: ▪ The weight of the collected and treated amounts is determined by converting the estimated volumes, using different conversion factors. This may have an impact on the quality of the data, as it is not sure that the factors are accurate. ▪ Reporting units may underreport the quantities and types of waste generated, to reduce their tax basis.
	Non-response errors: ▪ The response rate is 100%. All 48 cities that are being surveyed by the NSS submit data. ▪ If an organisation would not have reported on time, it will be contacted by the NSS, either its regional or central office. However, nearly all organisations report timely. In case an organisation would not report, the Code foresees penalties for non-reporting that can be applied.
	Processing errors: ▪ Processing steps that can lead to processing errors can include the transportation of waste by private sector companies which are not registered. Transport of waste by own means is not registered. ▪ Processing errors such as data entry errors; coding errors, e.g. in the coding of economic activity, waste type, type of treatment operation or imputation error, do usually not occur. ▪ The validation checks which are listed earlier are performed, to minimise and to detect processing errors.
Timeliness and punctuality	The NSS complies with its own schedule and believes that the timeliness of the results is sufficient for the data users.
Comparability and coherence	▪ Armenia assigns household waste to hazard class 4 of the national classification and is thus the only country that reports the whole amount of MW as hazardous waste. ▪ Comparability over time: - A strong an unexplained variation of MW collected is observed for the cities Yerevan (2011/2012) and Gyumri (2011 to 2015) (UNSD Questionnaire). - There have been changes in definitions, in data coverage or in methodology that have a significant impact on the time series of the produced data, such as the new standard input by hazard class. ▪ Regional comparability: The produced data are comparable across the whole country, given that a single approach is used. - MW collection in the city of Gyumri, is for unknown reasons, much lower than in the Yerevan and Vanadzor. (UNSD Questionnaire)
Accessibility and	▪ Waste data are published by the NSS through:

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clarity; dissemination	- regular publications:
	  o Environment and Natural Resources in the Republic of Armenia (last publication refers to 2015)
	  o Environmental statistics of Armenia (last publication refers to 2015)
	- the online-database ArmStatBank
	▪ NSS publishes all waste data, i.e. the data on municipal waste and the data on industrial waste from the MNP.
	▪ The methodology is not documented and information on the methodology is thus not made available.
	▪ Data quality is not documented and information on data quality (e.g. quality reports) is thus not published.

Cost and burden	▪ The MW survey does not represent a specific significant burden, but in general, statistical reporting is quite a burden on organisations, as they have to complete over 20 statistical forms. ▪ The NSS would like to switch to an electronic reporting system, which would reduce the burden on both the government and the reporting units.
Confidentiality	▪ Statistical confidentiality is guaranteed by the Law on State Statistics of Armenia and is strictly observed in practice.
Data management and storage	
Data management	▪ The data are entered in a database management system, with spread sheets. ▪ Data from previous data collections are easily available and usable for statistical purposes, i.e. for for data comparison with previous years. For other purposes, only summary data are available.
Data storage	

Part III: Industrial waste survey

Theme & topics	Description
Purpose and use of the data	▪ Industrial waste data are collected for the MNP's own purposes, and in particular to allow for waste policy development. In addition, the SEI uses the environmental reporting by companies to define their inspection programme. For example a significant variation in the quantities of waste reported may spark a site visit. ▪ The information that is collected on MW collection in rural areas, is supplied to and used by the NSS to produce indicators.
Scope	
Scope of data collection: Waste	▪ Legal or natural persons, engaged in economic activities, submit annual statistical reports to the regional offices of the State Environmental Inspectorate (SEI) of the MNP. Such economic activities may include waste collection, and as such companies that collect household waste,

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types	are reporting on the household that they collect. Double-counting with the waste that is covered by the annual NSS survey is avoided though, because this NSS survey only covers the urban areas, while the NSS will use the MW information from the industrial waste survey, but only the information on collection of MW in rural areas. ▪ The reporting covers all types of solid waste, with the exception of livestock, forestry and and radio-active wastes. ▪ The mining sector is one of the largest contributors to GDP and exports and is responsible for 97% of all waste generated in the country.
Scope of data collection : Origin of waste	All economic activities are covered by NACE-Rev 2, excluding A. forestry, agriculture and aquaculture.
Data / information collected	The tables that are published in Armstatbank are labelled in English with "Flow of hazardous waste (without municipal waste) by indicators and years" which in practice means waste collection and treatment. Annual statistical reports submitted by legal or natural persons, engaged in economic activities, are divided into three parts: 1. Part I: Data on waste classes according to hazard (household wastes are reported on separately) and quantitative data on waste generation and management: ▪ Total waste quantities at the beginning of year; ▪ Wastes, received from other organizations; ▪ Total waste generation during the year; ▪ Wastes transferred to other organizations; ▪ Wastes rendered harmless or eliminated; ▪ Wastes, including household wastes, transported and disposed to waste disposal sites on the expense of waste generators/owners; ▪ Wastes utilized; ▪ Total waste quantities at the end of year. This information is collected by hazard class and by type of waste. 2. Part II: Aggregated financial data: revenues from and expenditures for waste management. 3. Part III: Data similar to the data that must be reported under Part I. However, the data must be reported for each type of waste. This Part III also includes data on waste source (which is the organisation or the technological process that has generated the waste-, physical and chemical characteristics (aggregate state, composition) of wastes, type and total area of a waste disposal site.
Time schedule of survey	▪ Companies must download the reporting form from the NSS website and submit a hard copy of the completed form to the regional SEI by 25 February.

Theme & topics	Description
	▪ SEI sends hard copies to the central office of the MNP, which enters the data in the database ▪ The MNP produces summary reports, which it submits by 30 July to NSS.
Documentation on survey methodology	There is no document that fully describes the survey methodology.
Data collection	
Data sources(s) / reporting unit	▪ According to the 2004 Law on Waste and subsequent by-laws and regulations, all enterprises which due to their activities generate waste , must: o prepare passports on waste, which will include information on the quantity, class, sources of origin and other items, as well as special comments and observations. o submit an annual report to the SEI, with the information from the passports on waste. ▪ The sources that are used to identify the reporting units are the Statistical Business Register and the database of companies that have an environmental and waste permit. o Any company must get a business registration from the Ministry of Nature Protection, for its main type of activity. After a company has registered its activity, it must obtain a statistical identification code from the NSS, subsequently a tax code from the tax authorities, which will only grant such code if the company has already a statistical identification code. The NSS is maintaining a statistical business register, which currently includes approximately 60 000 organisations (including not only production companies, but also organisations such as theatres). o The MNP maintains a register of companies, which includes the companies from the Business Register that have received an environmental permit. An organisation requires different permits from the MNP, including for waste, air and water, but all these are integrated in a single permit. Companies that generate waste, thus require a waste permit that specifies the activity, the types of waste that will be generated and the disposal operations. A state non-commercial organisation is conducting all the administrative work around environmental permits. o The MNP register includes approximately 20 000 companies, of which approximately 2000 with a waste permit. Not all companies require a waste permit, as the MNP has established a threshold, based on volume and level of hazard. This register is continuously updated, on the basis of permits issued. The permitted companies are responsible for approximately 97 % of all waste in Armenia. ▪ Industrial enterprises must pay a waste charge to the State Budget for the 'placement' of waste in the environment. The term "placement'" covers both the storage of waste and its disposal in landfills. Waste charges are differentiated by hazard class. There exists an inventory of companies that pay the charge. The State Business Register include all actors, registered in statistics. The inventory of companies, that pay a waste charge are those who are registered by the State Environmental Inspection.
Data collection	Administrative data collection

Theme & topics	Description
methods	
Frequency	Annual
Data collection tools	▪ Data collection is based on the report form approved by Decree No 451-N. ▪ The data collection tool used is a self-completion paper questionnaire. ▪ However, Armenia will start the development of an electronic reporting system for waste, to reduce the administrative burden on both the reporting entities and the government, and to improve the quality of the data.
Data collection process	▪ Companies must provide primary data to the regional offices of the State Environmental Inspectorate of the MNP on an annual basis ▪ Companies are only informed once of all their reporting obligations, and this by the NSS. Following granting a statistical identification code, the NSS sends a letter to the company which lists all its reporting obligations. This is the only time that a company is informed of its reporting obligations. They thus do not get an annual reminder, but all companies are aware of their reporting obligation and are aware that they will be fined if they do not meet that obligation. ▪ Measures taken to ensure a high data return: o The Code on Administrative Infringements provides penalties for delayed submission or submission of incomplete or wrong data. The SEI will check after the due-date whether all companies have reported. The response rate is thus very high. o Companies that want support with the completion of the form can at any time contact the regional or central office of the NSS or the regional SEI office.
Data processing	
Data entry	▪ The data are entered manually into the electronic data processing (EDP) system by Analytical Data Centre of the MNP. ▪ The Analytical Data Centre is maintaining 3 different databases, for waste water discharges, air emissions and waste management. The three databases are interlinked. A company has only 1 ID, which is generated automatically by the system, when the information is entered. This is an ID, specifically for the database (and is different from the statistical identification code which is assigned by the NSS).
Data validation	▪ The regional offices of the SEI receive and verify the annual reports from the reporting units. They check whether the forms are duly signed, whether they are complete or not and whether they are completed correctly or not, and to which extent the data are in line with the provisions of the waste permit. The regional offices of the SEI may either accept or reject a report. In case they reject a report, they may contact the reporting unit concerned, with the request to improve the reporting form. ▪ Subsequently, the regional offices of the SEI submit the reports to the central office of the MNP for data entry, processing and analyses. ▪ The central office of the MNP, and more specifically the central office of the SEI and the Division of Hazardous Substances and Waste Policy of the MNP both validate the submitted reports. ▪ The MNP applies a set of computerised validation checks (as specified earlier). Manual validation checks are not performed. ▪ (Potentially) incorrect or incomplete information is checked by contacting the reporting unit concerned, by the regional SEI or the central office of the MNP. ▪ After validation, the MNP submits the database to the NSS, for statistical use, but not for publication. The NSS prepares summary reports,

Theme & topics	Description
	with information by region and by NACE code. The NSS performs various checks, including comparison with previous years and comparison with other data it has, such as on energy use and production (as there is obviously a link between production capacity and quantities of waste generated). If during preparation of the summary reports, the NSS would detect potential errors, it will contact the SEI. The NSS is bound by rules of confidentiality, and there only published information by NACE code at national, and not at regional level.
Data compilation	▪ If a reporting unit would not have reported or if reports would not be complete (e.g. missing waste codes) or seemingly not correct, the reporting unit will be contacted by the regional SEI office, and will be invited to submit a report or a completed report. ▪ The MNP or the NSS will not correct or complete themselves reporting forms. Any changes to submitted reports, must be made by the reporting unit itself. ▪ Missing data are not imputed. ▪ The reporting units report on industrial waste in tonnes, and will thus convert themselves volume to waste. Each reporting unit is using for this its own conversion factors. There are not nationally agreed conversion factors for industrial waste. ▪ It is not possible that the same quantities of waste are reported by different reporting units. Double-counting is thus excluded.
Data quality	
General aspects	▪ The NSS is not following a defined quality policy, that 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. ▪ There is no overall quality management system in place and thus no systematic monitoring and management of quality is being implemented. ▪ Every year all organisations with suspected figures (as a result of comparing the data series by NSS) are included in the inspection plan of MNP. This contributes to improving the accuracy of the data.
Relevance	The MNP collects the data for its own use, and the information is thus meeting its requirements.
Completeness	The MNP is able to produce a complete data set. There are thus not variables for which it cannot produce data.
Accuracy	Coverage errors: ▪ The survey covers in principle 100% of the generated waste. ▪ The list of reporting units is always complete and up-to-date, as it is regularly updated based on the companies that got granted a waste permit.
	Measurement errors: ▪ For most of the waste generated, the amounts will determined by volume-based estimation of the weight. Given that each reporting unit is using its own conversion factors, as there are no nationally agreed conversion factors for industrial waste, this may have a significant impact on the quality of the data. ▪ There are incentives for the stakeholders for under-reporting. For example, the rate of the waste charges is based on both the reported quantities and the characteristics.

Theme & topics	Description
	Non-response errors: ▪ The MNP achieves high response rates, given that reporting is a legal obligation, for which the Code on Administrative Infringements foresees penalties for non-reporting. ▪ Also, companies that would not have reported on time, will be contacted by the regional SEI office. ▪ The impact of non-responses on data quality is thus negligible.
	Processing errors:
Timeliness and punctuality	▪ The MNP complies with its own schedule. ▪ The timeliness of the results is sufficient for the MNP, the main user of the data.
Comparability and coherence	▪ Comparability over time: There have been changes in definitions, in data coverage or in methodology that have a significant impact on the time series of the produced data, such as the new standard input by hazard class. ▪ Regional comparability: The produced data are comparable across the whole country, given that a single approach is used
Accessibility and clarity; dissemination	▪ Data are published by the NSS (see respective section under "Municipal waste survey") ▪ The MNP is not publishing information on data quality (e.g. quality reports).
Cost and burden	▪ Whether data collection is a significant burden or not to the reporting units, is not an issue. Reporting is a legal obligation that companies must comply with. ▪ Waste reporting is not the only reporting obligation. In total, a company must submit approximately 20 statistical reports. ▪ However, Armenia will start the development of an electronic reporting system, to reduce the administrative burden on both the reporting entities and the government, and to improve the quality of the data.
Confidentiality	▪ Statistical confidentiality is guaranteed by the Law on State Statistics of Armenia and is strictly observed in practice for the publication of the data by the NSS. ▪ However, when the MNP is publishing the administrative data on industrial waste that it has collected, it is not bound by these legal provisions on statistical confidentiality. ▪ The MNP is nevertheless respecting confidentiality, as it does not publish information that would allow companies to get an understanding of the waste management by other companies. The MNP however uses the individual company data for enforcement purposes.
Data management and storage	
Data management	The MNP operates 3 databases for environmental data, i.e. for waste water discharges, air emissions and waste management.
Data storage	▪ The data are entered in a database management system, with spread sheets.

Theme & topics	Description
	▪ Data from previous data collections are easily available and usable for statistical purposes, i.e. for for data comparison with previous years. For other purposes, only summary data are available.

Part IV: Key potential activities

Theme & topics	Activities for improving data availability and quality
Scope	▪ Full accounting of waste generation must be developed ▪ A statistical reporting system, for the collection and processing of information on landfills and dumpsites, allowing the establishment and subsequent updating of an inventory of dumpsites. One area for which the NSS would like to collect reliable information is on dumpsites. The information collected should not only allow to prepare an inventory, but also to conduct a risk analysis, allowing prioritising the dumpsites on which action should be taken. The Ministry of Emergency Situations has currently only a partial inventory, with limited information on each dumpsite. The Ministry of Territorial Administration and Development has approached the NSS with respect to conducting a dumpsite inventory.
Tools	▪ Review and improvement of the statistical forms. ▪ Pilot project in a province, under which it is defined which information should be collected for what purposes and what reporting tools should be used. Such a project should allow to check the whole system, including the methodologies applied, the information that is currently collected and could additionally be collected to serve policy purposes, and to improve the reporting tools that are used. ▪ The NSS would like to introduce electronic reporting, and could use technological support for this.
Definitions	Harmonisation of the definitions with EU definitions: Some EU terms are not yet define. For example, a definition of MW is lacking.
Validation	Quality control of the data should be further developed.

Annex 1: List of publications

The following publications have been reviewed for the preparation of the country mission and the completion of the Country Factsheet:

1. EU, EEA (2014) European Neighborhood and Partnership Instrument – Shared Environmental Information System: How existing municipal solid waste data in ENPI East countries can be used for the development of waste indicators, Final Report. European Environment Agency, Denmark
2. UN, UNECE (2015) Advancing the production and sharing of an extended set of 14 environmental indicators in the countries of the Eastern European Neighbourhood. European Environment Agency, Denmark
3. EU, EEA (2015) ENPI-SEIS East Region Synthesis Report - Building a Shared Environmental Information System with the Eastern Neighbourhood - Outcome of cooperation, 2010–2014. Luxembourg: Publications Office of the European Union, 2015
4. UN, UNECE (2012) Conference of European Statisticians: Review of Waste Classification Procedures and Identification of Alternative Approaches
5. UN, UNECE (2012) Desk Study: Assessment of the capacity of countries of EECCA to produce statistics on sustainable development and environmental sustainability – Topic 1 – waste statistics (under the UN Development Account project.)
6. UN, UNECE (2015) Progress in the production and sharing of core environmental indicators in countries of South-Eastern and Eastern Europe, Caucasus and Central Asia. Geneva: United Nations Economic Commission for Europe
7. EU, EEA (2014) Armenia Country Report – Towards a Shared Environmental Information System in the European Neighborhood; ENPI-SEIS implementation of priority data flows, February 2014
8. EU, EEA (2011) Armenia Country Report - European Neighborhood and Partnership Instrument, Shared Environmental Information System. September 2011, Yerevan, Armenia
9. EUROSTAT, EFTA, UNECE (2009) Global Assessment of the National System of Official Statistics of the Republic of Armenia.
10. EUROSTAT, EFTA, UNECE (2014) Light Peer Review on the Implementation of the European Statistics code of Practice in the Republic of Armenia. Final Report, 18. July 2014
11. Poghosyan, Y., Ghlichyan, J. (2016) Waste Statistics in the Republic of Armenia. Presentation held at the 11th Joint Task Force on Environmental Indicators, 30. June/1. August 2016, Geneva
12. UNSD-Q2016: UNSD/UNEP Questionnaire 2016 on Environment Statistics, Section Waste,
13. Technical Report 2, Waste Classification Approach for ENPI East Countries, ENPI East Waste Governance Project, Kiev, December 2010.

Annex 2: List of officials met during the country mission (10-11 July 2017)

National Statistical Service

- Yuri Pogosyan,; Member of the Council (Nature protection)
- Anahit Safyan, Member of the Council (International Statistical Cooperation)
- Nelly Baghdasaryan,Head of Social Sphere and Nature Protection Division
- Naira Mandalyan, Leading Specialist
- Ani Hambardzumyan, First Class Specialist
- Astghik Podpomogova, Statistisian

Ministry of Nature Protection

- Julieta Ghlichyan, Head of Division, Division on Strategic Programmes and Monitoring Strategic
- Gohar Harutyunyan, Database Developer

Ministry of Agriculture

- Garik Khamaryan, Head of Audit Division