An Phríomh-Oifig Staidrimh
Central Statistics Office

Standard SIMS Report:

Environment Goods and Services

Single Integrated Metadata Structure (SIMS) Report

For

Environment Goods and Services

This documentation applies to the reporting period:
2020

Last edited:
06/03/2023

1. Table of Contents

2. Introduction

Environmental Accounts is a satellite account within the European System of Accounts (ESA). A satellite account provides additional information on selected areas of specific interest. The Environment Goods and Services Sector (EGSS) is a subdivision within Environmental Accounts concerned with estimating the gross output and gross value added (GVA) at basic prices and employment by category of environment activity and industry in the State. EGSS statistics are compiled under EU Regulation (EU) 691/2011 and its amendment EU Regulation (EU) 538/2014. The official estimates of EGSS for Ireland covering the years 2011 to 2020 are published in this release.

EGSS, sometimes called 'eco-industries', encompasses activities in the so-called *green economy*. These activities generally include the production of renewable energy and energy saving activities such as retrofitting homes, along with the supply of water, treatment of wastewater, handling of waste and the construction of environment-related facilities. Using a variety of data sources, overall gross output in EGSS is estimated and allocated to industries according to NACE Rev. 2 (the Statistical Classification of Economic Activity in the European Communities) and type of environment sector activity. Importantly, for national economic purposes this shows the breakdown of environment activity and how the relative weights in that breakdown evolve over time. Ireland's classification of environment sector activities aligns with those of other EU member states. Accordingly, this information is particularly useful for informing policy on the green economy both nationally and at the EU level and more generally for monitoring developments in the wider economy.

3. Contact

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4. Metadata Update

4.1. Metadata last certified

06/03/2023

4.2. Metadata last posted

10/03/2023

4.3. Metadata last update

06/03/2023

5. Statistical Presentation

5.1. Data Description

The environmental goods and services sector (EGSS) accounts report on an economic sector that generates environmental products, i.e. goods and services produced for environmental protection or resource management.
Products for environmental protection prevent, reduce and eliminate pollution or any other degradation of the environment. They include measures undertaken to restore degraded habitats and ecosystems. Examples are electric vehicles, catalysts and filters to decrease pollutant emissions, wastewater and waste treatment services, or noise insulation works.
Products for resource management safeguard the stock of natural resources against depletion. Examples are renewable energy production, energy efficient and passive buildings, seawater desalinization or rainwater recovery.

EGSS accounts provide data on output of environmental goods and services and on the value added of and employment in the environmental goods and services sector.

EGSS statistics produced cover estimated gross output and gross value added (GVA) at basic prices, and estimated employment classified by categories of environment activity.

The principal EGSS statistics made available in this release relate to the supply of environment goods and services by category of environment activity and the economic sector of the producer or supplier.

The release presents data across six tables. Tables 1A to 1C present the total gross output, gross value added and employment, respectively in EGSS from 2011 to 2020, broken down by category of environment activity. Tables 2A to 2C present EGSS total gross output, gross value added and employment, broken down by the economic sector of the producer or supplier over the same time period.

5.2. Classification System

Environment goods and services sector activities can be classified by their purpose. Regulation (EU) 691/2011 distinguishes two broad types of environment sector activity according to their purpose:

CEPA (Classification of Environmental Protection Activities)
Environment protection activities include all activities and actions which have as their main purpose the prevention, reduction and elimination of pollution and of any other degradation of the environment, and

CReMA (Classification of Resource Management Activities)
Resource management activities include the preservation, maintenance and enhancement of the stock of natural resources and therefore the safeguarding of those resources against depletion."

The full breakdown of these two classifications of environment activities is set out in Eurostat's EGSS Practical Guide.

NACE Rev. 2 classification.

5.3. Sector Coverage

EGSS comprises a sector of the economy that produces goods and services aimed at environmental protection and resource management. Environmental goods and services either reduce environmental pressures or help maintaining the stock of natural resources (*e.g.* vehicle catalysts, soil remediation services,) or they are designed to be cleaner and more resource efficient than conventional products (e.g. electric cars, zero-energy buildings). Environmental goods and services can be produced by corporations, households, government, and social enterprise non-profit institutions.

5.4. Statistical Concepts and definitions

Environment

Environment Protection
This includes all activities and actions which have as their main purpose the prevention, reduction and elimination of pollution and of any other degradation of the environment.
Resource management
This includes activities related to the preservation, maintenance and enhancement of the stock of natural resources and therefore the safeguarding of those resources against depletion.

Economic

Gross Output
The value at basic prices of products or services supplied by enterprises. The main components are:

Market output – the value of goods or services minus taxes and plus subsidies on those products or services.
Non-market output - the total cost or charges made in respect of supply of a good or service, such as potable water.

Gross Value Added
Value added is the difference between Gross Output and intermediate consumption – generally speaking, it is the gross profit of an economic activity, the difference between turnover and the cost of production.

Employment
Person engaged in the production of output of environmental goods and services or full-time equivalent persons engaged where available.

5.5. Statistical Unit

Unit level data relates to firms on the CSO's Central Business Register who have been identified as participants in the green economy. Gross output, GVA and employment numbers in these firms obtained from Structural Business Surveys (SBS) conducted by CSO, augmented by environment specific surveys of large firms have been weighted to State level to provide an analysis of EGSS according to NACE Rev. 2 and environment sector activity.

5.6. Statistical Population

The statistical population is the national economy as defined in SEEA CF 2012 and the European System of Accounts (ESA 2010). It includes all economic activities undertaken by resident units.

5.7. Reference Area

Republic of Ireland

5.8. Time Coverage

2020

5.9. Base period

Not applicable.

6. Unit of Measure

Output and gross value added are measured in million EUR.
Employment is measured in full-time equivalents.

7. Reference Period

The reference period is the calendar year 2020.

8. Institutional Mandate

8.1. Legal Acts and other agreements

The legal basis for the compilation of Environment Goods and Services Sector statistics is under EU Regulation (EU) 691/2011 and its amendment in EU Regulation (EU) 538/2014. This provides a framework for the development of various types of environmental accounts (also called modules). Other modules cover air emissions, economy wide material flow accounts, energy accounts, environmental protection expenditure and environment taxes accounts. In addition to these mandatory modules, there are two voluntary environmental accounts on forest accounts and environmental subsidies and similar transfers.

8.2. Data Sharing

No data sharing arrangements are in place.

9. Confidentiality

9.1. Confidentiality – policy

All information supplied to the CSO is treated as strictly confidential. The Statistics Act, 1993 sets stringent confidentiality standards: Information collected may be used only for statistical purposes, and no details that might be related to an identifiable person or business undertaking may be divulged to any other government department or body.
These national statistical confidentiality provisions are reinforced by the following EU legislation: Council Regulation (EC) No 223/2009 on European statistics for data collected for EU statistical purposes.
Further details are outlined in the CSO's Code of Practice on Statistical Confidentiality.

For more information on the CSO confidentiality policy please visit:
https://www.cso.ie/en/aboutus/lgdp/csodatapolicies/statisticalconfidentiality/

9.2. Confidentiality – data treatment

Certain key data used to compile environment goods and services sector statistics, such as the Supply table, are available on the CSO website. Other data are available internally in CSO, these are confidential and so in accordance with Statistics Act, 1993 cannot be accessed under the terms of the Freedom of Information Act, 1997. Such data are not disclosed by the CSO to any other Government Department or outside body.

10. Release Policy

10.1. Release Calendar

The date of dissemination of all statistics released by CSO can be found in the Release Calendar published in www.CSO.ie. This calendar is regularly updated.

10.2. Release calendar access

The release calendar can be accessed via the CSO website, www.cso.ie, or directly from this link: https://www.cso.ie/en/csolatestnews/releasecalendar/

10.3. User access

In accordance with Principle 6 of the European Statistics Code of Practice all users of CSO statistics have equal access via the CSO website at the same time of 11 am. Any privileged pre-release access to any outside user is limited, controlled and publicised. In the event that leaks occur, pre-release arrangements are revised so as to ensure impartiality.

The CSO recognises that in very limited circumstances a business need for pre-release access may be substantiated. Any form of pre-release access is a privilege and a strict CSO pre-release access policy is adhered to for these special requests. The full pre-release access policy can be accessed at https://www.cso.ie/en/aboutus/lgdp/csodatapolicies/csopolicyonpre-releaseaccess/

The various results are published nationally in statistical release format as well as on the CSO website (www.cso.ie). Selected extracts from the results are posted on the CSO's data dissemination database, PxStat.

11. Frequency of Dissemination

Environment Goods and Services Sector estimates are disseminated annually.

12. Accessibility and clarity

12.1. News release

Not applicable.

12.2. Publications

The release and background notes are available on the CSO website at 11am on the release day. They can be accessed directly from this link: https://www.cso.ie/en/statistics/environmentaccounts/environmentgoodsandservicessector/.

12.3. On-line database

Data in tabular format is available from the CSO's main dissemination database PxStat. They can be accessed directly from the following links:

- EGS01: Environment Goods and Services Sector Gross Output by Environment Activity Type and Year https://data.cso.ie/table/EGS01
- EGS02: Total Environment Goods and Services Sector Gross Output https://data.cso.ie/table/EGS02
- EGS03: Environment Protection of Environment Goods and Services Sector Gross Output https://data.cso.ie/table/EGS03
- EGS04: Resource Management of Environment Goods and Services Sector Gross Output https://data.cso.ie/table/EGS04

12.3.1. AC 1. Data tables - consultations

Not calculated.

12.4. Micro-data Access

Micro data is not made available.

12.5. Other

Not applicable.

12.5.1. AC2. Metadata consultations

Not calculated.

12.6. Documentation on Methodology

Further information on the methodology used to compile the EGSS can be found on the CSO Methods page https://www.cso.ie/en/methods/environment/environmentgoodsandservicessector/

The Eurostat publication, "Environmental goods and services sector accounts — Practical guide — 2016 edition", is available at: https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-gq-16-011

12.6.1. AC3 – Metadata completeness – rate

Not calculated.

12.7. Quality Documentation

For more information on the quality associated with the EGSS release please refer to the CSO Methods page https://www.cso.ie/en/methods/environment/environmentgoodsandservicessector/

13. Quality Management

13.1. Quality Assurance

Quality Management Framework
The CSO avails of an office wide Quality Management Framework (QMF). This framework allows all CSO processes and outputs to meet the required standard as set out in the European Statistics Code of Practice (ESCOP). The QMF foundations are based on establishing the UNECE's Generic Statistical Business Process Model (GSBPM) as the operating statistical production model to achieve a standardised approach to Quality Management. All and any changes implemented to CSO processes and outputs require adherence to the QMF.

13.2. Quality Assessment

The CSO requires that all its disseminated outputs carry out an annual self-assessment exercise to evaluate the quality of the output and the processes leading to them.

14. Relevance

14.1. User Needs

The key driver for the compilation of environment goods and services sector estimates comes from the need of policy makers to measure the size and distribution of environment activity within the wider economy. Accordingly, EGSS statistics assist policy makers assess the proportion of overall economic output that is environment-related. This data is vital in appraising us on whether and to what extent

Ireland is transitioning to a *green economy*. The distribution of environment activity and how this distribution evolves over time is central to understanding the nature and extent of this transition. This release provides key data within the overall framework of environment statistics that contributes to addressing these needs for Ireland.

In the international context these data are needed to fulfil Ireland's requirements under EU Regulations (EU) 691/2011 and (EU) 538/2014, specifically the 'module' on environment goods and services. This contributes to the development of a satellite account for the environment sector. The principal EGSS statistics are annual gross output by environment activity in the state.

14.1.1. Main National Users

National users: CSO; Environmental Protection Agency; Department of the Environment, Climate and Communications; Department of Finance; economic commentators; the media; third level educational institutions; and the public at large.

14.1.2. Principal External Users

International users: Eurostat and OECD.

14.2. User Satisfaction

Not measured.

14.3. Data Completeness

The data disseminated is complete and compliant with respect to the reporting obligations under Regulation 691/2011.

14.3.1. Data Completeness rate

100%

15. Accuracy and reliability

15.1. Overall accuracy

Data used in the procedure comes from CSO sources and annual reports of public bodies and agencies. These data sources are highly reliable.

15.2. Sampling Error

Estimates for the industrial sector are mainly derived from the Census of Industrial Production (CIP). Accordingly, standard errors relating to CIP apply. For other economic sectors, standard errors for survey estimates are not made available, though usual stratified sample standard errors apply but may be relatively large. Instead, our focus is on accuracy and reducing bias. Thus, even though sample sizes are small at 10%, bias in the State level estimates is considered small as these estimates are based on firms in the upper quartile of the turnover distribution and these cover the bulk of overall national gross output. With adjustments made for smaller firms the estimates are satisfactory and reliable.

15.2.1. A1. Sampling error indicator

Not calculated.

15.3. Non-sampling Error

As the primary data sources are from Structural Business Statistics collection, the same sources of non-sampling error apply. The main source of non-sampling error identified for the IGSS may be attributable to processing errors when generating the estimates. See “Processing Error”.

15.3.1. Coverage error

Based on CSO’s Central Business Register.

15.3.1.1. A2. Over coverage rate

Not calculated.

15.3.1.2. A3. Common units – proportion

Not applicable.

15.3.2. Measurement error

Not applicable.

15.3.3. Non-Response Error

Non-response weights were used to compensate for non-response, see Sections 3 and 4 for specific details.

15.3.3.1. Unit non-response rate

The effective survey response rate excluding nil returns is approximately 40%.
A ‘nil’ return relates to those firms initially placed on the preliminary register, who when surveyed stated they were not part of the environmental economy and had no environmental output. On receipt of their ‘nil’ return these firms were excluded from the preliminary register to identify the effective register of firms used in final estimation process.

15.3.3.2. Item non-response rate

Not calculated.

15.3.4. Processing error

The estimation was based on procedures set out in the Eurostat Practical Guide – 2016 edition. SAS programs were written to arrive at grossed-up estimates. New data sources or improved survey data that might cause revisions could be readily incorporated without contaminating the procedural aspects of the estimation.

15.3.5. Model assumption error

Not applicable.

16. Timeliness and punctuality

16.1. Timeliness

The results arising from this procedure are required to be sent to Eurostat within 30 months of the end of the year to which the figures relate.

16.1.1. TP1. Time lag – First results

21 Months.

16.1.2. TP2. Time lag – Final results

30 months.

16.2. Punctuality

Then EGSS statistics are published on time according to the dates pre-determined in the CSO's advance release calendar.
Dissemination to Eurostat is also within the stipulated 30 months after the reference period.

16.2.1. TP3. Punctuality – Punctuality - delivery and publication

0 days.

17. Comparability

17.1. Comparability – Geographical

The statistics are compiled to meet, to the greatest extent possible, the recognised statistical standards recommended by Eurostat as set out in their publication, "EGSS Practical Guide, 2016 edition". Accordingly, they are regarded as being methodologically sound and comparable over time and between those countries subscribing to the methodology. However, survey results and supply tables are country specific and so reflect specific shocks that occur in that economy, irrespective of whether those shocks are anticipated or not. Statistical comparisons over time and across countries should therefore be made with care.

17.1.1. CC1. Asymmetry for mirror flow statistics

Not applicable.

17.2. Comparability over time

EGSS statistics have been published for reference year 2020 covering data from 2011 to 2020.

17.2.1. Length of Comparable Time series

10 years.

17.3. Coherence – cross domain

Insofar as practicable, all sources are up to date, and sources are reliable. On this basis coherence with other sources is maintained to the maximum extent possible. While some coherence is achieved between EPEA and EGSS in ancillary output for example, we do not have the staff resources to fully ensure comparability more generally.

17.3.1. Coherence – Sub annual and annual statistics

Not applicable.

17.3.2. Coherence with National Accounts

The SBS sources used mirror National Accounts compilation procedures.

17.4. Coherence – internal

On rare occasions we apply growth rates to ensure coherence across the whole dataset, but it is rarely needed. We do project forward the Supply Table using relevant CSO indices and growth rates.

18. Cost and Burden

Estimates of Cost and Burden can be obtained from the Response Burden Barometer
https://www.cso.ie/en/statistics/enterprisestatistics/responseburdenbarometer/

Survey specific information is available via CSO's dissemination database PxStat.
https://data.cso.ie/product/RBB

19. Data Revision

19.1. Data Revision Policy

Published statistics are subject to correction and revision for a variety of reasons. The most common reasons include the receipt of additional information (for example, late survey responses) and updated seasonal factors. Occasional revisions also occur as a result of changes to definitions, methodology, classifications and general updating of statistical series.
It is recognised internationally that the existence of a sound revisions policy maintains credibility in official statistics. The CSO General Revisions Policy, which details how revisions should be managed and communicated to users, outlines the three main types of revisions:

- Planned Routine Revisions
- Planned Major Revisions
- Unplanned Revisions.

One reason for unplanned revisions occurring can be when errors are detected after publication. The 'CSO Error Correction Policy – How to deal with Publication Errors' outlines the steps taken when these errors are detected. As required under Principle 6.3 of the European Statistics Code of Practice, errors detected in published statistics are corrected at the earliest possible date and users are informed. An important step in the process is the documentation and analysis of errors that have occurred and their causes. This allows the CSO to take measures preventing similar errors from occurring in the future and uniformity in dealing with them when they do.
The data revision policy that CSO statistics adheres to can be found via the following link:
https://www.cso.ie/en/methods/quality/treatmentofrevisions/

19.2. Data Revision Practice

Revisions will be made annually as more up to date supply tables and other data become available. Indeed, the need for annual revisions based on more up to date information is highlighted in the Eurostat EGSS Practical Guide – 2016.
In 2020 EGSS show revisions when compared with corresponding figures in the 2019 EGSS release. These revisions arise due to the incorporation of the most up-to-date available data. Significant revisions mainly relate to estimates relating to water supply and wastewater services on foot of figures taken from the latest annual reports of Irish water, the Commission for Regulation of Utilities and the Government Book of Estimates.

Back-casts of EGSS estimates
Back-casts for 2011 and 2012 have been incorporated into the release. For gross output the method of back-casting uses the supply-table.

Thus, each in NACE Rev.2 sector used in the release, to back-cast to get the previous year's estimate of EGSS gross output we applied the ratio of current year's supply to the previous year's supply to the current year's EGSS gross output.
Identical procedures were used to back-cast EGSS gross value added and EGSS employment estimates using NIE gross value added and Labour Force Survey tables respectively, and separately for environment activity type identified in the release.

19.2.1. Data Revision – Average size

Not calculated.

20. Statistical processing

20.1. Source Data

Environment Goods and Services Sector statistics are based on data gleaned primarily from CSO structural business surveys, Supply tables compiled by National Accounts, small-scale green economy survey results covering large firms and annual reports from various agencies participating in environment-related activities.

Thus sources used to produce the EGSS data include:

- National survey data relating to Agriculture,
- SBS (Industry, Prodcom and Services) (all CEPA/CReMA).
- National Accounts Supply/Use Tables data and GVA estimates (all sectors)
- Labour force Survey Estimates (all sectors)
- Wind energy Europe (CReMA 13)
- Commission for Regulation of Utilities (water & energy)
- Sustainable Energy Authority of Ireland (CReMA 13)
- Government Estimates of Public Spending (Water and Wastewater investment)

We use CEPA/CReMA weights from a 2017 pilot survey.

For the 2020 iteration we have new data from a new environment question that was added to the Census of Industrial production.

20.1.1. Population and sampling frame

The sampling frame is the CSO's Central Business Register.

20.1.2. Sampling design

A survey of large businesses identified from the Central Business Register as candidate green participants was conducted in 2017 for enterprises in the services sector. Since 2016 estimates relating to the construction sector from are derived from the Building and Construction Inquiry undertaken by CSO. Meanwhile, for the manufacturing sector, estimates for 2020 are derived from a new question added to the Census of Industrial Production survey form in 2022, while earlier estimates were compiled based on a special survey of large manufacturing businesses in 2016. The resulting distribution of gross output according to type of environment activity is used to inform EGSS estimates.

20.1.3. Survey size

Not applicable.

20.1.4. Survey technique

Based on Structural Business Statistics survey data.

20.2. Frequency of data collection

Environment Goods and Services Sector estimates are compiled annually.

20.3. Data Collection

The data is collected via surveys issued from various CSO divisions including Business Statistics and National Accounts.

20.3.1. Type of Survey/Process

Primarily survey.

20.3.2. Questionnaire (including explanations)

A simple questionnaire asking relevant firms included in the survey of large enterprises for their turnover broken down by environment activity.
For 2020 estimates within the manufacturing sector, a question relating to the percentage of overall turnover that is related to environmental supply is included on the Census of Industrial Production survey form issued for the year 2021.

20.3.3. Survey Participation

Businesses with turnover in the upper quartile of the turnover distribution on structural business survey returns identified as partially or wholly environment-related based on their economic activity description stored on the CSO's Business Register.

20.3.4. Data Capture

Data from emailed returns were manually keyed into the return data capture system within the CSO's Data Management System. Preliminary scrutiny and consistency checking of the input data was undertaken to ensure it was captured correctly.

All survey participants were initially coded according to their environment activity. NACE codes were taken from the CSO Business Register.

20.4. Data Validation

Range and consistency checks are applied to ensure correct data capture. Usually vs. previous years estimates. Year on year changes of +/- 15% are flagged for checking.

We work continuously to improve our methodology and data sources.

Eurostat also provide tools to ensure aggregate level data consistency and continuity in year on year comparisons is maintained. These tools are applied to ensure outputs fulfil Eurostat quality requirement annually with errors corrected and discontinuities explained.
Prior to publication, some further manual checking is also carried out to ensure the robustness of the estimates.

20.5. Data Compilation

The key characteristic of the estimation process is that it is primarily based on the methodology set out in the Eurostat publication, "*Environmental goods and services sector accounts — Practical guide — 2016 edition*".

The guide emphasises a mixed approach incorporating bottom-up estimation based on structural business surveys complemented by a top-down estimation approach based on aggregate data available in the supply-table augmented by data available from administrative sources.

Bottom up gross output estimates for manufacturing, services and construction
Where detailed firm data was available from our surveys, such as the Census of Industrial Production for the manufacturing sector (NACE Divisions 05 – 33), we directly estimate State level environment gross output across all strata as the sum of the aggregate strata level gross outputs.

Construction
The Building and Construction Inquiry in 2016 and succeeding years had a question added to the survey asking respondents to indicate whether they participated in green construction activities. Weights derived from a sophisticated analysis based on Latent Dirichlet Allocation of construction firm's activity description on the CSO's Business Register, coupled with a small number of large construction firms who participated in our green goods and services survey, were then used to allocate environment gross output according to environment activity. The output of the Latent Dirichlet Allocation method is also calibrated against more recent estimates compiled from the Building Energy Rating (BER) dataset.

Top down methods:
Agriculture
EGSS agriculture is mainly composed of organic agriculture production. This was estimated based on aggregate organic acreage data available from CSO's Farm Structure Survey coupled with basic prices data adjusted to reflect higher farm gate prices for organic produce. CSO data relating to subsidies is also included. The bulk of this estimate was allocated to environment protection related activities covering soil, surface water and biodiversity.

Electricity and gas
Energy balance data relating to kilo-tonnes of oil equivalents for renewables are combined with the Supply-table production value for electricity and gas from the Supply-Use tables to arrive at an estimate of EGSS gross output for electricity. This amount was allocated to renewable energy production.

Water and wastewater
EGSS gross output for water supply and wastewater treatment come from the annual reports of Irish Water, the Commission for Regulation of Utilities and the Government Book of Estimates combined with the Supply-tables compiled by CSO. Prior to 2014 supply-table estimates were predominantly derived from the Census of Industrial Production and the Annual Financial Statement of local authorities. In 2014 the transfer of local authority functions relating to water and wastewater to Irish Water began, a consequence of this is our estimates show a discontinuity in 2014. Treatment of wastewater is classified as an environment protection related activity while the supply of *potable* water is classified as a resource management activity.

Waste
EGSS gross output for waste handling comes directly from the Supply-tables. This is further broken down by firms within the sector based on Census of Industrial Production data. The bulk of this overall supply is allocated to waste handling with most of the remainder allocated to scrap and mineral recovery within resource management environment activity.

Construction
Gross output for wind power has been estimated based on investment data taken from Wind Energy Europe and allocated to renewable energy production. For water and wastewater, capital investment data taken from the Commission for Regulation of Utilities decisions relating to Irish Water has been

incorporated to arrive at an estimate of gross output. These estimates have been allocated to environment protection and resource management activities respectively. Data from the Sustainable Energy Authority of Ireland in respect of grants made in respect of energy saving are also incorporated into the estimates and allocated to energy saving activity within resource management. The inclusion of results from the Building and Construction Inquiry form the final component in the estimation process for the construction sector.

Services
Gross output for non-profit enterprises and government related participants in the services sector are estimated from annual reports of various bodies involved in the provision of EGSS services - included in this group are relevant agencies, government departments, and universities. Typically, administration and pay amounts are abstracted from these sources and allocated to the appropriate environment activity.

Final gross output EGSS estimates
Estimated bottom-up and top-down aggregates are added to arrive at overall estimated EGSS gross output. Resulting estimates are held as Excel files and are available by environment activity type and NACE Rev.2 industry division of the supplier or producer. The outputs required for the release and for Eurostat are generated from these Excel files.

Final gross value added EGSS estimates
EGSS gross value added is estimated within each NACE Rev. 2 sector and category of environment activity along similar lines to gross output. Specifically, where gross value added data is available from a CSO survey source such as the Census of Industrial Production, Prodcom, Building and Construction Inquiry or Annual Services Inquiry, this value is taken and used to estimate gross value added in a similar way to gross output.
Where specific gross value added data is not available, the ratio of gross value added in Table 21 of CSO's National Income and Expenditure (NIE) release to supply-table output for the relevant NACE Rev. 2 sector is applied to the EGSS gross output to arrive at an estimate of EGSS gross value added within each NACE Rev. 2 sector cross-classified by category of environment activity. This method of estimation is recommended by Eurostat in their publication "*Environmental goods and services sector accounts — Practical guide — 2016 edition*".

Methodology for estimating EGSS full-time equivalents
The number of EGSS full-time equivalents employed is estimated within each NACE Rev. 2 sector and category of environment activity along similar lines to gross output. Specifically, where employment data is available from a CSO survey source, this value is taken and used to estimate EGSS employment.
Where specific employment data is not available, the ratio of employment in the Labour Force Survey to Supply-table output for the relevant NACE rev. 2 sector is used to arrive at an estimate of EGSS employment within each NACE Rev. 2 sector cross-classified by category of environment activity. This method of estimation is also recommended by Eurostat in their Practical Guide publication referenced above.

20.5.1. Imputation (for Non-Response or Incomplete Data Sets)

Non-response weighting is applied.

20.5.1.1. A7. Imputation rate

Not calculated.

20.5.2. Grossing and Weighting

EGSS uses standard survey weighting (grossing) by NACE Rev 2. and environment activity to arrive at State level estimates of gross output, gross value added and employment. Weights are computed based on small-scale survey results focused on large firms involved in the production or supply of environment goods and services within the State.

Grossing strata are defined as the combination of NACE Rev. 2 sector used in the release and the environment activity classification code given in the Eurostat Practical Guide 2016. Grossing factors for all businesses with a structural business survey return within these strata were computed as a function of the inclusion probability adjusted for non-response. These factors are applied to each firm's gross output and the result aggregated across all firms in the sample stratum – this procedure is standard.
Where the number of returns in a stratum was deemed to be too small, that stratum was combined with a similar one based on their NACE Rev. 2 aggregates group code. Furthermore, as our sample only covers large enterprises, accordingly an adjustment was made when estimating a small firm's environment gross output based on the relative size of gross output for smaller firms to larger firms on the appropriate structural business survey.

20.6. Adjustment

Not applicable.

20.6.1. Seasonal Adjustment

Not applicable.

21. Comment

1) For 2020 the Commission for Regulation of Utilities and Irish Water have revised their accounting methods which have resulted in very large revisions to water and wastewater estimates. These estimates are further adjusted to ensure gross value added agrees with value estimated by National Accounts.

2) For 2021, we have new data directly from our Census of Industrial Production as a new environment question has been added for 2021. We have used this information to recalibrate our 2020 estimates. Accordingly, this introduces a discontinuity in our EGSS series starting in 2020. Nonetheless, estimates based on this new data are more reliable, relevant and timely.

See new question on forms

- https://www.cso.ie/en/media/csoie/methods/censusofindustrialproductionenterprises/CIP_2021_C_Form.pdf
- https://www.cso.ie/en/media/csoie/methods/censusofindustrialproductionenterprises/CIP_2021_F_Form.pdf