DANE

Environmental and Economic Accounting (EEA)

August 2025

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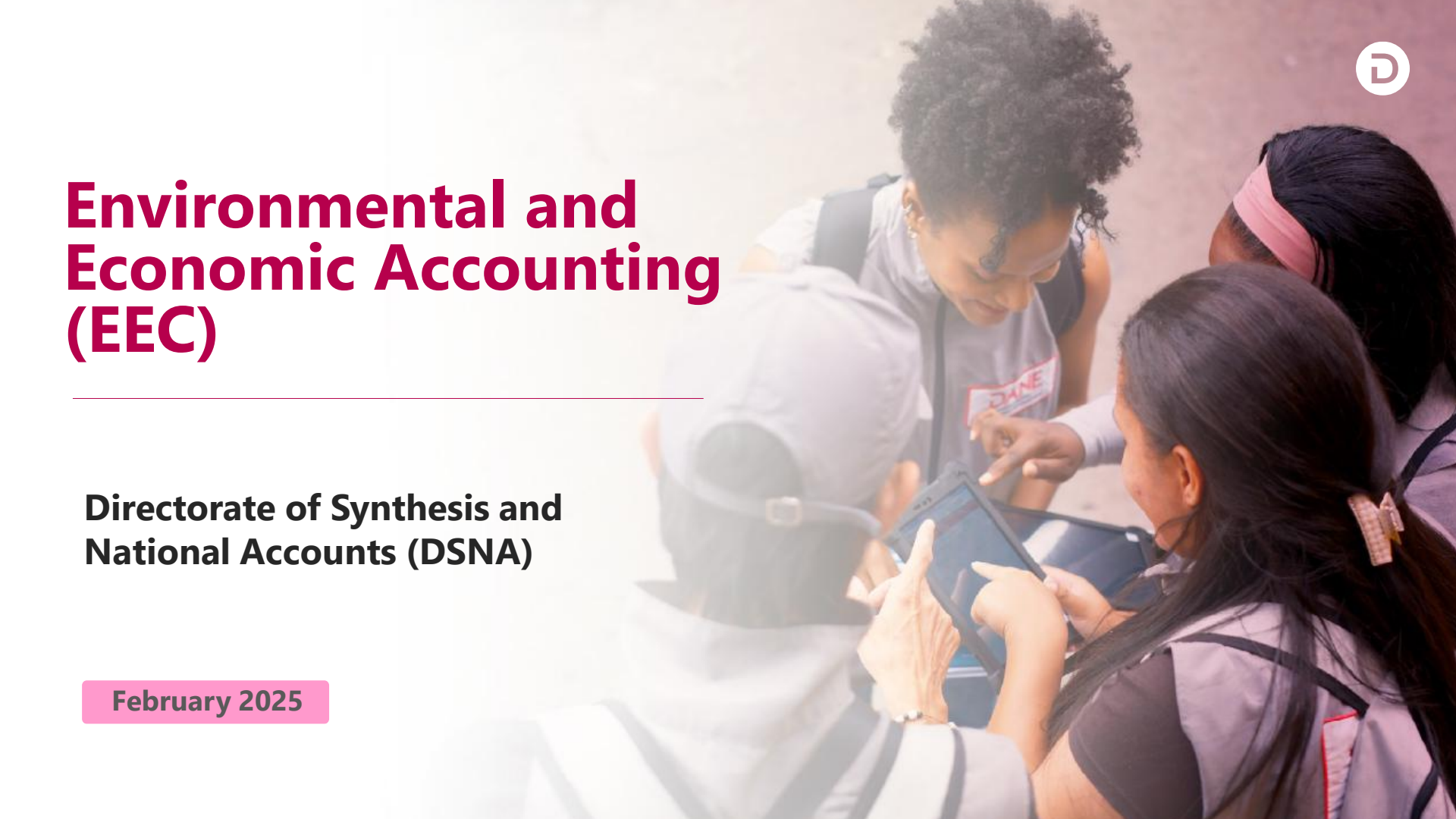
Environmental and Economic Accounting (EEC)



Directorate of Synthesis and National Accounts (DSNA)

February 2025

Measurements beyond GDP

- Research Agenda for a New Integrated Framework for Measuring Inclusive and Sustainable Well-being.
- Evolution of social and demographic statistics: from measuring living conditions to measuring inclusive and sustainable social and economic development.
- Measurement of:
  - ✓ Well-being (here and now)
  - ✓ Sustainability (here and now, in the future)
  - ✓ Inclusion (here and now, everywhere, nationally and internationally)

Framework for Inclusive and Sustainable Wellbeing (FISW)
Environmental-Economic Accounting

- ✓ Environmental-Economic Accounting (EEA) is an extension of the System of National Accounts (**SNA**) that **shares its concepts, definitions, classifications, and accounting rules**

- ✓ The EEA **organizes and integrates environmental and economic data** within a coherent framework to analyze the interactions and interdependencies between the economic, social, and environmental dimensions in a structured way

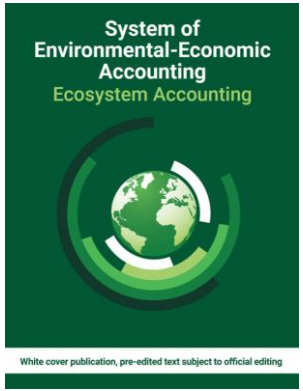
- ✓ The EEA is developed under the **technical leadership of the DANE** (National Administrative Department of Statistics) and through inter-institutional cooperation. Contribution of institutions to the EEA:

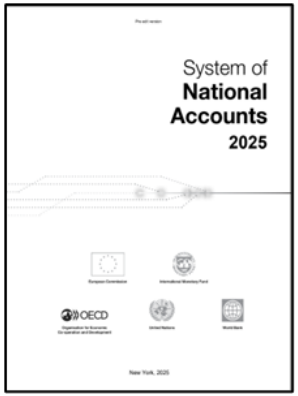
  - ➢ Information sources
  - ➢ Conceptual and methodological support
  - ➢ Management and strategic planning

Framework for Inclusive and Sustainable Wellbeing (FISW)
Environmental-Economic Accounting

Environmental-Economic Accounting

- **System of Environmental and Economic Accounting (SEEA)**
  - **SEEA-CF**
  - **SEEA-EA**
- **Thematic Environmental and Economic Accounts (TEEA)**
  - **Bioeconomy Account (BA)**
  - **Circular Economy Account (CEA)**





System of Environmental and Economic Accounting (SEEA)

SEEA

Integrates environmental and economic information:
- Unified framework that compiles and integrates
- Aligns concepts, classifications, and methods with the System of National Accounts

Basis for public policies:
- Robust tool for development, monitoring, and evaluation
- Supports informed decision-making

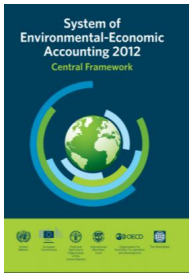
Enables transparency and collaboration:
- Clear framework and standard methodologies
- Encourages collaboration among disciplines, entities, and sectors

International standard:
- Develops a common language that allows comparison
- Generates credibility and trust, and enables replicability
- Ensures consistency over time and space
- Responds to international initiatives

System of Environmental and Economic Accounting (SEEA)

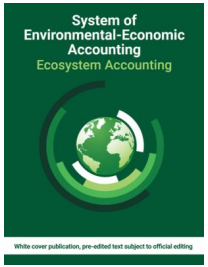
SEEA

SCAE - MC



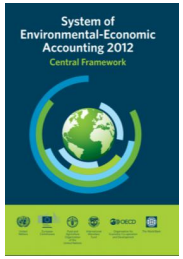
- **Approved as an international standard:** in *2012*
- **Geographic disaggregation:** primarily national focus
- **Measurement objective:** the relationship between the environment and the economy through the physical and monetary quantification of individual environmental assets
- **Measurement area:** *depletion,* which is the physical reduction of a resource

SCAE - CE



- **Approved as an international standard:** in *2021*
- **Geographic disaggregation:** spatial focus, based on the delimitation of ecosystem accounting units
- **Measurement objective:** ecosystem assets, including their biophysical characteristics, extent, condition, and the services provided to economic and human activity
- **Measurement area:** *degradation*, which is the decrease in the value of an ecosystem asset due to a deterioration in its condition (quality and biophysical functioning)

Framework for Inclusive and Sustainable Wellbeing (FISW)
Environmental-Economic Accounting



SEEA-CF

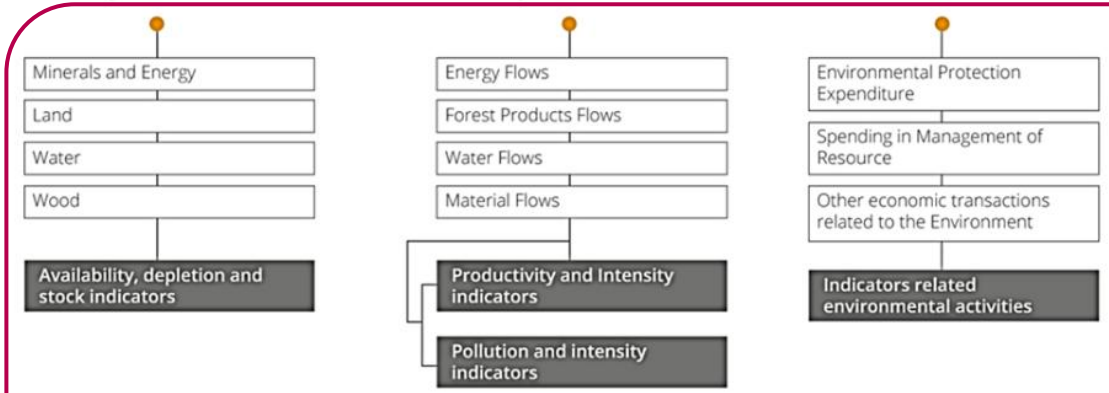
Accounting Structure and Advances in Implementation in Colombia

STOCK ACCOUNTS
Physical terms
Monetary terms

FLOWS ACCOUNTS
Physical terms
Monetary terms

ENVIRONMENTAL ACTIVITIES AND RELATED TRANSACTIONS ACCOUNT

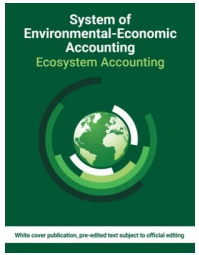
Accounting Structure



Advances in Implementation:

- ✓ **7 statistical operations**, with scheduled annual dissemination periodicity
- ✓ **6 inter-institutional products**, with no defined dissemination periodicity.
- ✓ **52 derived indicators**

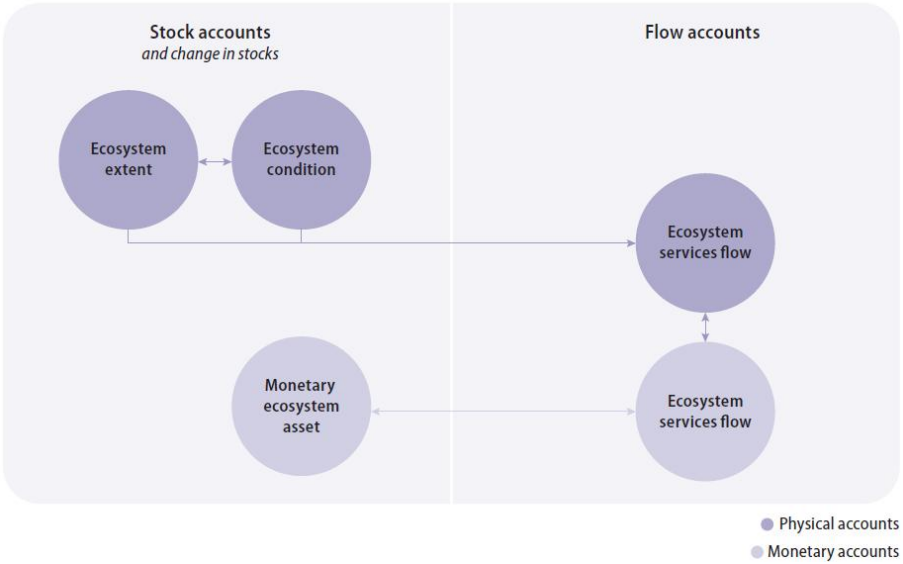
Framework for Inclusive and Sustainable Wellbeing (FISW)
Environmental-Economic Accounting



SEEA-EA

Accounting Structure and Advances in Implementation in Colombia

Accounting Structure



Source:
https://seea.un.org/sites/seea.un.org/files/documents/EA/seea_ea_spanish_unofficial_translation_may_2023.pdf

Avances en la implementación:

- ✓ **Strategic Planning**. Definition of roles and roadmap to initiate implementation processes.
- ✓ **Technical Construction.**
  - Publication, Environmental and Economic Account of the Extension of Ecosystems (CAE-EE)
  - Design Phase, Environmental and Economic Account of the Flow of Ecosystem Services (CAE-FSE)
  - Identification of Needs Phase, Environmental and Economic Account of the Condition of Ecosystems (CAE-CE)

Thematic Environmental and Economic Accounts (TEEA)

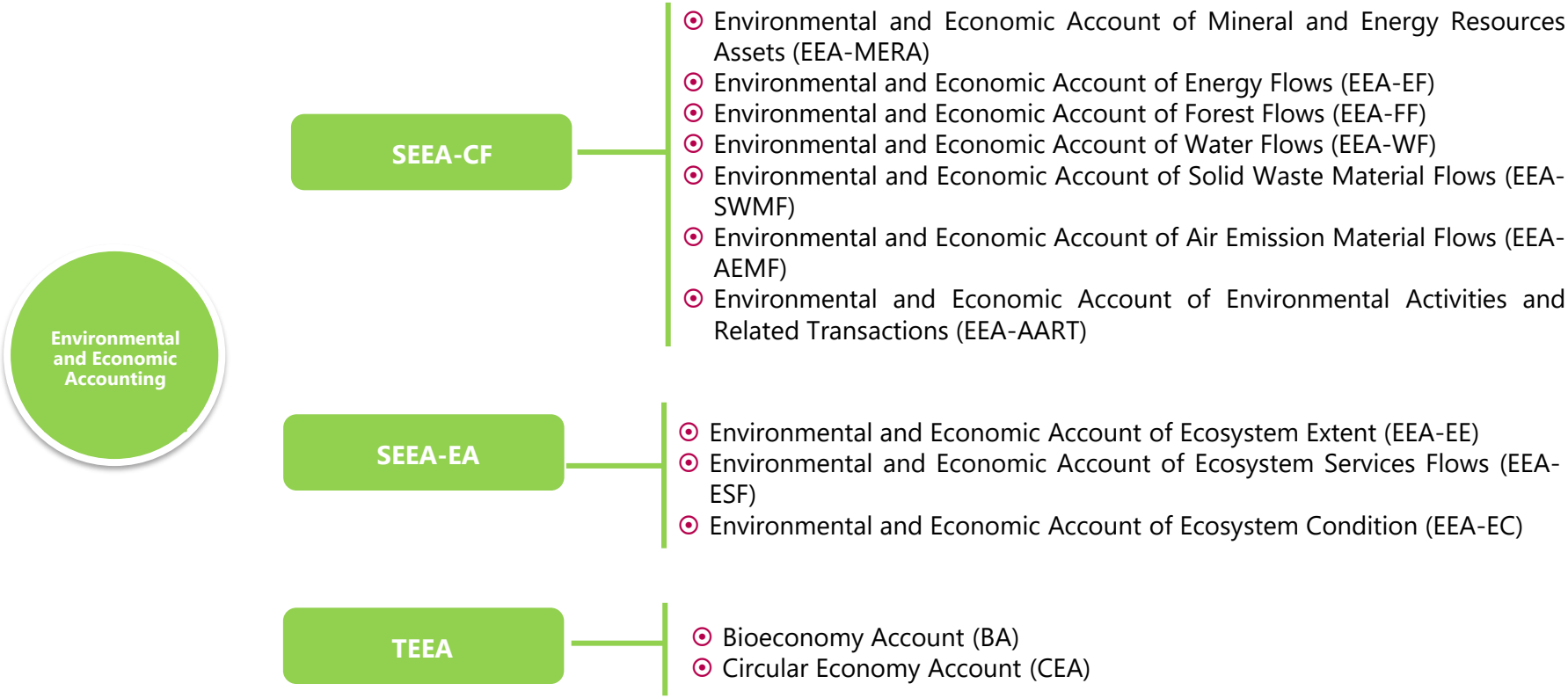
Complementary accounting frameworks to the System of National Accounts (SNA) that allow for **expanding and adapting** economic analysis for specific areas **without altering the core structure of the SNA**.

These accounts offer **flexibility to incorporate concepts, classifications, and methodologies** that are not detailed in the main system, thus enabling a more in-depth analysis of specific sectors or activities.

- Bioeconomy Account (BA)
- Circular Economy Account (CEA)

Framework for Inclusive and Sustainable Wellbeing (FISW)

Environmental-Economic Accounting - Statistical Operations



Net Zero Progress in Colombia: Measurement, Policies, and Pathways

Directorate of Synthesis and National Accounts (DSNA)

Net Zero Progress in Colombia: Measurement, Policies, and Pathways

Nationally Determined Contributions (NDCs) in Colombia

Definition NDCs: Voluntary commitments to the UNFCCC (Paris Agreement) to reduce GHG emissions, promote climate adaptation, and develop financing/technology.

Responsible Entity: The Ministry of Environment and Sustainable Development leads coordination through the Intersectoral Commission on Climate Change (CICC), which defines and presents the NDCs to the UNFCCC

Current status of NDCs:

- Current NDC (2020 Update): Commitment to reduce GHG emissions by 51% (max. 169.4 MtCO2eq) by 2030 and achieve carbon neutrality by 2050. This is based on Law 2169/2021
- Progress and NDC 3.0 (2025): In preparation, with greater ambition (237 goals in adaptation, mitigation, biodiversity, climate justice, and financing). A participatory process is underway (workshops 2024-2025), but it has not yet been submitted to the UNFCCC. It is expected to be aligned with the Paris Agreement soon

Net Zero Progress in Colombia: Measurement, Policies, and Pathways

The EEA does not directly measure climate change but provides indicators and statistical operations to monitor the factors causing it and its impacts, as well as to guide adaptation and mitigation policies.

Currently, DANE participates in the "Capacity Development Program for Statistics on Environment and Climate Change" of the **International Monetary Fund (IMF)**

CMNUCC
Convención Marco de las Naciones Unidas sobre el Cambio Climático

SEEA-CF

- Environmental and Economic Account of Mineral and Energy Resource Assets (EEA-MERA)
- Environmental and Economic Account of Energy Flows (EEA-EF)
- Environmental and Economic Account of Air Emissions Material Flows (EEA-AEMF)
- Environmental and Economic Account of Environmental Activities and Related Transactions (EEA-AART) – Taxes and public expenditure

SEEA-EA

- Carbon capture measured through climate regulation services*
- Law 2169/2021: Establishes minimum targets to achieve carbon neutrality (2050), climate resilience, and low-carbon development, aligned with international commitments. Article 15: under DANE's leadership and based on its competencies, define the roles and the roadmap to initiate the implementation of the SCAE-CE

Circular Economy Account (CEA)

- Environmentally Extended Input–Output Matrix (MIP-EA)
- Carbon footprint

*Sin desarrollo metodológico ni información disponible actualmente

Environmental and Economic Account of Air Emissions Material Flows (EEA-AEMF)

General Objective

To measure, under the conceptual framework of the System of Environmental-Economic Accounting (SEEA), the physical flows of gases emitted into the atmosphere, resulting from the use of fossil fuels and biomass during production and consumption processes.

Specific Objectives

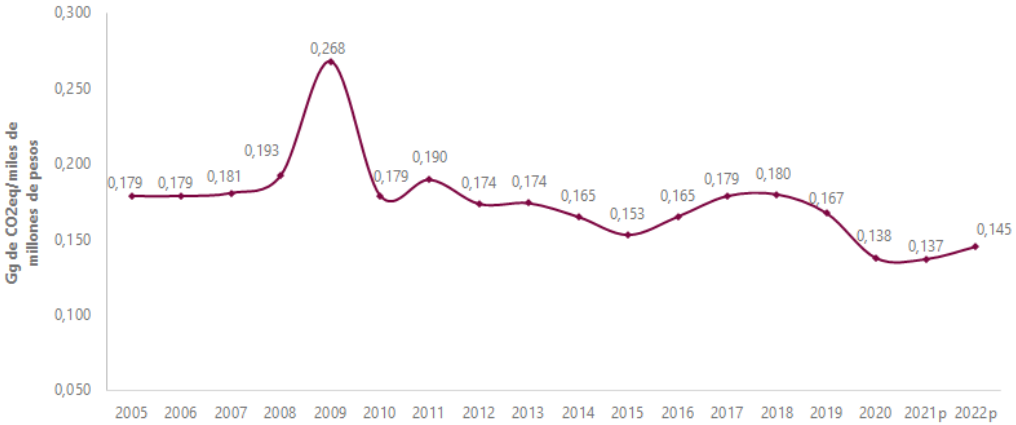
- Identify the emission factors for each of the fuels included in the measurement.
- Identify the global warming potential and tropospheric ozone formation factors by type of gas.
- Prepare the supply and use tables of air emissions from the production and consumption of fossil fuels and biomass.
- Identify and calculate the indicators associated with emissions generated by the production and consumption of fossil fuels and biomass.

Collection reference period

2022 - 2022 provisional

System of Environmental-Economic Accounting – SEEA Central Framework

GHG Emissions Intensity by GDP[1] (Gg of CO_2 eq / billions of pesos)
National total
2012 – 2022 provisional



- In 2022 (provisional), 0.145 gigagrams of carbon dioxide equivalent (CO_2eq) were emitted per billion pesos of GDP.
- The indicator showed a 6.0% increase compared to the previous year, explained by a 13.7% rise in emissions generation and a 7.3% increase in GDP.

Source: DANE, Environmental and Economic Account of Air Emissions Material Flows (EEA-AEMF). https://www.dane.gov.co/index.php/estadisticas-por-tema/cuentas-nacionales/cuentas-satelite/cuenta-satelite-ambiental-csa#cuenta-ambiental-y-economica-de-flujos-de-materiales-emisiones-al-aire-caefm-ea

Cuenta de Economía Circular (CECI)

Objetivos y alcance del a medición

General Objective

Measure the **annual added value** of economic activities associated with the circular economy at the national level, within an extended analytical framework of the System of National Accounts (SNA)

Specific Objectives

1. Develop the **production accounts** and **income generation accounts** for economic activities associated with the circular economy at the national level, in line with the System of National Accounts.

2. Measure the **contribution of the annual added value** of the circular economy to the national economy.

3. Calculate **derived indicators** from the circular economy account and present **associated indicators** with the circular economy.

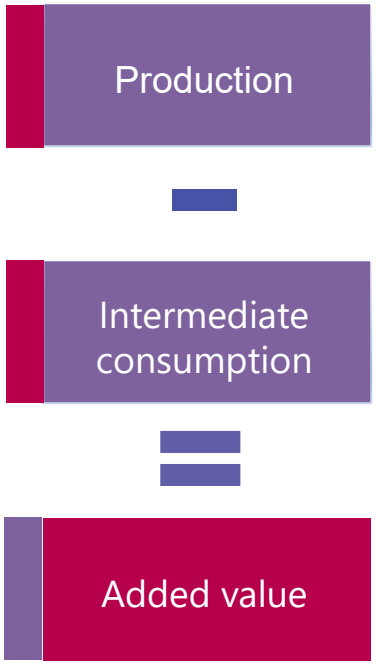
Scope

It includes economic activities and products that have a direct relationship with the circular economy, as well as activities that, although they do not have a direct relationship with the circular economy, have products associated with their production related to the circular economy.

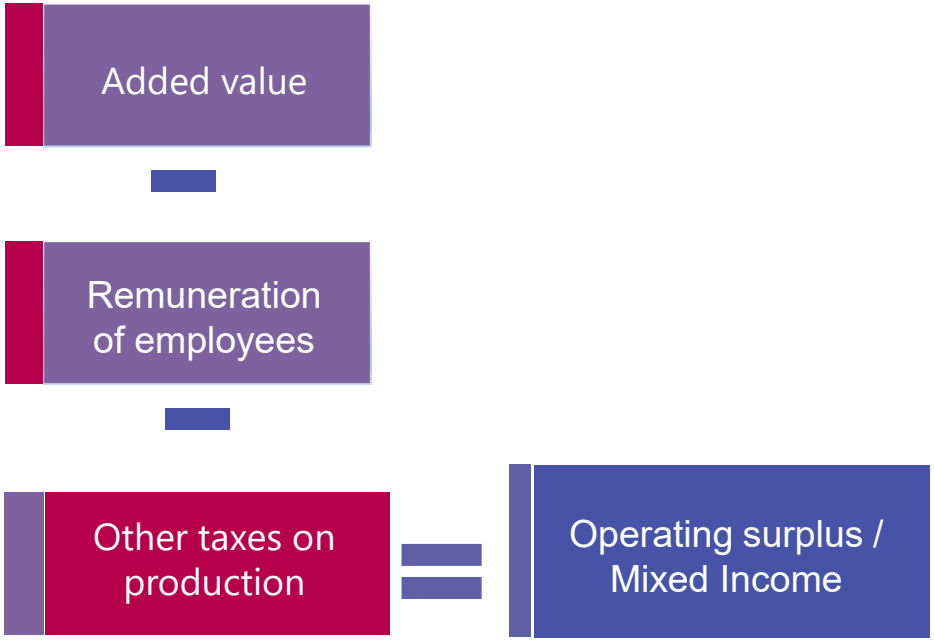
Publication date: November 21, 2025

Production units' perspective

Production Account



Income generation account



Circular Economy Account (CEA)
Measurement Scope - Groups

Prioritization of the inclusion of the list of activities and products in the CECI measurement, based on the classifications adapted for Colombia.

- ✓ International Standard Industrial Classification (ISIC)
- ✓ Central Product Classification (CPC)

Defining the following sectoral groups:

1 **Group 1:** Natural and legal persons engaged in activities where their production is directly related to the circular economy.

2 **Group 2:** Partial inclusion in the measurement of economic activities that have products related to the circular economy, where it is possible to determine a percentage of participation in total production.

Circular Economy Account (CEA)
Derived and associated indicators

4 Derived indicators

- Share (%) of the Circular Economy Value Added (CEVA) in the National Value Added (NVA)
- Share (%) of the Circular Economy Value Added (CEVA) in the Gross Domestic Product (GDP)
- Share (%) of the Circular Economy Value Added by primary, secondary, and tertiary activities
- Share (%) of the Value Added of the material recovery (recycling) activity in the National Value Added

12 Indicators **associated** with the circular economy, **prioritized**

1. Carbon Footprint from the Environmentally Extended Input–Output Matrix (EE–IOM) — DANE
2. Domestic Material Consumption (DMC)
3. Domestic Material Consumption per capita
4. Domestic Material Consumption per GDP
5. Solid waste production intensity
6. National recycling rate

(2–6 — DANE)

7. Hazardous waste production intensity
8. Generation of hazardous waste
9. Proportion of hazardous waste treated, by type of treatment
10. Total GHG emissions
11. GHG emissions from production activities
12. Water stress level: freshwater withdrawal as a proportion of available freshwater resources – Water use indexPreguntar a ChatGPT

(7–12 — IDEAM)

Overview of the Environmentally Extended Input–Output Matrix (EE–IOM)

- The IOM is part of the framework of the SNA and the SEEA.
- The IOM allows for extensions to also include other types of information related to environmental issues.

Importance of the EE–IOM:

The EE–IOM makes it possible to understand how trade and consumption patterns impact greenhouse gas (GHG) emissions. This presentation explores this relationship using an input–output approach based on national data.

- It allows linking the environment to each sector, including and detailing aspects such as emissions, use of primary resources, land use, and various footprints (carbon, water, ecological, nitrogen), as well as biodiversity/wildlife. This constitutes a tool that supports, based on information, the formulation and implementation of economic, environmental, and social policies, as well as meeting international information requirements.
- It enables the ***calculation of environmental impacts*** associated with economic activities.
- It allows monitoring the decoupling of environmental impacts from economic growth and the use of natural resources, including the analysis of the main factors that contributed to such decoupling.
- It facilitates the analysis of the emissions impact from the production chains of each economic sector.

Environmentally Extended Input–Output Matrix (EE–IOM)

Analysis of results and next steps

1

- It makes it possible to create shock scenarios, which not only show the chain reaction generated in the economy but also detail the changes in total greenhouse gas emissions.

2

- Based on the EE–IOM, it is possible to calculate the Carbon Footprint, an indicator that reflects the relationship between economic activities and the generation of greenhouse gases (GHG). This measurement makes it possible to estimate both Producer Responsibility (territory) and Consumer Responsibility.

- Annex: Shock Simulator
- The Circular Economy Account (CEA) publication will include the updated EE–IOM for the years 2019 and 2021.