Environmental Statistics and SEEA Practices in Georgia

IRAKLI APKHAIDZE

Deputy Executive Director

National Statistics Office of Georgia (GEOSTAT)

IRAKLI TSIKHELASHVILI

Head of Environmental Statistics Division

National Statistics Office of Georgia (GEOSTAT)

Training Workshop on an Accounting Approach to Climate Change and Biodiversity in Central Asia

9-12 September 2024, Bishkek, Kyrgyzstan

General Overview

Organizations in charge of environmental monitoring and assessment system in Georgia:

- ❖ Ministry of Environmental Protection and Agriculture of Georgia - MEPA
- ❖ National Statistics Office of Georgia - GEOSTAT

Agencies involved in environmental data collection and processing:

- ✓ LEPL Agency of Protected Areas
- ✓ LEPL Forestry Agency of Adjara
- ✓ LEPL National Forestry Agency
- ✓ Department of Environmental Supervision
- ✓ National Environmental Agency
- ✓ Institute of Geography

Data Sources

Data Sources:

- Surveys – Geostat
- Administrative and Monitoring Data - Ministry of Environmental Protection and Agriculture (MEPA) and respective agencies

Geostat

Survey of Water Supply Enterprises (Data on water supply industry)

Data from different sources - used for producing environmental indicators and Environmental Accounts

- Agricultural Statistics (Agricultural and Environmental Statistics Department)
- Energy Balance and Transport Statistics (Business Statistics Department)
- Energy Sector Survey
- Final Consumption of Energy Resources Survey
- Import/Export Data (External Trade and Foreign Investments Statistics Department)
- Population (Population Census and Demography Department)
- GDP (National Accounts Department)

MEPA

MINISTRY OF ENVIRONMENTAL PROTECTION AND AGRICULTURE OF GEORGIA

Data on GHG and Air Pollutant Emissions, Water Resources (Ministry of Environmental Protection and Agriculture)

Data on Air, Water and Soil Quality (National Environmental Agency, National Food Agency)

Data on Forest Resources and its Protection (National Forestry Agency, Forestry Agency of Adjara)

Data on Protected Areas (Agency of Protected Areas)

Data on Natural Hazards, Water Abstraction and Discharge (National Environmental Agency)

Data on fishery

Environmental Statistics Disseminated by Geostat

Land resources

- Land cover
- Agricultural and non-agricultural land operated by agricultural holdings

Forest resources and their protection

- Forest area
- Forest fire and restoration
- Illegal and legal timber logging
- Export and import of non-processed timber

Protected areas

- Structure of protected areas
- Number of preserved animal and bird species
- Expenses on maintenance of protected areas and number of employees

Water Resources

- Main rivers, lakes and reservoirs
- Main indicators for water supply industry and wastewater collection
- Main indicators for protection and use of water resources

Ambient air protection

- Generated, decontaminated and emitted hazardous substances from stationary sources
- Exhaust emissions from road transport

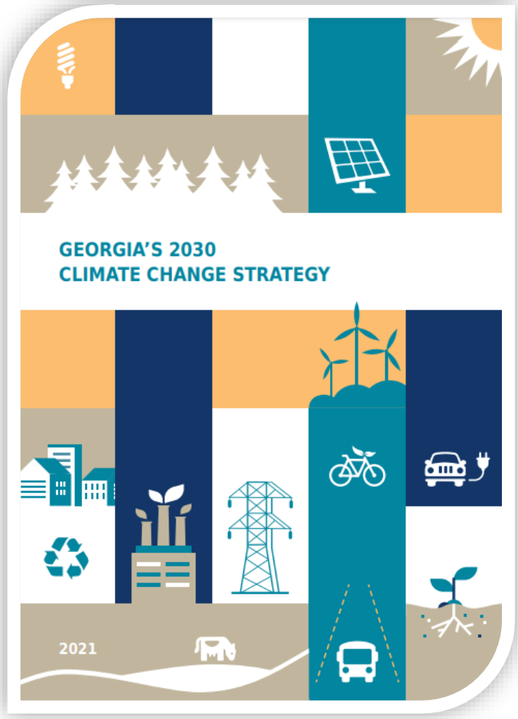
Natural hazards

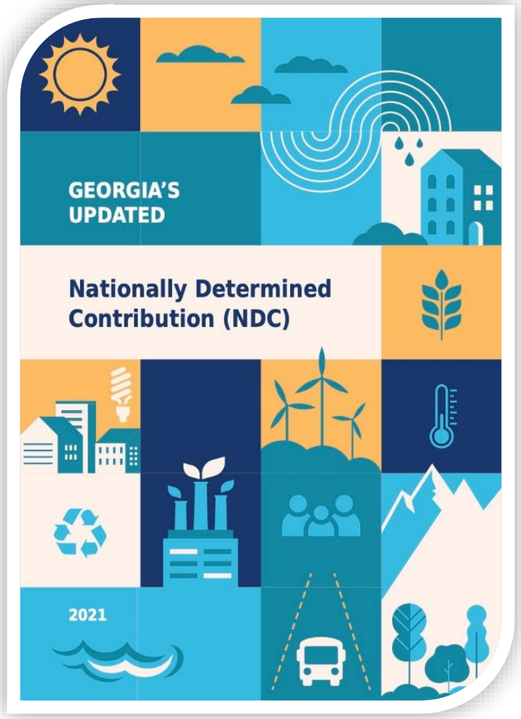
- Number of hydro meteorological events and geological phenomena

General Overview

Main strategic framework document:

- Georgia’s 2030 Climate Change Strategy
- Nationally Determined Contribution (NDC)

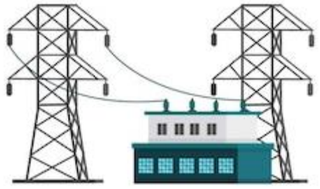




Main Goal and Purpose - Level Indicator - 35% reduction in national greenhouse gas (GHG) emissions by 2030 compared to 1990 (baseline) levels

Target Segments

- Energy Generation and Transmission



- Energy Consumption in Transport

- Energy Consumption in Buildings

- Energy Consumption in Industry and Industrial Processes

- Agriculture

- Waste Management

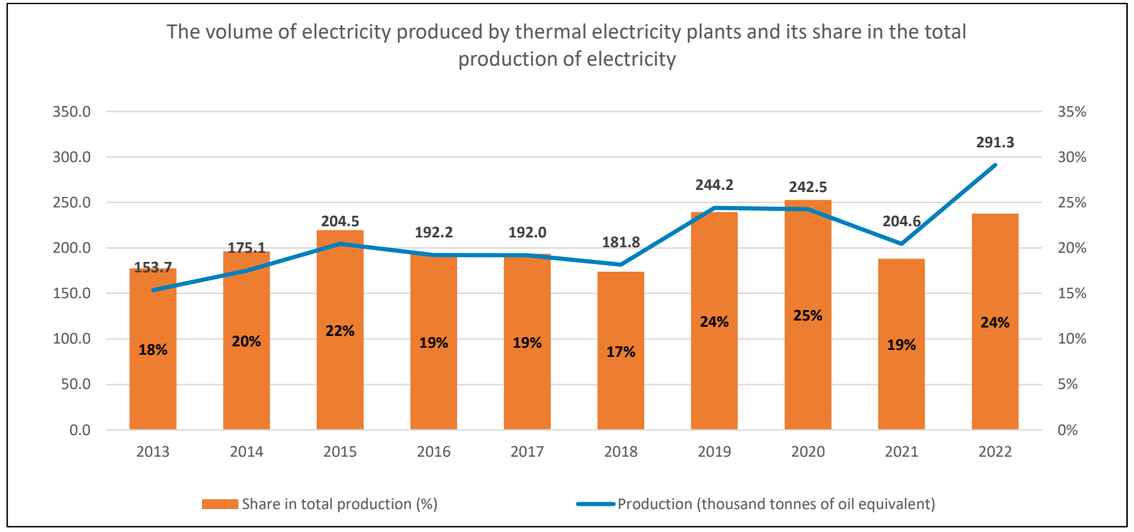
- Forestry

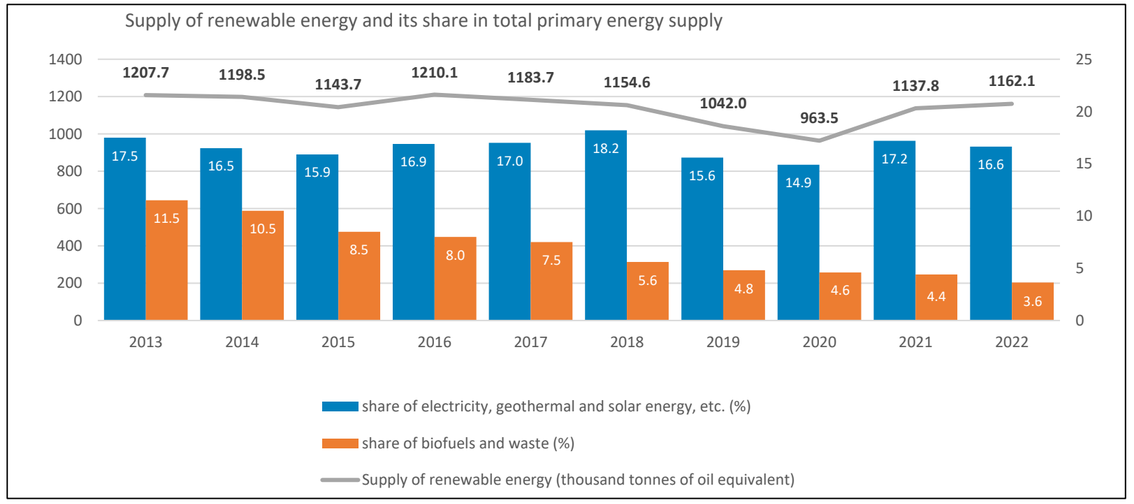
Energy Statistics

Main Sources of Energy Statistics

- Energy Sector Survey
- Final Consumption of Energy Resources Survey
- Energy Consumption in Households Survey
- Household Survey
- Administrative sources
- expert estimation

- The energy balance is produced based on the recommendations drawn up by the International Energy Agency (IEA) and Eurostat and fully complies with international standards (Requirements of Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics)
- Monthly energy statistics such as production, import, export and supply of main energy resources are produced in accordance with the Requirements of Regulation (EC) No 1099/2008
- Statistics on natural gas and electricity prices are produced on the basis of EU regulation 2016/1952 of the European Parliament and of the Council of 26 October 2016





Environmental Statistics Indicators

A-1. Emissions of pollutants into the atmospheric air
A-2. Ambient air quality in urban areas
A-3. Consumption of ozone-depleting substances
B-1. Air temperature
B-2. Atmospheric precipitation
B-3. Greenhouse gas emissions
C-4. Household water use per capita
C-5. Water supply industry and population connected to water supply industry
C-7. Water losses
C-14. Population connected to wastewater treatment
D-1. Protected areas
F-2. Fertilizer consumption
F-4. Pesticide consumption
G-1. Final energy consumption
G-2.Total primary energy supply
G-3. Energy intensity
G-4. Renewable energy supply
H-1. Passenger transport demand
H-2. Freight transport demand
H-3. Composition of road motor vehicle fleet by fuel type
H-4. Age of road motor vehicle fleet

Methodology – definitions and terms:

- UNECE environmental indicators
- UNSD/UNEP Questionnaire on Environment Statistics

Data Dissemination Formats in Geostat

- ✓ Annual statistical publication “Natural Resources of Georgia and Environmental Protection”
https://www.geostat.ge/en/single-categories/109/environment

- ✓ Statistical Yearbook of Georgia:
Section: Natural Resources and Environmental Protection
https://www.geostat.ge/en/single-categories/95/statistical-yearbook

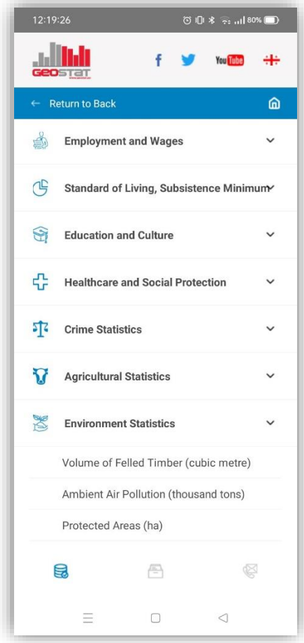
- ✓ Environment section at Geostat website:
Charts and tables
https://www.geostat.ge/en/modules/categories/73/environment-statistics

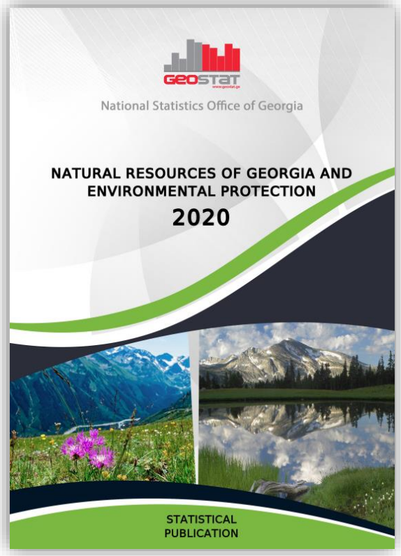
- ✓ Regional statistical portal of Geostat
https://www.geostat.ge/regions/#

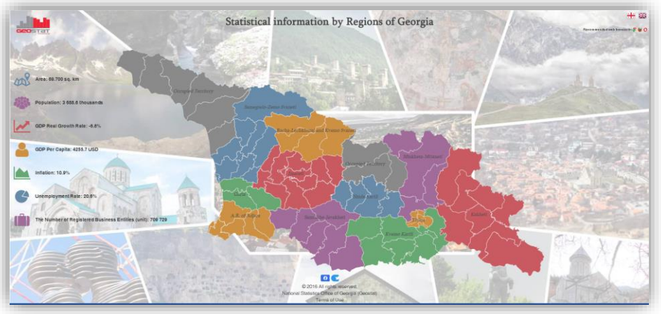
- ✓ Regional statistics section
https://www.geostat.ge/en/modules/categories/93/regional-statistics

- ✓ Android and IOS applications
https://play.google.com/store/apps/details?id=com.geostatappge

- ✓ PC-AXIS Database
http://pc-axis.geostat.ge/PXweb/pxweb/en/Database/?rxid=dfc9a49a-2741-4aac-b682-c73a856747ad







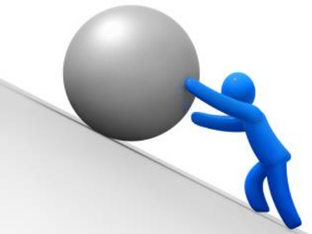
Gaps and Challenges

- **Data Collection and Availability**
  - Geostat faced issues related to the availability and quality of environmental data. Some data are not be regularly collected or uncompleted
  - The main challenge is to establish comprehensive and accurate data collection mechanisms for various environmental parameters

- **Lack of disaggregated administrative and survey data**

- **Data Integration and Management**
  - Environmental data is scattered across various agencies and institutions, the main challenge is to integrate data from different sources and ensure its consistency and reliability.

- **Capacity Building**
  - A need for training and capacity building among Geostat, government agencies and institutions responsible for collecting and managing environmental data (including for the introduction of SEEA modules)
  - The main challenge is to enhance the methodological knowledge of personnel involved in environmental statistics



Gaps and Challenges

- **Funding and Resources**
  - Limited financial and human resources can interfere the development and maintenance of environmental statistics systems
  - The main challenge is securing adequate funding and resources for environmental statistics initiatives

- **Data Quality and Validation**
  - The challenge to ensure the accuracy and validity of environmental data

- Data Dissemination and Accessibility
  - The main challenge is to enhance data dissemination and accessibility

Future plans

- Reviewing and discussing data gaps
- Prioritizing non-produced indicators
- Strengthening national statistical capacities and data collection system
- Actively cooperating with international organizations and experts
- Assessing and looking for new data sources
- Increase Disaggregation Level
- Establish coordination mechanisms for environment statistics at the strategic and technical levels
- develop physical energy flow accounts
- develop air emissions accounts
- Preparing Energy Statistics Portal

Environmental-Economic Accounts in Georgia

Available

Material Flow Accounts (MFA)
Tracks material inputs and their environmental impact, essential for sustainable development

Current

Physical Energy Flow Accounts (PEFA)
Monitors energy consumption and balance, contributing to energy efficiency policies.

Planned activities

Future Plans
Expansion of environmental Accounts. (Air and Water Accounts)

How we started

- Institutional Capacity Building Project with **Statistics Sweden (SCB)**, Environmental Statistics Component (2015-2018),
- (Geostat, MEPA, SCB)

4 prioritized subcomponents:

- ✓ Water Statistics – Prepared methodology and questionnaire for the Survey of Water Supply Enterprises; Established Electronic reporting system in MEPA;
- ✓ Air statistics – Improved methodology in MEPA;
- ✓ Waste statistics – Improvement of Electronic reporting system in MEPA;
- ✓ Environmental Economic Accounts (CF) – 1 established account.

- ENI SEIS Project with **European Environmental Agency (EEA)**, (2016-2020), Funded by EU Implementation Shared Environmental Information System principles and practices in the Eastern Partnership countries

This project is funded by the European Union

European Environment Agency

ENI SEIS II EAST Project

Statistics Sweden
International Consulting Office

System of Environmental Economic Accounting

Environmental Economic Accounts in Georgia

Accounts Compiled:

Material Flow Accounts (MFA) established since 2018.

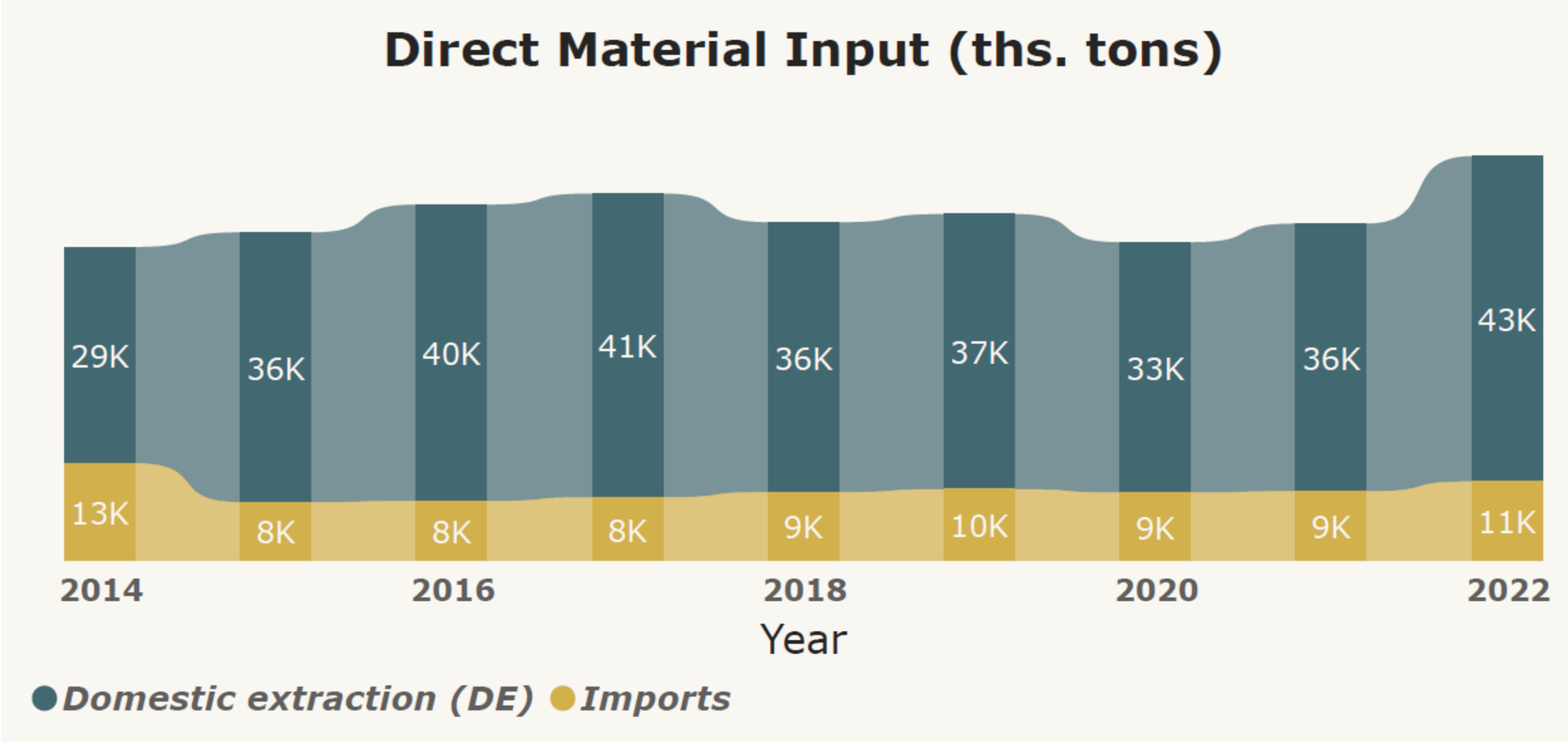
- **Framework:** System of Environmental-Economic Accounting – Central Framework (SEEA CF) (UN)
- **Methodology:** Economy-wide material flow accounts – Handbook 2018 Edition

KEY Sectors:

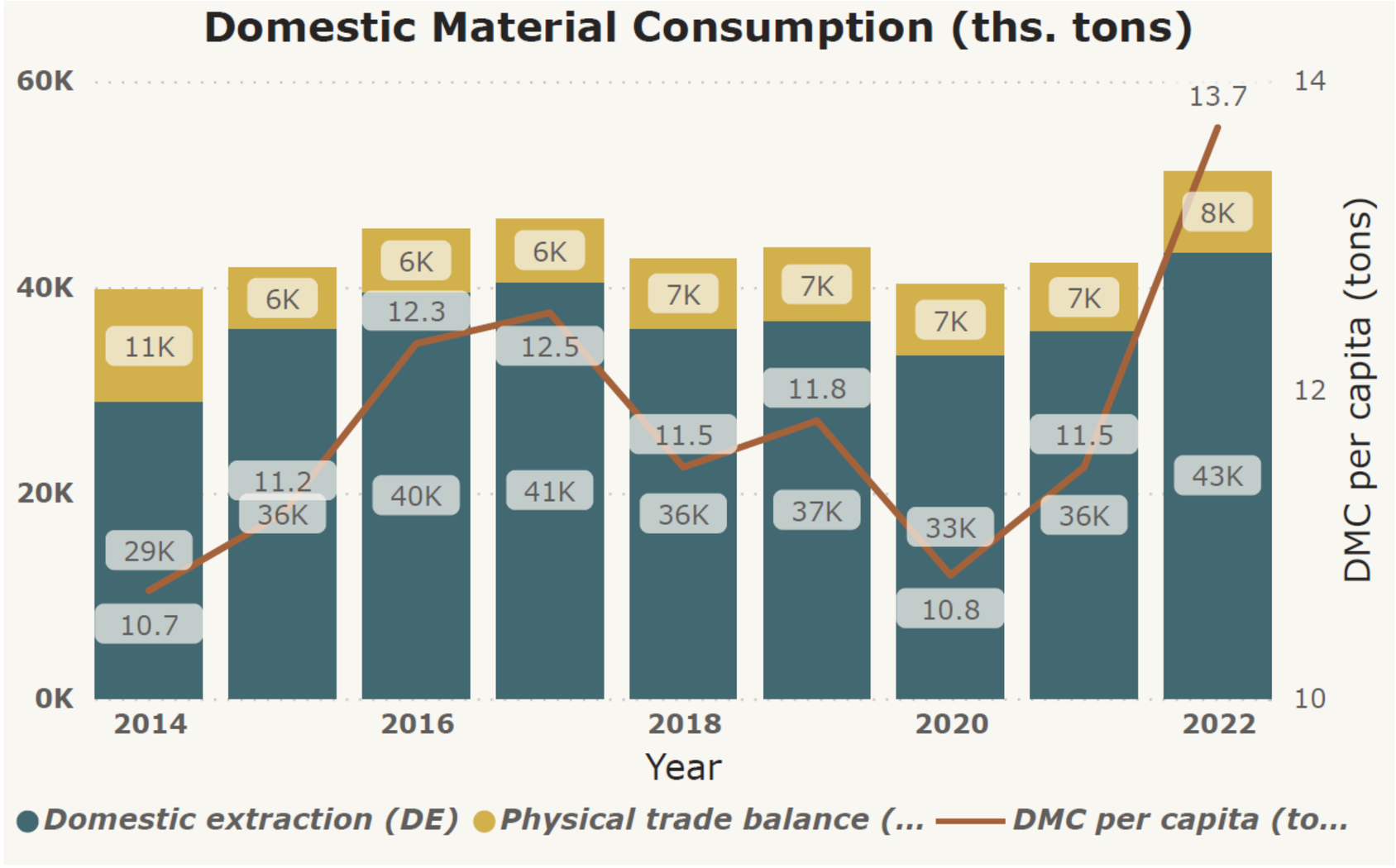
- Agriculture, mining, construction, and manufacturing.

Physical Flow Accounts for Crops and Livestock Products.

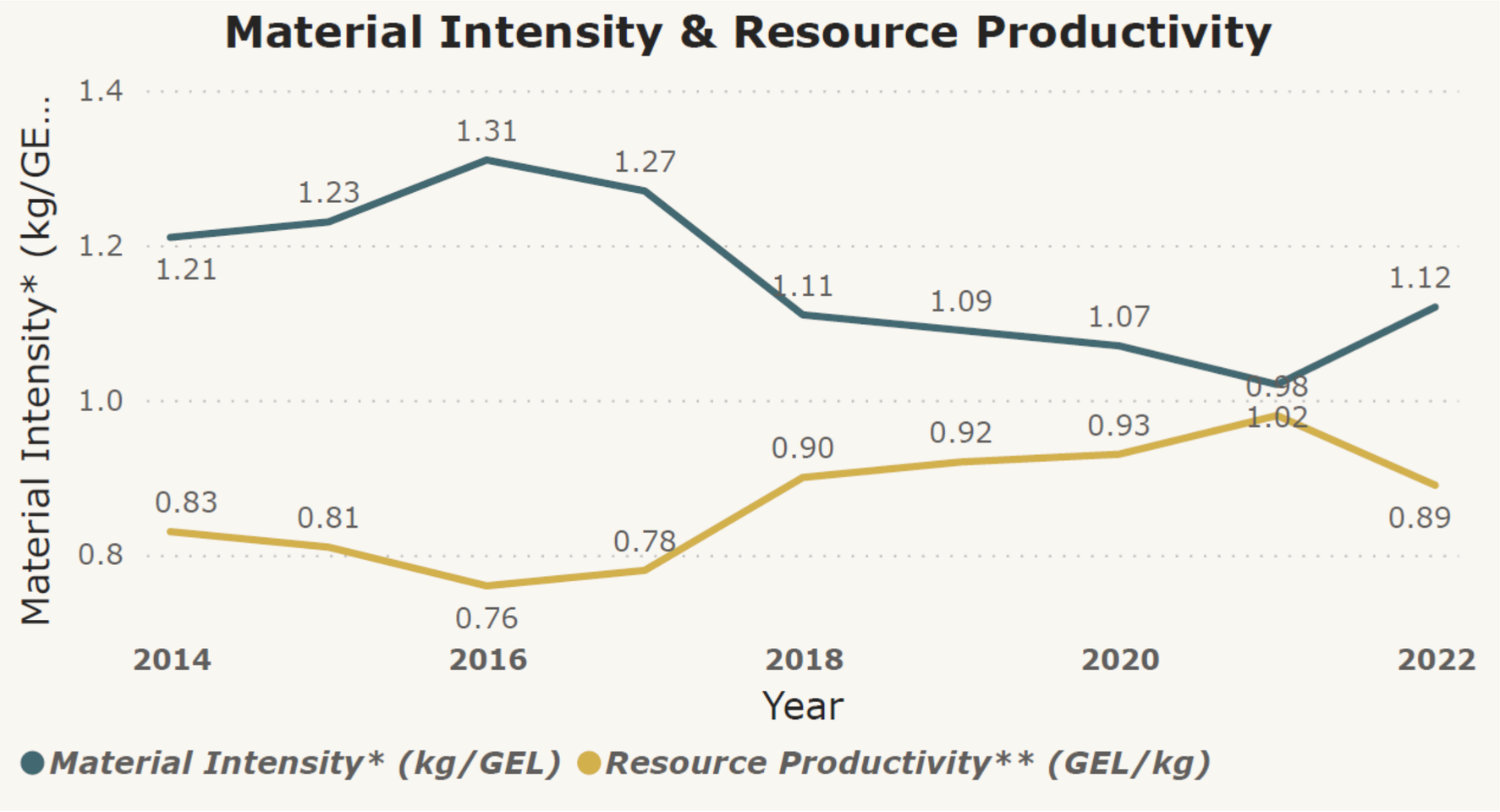
Material Flow Indicators



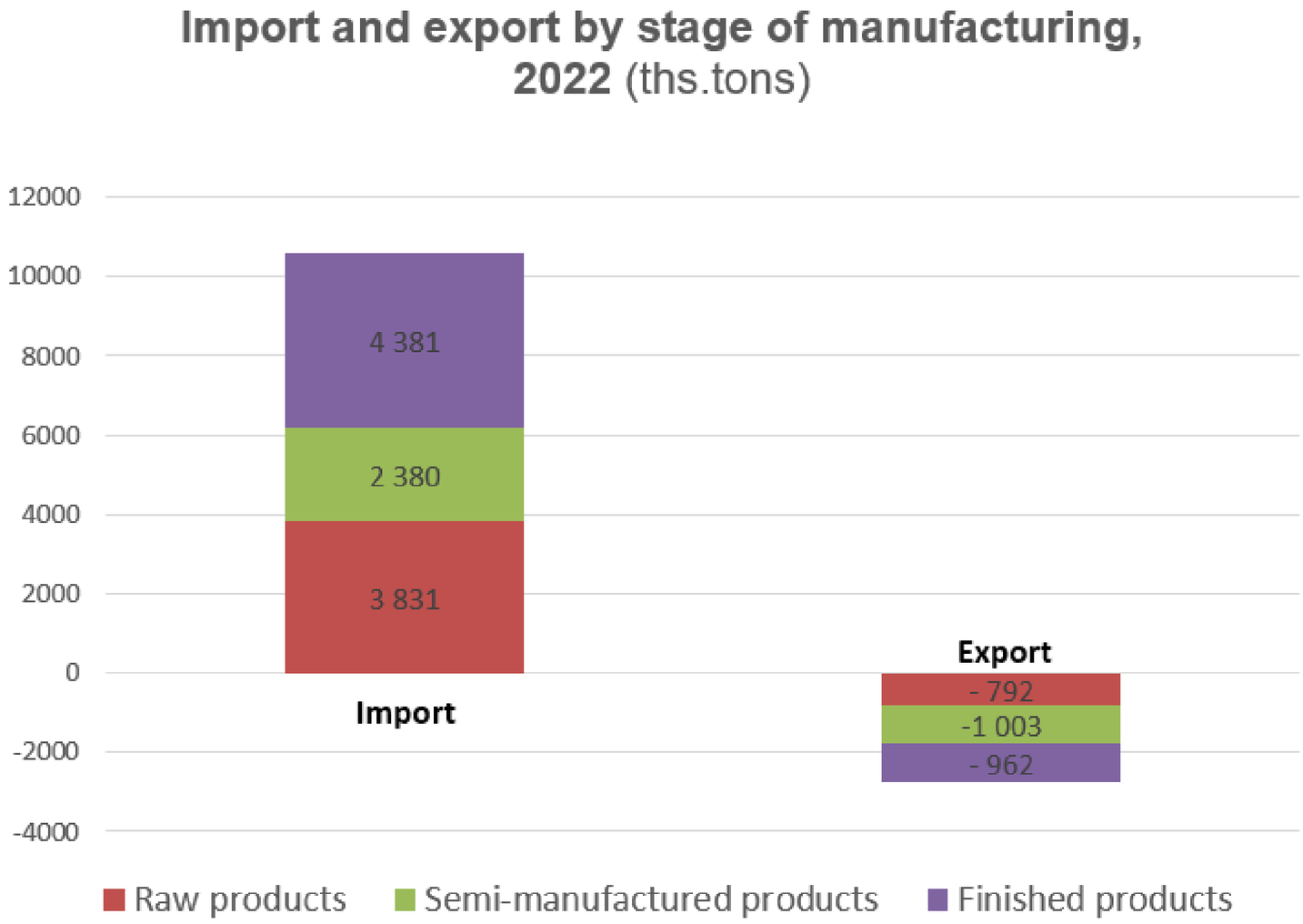
Material Flow Indicators



Material Flow Indicators



Material Flow Indicators



Main Experiences in Georgia

Data Collection:

- Collaboration with various ministries and agencies.
- Established consistent data collection methods.

Implementation:

- MFA data dissemination on annual bases.

Challenges in Data Collection and Compilation

Data availability and quality

- Incomplete or missing data for certain materials or sectors.
- Difficulty accessing proprietary or confidential data.
- Limited historical data for long-term analysis.
- Complexity of Material Flows.

Incomplete Sections of the MFA Questionnaire still remains

Overcoming Data Challenges

Improving data collection and reporting systems

- Enhanced collaboration with industries and stakeholders

Enhancing data quality

- Quality Control Processes
- Regular Audits

Case studies and best practices

- Approaches used in different countries or regions

Future plans

Fulfill MFA Questionnaire Completely

- Thorough Data Collection
- Stakeholder Engagement

Produce Additional Indicators

- Domestic processed output (DPO)

Increase Disaggregation Level

- Sectoral Disaggregation

Physical Energy Flow Accounts in Georgia

Development and Application

Physical Flow Accounts: Geostat is developing Physical Energy Flow Accounts (PEFA) and continues to refine data collection methodologies for comprehensive energy analysis.

PEFA Questionnaire: Initially, Geostat began compiling the PEFA questionnaires to identify the main gaps and issues. The primary source of data is Georgia's Energy Balance.

Overview of Energy Balance in Georgia

Energy balance in Georgia is:

- A statistical accounting of the production, trade, transformation, and final consumption of energy resources in Georgia.
- Complies with International Energy Agency (IEA) and Eurostat standards.
- Covers key indicators such as production, import, export, domestic supply, and final consumption.

Key Components:

- **Production**: Extraction or derivation of energy from natural resources.
- **Imports/Exports**: Cross-border energy flows.
- **Transformation**: Conversion of primary energy into secondary energy (e.g., electricity).
- **Final Consumption**: Energy used by end consumers in various sectors.

Data Collection and Methodology

Data Sources:

- **Surveyed Entities**: Energy producers, distributors, importers/exporters, and final consumers.
- **Survey Method**: Primarily online questionnaires, supplemented by customs declarations and administrative data.

Statistical Units:

- Enterprises, households, public services, and administrative units across Georgia.

Methodology:

- The data is harmonized with international standards, ensuring comparability and accuracy.
- **Sampling**: Random stratified sampling method, ensuring coverage across all economic activities.

Key Indicators of Energy Balance

Production:

- Includes primary energy sources like crude oil, coal, natural gas, and renewables.
- Secondary energy includes electricity generated from thermal plants, petroleum products, etc.

Domestic Supply:

- Calculated as Production + Import - Export ± Changes in Stock.

Final Consumption:

- Categorized by sector: Industry, Transport, Households, Agriculture, Public Services, etc.

Losses and Own Use:

- Energy losses during transmission and distribution.
- Energy used by the energy sector itself (e.g., power plants, oil and gas extraction).

Compliance and Quality Assurance

International Standards:

- Adheres to Regulation (EC) No 1099/2008 on energy statistics.
- Follows the European Statistics Code of Practice and UN Fundamental Principles of Official Statistics.

Data Validation and Quality Management:

- Data validation through software checks and manual reviews by Geostat staff.
- Ongoing quality audits and assessments to ensure data reliability.

User Accessibility:

- Energy balance data is published annually and made available to the public through Geostat's website.

International Cooperation

- Cooperation with **UNECE/UNSD/SIAP/OECD**

  - E-learning Courses and workshops
  - Support on capacities building in environmental accounting

  ✓ E-learning Course on SEEA Central Framework
  UN ECOSOC Statistical Institute for Asia and the Pacific (SIAP)

  ✓ Online Training Program on SEEA
  UNECE/UNSD

  ✓ Regional Training Workshop on SEEA
  UNECE/UNSD

Thank you for your attention!

iapkhaidze@geostat.ge
itsikhelashvili@geostat.ge
www.geostat.ge