Role of National Statistical Offices (NSOs) in reporting under the Paris Agreement

Chapter 3 of Guidance Report prepared by UNECE Task Force on the role of NSOs in achieving national climate objectives

Arthur Denneman; Statistics Netherlands
August 29, 2023; Geneva Switzerland
3 Reporting under the Paris Agreement
3.1 Introduction
3.2 Policy context and definitions
3.3 How NSOs can contribute
3.4 Conclusions and recommendations

Contents: see draft Guidance Report (version August 14, 2023)

Also: Enhanced Transparency Framework scheme from UNFCCC training programmes for expert reviewers -> Course A
Enhanced Transparency Framework (ETF)

**REPORTING**
- National GHG inventory report
  - Article 13.7(a)
  - NID + CRTs
- Information necessary to track progress of NDC under Article 4
  - Article 13.7(b)
  - CTFs
- Information on climate change impacts and adaptation
  - Article 13.8

**REVIEW**
- Technical expert review (TER) of information submitted
  - Article 13.11

**MULTILATERAL CONSIDERATION**
- Facilitative, multilateral consideration of progress (FMCP)
  - Article 13.11

**Support**
- Information on support provided by developed countries
  - Article 13.9
  - CTFs
- Information on support needed and received by developing countries
  - Article 13.10

**Climate Actions**
- NDC = Nationally Determined Contributions
- BTR = Biennial Transparency Report
- NID = National Inventory Document
- CRTs = Common Reporting Tables
- CTFs = Common Tabular Formats
3.2 Policy context and definitions

3.2.1 Reporting requirements related to UNFCCC under the Paris Agreement: NDCs \(\rightarrow\) ETF \(\rightarrow\) BTR

3.2.2 Data related to these reporting requirements:
- GHG inventory \((\text{NIR=NID+CTRs})\)
- NDC monitoring \((\text{CTFs})\)
- Mandatory reporting on progress of mitigation policies
- Voluntary, but encouraged, reporting on adaptation policies

3.2.3 Steps in a typical reporting cycle
Steps in a typical reporting cycle (GHG inventory)

Quality Control (QC) and Quality Assurance (QA) according to TACCC principles

Transparency
Accuracy
Completeness
Consistency
Comparability

Improved reporting by an iterative process with flexibility provisions for developing country Parties
Outline draft Guidance Report; Section 3.3

3.3 How NSOs can contribute

3.3.1 Official statistics in the context of greenhouse gas emission inventories

3.3.2 Tracking Nationally Determined Contributions (NDC)

3.3.3 Challenges facing statistical systems in the context of climate change measuring

3.3.4 Lessons learnt and best practices in UNFCCC reporting requirements

3.3.5 Institutional arrangements
Strengths of NSOs in GHG inventories

1) High quality standards of professional independence and quality
2) Expertise in classifications, definitions, and statistical frameworks
3) Important data providers, with coordinating role, in many areas
4) Solve data gaps and provide long-term stability of existing data
5) Activity data for emission calculations; Links to socio-economic data

Challenges:  a) Joint working groups: inventory community ↔ NSOs
Which areas (energy data, LULUCF, ...)?
b) More involvement of NSOs into NDC tracking
How?
Institutional arrangements

Basis for quality improvements in the EU GHG inventory: Key elements of a robust national system

- Formalization of the process, including data arrangements, legally
- Internalization of knowledge & improving capacities
- Addressing Member States’ inventory needs to improve the EU inventory
- Increased policy relevance, public awareness and scrutiny
- Formalization of roles and responsibilities of different actors
- Ever closer collaboration with Member States and between experts
- ‘Slowly but surely’: a stepwise approach to sustained improvements
- UNFCCC reviews and audits
3.4 Conclusions and recommendations

• Need for continued efforts for progressive capacity developments

• Internalizing the lessons learnt using documentation like reports, metadata, publications, etc.

What else?
Role of National Statistical Offices (NSOs) in informing climate change mitigation policies

Chapter 4 of Guidance Report prepared by UNECE Task Force on the role of NSOs in achieving national climate objectives

Arthur Denneman; Statistics Netherlands
August 29, 2023; Geneva Switzerland
Outline draft Guidance Report; Chapter 4

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Data demand

Data supply

Contents: see draft Guidance Report (version August 14, 2023)
4.2.1 Mitigation definition

231. In the glossary of IPCC Sixth Assessment Report the following mitigation definitions are given:

*Mitigation (of climate change):* A human intervention to reduce emissions or enhance the sinks of greenhouse gases.

*Mitigation measures:* In climate policy, mitigation measures are technologies, processes or practices that contribute to mitigation, for example, renewable energy technologies, waste minimisation processes, and public transport commuting practices.

232. The mitigation definition in the glossary of UNEP Emissions Gap Report is essentially the same, though additional examples for mitigation measures are given, e.g., using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other ‘sinks’ to remove greater amounts of CO2 from the atmosphere.
Overview mitigation policies

<table>
<thead>
<tr>
<th>Climate Actions and Policies Measurement Framework (CAPMF)</th>
<th>Illustrative examples</th>
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<td><strong>II.A</strong> Cross-sectoral policies</td>
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<td><strong>Improved recycling</strong></td>
</tr>
</tbody>
</table>

**Source:** OECD
Mitigation options in NDCs

Share of Parties

and

Net emission reduction potential (in Gt CO2-eq/yr)

From NDC synthesis report (2022)

Country examples also from IEA Policies and Measures Database
Additional examples related to mitigation policy

See also:

**IMF** G20 Data Gaps Initiative 3

**Eionet** Group on Climate Change Mitigation and Energy Systems

**EEA** briefing on decarbonisation agricultural sector
How NSOs can contribute; international perspective

Eurostat Statistics Explained
- Inventories, Air emission accounts and Carbon footprints
- Climate change – driving forces
- SDG 13 – climate action

Indicators and Dashboards
CES Indicator set, UNSD Global set, Eurostat Database, OECD/IPAC Dashboard, IMF Dashboard, EEA indicators, and IEA data focused platforms (clean energy transition)
Importance of Energy Statistics

GHG emissions: \( \frac{3}{4} \) [Energy sector] + \( \frac{1}{4} \) [Agriculture, LULUCF, Fluorinated gases]

307. NSOs should adopt a well-designed energy data collection strategy which:
   - Is planned in accordance with the national context and allocated budget.
   - Promotes dialogue between energy statistics and policy making to raise awareness of existing data needs and long-term objectives.
   - Facilitates institutional arrangements for data collection.

308. NSO should ensure to promote staff capacity and stability. Qualified staff who understand key energy concepts and the methodological particularities of energy statistics are an absolute requirement for the development of energy-related data at a national level. In addition, it is important to build capacity in different data collection methodologies (including administrative sources, surveys, modelling and metering), and how to derive indicators from the raw data collected.

IEA roadmaps:  
- Demand-side data and energy efficiency indicators
- Tracking Public Investment in Energy Technology Research

Independent check GHG emissions: Sectoral versus Reference approach
Data collection → indicators for policy-making

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative data sources</td>
<td>Avoid cost of a new data collection process</td>
<td>Boundary issues: potential mismatch between definitions and target populations of existing data and data needed</td>
</tr>
<tr>
<td></td>
<td>Available relatively quickly</td>
<td>Challenges in establishing and maintaining communication with the source organisation</td>
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<td></td>
<td>Increase synergies between institutions</td>
<td>Potential costs (direct and indirect: e.g. purchasing data, establishing agreements, adapting data formats)</td>
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<tr>
<td></td>
<td>Raise profile and interest of energy data among various services</td>
<td>One-off time investment in search for data sources</td>
</tr>
<tr>
<td>Surveying</td>
<td>Relatively cost-effective, given extensive information collected</td>
<td>Potentially high absolute cost</td>
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<tr>
<td></td>
<td>Ad-hoc design of items collected based on purpose</td>
<td>Time consuming</td>
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<tr>
<td></td>
<td>Representativeness/statistical significance</td>
<td>Need for further estimation work (e.g. extrapolation between years)</td>
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<td></td>
<td>Overall, comprehensive and good quality information</td>
<td>Risk of incomplete responses, biases, sampling errors</td>
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<td></td>
<td></td>
<td>Requirement of staff training</td>
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<tr>
<td>Measuring (metering)</td>
<td>Provides actual energy consumption at end-use or equipment level</td>
<td>High cost of equipment</td>
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<td></td>
<td>High accuracy of collected data</td>
<td>Small sample of population and time/lack of representativeness</td>
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<td></td>
<td>Can shed light on actual behavioural patterns</td>
<td>Possible malfunctioning of equipment</td>
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<td></td>
<td>Can be a key complement to other methodologies</td>
<td>Difficulties in finding volunteers</td>
</tr>
<tr>
<td>Modelling</td>
<td>Cost-effective</td>
<td>Relies on availability of input data</td>
</tr>
<tr>
<td></td>
<td>Designed based on purpose</td>
<td>Depends on quality of input data</td>
</tr>
<tr>
<td></td>
<td>Can consolidate data from multiple sources</td>
<td>Depends on model assumptions</td>
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<td></td>
<td>Can provide estimates of variables that cannot be measured</td>
<td>Transparency may be an issue</td>
</tr>
<tr>
<td></td>
<td>Allows validation of bottom-up estimates against national energy statistics</td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from IEA Energy efficiency indicators: Fundamentals on Statistics (2014)
How NSOs can contribute; country examples

**Luxembourg**: IPCC inventory ↔ SEEA air emission accounts

**New Zealand & Denmark**: Production, Consumption, Footprints

**The Netherlands**: Quarterly GHG emissions (SEEA and IPCC)

**Cyprus, Greece, Serbia, and Ireland**: Census data on housing characteristics (related to energy transition)

**UK & Spain**: Dashboards (climate change-related; EU Green Deal)

**Ireland**: Data Stewardship and Use of administrative (micro)data
Academic usage: SEEA Material Flow Accounts

Future challenge
further electrification

Availability of
critical minerals
(cobalt, lithium, ...)
for batteries,
solar panels,
and electric cars

Which ‘enablers’
do exist for
successful
transitions?

What NSO data?

Source: Index Decomposition Analysis (The Netherlands)
Monitoring Pyramid used in the Netherlands

Main target can be quantified (for national total and sectors)

Monitoring of transition process itself (e.g. energy infrastructure)

Perception, attitudes and behavior of households, companies and governments (also ‘just transition’)

Availability of critical minerals

Monitoring of ‘enablers’, like climate finance and labor force

Each monitoring level requires its own information & intelligence.
Role of NSOs in ETF (Paris Agreement)

Data Demand (ETF) versus Data Supply (NSOs)

Availability of information is overwhelming

High level approach instead of identifying data gaps at a granular level
Recommendations

(a) An international meeting platform can be established, possibly with national counterparts, bridging the data gap between what NSOs can contribute (supply side) to what is needed in the ETF mitigation domain (demand side).

(b) This meeting platform can provide more detailed descriptions of the ETF mitigation policy data needs (using the CAPMF classification), more guidance on producing the requested NSO data, and effective collaboration in solving identified data gaps (e.g., by developing a CISAT-like tool).

(c) The NSOs need capacity building for further development and extensions of official statistics and other tailor-made (micro)data, in particular the variety of data needed to monitor the clean energy transition and other transitions envisaged in NDCs.

CISAT = Climate change statistics and Indicators Self-Assessment Tool