Data-Driven Voluntary National Reviews
Strengthening national statistical systems for better SDG reporting
About PARIS21

The Partnership in Statistics for Development in the 21st Century (PARIS21) aims to improve the production, quality, availability, and use of statistics for informed decision making for sustainable development. It was established in 1999 by the United Nations, the European Commission, the Organisation for Economic Co-operation and Development (OECD), the International Monetary Fund, and the World Bank as a response to the need for accurate and reliable data to achieve and track progress toward development goals.

PARIS21 works with governments, international organisations, civil society, and other stakeholders to strengthen national statistical systems, promote the use of data for policy making, and foster partnerships and networks in low and middle-income countries.

PARIS21 recognises the critical role that accurate and timely data play in addressing global challenges, making informed policy decisions, and monitoring progress toward sustainable development. By working to improve statistical capacities and systems, PARIS21 contributes to more effective and targeted development efforts worldwide.

About this report

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Foreword

Across the world, data gaps are hampering the effective monitoring of progress towards achieving the Sustainable Development Goals (SDGs). The full potential of national statistical offices (NSOs), which constitute the core of a national statistical system, to support the implementation of the SDGs through the provision of such data has not yet been reached. However, the 2030 Agenda calls for dynamic collaboration and creative solutions to support data-driven action for sustainable development.

The annual Voluntary National Review process is not only an opportunity for countries to monitor their progress towards the SDGs, but it also provides a window of opportunity to promote data literacy and increase the public’s understanding of how data promotes transparency, provides evidence for action and reinforces democratic accountability.

This report analyses existing VNR processes and discusses the opportunity and options to introduce the concept of “data-driven VNRs” as a more intentional approach to engage NSOs and the wider NSS in the VNR process, enrich SDG reporting, and strengthen the enabling environment for evidence-informed policy making and programming for the SDGs and beyond.

This report is made up of five chapters. Chapter 1 provides the background and the rationale for the research, including a discussion on the relationship between the overarching principles of the 2030 Agenda and engagement with the NSS, as well as the methodology, uncovering the need for more detailed guidance on data-driven approaches in the VNR process. Chapter 2 presents the findings from an analysis of existing VNR reports, taking stock of references to statistics in the VNR narrative, the role of the NSO in the VNR process, references to statistical capacity development, and the depth and volume of data reporting encapsulated in the statistical annexes attached to the VNR reports. Chapter 3 highlights current models of NSOs’ engagement in the VNR process, identifying cases of positive deviance and best practices to be further developed and scaled in other contexts. These practical examples are grouped around five key areas: 1) co-ordinating the NSS; 2) fostering transparency and subnational ownership; 3) engaging the wider data ecosystem; 4) improving policy coherence; and 5) supporting long-term solutions to improve statistical capacity. Chapter 4 moves to practical application, presenting guidance on how to develop a VNR data roadmap to equip countries with concrete entries to improve NSO engagement in the VNR process. Chapter 5 by highlights areas for further research and exploration and four actionable recommendations to promote and actualise the benefits of data-driven VNR processes at the country level.
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# Table of contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>3</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>4</td>
</tr>
<tr>
<td>Abbreviations and acronyms</td>
<td>7</td>
</tr>
<tr>
<td>Executive summary</td>
<td>8</td>
</tr>
<tr>
<td>1. Introduction: Are voluntary national reviews data-driven?</td>
<td>10</td>
</tr>
<tr>
<td>1.1. SDG principles and official statistics</td>
<td>12</td>
</tr>
<tr>
<td>1.2. Why focus on the role of statistics in voluntary national reviews?</td>
<td>13</td>
</tr>
<tr>
<td>1.3. Methodology</td>
<td>15</td>
</tr>
<tr>
<td>Notes</td>
<td>16</td>
</tr>
<tr>
<td>2. Findings: Reporting on data and statistical capacity in voluntary national reviews</td>
<td>17</td>
</tr>
<tr>
<td>2.1. Overall data referencing in the voluntary national review narratives</td>
<td>17</td>
</tr>
<tr>
<td>2.2. The role of national statistical offices in the voluntary national review process</td>
<td>19</td>
</tr>
<tr>
<td>2.3. References to statistical capacity development</td>
<td>22</td>
</tr>
<tr>
<td>2.4. The depth and volume of data reporting: Statistical annexes and online platforms</td>
<td>24</td>
</tr>
<tr>
<td>Notes</td>
<td>26</td>
</tr>
<tr>
<td>3. How can national statistical offices partner in the voluntary national review process?</td>
<td>27</td>
</tr>
<tr>
<td>3.1. Strengthening horizontal co-ordination and the effectiveness of the national statistical system</td>
<td>27</td>
</tr>
<tr>
<td>3.2. Fostering transparency and local ownership of the Sustainable Development Goals</td>
<td>30</td>
</tr>
<tr>
<td>3.3. Engaging the wider data ecosystem for better data and improved policy coherence</td>
<td>33</td>
</tr>
<tr>
<td>3.4. Supporting long-term solutions to improve statistical capacity</td>
<td>37</td>
</tr>
<tr>
<td>3.5. Inspiring other countries through peer learning and exchange</td>
<td>41</td>
</tr>
<tr>
<td>Notes</td>
<td>43</td>
</tr>
<tr>
<td>4. Developing a voluntary national review data roadmap</td>
<td>44</td>
</tr>
<tr>
<td>4.1. Preparation and planning</td>
<td>44</td>
</tr>
<tr>
<td>4.2. Data assessment</td>
<td>45</td>
</tr>
<tr>
<td>4.3. Data collection</td>
<td>46</td>
</tr>
<tr>
<td>4.4. Data incorporation and including a statistical annex</td>
<td>46</td>
</tr>
<tr>
<td>4.5. Presentation and post-analysis</td>
<td>49</td>
</tr>
</tbody>
</table>
5. Conclusions and the way forward

5.1. Recommendations to enable more data-driven VNRs

References

 Annex A. 2030 Agenda principles combined with international data principles
 Annex B. VNR text analysis methodology
 Annex C. Text analysis – terminology

FIGURES

Figure 2.1. Use of data and statistics terms in VNR reporting
Figure 2.2. Relative frequency of statistics and data-related terms in first, second and third VNR round
Figure 2.3. Relative frequency of data and statistics terms by geographic region and VNR round
Figure 2.4. Share of voluntary national reviews referencing the role of national statistical offices, average 2016-2023
Figure 2.5. Share of VNR reports including references to data or capacity challenges
Figure 2.6. Share of voluntary national review reports referring to national statistical strategies
Figure 2.7. Share of voluntary national review reports highlighting efforts to apply alternative data sources
Figure 2.8. Share of voluntary national review reports including a statistical annex
Figure 2.9. Navigating progress in sustainable development on Poland’s reporting platform
Figure 2.10. Pillars of Azerbaijan’s monitoring mechanism for the SDGs
Figure 2.11. Data visualisation from Canada’s statistical annex
Figure 2.12. A snapshot of the Statistical Annex to Bosnia and Herzegovina’s 2023 Voluntary National Review report
Figure 2.13. A snapshot of the Statistical Annex to France’s 2023 Voluntary National Review report
Figure 2.14. A snapshot of the Statistical Annex to Cambodia’s 2023 Voluntary National Review report

TABLES

Table A C.1. Key search terms

BOXES

Box 1.1. Voluntary but guided: UN guidance on voluntary national reviews
Box 2.1. Examples of national statistical offices’ functions as featured in voluntary national review reports
Box 3.1. The national statistical office as a member of the SDG institutional mechanism in Jamaica
Box 3.2. SDG monitoring network managed by Statistics Sweden
Box 3.3. Poland’s national Sustainable Development Goal reporting platform
Box 3.4. A whole-of-society approach to Sustainable Development Goal monitoring and review in the Philippines
Box 3.5. Collaboration with civil society to report on the Sustainable Development Goals
Box 3.6. Experiences in using non-traditional data sources in the Mongolian 2023 Voluntary National Review
Box 3.7. Benefits of citizen-generated data for monitoring the Sustainable Development Goals
Box 3.8. Maldives’ statistical capacity in the means of implementation for the 2030 Agenda
Box 3.9. Examples of institutional improvements from one voluntary national review cycle to the next
Box 3.10. The Strategy for the Development of Statistics in Guatemala
Box 3.11. Approaches to strengthen accountability, institutional mechanisms and policy coherence to implement the 2030 Agenda in Canada
Box 3.12. Learning from peers by Statistics Norway
Box 3.13. Mongolia, Tajikistan and Uzbekistan: Participation in twinning exercises
Box 4.1. Baseline survey carried out by Statistics Netherlands
Box 4.2. Zambia’s post-High-Level Political Forum recommendations to tackle data gaps
Box 4.3. The evolving role of Statistics Denmark on Sustainable Development Goal reporting beyond the voluntary national review
### Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGD</td>
<td>Citizen-generated data</td>
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<tr>
<td>DG INTPA</td>
<td>Directorate-General for International Partnerships of the European Commission</td>
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<td>HLPF</td>
<td>High-level Political forum for Sustainable Development</td>
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<td>LNOB</td>
<td>Leave no one behind</td>
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<td>NSDS</td>
<td>National strategy for the development of statistics</td>
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<td>NSO</td>
<td>National statistical office</td>
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<tr>
<td>NSS</td>
<td>National statistical system</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<tr>
<td>ODW</td>
<td>Open Data Watch</td>
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<tr>
<td>PARIS21</td>
<td>Partnership in Statistics for Development in the 21st Century</td>
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<tr>
<td>PCSD</td>
<td>Policy Coherence for Sustainable Development</td>
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<tr>
<td>SDG</td>
<td>Sustainable Development Goal</td>
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<td>VLR</td>
<td>Voluntary Local Review</td>
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<td>VNR</td>
<td>Voluntary National Review</td>
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<tr>
<td>UN DESA</td>
<td>United Nations Department for Economic and Social Affairs</td>
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<td>UN ESCAP</td>
<td>United Nations Economic and Social Commission for Asia and the Pacific</td>
</tr>
</tbody>
</table>
Executive summary

High quality data and statistics have been a centrepiece of the 2030 Agenda since its inception, driving innovation and investments in national statistical systems (NSS). However, after a decade of implementing the Sustainable Development Goals (SDGs), countries all over the world continue to face significant data shortfalls across a range of SDG goals and targets.

Voluntary National Reviews (VNRs) for the SDGs have become an established mechanism to assess progress, exchange best practices, and identify new strategies and solutions to advance SDG implementation across countries. As such, they offer the latest trends in SDG indicators, drawing on official statistics. However, despite the importance of data and statistics to the VNR process, linkages to wider efforts to develop statistical capacity remain bounded, highlighting an untapped opportunity to raise the profile of official statistics and support evidence-informed action for sustainable development through data-driven VNRs.

Although VNRs depend upon high quality data and statistics, references to statistical capacity and terminology are declining

An analysis of VNR reports shows an increase in the volume of evidence presented for monitoring progress towards the SDGs combined with a parallel decrease in the reference to statistics and institutional capabilities as a means of implementing the 2030 Agenda. These downward trends are especially apparent in successive VNR rounds of countries in Africa, the Middle East, and Latin America and the Caribbean, suggesting that attention to the role of official statistics in SDG implementation may be diminishing over time.

Despite this overall downward trend, important developments in the presentation of SDG data and statistics are also emerging. A growing number of countries accompany VNR narratives with dedicated SDG data platforms and statistical annexes, expanding the space to unpack data-driven insights on SDG progress. As a counterpoint to the overall finding on references to statistical terms, the use of such complementary materials underscores continued appreciation of the importance of data and evidence in monitoring and storytelling around the SDGs.

Opportunities and benefits for NSOs in the VNR process are numerous, with long-run implications for statistical capacity development

Building and expanding engagement with the NSO and wider NSS through the VNR process is an important and practical strategy to course-correct reporting trends and bring statistical capacity into the picture of SDG implementation. The potential benefits of doing so transcend the immediate requirements of SDG monitoring, extending to co-ordination, policy coherence, and transparency and accountability, supporting whole-of-society ownership of the 2030 Agenda.

NSO co-ordination of data producers in the VNR process strengthens the NSS by providing opportunities for streamlining the data exchange and data use within the government, creating opportunities for new
data partnerships with both state and non-state actors. In many countries, ministries of planning, which may also house NSOs, have a role to play in empowering the NSOs to allow them to fully execute their mandate. This might involve deepening NSO participation in existing SDG institutional mechanisms or developing new working groups, for example.

Critically, by working across stakeholders and levels of governance, from national to subnational, the coordination demands for SDG data around the VNR can yield positive shifts toward more connected and better-governed national data ecosystems. VNRS increasingly report on the NSO’s potential role as a data steward to tackle data gaps, improve data access and communication, and operationalise novel data sources to leave no one behind. Data partnerships with the wider data ecosystem, including civil society and the private sector, are becoming more and more common, used to spark innovation and enrich analysis of SDG progress.

These different activities can all be considered and mapped to the VNR process through a range of mechanisms, including through the development of VNR data roadmaps, a concept introduced by the United Nations Statistics Division (UNSD) (United Nations Statistics Division, 2022[1]). By demystifying the different stages of the VNR process in relation to data and statistics, from preparation and planning through presentation and post-analysis, these roadmaps provide a framework to deepen NSO engagement and, ultimately, connect to the larger agenda for statistical development through national strategies for the development of statistics (NSDS).

Insights from across countries and a growing set of guidance and tools point to solutions to support data-driven VNRS

Deepening narratives around statistical capacity and NSO engagement in VNRS holds power and potential beyond implementation of the SDGs. Although trends in VNR reporting suggest that data and statistics figure less prominently than in the early days of the 2030 Agenda, emerging best practices from countries, existing guidance, and national statistical strategies themselves all point toward practical recommendations to promote data-driven VNRS:

**Use the VNR process to uncover untapped data potential**

the VNR report itself offers an important tool to expand narratives around the role of statistical capacity in advancing sustainable development. Efforts to consolidate data and insights to inform narratives on SDG progress can also open doors for new data partnerships, drawing in new data sources and stakeholders to support more inclusive, participatory approaches for SDG monitoring and implementation.

**Engage NSOs to develop data-driven VNRS**

Tapping into the NSO’s co-ordination mandate is one of the clearest entries to expand their engagement in VNR processes. In addition to streamlining SDG data curation, analysis, and processing for the VNR report, engaging the NSO in this way positions them to connect across stakeholders and build trust. VNR data roadmaps are an important tool to support NSOs in this effort and throughout the VNR process to define opportunities to engage.

**Consider the VNR as the beginning of a long-term journey toward statistical development**

Linkages between VNRS and the NSDS are an under-exploited opportunity to connect SDG monitoring efforts to the overall agenda for statistical development at the country-level. Building these linkages not only clarifies the role of the NSO and NSS in the VNR process, but also sets a course to build trust in government and strengthen accountability for Agenda 2030 and beyond.
Data-Driven Voluntary National Reviews

Infographic 1. Recommendations for creating a data-driven Voluntary National Review

**Use the VNR process to uncover untapped data potential**

- Enrich VNR narratives and statistical annexes

- Include practical insights around monitoring the SDGs in VNR narratives.
- Articulate the engagement of the NSO to provide the overall picture of SDG progress.

**Engage national statistical offices to develop data-driven VNRs**

- Include NSOs in SDG institutional mechanisms and amplify co-ordination

- Establish mechanisms such as working groups or special divisions within NSOs.
- Balance NSO participation with measures to protect and maintain independent status.

**Consider the VNR as the beginning of a long-term journey toward statistical development**

- Align national statistical development strategies and VNR processes

- Invest in the institutional capacities of NSOs.
- Use the VNR process to highlight priorities and emerging needs.
- Reference VNRs in the NSDS, to better position NSOs to engage.
- Use the VNR to develop statistical capacity linked to national priorities.

**Develop data partnerships with the wider ecosystem**

- Adopt VNR data roadmaps

- Define activities and responsibilities for the NSO.
- Clarify practical entries for the NSO to collaborate or lead with other VNR stakeholders.
- Link a VNR roadmap to the NSDS lifecycle to establish stronger links between VNR activities and NSO priorities and programming.

**Build trust through better data and insights**

- Establish a regular monitoring and evaluation framework for tracking progress on the SDGs.
1. Introduction: Are voluntary national reviews data-driven?

With little more than five years remaining to fulfil the ambitions of the 2030 Agenda for Sustainable Development, many of the Sustainable Development Goals (SDGs) are far from being on track (United Nations, 2023[2]). Progress on more than 50% of SDG targets is weak and insufficient; 30% have stalled or gone backwards, including targets on poverty, hunger and climate (United Nations, 2023[2]). In recent years, the COVID-19 pandemic, rising conflicts, a global cost-of-living crisis and insufficient concessional financing for development have severely affected progress on the SDGs, calling for concerted efforts to change course. Responding to the impact of these multiple interlocking crises, the SDG Summit in September 2023 marked the beginning of a new phase of accelerated progress towards achieving the SDGs. It resulted in a negotiated political declaration that highlights progress made, gaps and challenges as well as targeted calls for action. Among other things, the declaration stresses the need to strengthen data systems and collection on SDG progress and to intensify action to enhance data and statistical capacities in developing countries.1

The 2030 Agenda highlights the need for countries to undertake systematic reviews of their progress towards sustainable development (United Nations, 2015[3]). As the main SDG review mechanism, VNRs are critical for assessing and presenting progress on the 2030 Agenda. Apart from providing a framework for SDG reporting, they offer an entry point for governments to take ownership of a whole-of-society approach to support evidence-based SDG implementation efforts.

Over the years, many countries have developed their SDG monitoring frameworks benefiting from VNR reporting efforts. Despite the importance of data and statistics for such efforts, countries continue to face SDG monitoring challenges, which have been further exacerbated by multiple crises. For instance, data collection efforts were heavily disrupted, reprogrammed or stalled during the COVID-19 pandemic, affecting regularly scheduled survey and census implementation (including the 2020 census round), further limiting the evidence base of some VNR reports (GIZ and Partners for Review, 2020[4]; GIZ and the Global Partnership for Sustainable Development Data, 2020[5]).

Some civil society actors have observed a downward trend in the use of statistics and data-related terms in VNR reports providing information on SDG data availability (De Oliveira, 2022[6]). However, data and statistics are strategic assets for accelerating the implementation of the SDGs (UN DESA, 2022[7]). The Common Reporting Guidelines for Voluntary National Reviews at the HLPF elaborated by the United Nations Secretary-General reiterate the necessity to include statistics in VNRs and that these statistics should be based on high-quality national data.2 The guidelines also define the principles concerning monitoring and review presented in the 2030 Agenda.

A significant part of the data and statistics used in VNRs should be compiled from official statistics and the NSO should play a key role in their preparation. For that role to materialise, NSOs must be at the centre of SDG measurement and monitoring, including contributing to evidence-based VNR reporting. However, to meet these SDG data demands, the capacities of the NSO in many countries need to be strengthened and expanded (UN DESA, 2022[7]). This report takes stock of the current positioning of the NSO in the
DATA-DRIVEN VOLUNTARY NATIONAL REVIEWS

VNR process, identifying pathways to strengthen the governance of official statistics for SDG reporting and connecting SDG reporting to actionable policy advice.

1.1. SDG principles and official statistics

To drive transformation, the 2030 Agenda is underpinned by five principles, which serve as a lens to examine the required capacities and the mandate of the NSO to respond to the data needs of the 2030 Agenda: 1) universality; 2) interconnectedness; 3) inclusive, participatory approaches; 4) partnership approaches that engage multiple stakeholders in both the implementation and the monitoring of the SDGs; and 5) leaving no one behind (LNOB).

**Universality**

The principle of universality means that the agenda applies to all countries equally, North and South, including when it comes to measuring progress on the SDGs. However, in many countries and contexts, an enabling environment for SDG monitoring is challenging due to weak data and statistical capacities. Addressing these gaps might call for the use of new methods and tools for statistical development that require NSOs to adapt their work and business processes. This may include introducing new thematic fields of data collection or aligning its reporting to the harmonised methodologies (UNDG, 2016[8]). This principle also calls for governments to consider the possible impacts of their national policies on other countries’ efforts to implement the SDGs.

**Interconnectedness and indivisibility**

To achieve the SDGs, the 2030 Agenda urges countries to consider the interlinkages between the environmental, economic and social dimensions of sustainable development. In this regard, SDG target 17.14 calls for enhancing policy coherence for sustainable development, which should help ensure that different government policies are aligned with, and supportive of, each other across the SDGs. This requires comprehensively addressing development challenges, developing cross-sectoral policies and programmes, and minimising the negative impacts that policies may have in other areas. Reliable data and analytical skills to assess the interlinkages between different policy measures are paramount. Thus, the NSO and other institutions of the NSS need the ability to facilitate co-ordination, integration and skills development within broader SDG institutional arrangements for evidence-based policy design, implementation and monitoring.

**Inclusive and participatory approaches**

The multi-stakeholder nature of the 2030 Agenda calls for an enabling environment that is inclusive and supports the participation of all. VNRs rely heavily on the engagement of both state and non-state actors and, increasingly, data produced by non-state actors are considered a promising complementary source for SDG reporting. If mandated, the NSO can help facilitate such approaches in the VNR process by supporting the collaboration between the NSS and non-governmental stakeholders, thereby ensuring inclusive monitoring and data collection efforts, for example through establishing and implementing frameworks for SDG data quality.

**Partnership approaches**

In line with the inclusive and participatory approaches principle above, the 2030 Agenda calls for collaborative approaches in the form of partnerships. Multi-stakeholder partnerships are critical to leverage the interlinkages between the SDGs and can thereby help accelerate progress. Data can play a
fundamental role in a partnership between government and non-government stakeholders. In this regard, the NSO has an important role to play in developing standards and facilitating processes for data provision for the VNRRs and SDG follow-up and review. With its know-how, skills and mandate, the NSO is uniquely positioned to establish the necessary data quality safeguards to manage diverse data sources in VNR reporting.

Leaving no one behind

The 2030 Agenda’s commitment to the principle of LNOB poses various data requirements. Policy-data integration and data collection for vulnerable groups are needed to report on the principle of LNOB in the VNRRs. To reduce inequalities and practice inclusive development, governments must first understand the discrimination or disadvantages people face. Various aspects of a person’s identity – their age, ethnicity, gender, religion, disability, migratory status or sexual orientation – shape their experiences of advantage/disadvantage and discrimination/privilege. Unpacking these intersecting inequalities involves looking at how aspects of identity overlap to create and deepen discrimination.3 This calls for disaggregated data collection efforts; however, current statistics in many countries reflect national averages that often mask the intersectional inequalities or the disparities at the subnational, community or household level (United Nations Statistics Division, 2022[1]). Hence, to report on the principle of LNOB, specific, targeted approaches for data production, disaggregation, analysis and dissemination are required, as are adequate statistical capacities of the NSO to implement them.

Annex A provides an overview of these principles combined with international data principles recommended by the United Nations to be used as a starting point for reporting statistics in the VNRRs (United Nations Statistics Division, 2022[1]).

1.2. Why focus on the role of statistics in voluntary national reviews?

The 2030 Agenda's follow-up and review process is vital for achieving the SDGs at country level. According to the 2030 Agenda, monitoring SDG progress should be “rigorous and based on evidence” (United Nations, 2015[3]). VNRRs have become an important mechanism through which countries can monitor and accelerate the implementation of the 2030 Agenda. The United Nations Department of Economic and Social Affairs (UN DESA) and the UN regional commissions have developed useful guidance (Box 1.1).
Box 1.1. Voluntary but guided: UN guidance on voluntary national reviews

Since the adoption of the 2030 Agenda for Sustainable Development, the voluntary national reviews (VNR) process has been a fundamental part of tracking progress on the implementation of the Sustainable Development Goals (SDGs). The 2030 Agenda encourages countries to regularly conduct VNRs. These should be “inclusive reviews of the progress at national and subnational levels, which are country-led and country driven”. To support countries in carrying out a VNR, the United Nations Secretary-General’s Voluntary Common Reporting Guidelines provide a framework for certain common elements within reports while allowing for flexibility. The guidelines reiterate the necessity to include statistics in the VNRs, highlighting that these should be based on high-quality country data.

The Handbook for the Preparation of the Voluntary National Reviews supplements the reporting guidelines and good practices, which provide elementary building blocks and basic, practical information on the steps that countries may take when preparing VNRs, including on data and statistics. In addition, the most recent Practical Guide for Evidence-based Voluntary National Reviews supports countries with hands-on guidance on designing a data roadmap and leveraging existing data sources for better reporting on SDG progress. The Practical Guide also includes references to materials and portals of regional UN commissions to support countries in monitoring progress towards the SDGs. A Practical Guide to Data Storytelling in Voluntary National Reviews and SDG Reporting was designed to help countries and national statistical offices better tell data stories for their audience.

According to UN Statistical Division’s Practical Guide for Evidence-based Voluntary National Reviews (2022[1]), governments that prioritise the use of statistics in tracking their SDG progress benefit from the following:

- designing evidence-based policies to prioritise action and allocate resources for the SDGs
- using indicator baseline data to track SDG performance over time, measure progress and redefine national priorities for more effective policy making
- focusing on progress in specific areas to hold public agencies, the private sector and other stakeholders accountable for their SDG commitments
- strengthening the transparency of the VNR implementation process while promoting government accountability
- identifying challenges and opportunities to improve statistical systems for sustainability planning
- using data to communicate with other in-country development stakeholders, providing a point of reference for co-ordination and a shared narrative
- using statistical reports to increase transparency and the utility of official data to build trust.

However, countries’ ability to tap into these benefits is hampered by existing challenges in meaningfully assessing progress towards the SDGs. UN DESA’s Repository of Good Practices in Voluntary National Reviews defines the SDG data challenge as a combination of four components: 1) data availability; 2) data quality; 3) a strong national statistical system; and 4) effective communication of data “in an open and understandable way” (UN DESA, 2022[7]).

VNRs are an important entry to identify and raise the visibility of these barriers. They provide a barometer of how governments value the role of the NSS in the overall SDG implementation. By linking national statistical capacity with the principles of the 2030 Agenda, a VNR is not only an entry point to improve SDG reporting efforts, but also a way of linking observed progress with policy responses to accelerate SDG implementation. In addition, the inspirational potential of the VNR process cannot be overstated, including
sharing examples on how countries built the institutional machinery for monitoring progress and jump-started a culture of evidence-based policy making.

This report focuses on the specific role of NSOs in the VNR process as the custodians of most SDG indicators in their countries against the backdrop of a changing data landscape. Various sources of information beyond VNR reports have pointed to several challenges NSOs encounter in reporting on the SDGs, including a lack of adequate financing (PARIS21, 2023[9]); limited access to administrative data (World Bank, UN DESA and PARIS21, 2022[10]) (which accounts for around 50% of data sources for SDGs) (ECLAC, 2017[11]); inconsistent data quality assurance in line ministries; limited development of localised indicators; and co-ordination difficulties among stakeholders in producing, storing and using the data, among others (UNITAR, 2021[12]).

1.3. Methodology

The existing body of VNR analysis indicates that governments are able to appreciate the importance of the NSO in co-ordinating the production and dissemination of development data for SDG monitoring, which has a significant impact on evidence-driven policy making (GIZ and Partners for Review, 2020[4]; United Nations Economic and Social Council, 2023[13]). This report’s findings are based on desk research; interviews with representatives from NSOs and SDG institutional mechanisms from several countries; a review of recent VNRs (2016-23); and global VNR comparative analyses. Text-mining was applied to assess how the existing VNRs report on statistics, NSS engagement and the role of NSOs.

Text-mining offers an opportunity to quantify reporting on statistical capacity and related aspects in VNRs, enabling a comparison across countries and offering data for further analysis. Most VNRs submitted by 183 countries over 2016-23 were assessed (307 VNR reports in total). The text-mining process consisted of four steps: 1) digital access to the VNRs; 2) language detection targeting in three languages – English (216 VNRs), French (44 VNRs) and Spanish (38 VNRs); 3) removal of introductory text sections and annexes allowing for analysis of the main body of text; and 4) text processing (Annex B). Annex C shows a list of search terms that were applied during the text-mining exercise.

The text-mining analysis served two purposes: 1) scanning for statistics-related keywords and aggregated results of the search; and 2) isolating text passages from the VNR reports where statistics-related keywords were identified. These text passages were then analysed manually to interpret the narrative. The inclusion of statistical annexes in VNR reports was also reported manually due to varying naming conventions and the formats of these annexes.

Additional text-mining analysis was undertaken using 66 national strategies for the development of statistics (NSDS) published by low- and middle-income countries, with final coverage dates ending in 2020. The analysis of identified text passages and the presence of statistical annexes focused on two axes of research: 1) the current role of the NSO in the VNR; 2) how the NSS and its capacity are understood in VNRs. Consequently, this report aims to uncover opportunities for NSOs to strengthen their role in the VNR process, including through engagement with wider data ecosystems, co-ordination, partnerships and new data sources, as well as data initiatives taken up in the context of SDG localisation and the development of voluntary local reviews.

The analysis is supported by country examples that illustrate best practices and lessons learnt. References to countries and examples featured are for illustrative purposes only and do not express any judgement, evaluation or political views. Due to the quantity of information provided in the VNRs, the percentages indicated in the analysis are approximate.
Notes

1. In particular, in Paragraph 38(r) of the political declaration, governments pledge to “take action to strengthen international, national and local data systems efforts to collect high quality, timely, relevant, disaggregated and reliable data on SDG progress and to intensify efforts to strengthen data and statistical capacities in developing countries” and commit to increasing the availability of SDG data by closing SDG data gaps, increasing financing for data and statistics, and enhancing statistical capacity building support to those countries lagging behind (United Nations, 2023[55]).


4. Interviews were carried out with representatives from NSOs and/or SDG institutional mechanisms from Belize, Botswana, Canada, Côte d’Ivoire, Jamaica, Kenya, Maldives, Mongolia, Norway, Poland, Sweden and Zambia.

5. VNR reports are available at: https://hlpf.un.org/countries.

6. Due to limited resources for the creation of adequate keyword lists and the relatively small number of VNRs in Arabic (six) and Russian (three), reports in these languages were not assessed.
2. Findings: Reporting on data and statistical capacity in voluntary national reviews

A VNR report can showcase how the government uses data and research to inform its policies towards achieving the SDGs. This can be visible not only by the length and detail of statistical annexes in the VNR reports, but also detailed sections in the VNR report narrative (often entitled “Means of implementation”) describing SDG institutional frameworks, data gaps analysis, provision of statistics laws and strategic planning for statistics or efforts to establish national indicator frameworks. Certain countries also include additional details, such as references to existing or planned data quality assurance frameworks and open data principles and the state of financing for data and statistics. This chapter analyses references to these issues and themes in existing VNR reports.

2.1. Overall data referencing in the voluntary national review narratives

VNR reports include a volume of references to capacity development priorities as part of the overall narrative context for progress towards the SDGs. The analysis of the VNR reports from 2016 to 2023 indicates that most statistics- and data-related terms appeared in the first reports in 2016 with a downward trend from then on. On average, 0.5% of all terms in the VNR reports between 2016 and 2023 related to statistics (Figure 2.1). In particular, the term “indicators” peaked in 2016, which could be explained by the focus on the development of the SDG monitoring framework and indicators for each goal and target that took place in the early years following the adoption of the 2030 Agenda. Since then, the frequency of statistical terms in VNR narratives decreased considerably and remained relatively consistent over the years.
When looking at the frequency in terms of subsequent VNR rounds (currently: first, second, third or fourth), the data confirm a consistent downward trend in the use of statistics- and data-related terms (Figure 2.1).7 The growing popularity of online SDG data portals (PARIS21/ODW, 2021[14]), the increasing adoption of statistical annexes in VNR reports (Section 2.4), and the challenges in applying a more in-depth and forward-looking VNR narrative in the subsequent rounds (CEPEI, 2023[15]) maybe contributing to these trends.
Turning to VNR reporting trends per geographic region, the data show that all regions record a decrease in the frequency of data- and statistics-related terms. Particularly in the Middle East, Africa, and Latin America and the Caribbean, the third rounds of VNR reports present significantly lower levels of these terms (Figure 2.3). On the other hand, in reports submitted by countries from Europe, North America, and Asia and the Pacific (from the second to the third round), an increase in statistics- and data-related terms can be observed in the third round of VNR reporting.8

Figure 2.3. Relative frequency of data and statistics terms by geographic region and VNR round

These results indicate a gradual shift in narrative around SDG statistics and data-related reporting in VNRs of countries where statistical development needs may be the greatest. Exploring regional dynamics around references to data and statistics through case studies and comparative analysis of VNR reporting in relation to other measures of statistical capacity could be an avenue to further clarify to what degree a shift in VNR narratives indicates broader changes in NSO engagement and SDG reporting.

2.2. The role of national statistical offices in the voluntary national review process

To understand how countries report on the institutional dimension of data and statistics and what the key challenges are, this section looks particularly at the role of the NSO. The analysis of the VNRs (2016-23) shows that, on average, only 41% of VNR reports identified the NSO as engaged in SDG data-related efforts (Figure 2.4). In these VNRs, the NSO was generally regarded as well-positioned to spearhead initiatives to enhance data and statistical capacities for SDG follow-up and review.
Recent VNR cycles have demonstrated that progress in closing SDG data gaps might be attributed to more effective co-ordination and the growing efficiency of NSOs in SDG monitoring. So far, various co-ordination mechanisms for data provision and data assessments have been attributed to the NSO in VNR preparation, ranging from ad hoc to institutionalised roles for data management to increasing the pool of data providers and their data quality. In very rare cases, it is the NSO that leads the preparation of a VNR (Government of Somalia, 2022[16]). More often, ministries of finance and planning lead VNR processes.

In most cases, a ministry-led VNR process uses or creates institutional mechanisms, such as a task force or council, to ensure effective co-ordination of data producers and major stakeholders. These mechanisms are also often responsible for overall SDG implementation in the country. They can be likewise designed to ensure inclusive and participatory VNR and SDG implementation efforts, applying a “whole-of-government” or “whole-of-society” approach, as encouraged by the 2030 Agenda. However, only one-third of the reports (34%) indicate that the NSO is a member of the VNR or SDG institutional mechanism.

Where an NSO was reported as being engaged in data-related efforts, these included:

- developing indicators and monitoring the 2030 Agenda through annual SDG reports
- co-ordination of data providers
- developing, hosting and managing SDG databases and platforms
- providing training and capacity building to the members of the NSS.

All these functions contribute not only to strengthening the evidence base of VNRs and the quality of SDG reporting in general, but also to improving capacity to monitor and evaluate the implementation of the 2030 Agenda in a continuous manner (Box 2.1).

Despite the apparent limitations of NSO engagement across countries, where they are engaged, these findings indicate the role of the NSO in VNRs goes beyond traditional activities related to carrying out...

**Figure 2.4. Share of voluntary national reviews referencing the role of national statistical offices, average 2016-2023**

<table>
<thead>
<tr>
<th>Share of VNR reports</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member of the SDG institutional mechanism</td>
<td>34%</td>
</tr>
<tr>
<td>Data related efforts</td>
<td>41%</td>
</tr>
</tbody>
</table>

Source: PARIS21 calculation
censuses and surveys or disseminating figures in statistical yearbooks to include a broader mandate. It has, for instance, included co-ordination of data providers for SDG monitoring, carrying out consultations with stakeholders and developing SDG-related partnerships to explore the use of alternative data sources.

Box 2.1. Examples of national statistical offices’ functions as featured in voluntary national review reports

Over the years, voluntary national review (VNR) reporting has given us an idea of what roles national statistical offices (NSOs) play in the follow-up and review processes and Sustainable Development Goal (SDG) reporting. This box provides some examples of NSOs’ engagement in the VNRs.

**Developing indicators and monitoring efforts of the 2030 Agenda**

Statistics Estonia created an indicator overview (VNR 2016), which is visualised by Statistics Estonia’s “Tree of Truth”. The Tree of Truth shows the current status of indicators, comparing the actual results in different areas with the objectives of three development plans:

- the Estonian National Strategy on Sustainable Development “Sustainable Estonia 21”
- “Estonia 2035”

In some cases, the same performance indicator is presented on two or three leaves on the Tree, depending on the number of development plans in which the indicator appears. As the criteria for assessing the achievement of the objectives differ from one development plan to another, it is not possible to combine the leaves – an indicator may be closer to the target in one development plan and further from the target in another.

**Increasing capacity to monitor crisis**

In Indonesia, the NSO carried out a data analysis for the VNR which focused on analysing trends prior to COVID 19, presenting the progress of each of the SDGs, followed by analysis on the achievements of the SDGs as affected by the pandemic. The pre-pandemic trend analysis served as a benchmark for measuring the impact of the COVID-19 pandemic on Indonesia’s progress so far. Also, an in-depth analysis was carried out of very relevant indicators affected by the pandemic.

**Management and co-ordination among data providers**

In Jordan, the NSO established a Sustainable Development Unit, which is charged with collecting sustainable development data and which acts as the focal point with national and international partners. NSO representation is also ensured by the task forces dealing with the SDGs, which contributed to activating the data ecosystem and providing accurate, sustainable and national data sources.


Low levels of NSO engagement may indicate a few different things. First, there is a possibility that more NSOs are engaged (and in more aspects of VNR processes) than are currently reported in VNRs. This would not be surprising, since there is no set format or standard for the content of VNR reports. This report aims to clarify the value of enriching VNR narratives with further details on the role of NSOs in VNR processes, among other things, which may help to address instances of limited reporting in the future. A second possibility is that this finding is indeed indicative of more limited recognition of the value NSOs bring in the VNR process itself. In which case, further efforts to identify best practices and connecting the
VNR process to the wider mandate NSOs hold in relation to SDG reporting can help set the stage for deeper NSO engagement – and more robust reporting – in VNRs.

2.3. References to statistical capacity development

VNR reports include varying levels of references to capacity development priorities as part of the overall narrative context for SDG progress. Limited statistical capacities and data collection challenges were frequently reported in the VNR reports between 2016 and 2023 (Figure 2.5). On average, nearly one out of three countries reported such challenges. Over half of these countries are low or middle-income countries, with the majority located in Africa. Globally, the volume of reported challenges has decreased slightly in the past three years compared to its peak in 2020. In 2022, still roughly one of four countries highlight statistical capacity and data-related challenges as a concern in their VNR reports. Even if countries point out statistical deficiencies and the need to reinforce their capacities, they rarely mention a concrete plan to do so.

Figure 2.5. Share of VNR reports including references to data or capacity challenges

VNR analyses have shown that governments are still not able to regularly produce data on all SDG indicators. Gaps associated with SDG reporting remain a significant challenge, particularly in relation to specific goals and targets, including SDG 5 (Gender Equality), SDG 10 (Reduced Inequalities), and SDG 16 (Peace, Justice and Strong Institutions). (United Nations, 2023[20]; Kitzmueller, Stacy and Mahler, 2021[21]). Missing data disaggregation and insufficient availability of quality data for specific groups are among the main reported challenges. Moreover, the extent of SDG data gaps is more visible in low and middle-income countries, which often face substantive barriers to address these due to a lack of resources (United Nations Statistics Division, 2022[1]). This not only affects the overall evidence base for VNR reporting, but also the implementation of the principle to “leave no one behind”. In addition, low statistical capacities affect the comparability of SDG progress globally, calling on governments and development partners to invest in NSS.

Although references to statistical capacity and data-related challenges are limited, VNR reports often stress the need for financial and technical support for SDG monitoring and reporting as a challenge and concern. Many NSOs may need to update their legal and policy frameworks, acquire new skills, or apply new working methods to meet the data demands associated with the SDGs. However, they often do not
receive any additional funding to take on the extra task of monitoring the SDGs or the wider institutional reforms required to succeed.11

Many NSOs align their production of statistics to the data requirements of the SDGs by using a long- and medium-term strategic planning instrument called the national strategy for the development of statistics (NSDS). The NSDS summarises the government’s statistical priorities in the following five or ten years and can help to present capacity development areas needed to fulfil the SDG data demands (PARIS21, n.d.[22]). In certain countries, annual strategic plans are used instead of a longer term NSDS, but regardless of their length, these strategies are foundational for monitoring the SDGs at the country level. According to the text analyses of the VNRs (2016-23), NSDS were referenced on average in 20% of the VNR reports between 2016 and 2023 (Figure 2.6), including, for example, Guyana, which celebrated the launch of a pandemic-delayed NSDS as “laying the foundation for the building of an integrated and streamlined national statistics system” (Government of Guyana, 2023[23]). These missing links between VNRs and the NSDS represent a missed opportunity to address the technical and financial challenges associated with SDG reporting, further underscoring the consequences of limited NSO engagement in VNR processes.

![Figure 2.6. Share of voluntary national review reports referring to national statistical strategies](source: PARIS21 calculation)

Looking beyond official statistics, the VNR process also offers opportunities for exploring innovative and participatory methodologies and approaches by, for example, including satellite imagery or mobile phone data or establishing partnerships with non-traditional data suppliers (Section 3.3). Such approaches have been recognised as a key strategy to augment official reporting and address SDG data gaps since the inception of the 2030 Agenda. Nevertheless, since 2016, on average, only 9% of the VNR reports indicated the use of non-official data sources as a part of their respective follow-up and review process, calling for increased attention and resource mobilisation for innovation and partnerships around development data (Figure 2.7). The peak of innovation occurred in 2019, only to recover in 2023 following the shortage of capacities due to the effects of the COVID-19 pandemic.
Notably, the application of alternative data sources was reported as very challenging in the VNR reports between 2016 and 2023. These challenges relate to limited technical capacity and technical infrastructure to explore alternative data, which often requires becoming familiar with new technology and methods. Moreover, access to alternative data can be subject to privacy concerns and, as such, require specific data-sharing agreements. Further engaging NSOs in the VNR process would be one strategy to mitigate such challenges while also advancing statistical capacity development and innovation, yielding benefits beyond the immediate needs of SDG monitoring.

2.4. The depth and volume of data reporting: Statistical annexes and online platforms

Since 2016, VNR reports are increasingly accompanied by statistical annexes, with the number of countries including them doubling between 2016 and 2023 (Figure 2.8). Statistical annexes present the levels of reporting against SDG indicators, as well as progress towards achieving the targets. They are meant to complement the overall VNR reporting narrative and are often prepared by the NSO.

The presence and volume of statistical annexes attached to the VNR reports show governments’ statistical capabilities and demonstrate the transparency in monitoring progress. The United Nations’ VNR guidelines recommend accompanying the VNR report with a statistical annex. These annexes are meant to include detailed statistical information, metadata, progress charts and summaries of online databases for information on SDG progress (if they exist).
An increasing number of VNR statistical annexes include reporting on both global and localised SDG indicators. The level of detail that supports the data charts, such as citing the data sources, could also be considered an indicator of a government’s familiarity with official statistics: many countries cite the NSO as the source of their data charts, others refer to specific rounds of surveys or censuses. Increasingly, countries invest in a user-friendly SDGs progress reporting, using symbols, visuals and traffic lights to help readers understand the information at a glance.

In 2023, 23 VNR reports (nearly 60%) presented disaggregated data, enabling a more precise understanding of inequalities. However, only gender, age and geographical location received countries’ attention. Very few countries reported other dimensions of inequality, such as disability or income level. No countries disaggregated data by race/ethnicity in 2023 (UN DESA, n.d.[24]). However, the customary format of VNR reports does not allow countries to present the growing volume of statistical information on SDG progress, further underscoring the need for statistical annexes and other supplementary material to support VNR reporting narratives.

Some countries submit statistical annexes separately online to accompany the report with detailed charts (for example, Norway’s 2021 VNR) (Statistics Norway, 2021[25]). Other VNR reports include references to online SDG platforms, databases, or dashboards with indicators (for example, the Czech Republic’s 2021 VNR and India’s 2020 VNR). An increasing number of countries report on the development of these platforms or plans to develop one: 44% of VNR presenting countries did so in 2023, a significant increase from 30% of countries in 2022. (UN DESA, n.d.[24]) These platforms can serve different purposes and audiences and thus a variety of approaches to SDG platform design have emerged in different country contexts. Anecdotal evidence gathered during interviews showed that in all cases the NSO was responsible for populating and managing such platforms.
Notes

7 The fourth VNR round has been excluded from the analysis due to an insufficient number of VNR reports, compared with other rounds.


9 According to the UN Common Voluntary Reporting Guidelines, countries may also consider including information on the institution(s)/mechanism(s) in charge of co-ordination and integration for the implementation of the 2030 Agenda, on their interaction with relevant national bodies, such as the national planning entities, oversight bodies or national mechanisms for reporting and follow-up.

10 The 2030 Agenda 74(d) highlights the need for a follow-up and review process that is open, inclusive and transparent for all people and will support reporting by all relevant stakeholders.

11 Qualitative research in preparation for this report.
3. How can national statistical offices partner in the voluntary national review process?

Timely, disaggregated and well-presented data and statistics are a vital element of VNRs to accurately demonstrate SDG commitment and progress to demonstrate a government's accountability to its citizens. For this reason, clear institutional responsibility for preparing and reporting data outlined in the VNR narrative is essential. However, as outlined in Chapter 2, the NSO's role and function is not always clear, despite their mandate to deliver official statistics for SDG reporting. Whether or not an NSO is actively engaged in the VNR process, the data produced by NSOs underpin narratives of country progress against SDG goals and targets. As the leading actor of the NSS, the NSO is a key stakeholder in VNRs by necessity, raising a question as to how to deepen their partnership in the process – and what are the benefits of doing so.

While the nature of data requirements associated with the VNR process underscore the potential value of engagement with the NSO, the NSO can also benefit greatly from it. There are clear linkages between the VNR process and statistical capacity development. Recent UN guidance on conducting evidence-driven VNRs characterises the linkages between statistical capacity and the VNR process as follows:

"VNRs are voluntary self-assessments for governments that provide a snapshot of the Goals and targets that have been realised, as well as those that are still in progress. They are designed to uncover capacities and facilitate peer learning among governments. VNRs are meant to balance successes and challenges and explain next steps. In terms of evidence, they can demonstrate country-level efforts to improve data for tracking progress towards the Goals, but also identify data challenges. The process of preparing a VNR can be valuable, if not more important, than the end report itself as a means for governments to examine and enhance their data and statistical capacities for SDG monitoring." (United Nations Statistics Division, 2022[1])

Building on the findings of Chapter 2, this chapter clarifies the benefits and opportunities to develop the NSO's role in the VNR process, drawing on examples from SDG reporting practices across 18 different countries. It highlights how the NSO's involvement in the VNR process can improve the effectiveness of the NSS through co-ordination mechanisms, initiatives for data transparency and dissemination, data partnerships, institutional frameworks, and strategic planning.

3.1. Strengthening horizontal co-ordination and the effectiveness of the national statistical system

To keep data quality and statistical rigour at the forefront of VNR reporting, the NSO should be recognised as the national data co-ordinator for the SDGs from the start of the VNR process (United Nations Statistics Division, 2022[1]). In this regard, it is recommended to make the NSO a core member of the national SDG institutional structures where they exist. These can range from national SDG commissions, inter-agency
mechanisms or VNR Secretariats to technical committees or working groups. However, as stated in Chapter 2, the NSO is currently reported as a member of the institutional structures in only one out of three VNR reports.

The benefits of giving the NSO a strong position and membership in the SDG institutional mechanism include:

- enabling the NSO to provide quality assurance and support effective data governance of the SDG follow-up and review process
- adding to the credibility of the VNR and helping to improve SDG monitoring and reporting going forward
- enhancing the visibility of official data and statistics and their further use
- creating an opportunity for policy makers to better understand the functioning of the NSS and its importance for evidence-based decision making
- establishing closer ties between the NSO, government and non-governmental stakeholders and laying a foundation for the inclusive, participatory and partnership principles of the 2030 Agenda.

Where NSOs are engaged in such mechanisms, their level of engagement in VNR processes can still vary significantly. In rare cases, NSOs have helped co-write the VNR report (e.g. Cabo Verde’s 2018 VNR) or led the National SDG Task Force (e.g. Eritrea’s 2022 VNR). At minimum, the NSO can serve a co-ordinating function across the data providers for the VNR, drawing on their overall mandate to apply quality assurance protocols to non-official data sources (Section 3.3) and advise on analysis. Co-ordinating all relevant data providers around the SDG framework can also help establish monitoring systems and provide models for future reporting.

Collaboration with stakeholders during the VNR process has, in many cases, helped increase recognition of the NSO as a data quality expert. For example, helping to sensitise line ministries to minimum data quality standards can enable effective use of administrative records for statistical purposes in the future. Yet, co-ordination and collaboration in the context of SDG monitoring contribute to overall capacity development challenges across the NSS in certain regions (UNECE, 2020[26]).

To fully capitalise on the benefits of NSO participation in SDG institutional mechanisms, they should have a central role, as exemplified in Jamaica’s 2022 VNR report, where the NSO is represented as one of three members of the core group (Box 3.1). Making the NSO a core and supported member of the SDG institutional mechanisms also brings the statistical system closer in the policy dialogue around sustainable development, which offers an opportunity for clarifying and highlighting the important role of statistics in VNRs and SDG implementation efforts. However, the engagement of the NSO should also maintain the independent position that NSOs traditionally have held. A memorandum of understanding or formal agreement that provides the NSO with new responsibilities for SDG reporting while maintaining their independence may be needed.
Box 3.1. The national statistical office as a member of the SDG institutional mechanism in Jamaica

In Jamaica, the Sustainable Development Goal (SDG) institutional mechanism consists of three branches:

1. The National Sustainable Development Goals Core Group, with membership from the Planning Institute of Jamaica, the Ministry of Foreign Affairs and Foreign Trade, and the Statistical Institute of Jamaica.
2. The National 2030 Agenda Oversight Committee, a multi-stakeholder group with membership made up of civil society, interest groups, academia, ministries, departments and agencies.
3. Thematic working groups of Vision 2030 Jamaica, multi-sectoral and multi-stakeholder bodies which collectively represent the key institutional arrangements for the monitoring and evaluation of the National Development Plan.

According to the CEPEI’s Voluntary National Review (VNR) Quality Index published in 2023, Jamaica’s 2022 VNR is the highest performer among Latin American and Caribbean countries. The VNR Quality tracker analyses VNRs in the region in accordance with the commitments made as part of the 2030 Agenda. Of the ten values assessed, Jamaica scores very high on continuity between VNR reports and the coverage of the VNR report.

Note: VNR: voluntary national review; SDG: Sustainable Development Goal.
Sources: Government of Jamaica (2022[27]) CEPEI (n.d.[28])

Depending on the context and capacity, countries can take into consideration the following guidance and standards when determining the mandate and role of the NSO in SDG institutional mechanisms:

- follow the UN “Voluntary Common Reporting Guidelines for Voluntary National Reviews” and the “Handbook for the Preparation of Voluntary National Reviews”
- ensure coherence with the Fundamental Principles of Official Statistics
- consider of the principles of the 2030 Agenda (see Chapter 1 for further discussion on the principles).

Notably, closer co-operation across agencies can be a result of the NSO’s participation in the SDG institutional mechanism, but it can also be initiated by the NSO itself through its wider mandate to co-ordinate the NSS. To bring these collaborative approaches to fruition, some countries have established dedicated mechanisms within the NSO to help co-ordinate SDG monitoring and reporting among government stakeholders, which also provide an entry to facilitate engagement in the VNR (Box 3.2).
To co-ordinate the indicator-based follow-up of the Sustainable Development Goals (SDGs) and their targets, Statistics Sweden established a network of government agencies. The network consists of about 70 relevant agencies and ministries within the government offices. These are actors that are directly responsible for individual indicators who contribute data or specialist expertise. Each actor in the network has a contact point, who in turn is responsible for co-ordination in their respective organisation. This ensures that everyone involved in the follow-up has access to the same information and that shared expertise and understanding of the mandate was able to have been built up. The network has developed working methods that promote and facilitate interactive progress on the follow-up, which has resulted in an effective data provision for the VNR.


A second area where NSOs can support effective VNR practice is through their mandate to make data transparent and accessible to the public. The development of SDG data platforms represents one important tool in this regard. As a central repository for SDG indicators and related information, these platforms improve the transparency of official statistics, enabling the comparability and coherence of official statistics for VNR reporting, in compliance with the Fundamental Principles of Official Statistics.

The benefits of SDG platforms transcend the immediate needs of data curation and analysis for VNRs. By providing easy access to data and reports, SDG platforms can empower policy makers to make informed decisions based on official statistics. When regularly updated, disseminated and using effective communication tools, they can also encourage citizens’ engagement and inform public debate and, as such, become an important tool for fostering broad-based ownership of SDG follow-up and review (United Nations Statistics Division, 2022[1]). Finally, the platform can be used to share best practices, success stories and lessons learnt among countries. They can also become a resource for capacity building, offering training materials and tools to support stakeholders in implementing the SDGs.

SDG platforms are often a work in progress, adapting to the expanding data needs driven by the SDG implementation efforts, presenting clear opportunities to strengthen linkages to VNRs. For instance, Statistics Poland launched its SDG platform in 2019, which is continuously updated in response to the growing awareness and commitment to the SDGs, calling for more diversified information among stakeholders that often requires going beyond official statistics (Box 3.3). The platform was developed in partnership with international expertise and aims to accommodate the need for alternative data sources to comprehensively measure SDG progress.
Box 3.3. Poland’s national Sustainable Development Goal reporting platform

To monitor the Sustainable Development Goals (SDGs), Statistics Poland developed a national SDG Platform presenting global and national indicators. Statistics Poland worked with the US-based Center for Open Data Enterprise and the United Kingdom’s Office for National Statistics to upgrade its national SDG reporting platform, which was launched in 2019. The changes introduced to the platform addressed the need for greater coherence with international reporting standards to facilitate comparability and exchange. The platform was developed using open-sources code that was adapted to the Polish context. It offers, among others, an option of subnational territorial visualisation and the opportunity to automatically download datasets with an API. A dedicated website on experimental statistics for the SDGs was launched to present new subnational indicators that had been assessed using non-traditional data sources and methods including, for example, remote sensing. In its 2023 voluntary national review report, Poland mentioned that the growing awareness and commitment to the SDGs call for more diversified information among stakeholders, which often requires going beyond standardised official statistics. This is why Statistics Poland used this platform to initiate numerous efforts to promote the SDGs among society i.e. digital SDG reports that provide data for trend analyses (e.g. for small territories) based on geospatial techniques.

Figure 3.1. Navigating progress in sustainable development on Poland’s reporting platform

Platforms can also be helpful in communicating data at key moments and maintaining transparency the public in times of crisis. In Zimbabwe, for example, the Zimbabwe National Statistics Agency launched a “COVID-19 Monitoring Dashboard” on its website to share results from rapid surveys, which they documented in their 2021 VNR (UN DESA, 2022[7]).

A significant number of NSOs in developing countries rely heavily on external partners to design, implement and manage their data portals (PARIS21/ODW, 2021[14]). There are several considerations that NSOs should take into account when building SDG data platforms:

• plan SDG data platforms as part of a holistic data-sharing strategy with a clear framework for data stewardship that fosters national ownership
• collaborate with country experts and technical teams for platform development and design
• back up sharing on platforms with appropriate policies for data management and dissemination
• consider institutional changes needed to help operate the platform
• upgrade technological infrastructure
• train and provide staff with skills sets for operating and maintaining the platform (United Nations Statistics Division, 2022[1]).
• adopt user-centric design principles to account for end users’ needs, including through consultation and stakeholder engagement
• improve upstream data management practices for sustainable data dissemination infrastructure
• streamline data dissemination processes to reduce the reporting and management burden for maintaining data portals (PARIS21/ODW, 2021[14]).

In addition to strengthening data transparency at the national level, reporting on local SDG progress is becoming increasingly common, including through Voluntary Local Reviews (VLRs), representing another important entry for the NSO to engage (United Nations Statistics Division, 2022[1]). In more and more countries, localising SDG follow-up and review efforts includes establishing subnational data frameworks to support the implementation of the SDGs at the subnational level. These efforts can offer a more nuanced picture of SDG progress and foster SDG ownership in communities and among local governments, supporting an overall ambition to leave no one behind.

Subnational data frameworks help provide granular evidence for SDG reporting and VNRs, while at the same time enabling countries address barriers to co-ordination across levels of governance and enhance policy coherence of the country’s SDG implementation efforts (Section 3.3). For instance, the Philippines Statistical Authority established a comprehensive data system to localise the SDG monitoring and engage local communities in collecting regular and detailed evidence to eradicate poverty (Box 3.4).

Box 3.4. A whole-of-society approach to Sustainable Development Goal monitoring and review in the Philippines

The 2022 Voluntary National Review (VNR) of the Philippines highlights the government’s priority for data collection and compilation of key government projects, activities and programmes to support progress through the subnational level and government agencies. Community-based monitoring systems (CBMS) is a technology-based system of collecting, processing and validating necessary disaggregated data at the household level. Progress towards the Sustainable Development Goals (SDGs) is monitored through the SDG Watch, which is managed by the Philippine Statistics Authority (PSA). The PSA publishes data annually through the SDG Watch, which is also localised at the subnational level. The system aims to provide robust and more accurate data for use in planning, implementation and monitoring purposes at all levels of government.
As a statistical activity, the CBMS entails a household census undertaken by the local government units with the participation of the community using accelerated poverty profiling systems in the data. Data that will be generated by the CBMS are the compendium of localised facts, figures and maps on the different dimensions of poverty, such as health, nutrition, water, sanitation, shelter, education, income, employment, security and participation. This detailed information equips local authorities with the necessary evidence on households that are left behind.

Institutionally, and similar to the national level, subnational committees on the SDGs were established. These committees were created to be a responsible, participatory and accountable mechanism at the local level, which aligns with the national government. From a data perspective, the PSA regional offices started monitoring the SDG indicators at the subnational level as well. With the adoption of core subnational SDG indicators, and the introduction of new legislation, 13 out of 17 regions have been monitoring through the SDG Watch since April 2022. In addition, capacity building was carried out and the subnational SDG indicators were included in the CBMS to further localise the SDG monitoring and review efforts in the country.

Source: Philippines Statistics Authority (2022[31]).

As exemplified in the Philippines, NSO engagement can help in supporting such linkages to local data ecosystems and yield further benefits, enabling local actors to tackle common challenges that affect SDG localisation, including different levels of methodological development, the availability of data, and limited data management capacities at subnational levels. Existing mechanisms to monitor and evaluate policy performance may not directly align to the SDGs and local bodies may not have the funding, resources or human capital to localise SDG data. Furthermore, of the 232 SDG indicators, some do not pertain to local entities, challenging the localisation and measurement of SDG progress (UNDP, 2019[32]). These challenges call for specific investments in developing local data ecosystems that are complementary to national SDG review efforts led by the NSO.

One opportunity for the NSO to provide such support is in the context of VLRs, which may be carried out by cities, municipalities, provinces or states. In addition to fostering SDG localisation, VLRs offer a mechanism to identify and develop local government capacity, improve statistical co-ordination and alignment at the subnational level, and promote commitments to advance the SDGs locally. Although VLRs hold no official status (unlike VNRs), where local and national follow-up and review approaches align, VLRs can feed into VNRs, offering more granular information and thereby a more nuanced picture of progress. However, VLRs frequently cite data availability problems and capacity issues as a barrier to SDG progress and reporting. Involving the NSO in the VLRs can enhance efforts to showcase local insights, thereby contributing to a more profound and locally owned national review process.

3.3. Engaging the wider data ecosystem for better data and improved policy coherence

The 2030 Agenda’s global partnership embodied in SDG 17[12] (Target 17.14) calls on countries to enhance policy coherence for sustainable development. Governments need robust monitoring, reporting and evaluation systems to inform the design of coherent and sustainable policies and recovery strategies, where the effects of multiple crises affect different sectors and groups of people differently (OECD, 2021[33]). VNRs – and the data and statistics that underpin them – represent an important tool in this regard.

The Organisation for Economic Co-operation and Development identified eight key building blocks for policy coherence for the implementation of the 2030 Agenda:
1. policy commitments and leadership
2. integrated approaches for implementation
3. intergenerational time frame
4. analysis and assessments of potential policy effects
5. policy and institutional co-ordination
6. local and regional involvement
7. stakeholder participation
8. monitoring and reporting (OECD, 2023).

Analysis and assessment, as well as monitoring and reporting through exercises like VNRs, are among the key building blocks for ensuring policy coherence for sustainable development, calling for high quality data and statistics delivered through a well-co-ordinated NSS.

However, linking data to policy and acting on the evidence demands knowledge and skills beyond the mandate and scope of the NSO alone. Furthermore, the extent of the need for different kinds of data and evidence to support policy coherence often transcend official statistics and traditional methods, calling for a diversified, multi-stakeholder approach to SDG measurement and implementation.

To close data gaps and enrich analysis and insights, it is increasingly recognised that NSOs must collaborate with the entire data ecosystem to produce, validate and steward data for the SDGs. Shortly after the adoption of the 2030 Agenda, the UN General Assembly recognised the need for integrating alternative data sources in a resolution on strengthening data systems for the SDGs. The resolution calls for NSS to explore ways to integrate new data sources into their systems to meet the data needs of the 2030 Agenda (United Nations, 2017).

The VNR process offers benefits for the NSO to strengthen capacity, explore new methodologies and enhance collaborative approaches with other data actors. New and alternative data sources bear the promise of more granular or timely data sets, bringing efficiencies and innovation to official statistics while also providing a more nuanced picture of a country’s progress toward the SDGs. These efforts are not only beneficial to the NSO as an institution and the NSS but are also a realisation of the transformative change to which the 2030 Agenda aspires.

Collaborative and multi-stakeholder partnerships are core prerequisites for transformative change; VNRs are most meaningful when they involve a participatory, transparent and thorough review process at the national and subnational levels. The 2030 Agenda’s “whole-of-society approach” encourages co-operation across and at all levels of society, specifying that “governments and public institutions will work closely on the implementation with regional and local authorities, subregional institutions, academia, philanthropic organisations, volunteer groups and others” (United Nations, 2015).

In supporting these aspirations, and as trusted independent institutions, NSOs have a role in setting up new data partnerships and co-ordinating a system of SDG reporting (Section 3.1), including through SDG localisation efforts and finding ways to enhance the accessibility, communication and transparency of SDG data for all stakeholders (Section 3.2), for example through creation of SDG data platforms and introducing data quality standards, as discussed in previous sections.

The benefits of engaging NSOs in partnerships with the wider data ecosystem include:

- Increased data coverage: non-state actors can provide access to data that are not traditionally collected by NSOs, such as data on social and economic trends, environmental conditions, and the impact of specific policies or programmes. This can help NSOs develop a more comprehensive understanding of the country’s socio-economic landscape and reduce the data production burden on the NSS.
• Improved data quality: non-state actors can bring new perspectives and expertise to the data collection process, potentially leading to improved data quality and accuracy. For example, non-state actors with experience in using new data sources can help NSOs to refine their quality approaches to respond to user needs or deepen their understanding of complex societal or environmental problems monitored through official statistics.

• Fostering innovation: Partnerships with non-state actors can help NSOs stay abreast of the latest technological advancements and develop innovative data collection and analysis methods. This can lead to more efficient and cost-effective ways of gathering data and, ultimately, better quality statistics. Examples of these data include those reported in company sustainability reports or big data: large-scale process-collected data from sources such as social media platforms, mobile phone data, satellite or remote sensing data (e.g. geospatial data, earth observation data, smart meter data) (United Nations Statistics Division, 2022[1]).

• Enhanced data analysis and interpretation: non-state actors can contribute their analytical expertise and data visualisation skills to help NSOs make sense of complex data sets and develop insights that can be used to inform policy decisions. This collaboration can lead to the development of more targeted, effective and evidence-based policies.

• Increased public trust and engagement: By working with non-state actors, NSOs can demonstrate their commitment to transparency and accountability, which can help improve public trust in official statistics. Non-state actors such as civil society can also help raise awareness of the importance of data and statistics and encourage public participation in data collection and analysis efforts.

To meet the rising data demands posed by the SDGs and enable effective engagement and partnership across both state and non-state actors, NSOs need to invest in developing capabilities that strengthen their role in data management. Traditionally, NSDS and statistical legislation help define the roles and responsibilities of the NSS institutions by identifying the “ownership” of official data production in various thematic areas. Use of non-traditional and innovative data sources to report on the SDGs (United Nations Statistics Division, 2023[36]) creates a new challenge for NSOs in co-ordinating and integrating a broader set of data sources and validating their quality. At the same time, this offers opportunities to broaden co-ordination, develop new skills, identify emerging capacity needs and governance challenges, and introduce new (governance) structures or entities to explore areas that can benefit SDG monitoring and review efforts, for example, through structured mechanisms for data exchange and re-use (Box 3.5).

Box 3.5. Collaboration with civil society to report on the Sustainable Development Goals

The Netherlands

Statistics Netherlands started collaborating with a group of organisations outside of the national statistical systems to explore the use of non-official data for reporting on the Sustainable Development Goals (SDGs). The group included universities, research institutes, non-governmental organisations and foundations. The exchange between these organisations and the national statistical office improved data coverage of the SDGs. Statistics Netherlands used data from the non-governmental organisations Pharos and Rutgers on genital mutilation and sexual violence to measure progress on SDG 5 and SDG 16.

Kenya

In the run up to the 2024 Voluntary National Review, the Kenya National Bureau of Statistics (KNBS) established a formal mechanism of engaging civil society in the value chain of official statistics: the Technical Working Group on Citizen-Generated Data. The group was convened following a successful
collaboration between KNBS and civil society organisations based on the concept of reusing citizen-generated data and rooted in the 2022 Kenya Statistical Quality Assurance Framework (KeSQAF). The Kenya Strategy for the Development of Statistics 2019/20-2022/23 provided a strategic framework for KNBS to use these alternative data sources to tackle data gaps and the KeSQAF included a special quality approach to validate the quality of citizen-generated data in the absence of official reporting. 


In addition to unlocking additional data sources and insights for SDG reporting and VNRs, data partnerships with private sector, research institutes, and international organisations can also open opportunities for the use of modern technologies for data collection, such as mobile data or satellite imagery. In this way, NSOs can provide timely and granular evidence and learn from advanced and problem-oriented practitioners. This not only creates broad-based SDG ownership but can help strengthen NSO skillsets at the same time. In Mongolia, for instance, the NSO worked with the UN Economic Commission for Asia and the Pacific to use remote sensing techniques to develop indicators for SDGs 9 and 11 in their VNR (Box 3.6).

Box 3.6. Experiences in using non-traditional data sources in the Mongolian 2023 Voluntary National Review

In Mongolia, the national statistical office (NSO) is actively and proactively working with other parties to use and increase the use of non-traditional data sources and increasing the use of quantitative data for Sustainable Development Goal (SDG) statistics. In its Voluntary National Review of 2023, Mongolia highlighted that a pilot calculation of SDG indicator 11.1.1 – the proportion of the urban population living in slums, informal settlements or inadequate housing, was conducted as part of the Estimation of Environment-Gender Indicators Using Big Data project implemented by the NSO in co-operation with the United Nations Economic and Social Commission for Asia and the Pacific. As part of the calculation, a comparative test of methods for distinguishing ger1 dwellings from satellite images using Google Earth Engine and QGIS (plus Orfeo Toolbox) was conducted. Models such as Random Forest, Decision Tree and K-Nearest Neighbors were used in the experiment. The Random Forest model showed better results in the comparison. Using the Random Forest model, overall accuracy of 85.2% was obtained for calculating a large district in the capital. According to this model, SDG indicator 11.1.1 is being fully calculated at the metropolitan and national levels. For this selected indicator, Mongolia is characterised by ger dwellings, the traditional dwelling type, and has gained experience by making specific calculations at the regional level.

In addition, the NSO also used road network data (Open Street Map) and population statistics data sources to experimentally calculate SDG indicator 9.1.1 – the proportion of the rural population living within two kilometres of an all-season road.

While, these initiatives help address data gaps, Mongolia stresses significant difficulties in collecting and managing data, including co-ordination among government agencies; limited capacities; the lack of funding; and weak co-operation and participation of government, the private sector, civil society and academic institutions.

Note: A ger is a traditional Mongolian dwelling (Government of Mongolia, 2023[40]).
As illustrated in the example from Kenya (Box 3.5), data partnerships with civil society and, in particular, the use of citizen-generated data, represent another important path for NSOs to address SDG data gaps and support more effective VNR reporting. Moreover, these actors also engage in shadow and parallel reporting for VNRs, which provide a further mechanism for public engagement and accountability. The limitations of official statistics in capturing marginalised populations to leave no one behind is an ongoing challenge in efforts to monitor the 2030 Agenda. The advantage of citizen-generated data is that they are designed and collected by citizens on issues that affect them directly (Cázarez-Grageda, Schmidt and Ranjan, 2020[38]).

Inclusive and participatory approaches to official statistics are increasingly recognised for their potential to engage citizens in statistical business processes and augment whole-of-society ownership of the 2030 Agenda (Box 3.7). Data partnerships and collaboratives across the wider data ecosystem play an important role in this regard, not only to fill data gaps, but also to validate insights, provide context, and enhance the quality and analysis of data at various levels of governance.

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**Box 3.7. Benefits of citizen-generated data for monitoring the Sustainable Development Goals**

Citizen-generated data are data that people, or their organisations, produce to directly monitor, demand or drive change on issues that affect them. They are actively supplied by citizens, providing direct representations of their perspectives and an alternative to data sets collected by governments or international institutions. Citizen-generated data are beneficial in the context of the voluntary national reviews and the Sustainable Development Goals (SDGs) as:

- they are linked to three of the five core principles underpinning the 2030 Agenda: leaving no one behind, inclusiveness and multi-stakeholder partnerships
- their voices are heard and counted, especially for marginalised groups
- they fill gaps for timely, quality, open and disaggregated data required for SDG monitoring
- they further advance important values such as fairness, inclusiveness, openness and transparency in statistics
- they strengthen partnerships and mobilise resources for the SDGs.

Citizen-generated data belong to the larger category of citizen data. The United Nations Collaborative on Citizen Data, led by the United Nations Statistics Division, is currently developing a conceptual framework as well as taxonomy of citizen data.


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### 3.4. Supporting long-term solutions to improve statistical capacity

The potential of efforts to engage the NSO and develop the NSS in the VNR process extend beyond improved SDG reporting to support overall statistical capacity development. Critically, VNRs provide countries with the opportunity to not only clarify technical challenges in generating and managing data and statistics, but also to identify emerging solutions and resource gaps that national reforms and international co-operation might address.

Statistical capacity requirements for SDG reporting are multidimensional, encompassing broader, systemic areas such as the legal framework, in addition to organisational and individual dimensions, such as a...
quality assurance framework or the technical skills of staff. Reinforcing the NSO’s mandate in activities related to data quality assurance, governance and standard-setting opens windows of opportunity to strengthen the NSS through improvements in the institutional set up, the NSDS, or legal reforms. Indeed, some governments demonstrate their awareness of the importance of evidence-based policy making and use VNR reports to increase the visibility of various areas of the NSS’ statistical capacity, including, for example, the mandates of various SDG data producers, references to the NSDS or comparative measures of statistical performance (Box 3.8).

Box 3.8. Maldives’ statistical capacity in the means of implementation for the 2030 Agenda

The 2023 Voluntary National Review of Maldives highlights statistical capacity as a “Means of implementation for the 2030 Agenda”. The following points summarise the sections used by the government of Maldives to refer to its national statistical system:

- reference to the existing strategic framework of the government for capacity development, including to the National Strategy for the Development of Statistics (2021-2030)
- definition of the role of the national statistical office (Maldives Bureau of Statistics) and other official data producers
- presentation of the World Bank’s Statistical Performance Indicator Score for Maldives against regional performance
- highlights on the SDG support from the regional United Nations commissions (SDG Tracker developed by the United Nations Economic and Social Commission for Asia and the Pacific)
- a list of key data sources, such as census and surveys, which were used to generate the report
- a description of capacity gaps and the strategic initiatives, recognising the data potential of non-state and local actors and its willingness to support it (“strengthening the capacity of CSOs and the community to contribute to data collection and ensure participation in data needs and dissemination will benefit SDG implementation”).

Source: Maldives VNR Report, 2023

The analysis of the VNRs from 2016 to 2023 shows that many countries have adjusted their enabling environment to support SDG monitoring through new institutional frameworks and set-ups in the NSO and NSS. For instance, during Jordan’s first VNR in 2017, the institutional framework for SDG monitoring included task forces as part of the review efforts. Each task force included an representative from the Department of Statistics to support compliance and harmonisation with statistical guidelines and standards. Based on the success of this measure, the government formalised the role of the task forces, amending their governance framework to maintain and further develop their capacity to review SDG progress on a more permanent basis (2022[1]).

In some cases, progress in statistical capacity resulting from these shifts in the institutional set-up can be traced from one VNR to the next. For instance, Azerbaijan has submitted three VNRs since 2016, each documenting relevant developments of the NSO, beginning with the introduction of a new Department for Sustainable Development Statistics (Box 3.9). Azerbaijan’s approach illustrates that by building on a dedicated team and following up on the findings and recommendations from one VNR to another can progressively expand the involvement of the NSO and further develop capacity for evidence-based VNRs over time.
Box 3.9. Examples of institutional improvements from one voluntary national review cycle to the next

Azerbaijan’s first voluntary national review (VNR) in 2017 highlights the establishment of the Department for Sustainable Development Statistics within the national statistical office (the State Statistical Commission [SSC]) to enable Sustainable Development Goal monitoring. The VNR lists all the specific tasks for which the SSC is responsible. In addition, working groups were established within the SSC covering all dimensions of sustainable development with the participation of relevant government agencies. The aim of the working groups is to ensure increasing use of administrative data in official statistics and to integrate administrative databases into the SSC’s statistical database. The VNR includes a number of measures that were introduced as well as a description of the stages (pillars) of the SDG monitoring mechanism.

Figure 3.2. Pillars of Azerbaijan’s monitoring mechanism for the SDGs

In the following VNR cycles of 2019 and 2021, Azerbaijan reported on additional developments. While the organisational structure was maintained, new methodologies were applied in preparation of the 2021 VNR. Moreover, a State Program on the Improvement of Official Statistics in the Republic of Azerbaijan between 2018 and 2025 was aligned with the SDGs. It added changes to the way statistical information is obtained in various sectors, particularly weighing data collection for fulfilling the principle of leaving no one behind. It also helped integrate government databases into the SSC’s databases, monitoring SDG progress, and created a statistical database and portal to raise public awareness.

Sources: Government of Azerbaijan (Government of Azerbaijan, 2017[41]; 2019[42]; 2021[43])

As referenced in Section 2.3, the NSDS represents another important tool to enable and guide NSO engagement in the VNR process, underpinned by the global monitoring framework that forms the basis for SDG data demand and supply. By referencing the NSDS in the VNR, a country demonstrates that its national efforts are aligned with the global agenda for sustainable development. This showcases ownership and national commitment to the SDGs. In addition, including these references promotes transparency and accountability, by signalling to the international community that the country is using a well-defined strategy to guide its SDG implementation and monitoring efforts.
Similarly, the data demands associated with VNRs – and the SDGs more broadly – have proven to be an impetus for NSOs to revisit their strategic planning, by developing a new NSDS, refining the strategic framework, or updating action plans. For example, Guatemala developed a new statistical strategy in response to the 2030 Agenda, which included assessments and definitions for quality criteria and management strategies (Box 3.10). However, NSDS documents rarely recognise the VNR process as an important opportunity for statistical capacity development. An analysis of 66 NSDS reports from low- and middle-income countries showed that less than 10% of strategic plans for statistics published online and encompassing the SDG era included a reference to the VNR.

**Box 3.10. The Strategy for the Development of Statistics in Guatemala**

In response to the 2030 Agenda, and to address the existing challenges on data availability for the Sustainable Development Goal indicators, data disaggregation and data gaps to enable reporting on different social groups, Guatemala adopted a new National Strategy for the Development of Statistics (NSDS) in 2017. The strategy aims to enable monitoring of the 2030 Agenda and the National Development Plan by fostering national and subnational co-ordination to ensure data provision based on guidelines and criteria for the development of statistics by the National Statistical Office.

Guatemala’s 2017 Voluntary National Review includes a detailed description of the steps taken to develop the strategy, consisting of three components: 1) an assessment of the availability of statistical information; 2) standardisation criteria and the quality of information; and 3) the definition of specific statistical management strategies for the monitoring of the 2030 Agenda and the National Development Plan.

Source: (Government of Guatemala, 2017[44]).

Missing linkages between VNR reporting and the NSDS weaken mechanisms for evidence-based VNRs in two ways. First, by under-representing the role of the NSO and NSS in facilitating SDG reporting. Second, by failing to connect the VNR process to the NSO core work programme, which has practical implications for prioritisation and resource mobilisation for SDG data production and dissemination.

From the perspective of the NSO, the VNR can complement a broader agenda for capacity development reflected in an NSDS and increase its visibility to policy makers by:

- Strengthening statisticians’ capacity and skills in areas of analysis, communication, data visualisation, problem solving and negotiation.
- Stimulating inter-institutional dialogue on sectoral and cross-cutting topics, such as gender or climate change, that results in establishing trusted relations between the NSO and members of the NSS (United Nations Statistics Division, 2022[1]).
- Fostering stronger co-operation with government and the wider data ecosystem, thereby increasing exposure to emerging practices and providing opportunities for the NSO to explore new methodologies.
- Helping citizens to understand the key role played by NSOs in providing evidence for policy design, monitoring and follow up. Citizens are rarely aware of the pivotal role the NSO plays in public policy design and follow up. VNR processes open a window of opportunity to promote data literacy among citizens, because increased public understanding of data promotes transparency, provides evidence for accountability and strengthens democracy.

In addition to adjustments to institutional frameworks and strategic plans, some countries have moved a step further by undertaking efforts to adjust their legal frameworks to facilitate SDG reporting. In cases where this is not feasible, complementary instruments, such as regulations, policies, strategies and memoranda of understanding, may be needed to facilitate and guide the NSO’s and NSS’ engagement and enable effective co-ordination throughout the VNR process.

DATA-DRIVEN VOLUNTARY NATIONAL REVIEWS
In this regard, some VNR reporting countries report that statistical capacities were strengthened through new legislation. For instance, Equatorial Guinea reported in its 2022 VNR that the country’s statistical law was reformed to strengthen the NSS in response to the SDG follow-up and review requirements. In addition, it aims to adapt the NSS to align with the African Charter of Statistics and the United Nations Fundamental Principles of Official Statistics. The reform resulted in the adoption of Law No. 3/2020 Regulator of Statistical Activity in the Republic of Equatorial Guinea (Government of Equatorial Guinea, 2022).

Long-term, whole-of-government plans and systemic foundations, including legal frameworks for statistics, play a crucial role in reporting on the SDGs. The legal and institutional environment shapes the NSO’s mandate and is, therefore, a key enabler for data-driven VNRs. If mandated by statistical legislation, the professional independence of the NSO can foster trust between various data producers, as well as between the state and its citizens.

3.5. Inspiring other countries through peer learning and exchange

VNRs are designed to uncover capacities and facilitate peer learning among governments. As such, they provide a unique opportunity for NSOs to gain insight into how other countries have tackled the challenges associated with SDG reporting and identify emerging best practices. However, the learning potential of the VNR in relation to development data may be hindered by the concise format of the VNR reporting, as a country’s data journey in SDG review and in the VNR process is rarely included in detail.

How the VNR process is described in the VNR report matters for a country’s international visibility and reputation. Although extended discussions of statistical capacity are uncommon in VNR reporting narratives, some countries use this opportunity to showcase their efforts to strengthen statistical capabilities and set standards for accountability. In Canada, for example, the VNR report included a discussion of the role of Statistics Canada in coordinating SDG data, alongside a detailed statistical annex and links to data hubs (Box 3.11).

**Box 3.11. Approaches to strengthen accountability, institutional mechanisms and policy coherence to implement the 2030 Agenda in Canada**

Canada’s 2023 Voluntary National Review (VNR) report describes how the Government of Canada strengthened accountability at the federal level by releasing its Federal Implementation Plan for the 2030 Agenda in 2021. The plan identifies a governance structure and the accountability of federal departments and agencies to deliver on “Moving Forward Together: Canada’s 2030 Agenda National Strategy”, to make progress toward the Sustainable Development Goals (SDGs) and support the realisation of the 2030 Agenda.

The Federal Implementation Plan for the 2030 Agenda has assigned state agencies (“vertical leads and co-leads”) to work with Statistics Canada to close data gaps. Statistics Canada has also been entrusted to identify the priorities of federal departments and agencies for disaggregating data for the SDGs, and to address gaps in disaggregation for marginalised groups and people in vulnerable situations, to support the core principle of leaving no one behind.

In addition to a very rich statistical annex that presents the levels and the progress on reaching the targets of selected indicators and their metadata, the VNR report directed readers to two interactive data hubs: the Canadian Indicator Framework and the Global Indicator Framework data hub, which provide additional disaggregated data.
The standard-driven and tightly knit statistical community provides a good forum for countries to inspire one another. The interviews undertaken for this report confirmed that NSOs tend to be aspirational and follow best practices from other countries in the VNR process and in wider SDG reporting efforts, especially those from the same region. In Norway, for example, Statistics Norway drew on examples from across Europe to develop their approach to SDG dissemination and the VNR process itself (Box 3.12).

Box 3.12. Learning from peers by Statistics Norway

Between the voluntary national review (VNR) cycle of 2016 and that of 2021, Statistics Norway (SSB) proposed to the government the creation of an online open Sustainable Development Goal (SDG) platform, inspired by the examples of Denmark, Germany and the United Kingdom. The platform’s blueprint featured global indicators for the SDGs at the national level and includes more disaggregated data for relevant indicators to meet national and subnational users’ needs.

In the 2021 VNR process, Statistics Norway took inspiration from Finland’s 2020 VNR report in building its statistical annex to the VNR report, adding an additional reference to the online SDG platform.

The VNR process and examples from neighbouring countries have also helped Statistics Norway in developing a business case for its involvement in development co-operation. Consequently, Statistics Norway collaborates closely with the Norwegian Development Agency, Norad, and supports other countries through various capacity-building initiatives.

Sources: 2021 VNR of Norway and PARIS21.
The peer-learning potential of the VNR process depends on its time frame and co-ordination; limited engagement of NSOs not only in the preparation but in the presentation of VNRs may disrupt or hamper pathways for cross-country exchange. Delegations from low- and middle-income countries to the HLPF rarely include representatives of NSOs. To mitigate the insufficient exchange between countries in the VNR process, the UN regional bodies and non-UN international organisations have been supporting capacity-building and twinning exercises among VNR-preparing countries. These programmes link VNR teams from two or more countries that follow and provide feedback on each other’s VNR processes, including through study visits. In some cases, NSOs have participated in these teams, providing a unique opportunity to learn how other NSOs are supporting VNR and SDG reporting processes and explore innovative solutions (Box 3.13). Such exercises offer a platform to further define and develop the role of the NSO in the VNR process, setting the stage for more data-driven VNRs in the future.

**Box 3.13. Mongolia, Tajikistan and Uzbekistan: Participation in twinning exercises**

The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) provides financial, facilitation and co-ordination support to countries through a dedicated voluntary national review (VNR) twinning programme. Twinning connects two or more countries to strengthen the preparation of the VNRs through peer learning. The programme involves study tours, online workshops, and joint presentations and side events at the High-level Political Forum and regional forums.

During the preparation of the 2023 VNR, Mongolia’s, Tajikistan’s and Uzbekistan’s national statistical offices participated in their country’s VNR twinning exercise. During eight months, the countries’ VNR teams exchanged experiences, lessons learnt and challenges to help optimise their respective VNRs. Participation of the NSOs in this programme was considered highly valuable to the NSO as well as to the VNR process itself. Some of the benefits of this kind of participation are:

- better VNR preparation through “live” learning from peers and exchange of approaches
- shared problem solving: tips, advice on navigating the VNR process
- learning about another country’s methodologies and approaches
- improved tacit knowledge of reforms or changes undertaken by other NSOs
- a stronger connection with stakeholders and counterparts within the country as well as with the twinning counterparts
- increased momentum in implementing a multi-stakeholder approach to the VNR and SDG monitoring.

Sources: Interview Mongolia; UN ESCAP (2023).

**Notes**

12 Strengthen the means of implementation and revitalise the global partnership for sustainable development.
A comprehensive VNR process requires a systematic and staged approach. Countries often establish a general VNR roadmap; however, developing a data-specific agenda for the VNR preparations is not yet common practice. Nevertheless, apart from strengthening the evidence base of the VNR report, a data roadmap is also an excellent tool to support and guide NSO engagement in the VNR process and to identify synergies across the NSS.

To strengthen evidence-based VNR reporting, the United Nations Statistical Division recommends establishing a VNR data roadmap consisting of preparation and planning, data assessment, data collection, data incorporation as well as presentation and post-analysis. Working through these different steps, this chapter provides practical guidance on how to strengthen the role of the NSO in the VNR process, highlighting current best practices and concrete examples for countries to adopt and implement their own VNR data roadmaps.

4.1. Preparation and planning

At this stage, it is recommended the NSO make considerations around the timelines and preparation of needs and planning. In addition, it can establish a VNR data team within its organisation. The team should represent the NSO in the SDG institutional structure and at the same time have responsibility for VNR-related co-ordination within the NSS.

Once the team is established, an overview of the institutional environment of data and existing SDG processes should be established. This should aim to demystify the “data landscape”, including existing legislation, mandates for data collection, and processing and dissemination of data within the NSS. It can also help assess whether data institutions and processes require adjustments to optimise reporting on the SDGs.

In several countries, there were already teams within the NSO responsible for the SDGs. For example, in Jordan’s NSO, a Sustainable Development Unit was established and charged with collecting sustainable development data and to act as a focal point with national and international partners. Other countries report on specific entities within the NSO that were established to develop and monitor SDG indicators. For instance, in Chad, an SDG indicator monitoring team was created within the NSO (Government of Chad, 2021[49]). The Statistical Office of the Republic of Serbia established a working group for SDG indicators, appointing teams to act as focal points to work with other institutions on data for each specific SDG (Republic of Serbia, 2019[50]).
4.2. Data assessment

Mapping of – and consultation with – data stakeholders is a key step of the VNR preparations. To ensure the VNR is informed by data from a broad range of sources, the NSO, as the centre of the NSS, is well-positioned to consult with different stakeholders throughout the VNR process. This can be carried out by means of workshops or meetings that aim to discuss, organise and validate sources for the VNR.

Once an initial mapping has been carried out, NSOs are encouraged to conduct data inventory and data gap assessments. These activities should help gain an overview of what data the government holds and clarity on what data exist to report on the global and nationally defined indicators. However, often the findings of these assessments are not featured in the VNR reports. It is thus recommended to clearly describe how the assessment was conducted and provide a summary of the gaps identified for each SDG. The assessment findings can be published in the VNR and/or independently for the purpose of peer learning.

Countries apply various approaches to assess SDG gaps and data availability and/or establish baselines. One example is a baseline survey carried out by Statistics Netherlands to inform the first VNR in 2017. Based on the study, Statistics Netherlands continued to build on these efforts for its 2022 VNR, enabling a clear overview of the SDG data collection needs (Box 4.1).

Box 4.1. Baseline survey carried out by Statistics Netherlands

The Netherlands was one of the first countries to conduct a baseline survey of national efforts to achieve the Sustainable Development Goals (SDGs). The report "Measuring the SDGs: An Initial Picture for the Netherlands", compiled by Statistics Netherlands, was published in 2016. In the Netherlands, data are currently available for 37% of the SDG indicators. Statistics Netherlands and other bodies are still compiling data to measure progress on the other indicators.

In its 2022 Voluntary National Review, the Netherlands reports that Statistics Netherlands has measured progress towards the SDGs each year since 2016, with coverage increasing to 50% of the official UN indicators, or 71% if coverage of targets are counted. Each year, at the government’s request, Statistics Netherlands further defines the indicators, which helps clarify the progress made and the remaining challenges. Since 2019, at parliament’s request, the annual SDG assessment was merged with the annual Monitoring of Wellbeing, producing an additional 13% coverage through proxy indicators. Incorporating these two frameworks has, therefore, helped address some data gaps while at the same time providing more insight in progress on the principle of leaving no one behind.

Source: Government of the Netherlands (2017[51], 2022[52])

The data planning and data assessment steps are common to the process of the National Strategy for the Development of Statistics (NSDS), a strategic planning process undertaken by NSOs in low- and middle-income countries. The NSDS process results in a five- or ten-year plan and a framework for capacity development for both general and sectoral statistical fields, which are aligned with national policy (e.g., the national development plan).

The NSDS and the VNR processes are related and reinforce each other, driving progress in both statistical development and SDG implementation. The NSDS process plays a crucial role in establishing a strong statistical foundation for the VNR process, since it outlines the statistical priorities and strategies necessary to collect, analyse and disseminate high-quality data for monitoring and evaluating progress towards the Sustainable Development Goals (SDGs). The VNR process, in turn, serves as a platform for showcasing...
achievements, identifying gaps where improvement is needed and advocating for further investment in statistics. Many of the elements of a VNR data roadmap overlap with the NSDS process.

The VNR can serve as a catalyst for strengthening the statistical system and ensuring that a country has political momentum and the necessary data to track progress and inform decision making.

Key interconnections include:

- **Statistical capacity development**: The NSDS process prioritises the development of statistical capacity, which is essential for generating and using high-quality data for the VNR.
- **Data collection and analysis**: The NSDS framework guides the collection and analysis of data for the VNR, ensuring that the reported data are relevant and aligned with the country’s priorities.
- **Data dissemination and communication**: The NSDS promotes the dissemination and communication of statistical data, making it accessible to stakeholders involved in the VNR process.
- **Statistical use for evidence-based policy making**: The NSDS emphasises the use of statistical data for evidence-based policy making, which is critical for formulating effective strategies to achieve the SDGs.

Capitalising on parallels between these two processes is essential for ensuring that the country has the necessary data infrastructure to track progress towards the SDGs and take informed decisions for sustainable development. Building and implementing a data roadmap is time-consuming and requires financial and human resources not always available in developing countries. Developed country support for building a data roadmap is a crucial and practical application of the 2030 Agenda’s universality principle.

### 4.3. Data collection

To build the evidence base for the VNR, the NSO should collect and process the data that will be presented in the report, liaising with different data producers across the data ecosystem to consolidate insights. As referenced previously, the NSO is often uniquely positioned to facilitate such efforts, given its mandate to co-ordinate the NSS and oversee the development of official statistics.

Efforts to fill data gaps should include generating new indicators from existing data, accessing administrative records and reusing non-traditional data sources, for example by establishing new data partnerships. Once all the relevant new data have been collected, validated and processed, the next step is to carry out a data analysis to determine what data will be presented in the VNR and in what format.

### 4.4. Data incorporation and including a statistical annex

In terms of overall data incorporation, the VNRs provide an opportunity to present the latest progress and trends related to Agenda 2030 goals and targets, as well as to share new insights and observations. This requires visualising and communicating data in an accessible way. To support NSOs in presenting data and information in VNR and SDG reporting, guidance on data storytelling is available to help define an approach to establishing a narrative and communicating data for VNR reporting (United Nations Statistics Division, 2022[1]). By leveraging such techniques, the VNR offers an important entry for the NSO to continue to develop institutional capacity in data presentation and analysis.

As highlighted in previous chapters, the United Nations VNR guidelines recommend accompanying the VNR report with a statistical annex and this is an increasingly common practice, providing one important tool to expand or augment data analysis, visualisation and storytelling in VNR reporting. These annexes
help give the report a strong evidence base and allow governments to display relevant information in a clear and concise manner. Common characteristics in the VNR statistical annexes include:

- baseline year and metadata information
- current status and year (of the data)
- progress towards established annual targets
- projections
- disaggregated data
- data sources
- charts and/or other data/progress visualisations (United Nations Statistics Division, 2022[1]).

To make the data easier to interpret for diverse audiences, countries have been using different approaches to present data and information. Some interesting practices include:

- The Statistical Annex to Bosnia and Herzegovina’s 2023 VNR report, which includes progress arrows and traffic lights alongside the baseline, current, mid-term and target value for each indicator (Figure 4.1).
- The Statistical Annex of France’s 2023 VNR report, which includes a baseline, current value and timeseries in a line chart as well as traffic lights. In addition, each chart is accompanied by a short note providing a narrative of the results (Figure 4.2).
- The Statistical Annex of Cambodia’s 2023 VNR report, which included a list of responsible agencies, data sources, data frequency and definitions, as well as metadata components for each indicator.

Figure 4.1. A snapshot of the Statistical Annex to Bosnia and Herzegovina’s 2023 Voluntary National Review report
Figure 4.2. A snapshot of the Statistical Annex to France’s 2023 Voluntary National Review report

**ODD15 - Préserver et restauuer les écosystèmes terrestres**

<table>
<thead>
<tr>
<th>Indicateur</th>
<th>Évolution *</th>
<th>Dernière valeur **</th>
<th>Tendance pour parvenir à l’ODD en 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aires terrestres françaises protégées</td>
<td>+ 1,4 point sur 2017-2021</td>
<td>31,1</td>
<td>Favorable</td>
</tr>
<tr>
<td>2017</td>
<td>29,7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2021</td>
<td>31,1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

En 2022, 31,07 % d’espaces naturels terrestres sont protégés sur le territoire (France métropolitaine et en outre-mer). La surface d’aires protégées a continué à augmenter en France et l’objectif a été atteint pleinement sur ce point. Ces résultats seront encore confortés par la mise en œuvre de la Stratégie nationale sur les aires protégées 2030. Pour la première fois, la France s’est ainsi dotée d’une stratégie unifiée pour la métropole et les outre-mer qui reconnait le lien entre les enjeux terrestres et marins, concerne tous les types statutaires d’aires protégées et s’intéresse tant à leur création qu’à la qualité de leur gestion.

<table>
<thead>
<tr>
<th>Indicateur</th>
<th>Évolution *</th>
<th>Dernière valeur **</th>
<th>Tendance pour parvenir à l’ODD en 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forêts sur le territoire métropolitain</td>
<td>+ 0,3 point sur 2012-2017</td>
<td>30,7</td>
<td>Modérément favorable</td>
</tr>
<tr>
<td>2012</td>
<td>30,4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>30,7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Les forêts métropolitaines sont sur la trajectoire de l’atteinte de la cible de l’ODD15 en promouvant la gestion durable de tous les types de forêt et en restaurant les forêts. Elles demeurent néanmoins très surveillées car sous la pression du changement climatique et des attaques de ravageurs. La France a créé son premier parc naturel des forêts en 2019 : le Parc national de forêts. De plus de 198 838 ha, il a pour ambition de consolider la préservation de patrimoines exceptionnels et le développement économique, social et culturel.

<table>
<thead>
<tr>
<th>Indicateur</th>
<th>Évolution *</th>
<th>Dernière valeur **</th>
<th>Tendance pour parvenir à l’ODD en 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Écosystèmes peu anthropisés en métropole</td>
<td>- 0,1 % sur 2012-2018</td>
<td>28,8 millions d’ha</td>
<td>Modérément défavorable</td>
</tr>
<tr>
<td>2012</td>
<td>28 868 715</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>28 847 239</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

L’urbanisation a poursuivi son développement des dernières années. Or elle se fait au détriment des espaces naturels et semi-naturels. Pour améliorer l’état de la biodiversité, la loi n° 2021-1104 du 22 août 2021 portant lutte contre le dérèglement climatique et renforcement de la résilience face à ses effets visé à réduire de 50 % à d’ici 2031 la consommation des espaces naturels, agricoles et forestiers. Dès 2050, l’objectif est d’atteindre « zéro artificialisation nette ». Les collectivités territoriales et les villes se retrouvent ainsi en première ligne pour réaliser à la fois des projets de territoires sobres, qui évitent d’artificialiser les sols et des stratégies de renaturation, qui permettent de redonner une plus grande place à la plaine torse, à l’eau et à la biodiversité, notamment dans le fonctionnement des villes.

Source: France 2023 VNR report
4.5. Presentation and post-analysis

The VNR report and the presentation at the HLPF should include next steps and conclusions. The VNR report should give a snapshot of the main elements of an SDG action plan following the VNR. The action plan should include steps that relate to data, including on the role of the NSO (United Nations Statistics Division, 2022[1]).

The post-HLPF analysis of the data process can be an important way to jump-start an action plan, and can consist of a number of actions:

- post-VNR evaluation and review of the process for developing the VNR, with an emphasis on data and the data providers, i.e. the NSO or team within the NSO
- sharing VNR data lessons learnt at the subnational level
- efforts to institutionalise the collection of the data and statistics for the VNR
- using lessons from the VNR data process to define and enhance institutional arrangements for future SDG and VNR data collection (UN DESA, 2023[53]).

For example, the 2023 VNR of Zambia included a targeted policy response to each of the five key data challenges identified in the VNR report (Box 4.2).
Box 4.2. Zambia’s post-High-Level Political Forum recommendations to tackle data gaps

Table 1 of Zambia’s 2023 Voluntary National Review report included concrete recommendations to tackle data availability challenges identified in the 2023 VNR process. Five key challenges were identified: 1) limited evidence-based planning and policy making; 2) insufficient financial support; 3) rigid administrative structures; 4) low capacity to analyse, disseminate and use data; and 5) technical staffing and physical constraints of the key data producers.

For each challenge, the table provided a follow-up policy response, including long-term and systemic solutions, such as:

- to accelerate the updating of the National Strategy for the Development of Statistics to make it more responsive to the country’s data needs
- to operationalise the Statistics Act
- to transform and restructure ZamStats into a semi-automatous body in line with the Statistics Act to enable it attract support from partners and other stakeholders and mobilise more funds for statistical activities
- to prioritise capacity building within the entire statistical ecosystem
- to leverage digital platforms to collect data.


Overall, it is highly recommended to apply a continuous or cyclical approach to the VNR process. This means that an individual VNR process and report should not be considered a one-off product, but instead approached as a continuous effort, which the NSO can help support. A cyclical approach underscores the opportunity to articulate the role of the NSO in the VNR and SDG data challenges as part of the NSDS.

Since more and more countries are reporting for a second, third or fourth time, countries are encouraged to build on earlier reporting cycles and include progress updates on the recommendations that were made in their previous VNR. Some countries do so; however, it is far from the norm. It is recommended to maintain the involvement of the NSO in post-VNR efforts to ensure continued follow-up, update data and continue working on methodologies to build and improve data availability. An overall action plan for statistics and data for VNR and SDG reporting can also help add consistency to VNR reporting and feed directly into NSDS development or other capacity development activities in the NSS.

Ultimately, awareness-raising and capacity-building measures aimed to promote the value of statistics to measure SDG progress through the VNR have greater implications for government as important pre-conditions to support a culture of evidence-informed policy making for sustainable development, increasing demand for data. New data demands can, in turn, support NSO advocacy efforts to expand capacity and mobilise resources, enabling future efforts to enrich the evidence base for VNRs and SDG reporting. Establishing a dedicated institutional structure within the NSO that deals with SDG review and monitoring can help tailor to the data stewardship, awareness-raising and capacity development needs in this direction.

Over the years, new linkages and mechanisms have been established to strengthen reporting processes that go beyond a VNR reporting cycle. Increasingly, countries are starting to report on an annual or biannual basis on the SDGs and NSOs have continued to develop their role. For instance, in Denmark, the NSO’s role on SDG reporting has evolved since the adoption of the 2030 Agenda and now includes annual reporting, as well managing the national SDG data platform (Box 4.3). All these efforts solidify the NSO’s role in SDG monitoring as part of their regular business which, in turn, enhances the enabling environment for evidence-based VNR reporting.
Box 4.3. The evolving role of Statistics Denmark on Sustainable Development Goal reporting beyond the voluntary national review

Beyond the voluntary national review (VNR), the role of Statistics Denmark on Sustainable Development Goal (SDG) reporting is continuously evolving. Statistics Denmark monitors progress based on a National Action Plan that consists of 37 targets for implementing the SDGs. Annual SDG progress reports are published and shared with the Danish parliament. Every fourth year, a comprehensive status report is published that may consist of adjustments to the Action Plan. In addition, ahead of the Danish 2021 VNR report, Statistics Denmark and the Danish 2030 Panel launched the “Our Goal” report in 2020 to find concrete and tangible data for SDG reporting over time. The report was developed with the engagement of all relevant stakeholder groups and considered a unique project that helped to define a set of national indicators with input from different sectors to ensure society-wide ownership. The “Our Goals” project is a statistical tool that provides easy access to all necessary information on Denmark’s progress on the SDGs.

Statistics Denmark also launched an SDG data platform where users can access Danish statistics regarding progress on the indicators. The platform has contributed to a sound, data-driven basis for Denmark’s second VNR in 2021 and generally provides a statistical basis for assessment, making it easier to monitor and follow-up on Denmark’s efforts to implement the SDGs.
As we approach the five-year countdown to achieve Agenda 2030, SDG data gaps pose a challenge to effective monitoring and informed policy action in low- and middle-income countries. VNR processes remain an important opportunity to highlight solutions to chart a path towards inclusive response and recovery from the effects of today’s poli-crises and inspire countries to draw on data and statistics to facilitate evidence-based and sustainable development.

The analysis of VNR narratives published between 2016 and 2023 shows a decreasing trend in the reference to statistical terms in SDG reporting. At the same time, the volume and depth of evidence presented in the VNR in the form of statistical annexes has been steadily increasing, encompassing new data sources as well as new dimensions of data disaggregation. Data disaggregation has allowed governments to provide a more in-depth analysis of their SDG progress and identify effective solutions in VNR follow-up.

Yet, the VNR story points to missed opportunities to build on the momentum of the SDG era to deliver more and better development data. NSOs emerge from this analysis as critical yet overlooked stakeholders in the endeavour to drive evidence-based action around the SDGs, grappling with a growing demand for data but constrained in their capacity to deliver it. Closely engaging the NSO in VNR processes and granting it a role that goes beyond data provision not only supports an improvement in the SDG data volume and quality, but also builds a foundation for a shared momentum and trust in development data and statistics.

5.1. Recommendations to enable more data-driven VNRs

In accordance with the calls for accelerated action on the 2030 Agenda, efforts to strengthen data systems and data collection on SDG progress in the following areas are needed to support data-driven VNRs and enable evidence-informed action for sustainable development:

**Use the VNR process to uncover untapped data potential**

VNRs present an opportunity to showcase the role of data and statistics in sustainable development and the underlying statistical capacity demands to fill that role.

**Enrich VNR narratives and statistical annexes**

The voluntary nature of the VNR process and the lack of standardised formats among these reports introduce challenges in comparing VNRs across years and countries. However, this more flexible, open approach also creates opportunities for innovation and country ownership, yielding positive results: VNR narratives have been changing focus over time, moving from stocktaking to storytelling.

Revisiting VNR narratives to include practical insights around the process of monitoring the SDGs, linkages to statistical planning through the NSDS, and articulating the engagement of the NSO is a practical and relevant exercise to provide the overall picture of SDG progress and capacity needs in government.
However, as noted in many country examples throughout this report, the VNR narrative is not the only place to expand the visibility of data and statistics. Continuing to increase the adoption of statistical annexes – and further developing best practices around the analysis they include, provides further entries to develop a more nuanced picture of the SDG data landscape as an aspect of SDG progress.

**Develop data partnerships with the wider ecosystem**

The data requirements associated with SDG monitoring present a challenge for the NSO, but also an opportunity to expand partnerships and innovation around development data. The VNR serves as an important entry in this regard, motivating an exploration of unofficial data sources and new methods and tools alongside both state and non-state actors, including civil society, academia and the private sector – not only as data users but also as contributors to SDG data collection and analysis.

In addition to expanding the supply of development data, establishing new partnerships around VNR reporting also activates the role of the NSO as a steward of data quality. By fostering a more inclusive, participatory approach to SDG data, with modern and systemic communication by NSOs, VNRs can jump-start open data practices and improved data governance. Ultimately, such efforts not only contribute to the ongoing effort to deliver more and better development data, but also to whole-of-society ownership of the 2030 Agenda through increased transparency and accountability.

**Engage NSOs to develop data-driven VNRs**

Intentional efforts to include the NSO in the VNR process and further clarify their role are key to anchor VNRs in data and evidence.

**Include NSOs in SDG institutional mechanisms and amplify co-ordination**

A key mandate for the NSO is to co-ordinate the NSS, which in most cases extends to co-ordinating overall efforts around SDG monitoring. For this reason, NSOs need to be included as members of overall SDG institutional mechanisms as a practical entry to enhance their engagement in the VNR process. However, while enabling NSOs to realise their full mandate, it is equally important to balance their participation in such mechanisms with measures to protect and maintain their independent and impartial status.

Further efforts to activate the NSO’s co-ordinating function can also be explored through dedicated institutional frameworks. Establishing working groups or special divisions within the NSO to deal with SDG review and monitoring can help facilitate data quality assurance, awareness-raising and capacity development for the VNR process and more broadly. Such efforts are invaluable in not only improving VNR reporting processes, but in enhancing linkages between data and policy.

**Adopt VNR data roadmaps**

The potential benefits of engaging the NSO in VNR processes are extensive, but it is important to define a concrete set of activities and responsibilities for the NSO to take on more central role. Developing a VNR data roadmap in the early stages of the VNR process can help shape and clarify these practical entries through preparation and planning, data assessment, data collection, data incorporation, and communication activities where the NSO can collaborate or lead alongside other VNR stakeholders.

A VNR roadmap can be especially powerful when linked to the NSDS life cycle, enabling the NSO to establish stronger links between VNR activities and their existing priorities and programming. This approach sets the stage for more durable actions to improve statistical capacity in the long-term to enhance SDG data for future VNRS.

DATA-DRIVEN VOLUNTARY NATIONAL REVIEWS
Consider the VNR as the beginning of a long-term journey toward statistical development

By viewing the VNR as one moment in a longer time frame, countries can move beyond one-off reporting and embark on a continuous process of data improvement and more sustainable approaches to statistics, backed by coherent planning, resource mobilisation and communication.

Align NSDS and VNR processes

Greater investments are required in VNR follow-up to strengthen the institutional capacities of NSOs, including inclusive strategic planning, legal and policy instruments, and the provision of sufficient human, financial and technical resources. The VNR process itself is a useful mechanism to highlight priorities and emerging needs for staff training, data infrastructure and technological advancements for efficient data management, underscoring the potential linkages to NSDS design processes and their implementation.

By deliberately referencing VNRs in the NSDS, NSOs can be better positioned to engage in the VNR process, connecting to their medium-term strategic framework and budget. Using the VNR as a baseline or as a springboard towards more continuous and sustainable efforts to develop statistical capacity, countries can work toward long-term goals for data collection, analysis and dissemination that are anchored in national priorities for sustainable development.

Build trust through better data and insights

The VNR reporting cycle can be used to establish a regular monitoring and evaluation framework for tracking progress on the SDGs as well as wider data-related goals. This is equally important for transparency and domestic accountability on policy results, facilitating continuous improvement and adaptation of policies and strategies over the long term. On a more technical level, such a framework also guides practical decisions around striking the right balance between administrative data and periodic surveys in the NSS to inform policy making.

The benefits of investing long-term in the quality of SDG data are not limited to a single VNR reporting cycle but extend to wider priorities of government and society. Timeliness and accuracy of public data is an essential part of improving country’s investment climate, as it informs decisions by domestic and international investors and businesses and could help attracting private finance. Likewise, regular and transparent reporting and publication of high-quality SDG indicators serves an important function for civil society and citizens to hold governments accountable for development progress.

While VNR reports provide some insight into a government’s appreciation of NSOs and their use of evidence, it is also important to be critical of the information presented. Governments may showcase positive results achieved through their policies at the expense of analysing shortfalls in the means of SDG implementation. However, by acknowledging areas where data are lacking or statistical capacity is constrained, the narrative can reveal the government’s awareness of the need for more and better data to support evidence-based action for sustainable development.
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Annex A. 2030 Agenda principles combined with international data principles

Principle 1: National ownership and commitment to the SDGs

VNRs should provide information on how governments have aligned their national policies with the SDGs and the SDG indicators using statistics from country-level data. For example, some VNRs compare global targets and goals with aligned or complementary national counterparts for a country.

Principle 2: Universality and inclusion

The SDGs are meant to be achieved for all, and VNR statistics should show how governments plan to include those who are vulnerable to being left behind in SDG planning in the country. Data presented in VNRs should address those furthest behind, but also cover all vulnerable groups in the country. Statistics should then be presented on government efforts to include the vulnerable in SDG monitoring and implementation.

Principle 3: A human rights approach

This principle aligns with the principle of universality and can also help governments understand the SDGs in context with other human rights agendas, such as the Universal Declaration of Human Rights. VNRs should consider human rights related to data such as privacy rights and sensitivity in data collection; accurate and transparent data reporting; and an open approach to data sharing.

Principle 4: Integration and indivisibility of the Goals

This principle relates to the interrelatedness of the three dimensions of sustainable development: economic, social and environmental, such as the link between human well-being and a healthy environment. Data gaps can hinder policy planning in countries, such as for environmental policies when environmental statistics are not as readily available. VNRs should report on how the government is integrating social, economic and environmental aspects of sustainable development.

Indivisibility also refers to interlinkages among the SDGs and their targets. The VNR Handbook encourages governments to report on all 17 SDGs, with more detailed coverage of national priority goals and targets. However, in reality, for some governments, VNR reporting may involve trade-offs, a decision to focus on key SDGs and targets and report data on their indicators rather than the full global SDG framework. However, by recognizing interlinkages among the SDGs, policymakers may be able to focus on achieving SDGs and targets which will have the greatest positive impact. Data reporting should make these interlinkages clear and demonstrate how they are being accounted for in national indicators.
Principle 5: Collaboration and transparency

SDG monitoring is expected to be open, participatory and transparent and SDG indicator values must be openly available. For transparency, VNR statistics should include references and links to original data used to compile the statistics. Some NSOs have made efforts to report using publicly available data sources so that their VNR statistics are easily reproducible, which is a good transparency practice.

Principle 6: Building on existing monitoring and reporting platforms and processes

To avoid duplication, VNRs must make use of existing platforms and processes for SDG follow-up and review. Therefore, current data reporting institutions and processes must play a dominant role in delivering data for VNRs. Data is therefore not collected solely for the purpose of the VNR, but instead the VNR is a by-product of existing monitoring of the SDGs. At the same time, in many countries, existing data infrastructure (institutions, policies, legislation, and technologies) need to be strengthened to contribute a reliable and timely evidence base for VNRs.

Principle 7: Evidence-based monitoring and review

The format and content of VNRs should show that these reviews are data driven, such as the inclusion of progress charts, data tables and graphs and a statistical annex. VNR teams can also include a dedicated data section or chapter, as well as a next steps section that includes future data plans. This data sector or chapter can briefly outline sources used to clearly identify the evidence base of the VNR. It can explain whether all VNR data comes from the NSO, or if other agency data was incorporated into the review. It can also indicate whether data from stakeholders were used to obtain a different perspective and/or cover gaps in data helps with the NSS. The data section or chapter can also describe any online indicator reporting platforms that provide access to indicator data and whether these were used as a data source in VNR preparation.
Annex B. VNR text analysis methodology

This annex outlines the methodology used for analysing text extracted from PDFs of voluntary national reviews (VNRs). The motivation stems from the observation that VNRs frequently refer to national statistical systems (NSS) and they often advocate for improved statistical capacity. The possibility to quantify this to make VNRs more comparable across countries and offer data for further analysis therefore seems very valuable. The proposed methodology for achieving this starts with four pre-processing steps:

1. Digital access to VNRs: All of the currently available VNRs of the 183 countries that participate in the VNR reporting process were downloaded as PDFs from the High-Level Political Forum on Sustainable Development Platform (https://hlpf.un.org/countries). This resulted in 307 VNRs, as some countries have participated in multiple reporting rounds.

2. Language detection: Using Google’s open sourced Compact Language Detector 2, all of the documents’ languages were automatically detected. This was necessary since not all countries report in English and the reporting language even changed for the same country over multiple reporting rounds. Overall, 5 languages were used: English (216), Spanish (38), French (44), Arabic (6) and Russian (3). Of those, VNRs in Arabic and Russian were not included in the analysis due to limited resources regarding the creation of adequate keyword lists and the small number of documents.

3. Removal of introductory text sections and annexes: For each VNR, the main body was identified by excluding frontmatter such as forewords or executive summaries and appendices. This seemed justified since introductory text sections frequently summarise information from the main text and, in particular, statistical appendices often include repetitions of statistical terms. Both would bias the results.

4. Text pre-processing: The remaining text was tokenised, meaning that non-expressive words, punctuation and numbers were removed (usually referred to as stopwords). This includes pronouns, conjunctions and prepositions. Next, the remaining terms were lemmatised for English and stemmed for French or Spanish since no good lemmatisation package was available for those languages. Lemmatisation consists of reducing different forms of a word to its lemma (e.g., “changing”, “change”, “changes” → “change”) whereas stemming reduces different forms of a word to its stem (e.g., “changing”, “change”, “changes” → “chang”).

These textual data were used for two analyses. First, VNRs were scanned for a set of statistics-related keywords and aggregated results were generated from the results. Second, whole text passages containing “statistics” and “data” were identified and analysed manually by an expert working in the field of official statistics. The keyword-based analysis consisted of the following steps:

1. Keyword pre-processing: All three keyword lists for English, Spanish and French were pre-processed in the same fashion as the textual data using lemmatisation or stemming to guarantee that keywords were in the cleaned VNR text data.

2. Keyword matching: For each language, all VNRs were checked for occurrences of the respective keywords. This was performed with consideration of the surrounding context. For example, it was guaranteed that for the keyword “statistical capacity”, the text passages “statistical capacity building”, “capacity of statistical systems”, “capacity building through statistical frameworks” were...
identified. This was achieved by matching all permutations of multiple-word keywords with a character limit of up to 20 characters in between words.

3. Aggregation by year/VNR round: All keyword occurrences were recorded with the page number of the respective VNR as well as the absolute number of terms (non-stopwords) in the VNR to generate relative frequency measures. From these data, aggregated results could be produced, including the evolution of relative keyword occurrences over years or VNR consecutive rounds.

The second manual analysis required the identification and translation of text passages containing “statistics” and “data”. The following steps were performed:

1. Text passage identification: In all VNRs, the position of the keywords “statistic” and “data” (Spanish: “estadístico”/“datos”, French: “statistique”/“données”) were identified throughout the whole document. Then, a text passage 500 characters before and after the keyword position was extracted for manual inspection.

2. Translation: For the Spanish and French VNRs, those text passages were translated to English using the most recent version of Google Translate.


Disclaimer:

- Omission of tables: Reliably identifying tables posed a problem due to the high formatting heterogeneity present in the VNRs. In some instances, tables contained multiple keyword occurrences that would bias results. However, it can be assumed that through the removal of statistical annexes, this bias was held to a minimum.
### Annex C. Text analysis – terminology

#### Table A C.1. Key search terms

<table>
<thead>
<tr>
<th>Category</th>
<th>Key search terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>National statistical systems</td>
<td>National statistical systems&lt;br&gt;NSS&lt;br&gt;National statistical office&lt;br&gt;NSO&lt;br&gt;Statistical office&lt;br&gt;Statistical agency&lt;br&gt;National statistical institute</td>
</tr>
<tr>
<td>Data-related institutional aspects</td>
<td>Statistical capacity&lt;br&gt;NSS capacity&lt;br&gt;NSO capacity&lt;br&gt;Strengthening national statistical systems&lt;br&gt;NSO mandate&lt;br&gt;Data ecosystems&lt;br&gt;SDG data governance&lt;br&gt;Data partnerships&lt;br&gt;Statistical partnerships&lt;br&gt;Statistical mechanisms&lt;br&gt;Statistician&lt;br&gt;Data co-ordination&lt;br&gt;Institutional mechanism for SDG monitoring&lt;br&gt;Data management&lt;br&gt;Data exchange mechanism&lt;br&gt;Data mechanism&lt;br&gt;Data framework</td>
</tr>
<tr>
<td>Data and indicators</td>
<td>Data collection&lt;br&gt;Official statistics&lt;br&gt;Non-traditional data sources&lt;br&gt;New data sources&lt;br&gt;VNR statistics&lt;br&gt;Data assessment&lt;br&gt;Monitoring framework&lt;br&gt;Review mechanism&lt;br&gt;Indicators&lt;br&gt;Indicator framework&lt;br&gt;Disaggregated data&lt;br&gt;Data supply&lt;br&gt;Data gaps&lt;br&gt;Data analysis&lt;br&gt;Data gap analysis&lt;br&gt;Data availability</td>
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<tr>
<td>Stakeholder engagement</td>
<td>NSO engagement</td>
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<tr>
<td>Data stakeholders</td>
<td>CSO data</td>
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<td></td>
<td>Data providers</td>
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<td>Data producers</td>
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<td>Data supplier</td>
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<td><strong>Local</strong></td>
<td><strong>Subnational data</strong></td>
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<td>Local statistical offices</td>
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<td>Local data collection</td>
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<td></td>
<td>Local data co-ordination</td>
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<td></td>
<td>VLR data</td>
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<tr>
<td><strong>VNR specific</strong></td>
<td><strong>Statistical annex</strong></td>
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<tr>
<td><strong>Other</strong></td>
<td><strong>Finances for statistics</strong></td>
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<td></td>
<td><strong>Preparation of VNR data</strong></td>
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<td></td>
<td><strong>Monitoring platform</strong></td>
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<td></td>
<td><strong>Data infrastructure</strong></td>
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<td></td>
<td><strong>Monitoring and evaluation</strong></td>
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<td></td>
<td><strong>Evidence-base</strong></td>
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<td><strong>Data legislation</strong></td>
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</tbody>
</table>
Data-Driven Voluntary National Reviews
Strengthening national statistical systems for better SDG reporting

After a decade of implementing the sustainable development goals (SDGs), countries all over the world continue to face significant data shortfalls across a range of SDG goals and targets. Voluntary National Reviews (VNRs) for the SDGs have become an established mechanism to assess progress, exchange best practices, and identify new strategies and solutions to advance SDG implementation across countries.

However, despite the importance of data and statistics to the VNR process, the full potential of national statistical offices (NSOs), to support the implementation of the SDGs through the provision of data has not yet been reached.

This report analyses existing VNR processes and discusses the concept of “data-driven VNRs” as a more intentional approach to engage NSOs and other national producers of data and statistics in the VNR process, enrich SDG reporting, and strengthen the enabling environment for evidence-informed policy making and programming for the SDGs and beyond.