

# SDMX for SDG Indicators

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# Introduction to SDMX

- An initiative sponsored by seven international organizations
  - BIS, ECB, Eurostat, IMF, OECD, UN, and WB
- SDMX aims to standardize data and metadata exchange between international organizations and member countries
- Standards for:
  - Structuring of statistical data
  - Packaging of statistical data as XML, JSON, CSV, and other formats
  - Registry of data and metadata
- Specifications, guidelines, tools, and manuals are freely provided to support implementation
- Data Structure Definitions (DSDs) and Metadata Structure Definitions (MSDs) are developed and used to model data for statistical subject-matter domains, such as National Accounts, Labour, or SDGs
- Data and metadata are then structured according to the DSD or MSD, and disseminated or exchanged as SDMX

# SDG Indicator Dataset



- From the United Nations General Assembly resolution 70/1 “Transforming our world: the 2030 Agenda for Sustainable Development”
  - *Follow-up and review processes at all levels will be guided by the following principles: ... (g) They will be rigorous and based on evidence, informed by country-led evaluations and data which is high-quality, accessible, timely, reliable and disaggregated by income, sex, age, race, ethnicity, migration status, disability and geographic location and other characteristics relevant in national contexts.*
- Highly disaggregated dataset mandated by the General Assembly
- Need to support custom disaggregation in countries

# SDMX-SDGs Working Group

- Working Group on SDMX for SDG Indicators established by IAEG-SDGs in April 2016
  - Membership includes 12 countries and 10 international agencies
- Objectives:
  - Develop global Data Structure Definition(s) and Metadata Structure Definition(s) for SDG Indicators
  - Develop, pilot, and establish data exchange mechanisms for SDG indicators
- First meeting: Oct 2016, monthly virtual meetings since
- Pilot data exchange: Apr – Sep 2018
- Official DSD and start of production data exchange: Jun 2019
- Pilot metadata exchange: May-Oct 2020



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## IAEG-SDGs

### Working Group on SDMX

#### SDG Data Structure Definition

SDG DSD v1.3 was released on 24 Dec 2020. **NEW**

The SDG Data Structure Definition can be downloaded using the links below.

- **SDG DSD:** This is the DSD in the SDMX-ML format, downloadable from the SDMX Global Registry
- **SDG DSD Matrix:** This is an Excel representation of the DSD. As of v1.1, the spreadsheet is implemented with the [SDMX Matrix Generator](#) tool, and can be used to customize and generate the DSD in the SDMX-ML format.
- **Guidelines for use of the Global SDG DSD:** This document contains additional information about the DSD and guidelines for its usage.
- **Guidelines for the customization of the Global SDG DSD:** This document contains information and recommendations on customization of the global SDG DSD for national use

SDG DSD Matrix V1.3

Global SDG DSD v1.3

SDG Dataflows and Content Constraints v1.3

Guidelines for the Global DSD for SDGs

Guidelines for the customization of the Global DSD

#### SDMX API

The [SDG Global Database](#) is available at the [UNSD SDMX Web Service](#). Please use the manual below for details on how to access the SDMX API. The SDMX API can also be queried via the [UNdata SDMX Browser](#).

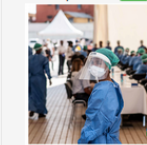
SDMX-SDGs API Manual

#### QUICK LINKS

2030 Agenda for Sustainable Development

SDGs Database

SDGs report 2020 **NEW**



SG's progress report 2020 **NEW**

[Arabic] [Chinese] [English] [French] [Russian] [Spanish]

Statistical Annex 2020 **NEW**

SDG Progress Chart 2020 **NEW**

[Arabic] [Chinese] [English] [French] [Russian] [Spanish]



Cape Town Global Action Plan for Sustainable Development Data

Dubai Declaration

Global data community's

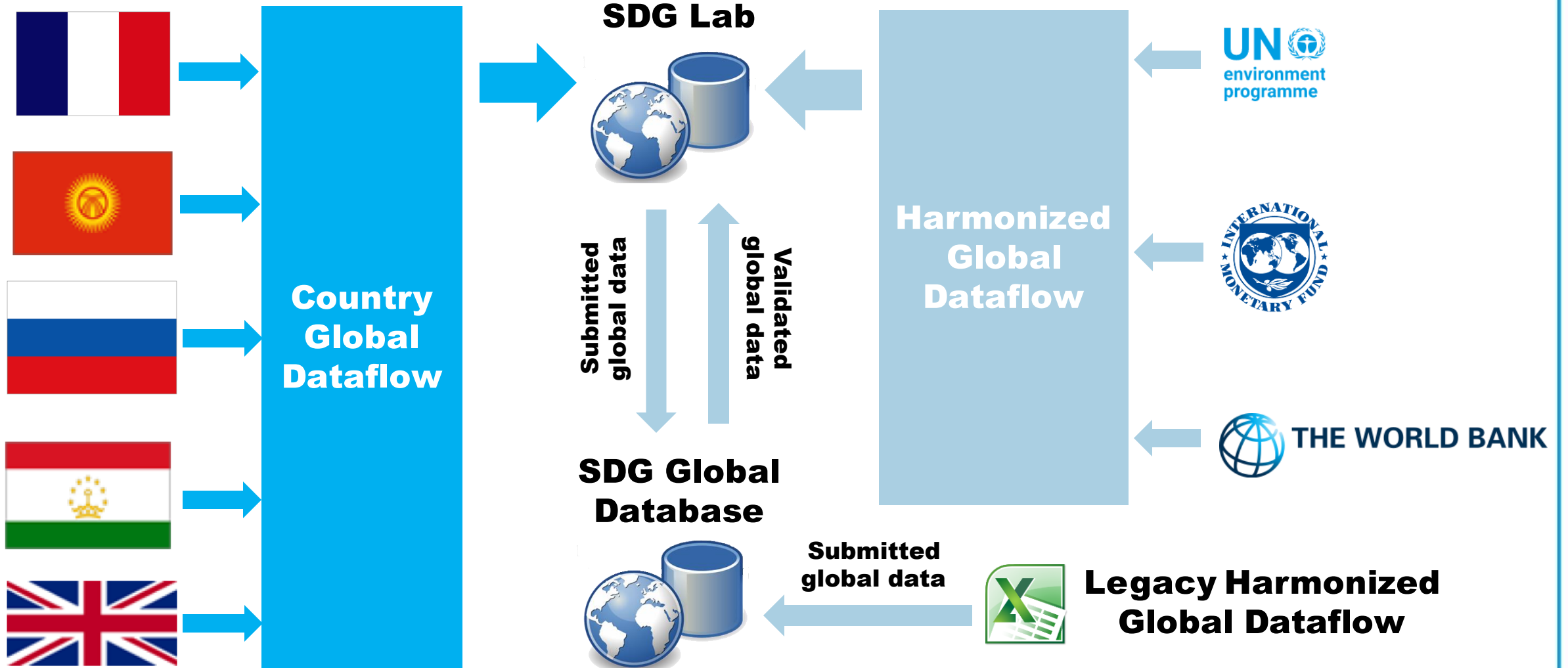
# Why use SDMX for SDG Indicators?

- A global standard Data Structure Definition, including concepts and code lists, facilitates interoperability and simplifies dissemination and reporting
- Guidance on the customization of the global DSD for national use
- A range of tools and platforms for structure maintenance, data authoring, dissemination
  - Including the Open SDG Platform, designed and optimized specifically for the dissemination of SDG indicators
- Exchange with the Global SDG Platform
  - Facilitates comparisons of country data and international harmonized data as well as metadata

# Status of the SDG data and metadata exchange

- SDMX-based data exchange established with about 5 custodian agencies, 26 countries
  - SDG Lab is the component of the Global SDG Platform that implements SDMX data and metadata exchange
- Current SDG DSD version 1.3
  - Up to 4 releases per year to reflect new data and disaggregation availability as well as revisions of the indicator framework
- DSD translated into Russian and used in several Russian language countries
  - Translation currently being peer-reviewed for publication
- As part of pilot metadata exchange was established with 2 custodian agencies and 5 countries
- Metadata Structure Definition being prepared for official release

# SDG Reporting Architecture



# Customization of the SDG DSD in countries

## Global SDG DSD:

- Used by both countries and SDG Custodian Agencies to submit their data to the SDG Lab through the global dataflows
- Supports the official global SDG indicators and their disaggregation

## National SDG DSDs:

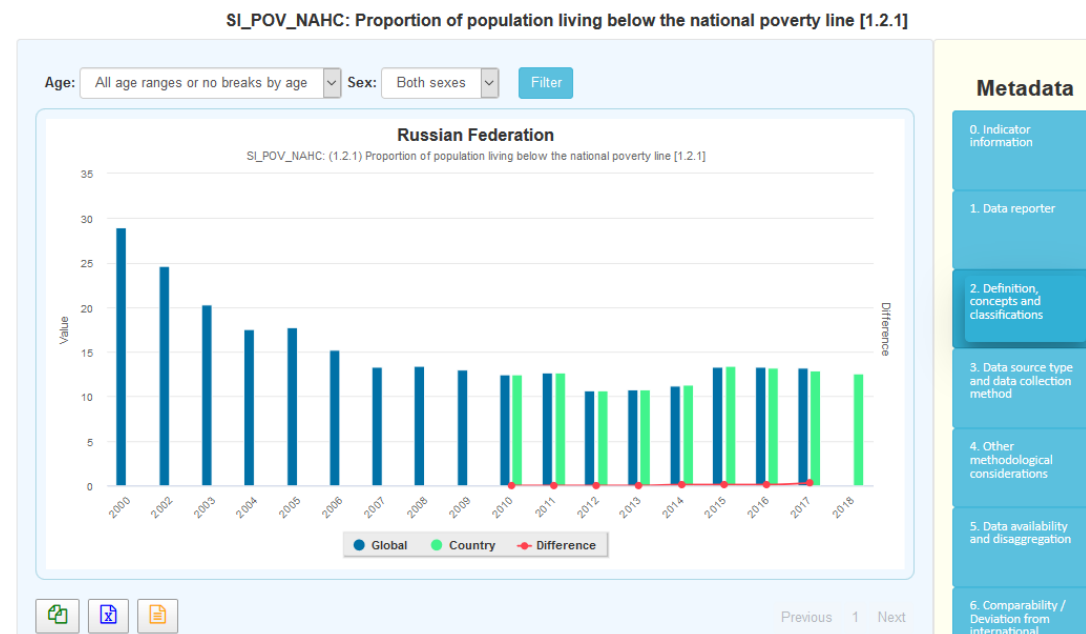
- Countries can create national customized DSDs by extending the global DSD with their own indicators and disaggregation, e.g. subnational reference areas or custom age groups, as well as national breakdowns
- Cannot be used to report to the SDG Lab
- Are used to disseminate the full national dataset in the SDMX format, as well as in support of dissemination platforms such as Open SDG
- Can be used to establish national SDG reporting dataflows



# SDG Lab



- The SDG Lab is an online platform established by UNSD to:
  - Allow the exchange of global SDG indicator data and metadata, by countries and SDG custodian agencies with UNSD.
  - Allow the comparison of country data against the harmonized global data provided by the custodian agencies.
  - Gradually replace other forms of data submission to the UNSD SDG Global Platform.
- SDG Lab is developed as part of the UNSD-FCDO Project on SDG Monitoring and is open to all countries
- Data exchange has been established with about 29 countries so far, and metadata exchange with about 5



# SDG Reference Metadata pilot

- In general, reference metadata are typically exchanged as Word or Excel files
  - No machine readability, no support for API
- In 2020, UNSD undertook a groundbreaking pilot project on SDMX-based reference metadata exchange for SDG indicators
  - In close cooperation with the World Bank and with participation of other members of the SDMX-SDG WG
- Users still complete a Word-based, structured template. The template is then processed by an authoring tool that extracts rich metadata text and converts it to SDMX, which can then be uploaded to the SDG Lab
  - Those who so wish can skip the template and submit SDMX retrieved from their systems
- Metadata submitted to the SDG Lab is automatically available at the SDMX API
- Plans are in place to introduce production metadata exchange in the second half of 2020

## Tools and platforms in support of SDMX reporting

- A range of tools exist that can be used to support SDMX reporting in various infrastructure environments
- Some of the commonly used free tools include:
  - Eurostat's **SDMX Converter** and **ILO SMART**, which enable mapping data in Excel, CSV, or similar formats to a DSD and its conversion to SDMX
  - Eurostat's **SDMX Reference Infrastructure (SDMX RI)**, which enables mapping a database to a DSD and subsequently automatically establishing an SDMX API
  - **ILO DSD Constructor** and **OECD SDMX Matrix Generator**, which facilitate DSD maintenance

# SDMX for dissemination of SDG data

- A number of free-to-use and commercial platforms have been developed for dissemination of SDMX data
  - **.Stat**, an open-source platform developed by a community led by OECD
  - **Istat SDMX Toolkit**, open-source, developed by the Italian National Institute of Statistics
  - **Fusion Registry Enterprise Edition**, a commercial product developed by Metadata Technology
- The **Open SDG** platform, open source, was specifically developed for the dissemination of SDG indicators
  - Supports the dissemination of SDG indicators in conformance with either global SDG DSD national customized DSD

# Capacity Building

- SDGs is one of the most active areas globally in SDMX capacity building
- Extensive training provided to 20 countries thanks to the UK funding as part of the UNSD-FCDO Project on SDG Monitoring, 2017-2021
  - SDMX Exchange and dissemination platforms have or will be established in all project countries
- Large-scale SDMX Training, based on the SDG data structures and exchange, as part of the 2019 SDMX Global Conference in Budapest, Hungary, jointly organized by UNSD-Eurostat
- Regional workshops on SDMX for SDG indicators with UNECE, UNESCAP, UNECA, UNECLAC as part of the UN Development Account 10<sup>th</sup> Tranche Project, 2017-2021
- Basic and advanced SDMX training for SDG indicators jointly organized by UNSD-AfDB
- Two large-scale webinars for the UNESCWA region countries in 2020
- Joint UNSD-UN Women SDMX workshops with a focus on SDG gender indicators, 2018-2020

# The way forward

- The SDG Global Platform is open for use by all countries and custodian agencies
  - The number of reporters using SDMX for data exchange continually grows
- SDMX for metadata exchange to be put in production in the second half of 2021
- Data and metadata structures to be updated for SDMX 3.0 following its release
  - Simplified metadata exchange
  - Improved data validation
  - Current SDMX 2.1 data exchange to be maintained for current reporters
- Global SDG Data and Metadata Structure Definitions to be continually updated to reflect new indicator and disaggregation availability as well as revisions of the global SDG Indicator Framework
- Continued capacity building for the UN Member States in SDMX data and metadata exchange for SDG indicators
  - E-learning course to be developed by mid-2021

## Links and resources

- SDMX-SDG Working Group: <https://unstats.un.org/sdgs/iaeg-sdgs/sdmx-working-group/>
- A list of SDMX Tools: [https://sdmx.org/?page\\_id=4500](https://sdmx.org/?page_id=4500)
- SDMX Converter: <https://circabc.europa.eu/w/browse/76a63fc2-3d22-42cc-85f2-4f6f30b4d8eb>
- SDMX RI: <https://circabc.europa.eu/w/browse/1c958330-ae5b-42e0-b7dd-3d77a0141194>
- SMART: <http://www.ilo.org/ilostat/tools/smart/index.html>
- DSD Constructor: <http://www.ilo.org/ilostat/tools/dsdConstructor/Install.htm>
- Matrix Generator: <https://gitlab.com/sis-cc/sdmx-matrix-generator>
- SDMX ISTAT Toolkit: <https://github.com/SDMXISTATTOOLKIT>
- Fusion Registry and other community tools: <https://metadatatechnology.com/community/>

Thank you!