United Nations E/CN.3/2023/26

Economic and Social Council

Distr.: General
12 December 2022

Original: English

Statistical Commission
Fifty-fourth session
28 February–3 March 2023
Item 5 (d) of the provisional agenda*
Items for information: statistics on science, technology and innovation

Report of the Institute for Statistics of the United Nations Educational, Scientific and Cultural Organization on statistics on science, technology and innovation

Note by the Secretary-General

In accordance with Economic and Social Council decision 2022/324 and past practices, the Secretary-General has the honour to transmit the report of the Institute for Statistics of the United Nations Educational, Scientific and Cultural Organization on statistics on science, technology and innovation.

The report contains updated information on recent developments in the measurement of international science, technology and innovation statistics. In particular, it contains information on the current science, technology and innovation statistics programme strategies, directions and priorities of the Institute, covering the areas of data collection, methodological developments and capacity-development activities and placing specific emphasis on current and future challenges.

The Statistical Commission is invited to take note of the report.

* E/CN.3/2023/1.

22-28052 (E) 291222

Report of the Institute for Statistics of the United Nations Educational, Scientific and Cultural Organization on statistics on science, technology and innovation

I. Introduction

1. The present report, prepared by the Institute for Statistics of the United Nations Educational, Scientific and Cultural Organization (UNESCO), is submitted in response to the regular request of the Statistical Commission. Previous reports were submitted in 2004 (E/CN.3/2004/15), 2008 (E/CN.3/2008/21), 2013 (E/CN.3/2013/22) and 2018 (E/CN.3/2018/29). The present report contains updated information on recent developments in the measurement of international science, technology and innovation statistics. In particular, it contains information on the current science, technology and innovation statistics programme strategies, directions and priorities of the Institute, covering the areas of data collection, methodological developments and capacity-development activities and placing specific emphasis on current and future challenges.

II. Institute for Statistics

2. The Institute is the lead agency in the United Nations system for the global collection and dissemination of statistics on science, technology and innovation. In line with the medium-term strategy for the period 2022–2029, the core activities of the science, technology and innovation statistics programme are focused on supporting evidence-based policy and monitoring of progress towards the Sustainable Development Goals. This is achieved through the collection, analysis and dissemination of internationally comparable data and indicators, the development of new and the maintenance of existing norms, standards and methodologies, and the building of statistical capacity.

3. With the intention of establishing a sustainable programme of core work for the Institute, in 2020 its Governing Board approved a set of principles for prioritization, with the Member State-adopted Sustainable Development Goals global monitoring framework being the highest priority. For the science, technology and innovation statistics programme, the initial core set of indicators includes:

(a) Indicator 9.5.1: Research and development expenditure as a proportion of gross domestic product;

(b) Indicator 9.5.2: Researchers (in full-time equivalent) per million inhabitants.

4. With regard to data and indicators, in 2021 the Institute launched a revised annual survey of research and development statistics to collect data to support the global monitoring in relation to indicators 9.5.1 and 9.5.2. In addition, the new survey provides selected research and development data and indicators disaggregated by sex.

5. Efforts to increase response rates will be a priority for the next several years, with a focus on helping States to produce data for the purposes of reporting against indicators 9.5.1 and 9.5.2. Efforts will be focused on the production of resource documents and national statistical capacity-building activities.

6. The Governing Board directed the science, technology and innovation statistics programme to undertake a global consultation on the indicators produced from the survey. The consultation process consisted of, first, consultation with the UNESCO

science sector and, second, consultation with States members of UNESCO on the list emerging from the first stage.

7. The list of endorsed indicators arising from the consultation process will be included in the final list of the Institute's core science, technology and innovation data and indicators for production by the statistics programme. In 2020, the consultation with the UNESCO science sector was completed. The consultation with countries is in the planning stages.

8. The science, technology and innovation statistics programme will continue to develop international norms, standards and methodologies in the area of research and development statistics in order to support the improvement and development of such statistics at the country level. This work is focused primarily on contributing to the maintenance of international standards and methodologies such as the *Frascati Manual* prepared by the Organisation for Economic Co-operation and Development (OECD), which provides the guidelines for collecting and reporting data on research and development, as well as the OECD/Eurostat *Oslo Manual*, which contains the guidelines for collecting, reporting and using data on innovation.

9. The programme will continue to produce resource documents to support the development of research and development statistics at the national level. This will include the updating and revision of its country guide to conducting a research and development survey, which provides hands-on guidance.

10. The programme will continue to support capacity-building efforts at the country level through such modalities as:

(a) The holding of webinars;

(b) The production of massive open online courses;

(c) The production of improved training materials to support the science, technology and innovation core indicators;

(d) The delivery of online and/or in-country training workshops;

(e) The provision of technical advice to States in identifying and addressing institutional capacity gaps in line with the policy-led priorities identified in collaboration with the UNESCO science sector and field offices.

11. The Institute will reach out to other stakeholders to explore opportunities for increased collaboration in the area of national statistical capacity-building in science, technology and innovation. In addition to the UNESCO science sector, the Institute will reach out to organizations such as OECD, Eurostat, the Ibero-American Network on Science and Technology Indicators and the African Science, Technology and Innovation Indicators Initiative of the African Union Development Agency.

III. Current challenges

12. In the context of the medium-term strategy for the period 2022–2029, as well as current financial constraints, the science, technology and innovation statistics programme will need to be focused on the production of core data and indicators to support the global monitoring of target 9.5 of the Goals and, more importantly, to improve data coverage for the indicators. The table presents the scope of the Institute's research and development data collection and the coverage of the indicators by region.

13. The Institute administers its survey of research and development statistics directly to 124 countries. Data for the other countries are obtained from OECD (39),

Eurostat (7) and the Ibero-American Network on Science and Technology Indicators (25), covering the countries that participate in the data collection efforts of those organizations.

14. The table shows, by Goal region, the data coverage for the 124 countries that the Institute surveys directly. The coverage is calculated by counting the number of countries for which at least one data point for indicators 9.5.1 and 9.5.2 is available during the five-year period from 2016 to 2020.

15. For indicator 9.5.1, data are available for 43 per cent of the countries. For indicator 9.5.2, that figure is 37 per cent. The availability of data in some regions, including sub-Saharan Africa, Oceania and Latin America and the Caribbean (the Institute covers only those Caribbean countries that are not covered by the Ibero-American Network), is of concern and demonstrates that there are critical data gaps.

Data coverage for the indicators for target 9.5, by region

		Countries with at least one data point available between 2016 and 2020			
		Indicator 9.5.1		*Indicator 9.5.2*	
Region	*Countries covered by the Institute's survey*	*Number*	*Percentage*	*Number*	*Percentage*
Africa (sub-Saharan)	47	13	28	10	21
Asia (Central and Southern)	14	8	57	6	43
Asia (Eastern and South-Eastern)	14	10	71	9	64
Latin America and the Caribbean	8	–	–	–	–
Northern America and Europe	11	8	73	7	64
Oceania	9	1	11	1	11
Western Asia and Northern Africa	21	13	62	13	62
Total	**124**	**53**	**43**	**46**	**37**

16. Moving forward, the challenge for the science, technology and innovation statistics programme will be to address the need to increase the data coverage of those indicators to support effective decision-making and statistical capacity-building in countries. The Institute will closely follow the recommendations arising from the next annual multi-stakeholder forum on science, technology and innovation for the Sustainable Development Goals, to be held in May 2023, as well as of the high-level political forum on sustainable development, to be held in July 2023, at which in-depth reviews of five Goals, including Goal 9, will be held. Furthermore, it is important to consider the recommendations to be adopted at the next summit on the Goals (in September 2023), as that event will constitute the midpoint review of the implementation of the Goals, as well as at the other global events on the Goals in 2024, all leading up to the Goals review in 2025.

17. In addition, and more importantly, the programme will need to establish a stable financing model if it is to continue to serve States and global stakeholders sustainably.

IV. Conclusions

18. The programme is undergoing a transformation and repositioning in order to respond to the needs of the States members of UNESCO and the international community in the area of science, technology and innovation statistics. That

transformation has resulted in a new focus on key priority statistical areas of data and indicators, especially the production of indicators for target 9.5 of the Goals, as the core work of the programme. It also includes the establishment of a programme that is agile and engages in ad hoc, policy-relevant data collection and analysis in the area of science.

19. The programme will deliver its programme of work on statistics in the context of four key roles: (a) trusted producer; (b) expert voice; (c) coalition-builder; and (d) capacity-builder. In that context, the programme will continue to: (a) collect, analyse and disseminate internationally comparable science, technology and innovation data and indicators; (b) improve existing, and develop new, methodologies, standards and norms in science statistics; and (c) provide training and capacity-building in science, technology and innovation statistics to countries. To achieve this, it will remain innovative in its approach and improve current partnerships and seek out new ones.

V. Action to be taken by the Statistical Commission

20. **The Statistical Commission is invited to take note of the present report.**