Chapter II.G

Science, technology, innovation and capacity-building

1. Introduction

In a major expansion of the Monterrey Consensus, the Addis Agenda stresses the importance of science, technology and innovation (STI) for economic growth and sustainable development and highlights the need for capacity building. The Addis Agenda notes with concern the uneven innovative capacity, connectivity and access to technology that exists within and between countries. Commitments contained in Action Area II.G of the Addis Agenda aim to address these inequities, incentivize research and innovation for sustainable development and promote greater access to technologies through domestic policy and international cooperation.

Currently, access to technology is uneven and unequally distributed. For example, 74 per cent of populations in developed countries use the Internet, compared to only 26 per cent in developing countries. Developing countries and least developed countries (LDCs) in particular, spend significantly less on research and development (R&D) and international collaboration in science. Despite these gaps, the view that technology is developed in the North and simply transferred to the South is misleading. Most innovation involves incremental improvements and adaptations of existing technologies. Innovation, in this sense, is widespread in many developing countries, and firms in middle income countries, in particular, are responsible for a growing share of global R&D spending. Some low-income countries have also begun to develop domestic technological capacities. These experiences have underscored the importance of interactive learning, information exchange and coordination among governments, firms, universities, research centres and other actors in building an innovative economy.

The STI capabilities of a country depend not only on access to a growing stock of science and technology, but also on the quality of interactions among the innovation actors in what might be called the 'innovation system'. One of the major challenges in promoting technological innovation in developing countries is the lack of an appropriate innovation system to ease interaction among key actors, which is much more complex because it involves the formal sector — enterprises, universities, research institutes, the government and the financial system — along with non-governmental organizations and the informal sector, including grassroots innovators, and local and indigenous knowledge. Bridging the formal and informal sector is especially difficult in circumstances of high social disparities. An effective innovation system should encourage greater interaction between groups. Such a system should foster investment in advanced technology and promote the development of affordable technology to meet the needs of the poor. The Addis Agenda seeks to strengthen these interactions so as to improve the contribution STI makes to the achievement of sustainable development, including the SDGs.

2. Promoting information and communication technology, access to technology for all and social innovation

In addition to being an important technology sector in its own right, information and communication technology (ICT) is important for linking agents in the innovation system. The Addis Agenda promotes the use of ICT, greater access to technology for all and social innovation:

- *Commits to promote the development and use of information and communications technology, particularly in LDCS, LLDCs and SIDs, including rapid universal and affordable access to the Internet* ***(114, MoIs 5.b, 9.c, 17. 6, 17. 8)***
- *Commits to further facilitate accessible technology for persons with disabilities and to promote access to technology and science for women, youth and children* ***(114, 5.b)***
- *Commits to promote social innovation to support social well-being and sustainable livelihoods* ***(116)***

Advances towards fulfilling the commitments on development and use of ICT can be measured directly by development and use of ICT infrastructure. The expansion of skill levels can also inform measurement of this commitment, as this increases the capacity for effective ICT use. Four SDG indicators on ICT infrastructure provide a basis for follow-up. They include: *proportion of population covered by a mobile network, by technology* (9.c), *proportion of individuals who own a mobile telephone, by sex* (5.b), *fixed Internet broadband subscriptions per 100 inhabitants, by speed* (17. 6.2) and *proportion of individuals using the Internet* (17.8). Two additional indicators can serve as proxies to measure advances in the level of skills in use of ICT: *proportion of youth/adults with ICT skills, by type of skills* (4.4.1) and *proportion of schools with access to the Internet and computers for pedagogical purposes* (4.a.1).

Monitoring of Addis Agenda commitments on ICT can also draw on the World Telecommunication/ICT Indicators database, which is maintained by the International Telecommunication Union (ITU). It includes over 180 telecommunication and ICT indicators for 200 economies, to track global developments on ICT infrastructure, access, use and prices. In addition to the SDG indicators tracking ICT infrastructure, it will be useful to monitor developments on International Internet bandwidth per inhabitant. Data on broadband Internet prices can also be monitored. ITU collects data on both fixed and mobile broadband prices annually in most countries, including LDCs.

The data for the indicators noted above could also provide information about disparities among groups if they are collected on a disaggregated basis by gender and age, as well as for rural and urban areas. Mobilizing the information to calculate "parity indices" (building on indicator 4.5.1: *parity indices (female/male, urban/rural, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected as data become available)*), such as for measuring the skills needed to take advantage of specified technologies would prove useful. In the case of the disabled, this could include data for monitoring the availability of relevant assistive devices and technology drawing on disability data from the World Health Organization.

Governments also committed to promote social innovation as a way to support social well-being and sustainable livelihoods. Within this context, a bottom-up approach of pro-poor innovation can tie in with the growing interest from both the public and private sectors in social enterprises and social ventures from grassroots innovation. Monitoring this commitment will require a shared definition of "social innovation" and the development of indicators that show how social innovation contributes to social well-being and sustainable livelihoods. Considerations may include the results of the revision of the Organization for Economic Cooperation and Development (OECD)/Eurostat's Oslo Manual, the adaptation of the Bogota Manual, and the experiences of the European Commission. Additional data will be needed to more directly assess progress in this area, such as on social innovation strategies or social entrepreneurship policies adopted by countries. Currently, as this is an emerging field, no source reports such data. Public presentations of social innovation strategies at international forums such as the United Nations Commission on Science and Technology for Development (CSTD) or country and regional case studies could supplement reporting on advances in these commitments.

3. Developing national policy frameworks for science, technology and innovation

In the Addis Agenda, Governments:

- *Commit to adopt science, technology and innovation strategies as integral elements of*

our national sustainable development strategies ***(119)***

- *Commit to craft policies that incentivize the creation of new technologies, that incentivize research and that support innovation in developing countries* ***(116)***

There is currently no source reporting the number of countries that have adopted legislative, administrative and policy frameworks for national STI strategies, the number of countries covered by independent reviews of national STI policy frameworks or the degree to which such strategies are integral elements of national sustainable development strategies. However, information on STI policy frameworks could be gleaned from public presentations of national STI policies at international forums, such as the annual meetings of the United Nations CSTD, where national STI policy reviews conducted by the United Nations Conference on Trade and Development (UNCTAD) are discussed. It is important to note, however, that such presentations are not mandatory and are not universal in coverage. The United Nations Educational, Scientific and Cultural Organization (UNESCO) is building a global database on STI policy instruments, legislation and institutional frameworks, in the framework of its GO->SPIN Programme, which may serve as an additional source of information for direct monitoring of these commitments in future.

To get a clear picture, country reporting on national STI strategies, their place within national strategies for sustainable development, and the programmes put in place to implement them would be helpful. National policy documents, which generally give high-level strategic policy directions, could be the initial source of information for such monitoring; however, the stated intentions in these documents need to be complemented by other analyses, including of a qualitative character, to obtain a more nuanced picture of the intended role of public policies in promoting innovation for sustainable development. Regional commissions could provide an additional source of information, for example based on national STI legislative gap analysis in the Economic and Social Commission for Western Asia (ESCWA) region.

The above approach aims to directly measure the adoption of STI strategies. A different approach that would give information on the innovative process in a country would be to draw inferences on national STI strategies from ongoing activities. Several SDG indicators are designed to do this, including: *R&D expenditure as a proportion of GDP* (9.5.1); *proportion of medium and high-tech (MHT) industry value added in total value added* (9.b); and *number of science and/or technology cooperation agreements and programmes between countries, by type of cooperation* (17.6.1).

For example, an increase in the share of medium and high-tech industry in value added would reflect a structural shift towards higher-technology industries. The information provided by this indicator could be complemented by measuring the degree of technology of traded goods (primary products, low-technology, etc.), participation of ICT products on the level of exports and imports, and measures related to concentration and diversification of trade. Taken together, these would provide a more comprehensive understanding of the output of the innovation process and STI policies. Such data is collected and prepared by UNCTAD and is available at country (covering more than 200 economies) and product group level since 1995. R&D statistics and indicators, such as 9.5.1 and other indicators collected and published yearly by UNESCO, give insights into the amount of research activities. However, other types of innovations that are not R&D-based or R&D-intensive and that are very relevant in developing countries also need to be considered. More detailed information about the R&D sector would provide a better indication of the status of policies and such data are usually collected at the national level, including in the UNESCO Institute for Statistics' global R&D database.

UNESCO also maintains a global database for innovation data, which contains information on firm level collaboration, among other indicators, covering this broader and more comprehensive perspective of innovation. Data could also be mobilized in research publications by country of residence of authors, which would need to come from commercial databases, such as Elsevier or Thomson Reuters. All these statistics are currently published and analysed every five years in the global UNESCO Science Report.

A measure of the institutional capacity to put in place coherent policy frameworks for STI would also be desirable. Country reporting on an innovation council/ministry or agency that leads and oversees the design and evaluation of national STI policies may be an option. However, given the variety of institutional frameworks that can be used to promote coherent policies, and the fact that the existence of an agency does not guarantee a coherent policy framework, it may be more relevant to look at measures to strengthen STI policies and increase their coherence. However, as of today, such measures are unavailable.

International support for developing coherent policy frameworks for STI, which is meaningful for a large number of developing countries, could be measured through the percentage of official development assistance (ODA) resources committed to support science, technology and innovation. This would provide an accurate insight regarding the level of financial commitments. The classification currently used in ODA reporting does not specifically distinguish ODA committed to STI policy frameworks. As a proxy, aid to cross-cutting research and scientific institutions, and aid to sector-specific research in agricultural extension, agricultural research, construction, education, employment, energy, environmental policy and management, finance, fishery, forestry research, health, industry, mineral/mining, public sector, tourism and transport could be monitored. The comprehensive mapping of existing STI initiatives, mechanisms and programmes currently carried out by the United Nations Inter-agency Task Team on Science, Technology and Innovation for the SDGs will further contribute to monitoring international support in this area.

4. Creating a more enabling environment for science, technology and innovation

Efforts to promote STI are related to other policy efforts, such as competition, education, investment, tax and trade policies. For instance, education policy has a major impact on university research and the availability of highly skilled labour in technology intensive firms. Education policies, the intellectual property rights (IPR) regime and a range of other policies are important contributors to an enabling environment for STI, while the international environment needs to be supportive as well.

On education, the Addis Agenda:

- *Commits to enhance technical, vocational and tertiary education and training, ensuring equal access for women and girls and encouraging their participation therein, including through international cooperation* ***(119, SDGs 4.3, 4.4, 4.5)***
- *Commits to scale up investment in science, technology, engineering and mathematics education* ***(119)***
- *Commits to enhance cooperation to strengthen tertiary education systems and aim to increase access to online education in areas related to sustainable development* ***(119)***
- *Commits to increase the number of scholarships available to students in developing countries to enrol in higher education* ***(119, MoI 4.b.)***

SDG indicator 4.3.1 (*participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex*) provides a general assessment of access to education. Additional and more specific information could be obtained from sources such as the World Development Indicators and SABER/EdStat, an initiative of the World Bank Group to develop comparative data and knowledge on education policies and institutions. The commitment to scale up investment in science, technology, engineering and mathematics (STEM) education can be monitored by changes in the number of PhD graduates or students enrolled in tertiary education by broad field of study, which is reported by the UNESCO Institute for Statistics.

Assessment of equal access for women and girls could draw on indicator 4.5.1 (*parity indices*). UNESCO is also currently developing new indicators about the dynamics that shape women's decisions to pursue STEM careers, which could inform future monitoring by the Task Force. Information about the quality of education is more difficult to obtain. International evaluations such as the Programme for International Student Assessment (PISA) can provide inputs, but PISA covers only 70 countries.

Countries have also committed to complementing domestic efforts through international

cooperation. Progress towards enhancing cooperation to strengthen tertiary education systems could be measured through the volume of ODA devoted to post-secondary education. SDG means of implementation indicator 4.b (*volume of ODA flows for scholarships by sector and type of study*) would also provide useful information for monitoring this commitment, while outcome indicators as discussed above can further complement monitoring in this area. The commitment to increase the number of scholarships will be monitored by the means of implementation indicator 4.b mentioned above.

An important element of the enabling environment is the IPR framework. The Addis Agenda

- *Recognizes the importance of adequate, balanced and effective protection of intellectual property rights in both developed and developing countries in line with nationally defined priorities and in full respect of World Trade Organization rules* ***(116)***

The World Intellectual Property Organization (WIPO) is the United Nations specialized agency mandated to lead the development of an effective and balanced IPR system for the cultural, social and economic development of all. The Task Force will be able to draw on data compiled and analysis carried out by WIPO.

The WIPO Office of Chief Economist produces the annual Global Innovation Index, using disaggregated data to assist policy makers to understand their national innovation strengths and weaknesses, and to learn from the best practices and strategies adopted by countries at similar stages of development. WIPO also publishes annual reports, including the World Intellectual Property Indicators and World Intellectual Property (IP) Facts and Figures, that chart the evolution of the international IP system on an annual basis to help policy makers and stakeholders assess progress at national and regional levels.

The WIPO Statistics Database contains data provided by national and regional IP offices. The data are collected at an aggregate level by various breakdowns such as number of patent filings or grants by office and origin. In addition, the Statistics Database contains data compiled by WIPO during the application process of international filings through the Patent Cooperation Treaty (patents), the Madrid System (trademarks) and the Hague System (designs). The Task Force can draw on these publications and the underlying dataset in its monitoring efforts.

5. Institutions and mechanisms to strengthen science, technology and innovation

Governments recognized in the Addis Agenda that various mechanisms can be used to incentivize and finance STI, including institutionalized or ad hoc partnerships among relevant stakeholders, innovation funds, business incubators and international support, and support to the traditional knowledge, innovation and practices of indigenous peoples.

5.1. National level

At the national level, the Addis Agenda:

- *Encourages knowledge-sharing and the promotion of cooperation and partnerships between stakeholders, including between Governments, firms, academia and civil society, including linkages between multinational companies and the domestic private sector to facilitate technology development and transfer, on mutually agreed terms, of knowledge and skills* ***(117, MoI 17.17)***
- *Commits to consider setting up innovation funds where appropriate, on an open, competitive basis to support innovative enterprises, particularly during research, development and demonstration phases* ***(118)***
- *Commits to promote entrepreneurship, including supporting business incubators* ***(117)***
- *Recognizes that traditional knowledge, innovations and practices of indigenous peoples and local communities can support social well-being and sustainable livelihoods, and reaffirms that indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions* ***(117, SDG 2.5)***
- *Commits to consider using public funding to enable critical projects to remain in the public*

domain and strive for open access to research for publicly funded projects, as appropriate ***(118)***

There are a number of challenges and opportunities in setting out to monitor actions to promote such mechanisms. For example, the indicator for target 17.17 refers to the *amount committed to public-private partnerships and civil society partnerships, expressed in US dollars*, which is much broader than the commitment in this chapter. This would combine in one aggregate number the various forms of collaboration between the public and the private sectors and civil society, without differentiating their purpose. Moreover, partnerships between private agents, where the public sector may play a catalytic role without joining the partnership, are also relevant to promote innovation.

Innovation funds exist in a number of countries but one should be cautious when assessing these initiatives, as they can include very different practices with different implications for investment in innovation. For example, differences in risk tolerance as well as the type of financing provided (grants, equity or debt) will affect how the investment fits into the innovation cycle. This diversity may reflect policy preferences, the characteristics of the national institutional setting or the relevance of different forms of support at various stages of development.

Data to monitor these issues are not readily available in many countries and comparability remains a concern, which complicates interpretation. There are, nevertheless, experiences on which to build. The United Nations Economic Commission for Europe carries out a programme of innovation performance reviews in countries with economies in transition that examines, among other things, different policy initiatives to channel finance for innovation, including through the promotion of various types of partnerships, innovation funds or business incubators. The statistical evidence is collected through official statistics and information collected from agencies running different programmes, as well as from education and research institutions.

Quantitative data in these areas need to be complemented by qualitative appraisals to assess progress. While data are often patchy and definitions change, the almost exclusive role of public authorities in driving the initiatives makes collecting information easier. For example, innovation funds are often linked to government innovation programmes with associated mandates and performance indicators for implementing organizations, which can facilitate monitoring the innovation funds per se. The Task Force can also draw on case studies, such as from the Asia Pacific region, where the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) is monitoring national governments' efforts to nurture innovation and start-ups, and industry-academy partnerships, or the Western Asia region, where National Technology Transfer and Development Networks and Offices are being established to support cooperation of the various players in the STI landscape. As UNESCO's GO->SPIN database is extended to additional countries, the information it collects on national innovation funds will provide additional data for the Task Force.

As regards monitoring the development of business incubators, there is a challenge as to how public resources are channelled, due to the high degree of decentralisation, although the information provided by major universities can also be important. For a number of countries, this information can be combined with data on perceptions of venture capital availability and university-industry relations as used in the Global Competitiveness Index of the World Economic Forum. In some countries, innovation programmes have also targeted closer linkages between the domestic sector and multinational enterprises to foster innovation but these efforts are rather limited and evidence of impact remains elusive.

The contributions of the traditional knowledge, innovations and practices of indigenous peoples, and the related reaffirmation of indigenous peoples' rights could be monitored by drawing on the data collected in the context of monitoring the Aichi Biodiversity Targets. Indicators developed for Aichi Target 18 in particular (by 2020, the traditional knowledge, innovations and practices of indigenous peoples and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous peoples and

local communities, at all relevant levels) can serve to inform the Task Force report. WIPO maintains a Database of Biodiversity-related Access and Benefit Sharing Agreements, and a Database on Laws, treaties and regulations on the protection of traditional knowledge and traditional cultural expressions, and legislative texts relevant to genetic resources. These may contribute to qualitative appraisals, rather than quantitative data.

Governments also committed in the Addis Agenda to consider using public funding so that critical projects would be in the public domain. Monitoring this commitment will require careful assessment to identify which projects are considered "critical", which may depend on country circumstances. One option would be to survey the existence of legislation or regulations that mandate open access for publicly funded research. This information could be partially found in the UNESCO GO->SPIN database, which could be adapted for that purpose. Country case studies on experiences with measures to make publicly funded research publicly accessible could also serve to inform monitoring in this area.

5.2. International level

At the international level, countries commit to support the efforts of developing countries to strengthen their scientific, technological and innovative capacity. Specifically, countries commit to:

- *Enhance international cooperation in these areas, including ODA, in particular to LDCs, LLDCs, SIDS and countries in Africa and* ***e****ncourage other forms of international cooperation in these areas, including South-South cooperation* ***(120) (MoI 17.6)***
- *Endeavours to step up international cooperation and collaboration in science, research, technology and innovation, including through public-private and multi stakeholder partnerships, and on the basis of common interest and mutual benefit, focusing on the needs of developing countries and the achievement of the sustainable development goals (e.g. research and development of vaccines and medicines, including relevant initiatives like GAVI; preventive measures and treatments for the communicable and non-communicable diseases; earth observation; rural infrastructure; agricultural research and extension services and technology development; increase scientific knowledge, develop research capacities and transfer marine technology)* ***(120, 121, MoI 2.a, 3.b, 14.a)***
- *Endeavours to support developing countries to strengthen their scientific, technological and innovative capacity to move towards more sustainable patterns of consumption and production through science and technology* ***(120, MoI 12.a.)***

To capture enhanced international cooperation, the OECD statistics on sector allocation of ODA may be helpful, drawing upon the OECD creditor reporting system, which collects data from individual projects and programmes. This would allow monitoring of ODA flows to relevant subsectors such as R&D in health, education and agriculture, in particular agricultural research, agricultural extension, forestry and fishery research; energy and other sectors; information and communication technology; and multi-sector education, training, research and technology projects. In addition, the Secretary-General's annual Report on South-South Cooperation brings together monitoring work undertaken in this regard by United Nations agencies, programmes, and specialized funds. For the Asia-Pacific region, ESCAP can also highlight collaboration efforts in the context of regional and sub-regional STI platforms, and similar reporting could be carried out for other regions. The indicator for means of implementation target 17.6: *number of science and/or technology cooperation agreements and programmes between countries, by type of cooperation* could capture another aspect of international collaboration in STI. Another possibility would be to monitor the amount and percentage of their regular budget that international organizations devote to STI programmes.

Monitoring STI cooperation in specific sectors, including agriculture and health would also be pertinent. The indicator for target 2.a (*agriculture orientation index for government expenditures*) focuses on domestic spending and thus will have to be complemented by additional data on international cooperation and partnerships in agricultural research and extension services and technology development. OECD data on ODA for agricultural education,

training and research is one such data source. The UNESCO Institute for Statistics collects R&D data broken down by field of research, where agricultural and veterinary sciences is one of the six fields of R&D reported.

An additional data source is agricultural R&D data collected in the framework of the ASTI (Agricultural STI) project run by the International Food Policy Research Institute. Specific funds and facilities can also be highlighted, such as the World Food Programme's Food Security Climate Resilience (FoodSECuRE) Facility, as a case study for agricultural partnerships, and CGIAR, the global agricultural research partnership.

In the health sector, indicator 3.b.2 (*total net official development assistance to medical research and basic health sectors*) would report on ODA flows for medical research. To complement this and cover support of R&D of vaccines and medicines, the work of GAVI, the Vaccine Alliance, and other international initiatives would be relevant. Support to developing countries to strengthen their STI capacities for sustainable patterns of production and consumption will be measured in indicator 12.a.1 (*amount of support to developing countries on R&D for sustainable consumption and production and environmental sound technologies)*. This should be complemented by monitoring ODA flows to green energy and other relevant projects, and through case studies of other cooperation projects in this area. The indicator for marine technology 14.a.1 (*proportion of total research budget allocated to research in the field of marine technology*) focuses on domestic spending, which the Task Force report can further complement by bringing in a cross-border perspective.

6. Technology transfer

The Addis Agenda commits to a range of actions with the aim to directly and indirectly foster the development, dissemination and diffusion of technologies to promote sustainable development. Specifically, the Addis Agenda:

- *Commits to transfer marine technology in order to improve ocean health and to enhance the contribution of marine biodiversity* ***(121, MoI 14.a)***
- *Encourages the development, dissemination and diffusion as well as transfer of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed* ***(120, MoI 17.7)***

These commitments find their counterpart in means of implementation targets 14.a and 17.7. Indicator 17.7.1 (*total amount of approved funding for developing countries to promote the development, transfer, dissemination and diffusion of environmentally sound technologies*) can provide a basis for follow-up on technology transfer, while the indicators for MoI 14.a do not directly address the issues covered in this section. The development and diffusion of technologies is crucial to meeting the challenges of climate change and sustainable development, and fostering a rapid transition to a low-carbon economy. It is a broad and complex process which represents more than just the moving of equipment and other so-called "hard" technologies, but also includes know-how, goods and services, and institutional procedures, and is influenced by enabling or hindering policies.

Activities on environmentally sound technologies (EST) are confronted with varying and, at times, scarce data and indicators available to quantify their impacts. Many projects have long-term, diffuse impacts that are challenging to measure, assess and accurately attribute, which is why the Inter-agency and Expert Group on Sustainable Development Goals chose the total approved funding of initiatives as a general proxy indicator. Agencies conducting initiatives that directly support the transfer of EST (such as the United Nations Environment Programme) should be able to report on this indicator by quantifying initiative funding, in addition to being able to provide procedural reporting inputs on their activities, as well as substantive reporting on trends and issues in future years. EST initiatives (such as the Climate Technology Centre and Network, the International Environmental Technology Centre, United for Efficiency, En.Lighten, Global Fuel Economy Initiative, and WIPO GREEN) use different output and impact data and indicators to assess their success, which relate to the specific initiative objectives. In addition to EST, several organizations of the United Nations system promote the

transfer of other technologies, such as aviation security technology from the International Civil Aviation Organization.

With respect to marine technology, the Intergovernmental Oceanographic Commission of UNESCO is mandated as a United Nations body to promote scientific research, capacity development and facilitate the transfer of marine technology. The *Global Ocean Science Report* (GOSR) will function as a monitoring framework to assess national and regional investment in marine research and related capacities. Disaggregated data to be included in the GOSR will include investment in ocean science, and in particular expenditure on R&D in general and ocean R&D specifically, indicators related to human resources, gender distribution, facilities/laboratories/field stations, and availability of key equipment. The report will also include descriptors on geographical and thematic coverage of international, national, regional and local databases and the different user communities; research productivity and science impact, including peer-reviewed publications; and engagement in international collaboration. The data to be used to populate these indicators will be derived from national surveys, as well as existing Intergovernmental Oceanic Commission programmes on ocean observation and ocean data exchange (Global Ocean Observing System and International Oceanographic Data and Information Exchange), as well as the UNESCO Science Report, Institute for Statistics and the OECD.

7. Actions within the United Nations or by the United Nations system

The Addis Agenda commits to a range of actions within or by the United Nations system in order to strengthen overall cooperation and support on science, technology and innovation. Specifically, the Addis Agenda:

- *Commits to strengthen coherence and synergies among science and technology initiatives within the UN system* ***(122, 17.6)***
- *Established a technology facilitation mechanism to support the SDGs* ***(123, MoI 17.6)***
- *Commits to operationalize the Technology Bank for Least Developed Countries by 2017* ***(124, 17.8)***

These commitments are partly covered in two means of implementation targets under SDG 17 to strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.

7.1. Implementation of the Technology Facilitation Mechanism

The Technology Facilitation Mechanism (TFM), mandated by paragraph 123 of the Addis Agenda and launched by paragraph 70 of the 2030 Agenda for Sustainable Development, consists of a United Nations Inter-agency Task Team on Science, Technology and Innovation for the SDGs (IATT), a collaborative Multi-stakeholder Forum on Science, Technology and Innovation to be convened by the Economic and Social Council (ECOSOC) President, as well as an online platform as an information gateway to STI initiatives within and beyond the United Nations. Work on the TFM is progressing well: the IATT has been established and currently includes 29 members of the United Nations system; the 10-Member Group to Support the TFM, consisting of high-level representatives of science, civil society and the private sector, has been appointed by the Secretary-General and is collaborating with the IATT and the ECOSOC presidency to prepare the first STI Forum, which will take place from 6 to 7 June 2016 in New York. Reporting on the implementation of the TFM will be process-oriented and will be conducted by the IATT.

7.2. Enhanced coherence of science, technology and innovation support measures in the United Nations system

With respect to the mid- to long-term objective of increasing coherence and strengthening synergies among science and technology initiatives within the United Nations system, the establishment of the IATT constitutes the first system-wide mechanism that can contribute to coordination, knowledge sharing and exchange of experiences, as well as joint work on STI among those United Nations entities with activities and mandates relating to STI. The IATT is currently engaging in a mapping of STI

initiatives within and beyond the UN system, to enable further discussions on potential synergies. In general, there are limitations with regard to easily accessible data that would enable a quantification of synergies and coherence in the United Nations system's STI initiatives. As such, reporting will most likely be process-oriented and/or focus on qualitative factors. The question of how to potentially measure system coherence and synergy in the field of STI will be part of future discussions in the IATT.

7.3. Establishment of the Technology Bank

The Instanbul Programme of Action called for the establishment of a Technology Bank and a Science, Technology and Innovation Supporting Mechanism for the LDCs, for which a feasibility study has been prepared. The Secretariat is pursuing the identification of perspective Council members, sources of voluntary funding and the finalization of legal requirements, including the conclusion of a host country agreement, so as to ensure the timely operationalization of the Technology Bank and Science, Technology and Innovation Supporting Mechanism for the LDCs in 2017. Reporting on the implementation of the Technology Bank will be process-oriented and will be conducted by the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (OHRLLS). Contingent on the availability of data, OHRLLS will also monitor the number of patents filed by residents and non-residents in LDCs, the number of scientific and technical journal articles by authors from LDCs, and ODA for science, technology and innovation to LDCs in future reports.

8. Capacity building

The Addis Agenda and the 2030 Agenda recognize capacity development as an integral part of the global partnership for sustainable development. The Addis Agenda contains commitments to capacity building in each of its seven action areas, as well as on data and statistics. In addition, there is an overarching commitment contained in paragraph 115 of this chapter on STI and capacity building. In the Addis Agenda, governments:

- *Call for enhanced international support and establishment of multi stakeholder partnerships for implementing effective and targeted capacity-building in developing countries* ***(115, SDG 17.9)***
- *Commit to reinforce national efforts in capacity-building in developing countries* ***(115)***

The monitoring of capacity building efforts can draw on broader efforts to monitor development cooperation — official development assistance by traditional donors, South-South cooperation, UN agency efforts, and philanthropic efforts. In each of these efforts, capacity building plays an important role. The indicator for SDG 17.9, *dollar value of financial and technical assistance, (including through North-South, South-South and triangular cooperation) committed to developing countries*, will also serve to provide a broad perspective on trends in capacity building.

The capacity-building efforts of traditional donors can be monitored through OECD Development Assistance Committee data. Although a specific indicator for analysing ODA in support of capacity building and technical assistance does not currently exist, OECD Common Reporting Standard statistics allow for analysis of support to capacity building and technical assistance through the purpose code system which is disaggregated by recipient country and donor country on a commitment and disbursement basis. Capacity building is also a major aspect of South-South cooperation. Projects including technical cooperation and capacity-building initiatives represent around 75 per cent of South-South cooperation, and broader trends in this area will thus be indicative of capacity development efforts as well.

International organizations also engage in capacity building. In this regard, Task Force members will report on their capacity building initiatives. There are numerous examples of capacity building by international organizations across the Action Areas of the Addis Agenda, on which the Task Force can report in case studies. The Task Force will also report on efforts to achieve better coherence and increase the effectiveness of capacity development. In addition, some international organizations periodically review or audit their own activities, which the Task Force can report on.