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Introducing the Report of the Secretary-General on Science, Technology and Innovation for Development

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Statement by
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Excellencies,

Distinguished Guests,

Ladies and Gentlemen,

Science, technology and innovation (STI), can be a catalyst for sustainable development. They not only form key targets of Goal 9, but are also fundamental in achieving almost all the Goals. Harnessed **effectively**, STI can propel developing countries toward inclusive and environmentally benign economic growth, while enabling advanced economies to shift towards more sustainable patterns of consumption and production.

It is on this premise, that the Report of the Secretary General synthesizes the trends in new and emerging technologies and their impact on sustainable development. It analyses in particular the technology megatrends comprising the so-called “fourth industrial revolution": big data; the Internet of things; three-dimensional printing, and digital automation.

The report also illustrates widespread benefits these technologies can bring. For example, we see satellites helping to monitor and provide early warning for natural disasters. Big data help to forecast and monitor disease outbreaks; Internet of things devices allow farmers to monitor soil conditions and decide when is the best time to plant; we hear about artificial intelligence diagnosing cancer more accurately than doctors; mobile payment systems are making financial services more accessible to farmers and others in remote locations; drones are used to deliver transfusion blood to rural clinics; and affordable renewable energy technologies bringing electricity to far-off areas.

We know that technology has the power to transform and create opportunities to support sustainable development. However, history has demonstrated that technologies can also exacerbate existing economic, social and technological divides.

Increased digitization across all sectors of the economy requires *old* but also *new* skills, and there is a real danger of disruption in labor markets and eradication of middle range jobs.

Digital automation of work, for example, is a topic that has generated much debate. On the one hand, automation enables machines to carry out mundane tasks, freeing people to be more creative and productive in other ways. But on the other hand, as artificial intelligence is increasingly able to do cognitive and not just physical work, we should not ignore the risk that this may potentially lead to a rise in unemployment in certain economic sectors in both developed and developing countries.

Similarly, 3D printing can benefit things like enterprise development, housing and construction, and education. However, it can *also* potentially disrupt employment and trade patterns, thus making it more challenging to achieve economic growth and decent work under Goal 8. 3D printing can also potentially have adverse environmental effects in terms of energy consumption and the reliance on plastics and inputs, which would thwart efforts to achieve responsible consumption and production patterns under Goal 12.

These are all critical issues which need to be understood and addressed to overcome the policy seesaw of getting the balance right between promoting innovation on one side, and safeguarding citizen's rights and well-being on the other. By recognizing the immense benefits of new and emerging technologies, and identifying and addressing the risks sensibly, we can overcome the reactionary emotions of fearmongering, technophobia and isolationism. It is in this constructive spirit, that we must continue to make a solid case for the benefits of multilateral collaboration, openness, and the transformative potential of technology, and dispel any anxieties and resistance towards it.

Excellencies, Ladies and Gentlemen,

Since the last report of the SG on this topic, CSTD has been examining the STI for achieving SDGs, specifically, new approaches to addressing pressing development challenges, addressing food security, and building smart cities.

New approaches to innovation that are considered more inclusive and environmentally benign, are increasingly taking place outside of traditional R&D departments. The Report of the Secretary-General highlights the findings on how policy makers can encourage new innovation approaches to flourish, such as mission-oriented, pro-poor and inclusive, frugal innovations, as well as digitally enabled open and collaborative innovation.

A good example for frugal innovation is the Mitticool refrigerator, which was designed by an Indian potter to work without electricity. It uses sustainable materials, keeps food fresh for days, and is to be produced at a cost of $30-50.

Such innovation is happening not only for the poor but by the poor, and can be harnessed to address our greatest global challenges in a cost-effective manner, ensure social inclusion, and respect the environment.

Aligned with the themes of the high-level political forum on sustainable development, the role of STI in ending hunger by 2030 is analyzed. Some of the highlighted innovations include genetic modification and irrigation technologies for improving agricultural productivity; post-harvest and agroprocessing technologies that address food accessibility; biofortification that helps to make food more nutritious; and climate-smart solutions for mitigating food instability.

In Mozambique, a pilot project deploying a network of drones known as Flying Sensors are being utilized. These are equipped with tools to analyse obtained imagery through near-infrared sensors, and are supporting farmers with useful information such as detecting crop stress up to two weeks before it is visible to the human eye. The gathered data can be used as a resource to improve water availability and efficiency. By the end of the year, it is foreseen that 8,000 farmers will use this technology, and that farmers' yield will be increased by at least 10%, and farmers will have improved their irrigation practices.

The Report also highlights how STI can support the design, development and management of smart cities to make human settlements in urban areas safe, comfortable, resilient and sustainable.

A good example is the Eastgate shopping centre in Harare, Zimbabwe, which is designed and built with an innovative passive cooling system that stores heat in daytime. The warm air rises in the evening, replaced by denser cool air low in the building. The shopping centre has avoided the need for artificial air conditioning and saved $3.5 million.

Excellencies, Ladies and Gentlemen,

While innovation and technology stand to revolutionize sustainable development, turning the potential into outcomes requires the creation of enabling environments, at both national and international levels, to mobilize the financing, investment, and innovation needed. Allow me to highlight the key considerations in applying STI in sustainable development that emerge from the multi-stakeholder discussions at the UN Commission on Science and technology for Development (CSTD).

First, **technology foresight and assessment** has an essential role in providing countries with the intelligence needed to evaluate the developmental potential of existing, new and emerging technologies. Managing risks and public perceptions of STI are essential to harnessing them for the achievement of the Goals. Therefore, countries need to explore ways and means of conducting national, regional and international foresight exercises and technology

assessments. UNCTAD, together with the Commission, will continue to provide foresight about critical trends in STI, including highlighting their developmental impact, with particular attention to emerging and disruptive technologies, such as artificial intelligence, big data, and the Internet of things.

My second point is about the **gender dimensions of STI**. For example, women worldwide are 12 per cent less likely to be online than men, with the difference reaching 31 per cent in Least Developed Countries.

Technology does not have to leave anyone behind. To bridge these gaps, countries need to consider gender elements when they set priorities, undertake research or foresight exercises, when they identify potential gaps in education, as well as when planning STI capacity building. Promoting a gender-sensitive STEM education is key to address the ongoing and persistent gender gap in the fields of science, technology and innovation as a whole. We need to ensure that the diffusion of new technologies is inclusive and does not create further divides. Addressing the gender digital divide, we need appropriate measures to enhance women's and girls' education and participation in ICTs, not only as users, but also as content creators, employees, entrepreneurs, innovators and leaders.

Third, **financing innovation** for development requires lot more more attention. UNCTAD research shows that we need to fill the funding gap to the tune of $2.5 trillion annually, to achieve SDGs by 2030. This is a massive undertaking where all countries, development partners need to work together.

At the same time, countries need to support policies that increase financial inclusion, and deepen the sources of financing and direct investments towards innovations that address the Goals. In this respect, UNCTAD, under the auspices of the CSTD is exploring innovative financing models. We are looking at things like impact investments as a means of attracting new stakeholders, innovators and sources of investment capital for science, technology, engineering, and innovation-based solutions.

Fourth, let me highlight the importance of **regional and international cooperation** in the field of STI through North-South, South-South and triangular cooperation in financial and technical assistance, capacity-building and technology transfer on mutually agreed terms and conditions. There is a need to encourage and support regional and international cooperation through the facilitation of university-to-university collaborations involving students and faculty exchanges, collaborative research aimed at increasing STI capacities and the cross-border flow of STEM talent.

On that note, I am pleased inform you about the collaboration proposed by the Chinese Government with the UN Commission on Science and Technology for Development (CSTD) during its twentieth session. This collaboration will

include organizing training workshops in China for developing country policy makers among CSTD member States, opportunities given to young scientists to be trained in China from 6 months to one year, and organizing joint seminars and fora on STI. We encourage more countries to extend such collaboration through the multilateral platform that is CSTD.

Finally, I must emphasize the role of **capacity building**. Advances in science and emerging technologies, on their own, will not address the challenges of sustainable development. There is a need to build local capacities and to create an enabling environment to support the deployment of existing and emerging technologies. Capabilities involve not only scientific and technological capacity, but often, especially in the context of developing countries, basic education and engineering, design, management and entrepreneurial skills. After all, a computer will have little impact on the life of a person without literacy, electricity and connectivity.

To strengthen these capabilities, STI needs to be integrated into national development strategies. Science, technology and innovation policy reviews undertaken by UNCTAD, for example, support national governments in their efforts in this regard. I am pleased to let you know that UNCTAD, under the auspices of CSTD, is developing a broadened framework for national science, technology, and innovation policy reviews that integrate the Sustainable Development Goals.

Excellencies, Ladies and Gentlemen,

It is clear that science, technology and innovation would be critical for achieving all SDGs. UNCTAD, as the secretariat of the CSTD, is proud to provide foresight on new and emerging technologies, draw attention to disruptive technologies, and to create an inclusive space through CSTD for strategic planning, policy formulation, sharing lessons and good practices—so that no one will be left behind in this emerging new world.

Thank you for your attention.