# ECOSOC

## 2017 Integration Segment

### Input from the Commission on Science and Technology for Development

## 1. Relationship between poverty and innovation

Eradicating poverty with the principle of 'leaving no one behind', will be impossible without bringing science, technology and innovation (STI) to the forefront of development projects. The level of ambition of the Sustainable Development Goals requires new ways of thinking about development and using the potential of STI to find and scale up affordable solutions to the needs of the poor. Some forms of contemporary innovation approaches do not include poor and marginalized groups and contribute to increasing inequalities and environmental degradation. Therefore, the CSTD is looking into forms of innovation (i.e. mission-oriented, pro-poor and inclusive, grassroots, social and digitally enabled open innovation) that are socially inclusive, environmentally benign, and can address the needs of the poor. The CSTD is not only examining how to encourage more innovation, but most importantly, how to encourage the type of innovation that helps to eradicate poverty.

This year's priority themes of the CSTD are 'New innovation approaches to support the implementation of the SDGs'[1] and the 'The role of science, technology and innovation in ensuring food security by 2030.'[2] Both of these themes are indirectly linked to Goal 1 ('End poverty in all its forms everywhere'). Therefore, inputs from the CSTD can provide useful case studies and policy recommendations for the review of the 2017 ECOSOC theme.

## 2. How innovation can help to end poverty

### a. Inclusive innovation to address the needs of the poor

Pro-poor and inclusive innovation can liberate poor and marginalized groups from poverty by providing affordable solutions to their basic needs and bringing about social and economic opportunities. Low-cost medical products and services, such as cheap ultrasound scanners or locally developed eye care solutions detecting eye diseases, can serve the needs of untapped markets and significantly improve the life of the poor. Inclusive innovation policy initiatives can also strengthen entrepreneurial skills of people living in poverty, and thus help them to ensure a living. For example, the development of a mobile application to strengthen the entrepreneurial capacity of rural women in India helped to reduce their travel costs and increase their efficiency.[3]

### b. Data to monitor poverty

Big data and machine learning can be used to predict epidemics, medical necessities, environmental disasters, and poverty levels. For example, using simple metadata digital footprints like call duration and call frequency, it has been shown that one can predict socioeconomic, demographic, and other behavioral traits with 80-85% accuracy. With a combination of machine learning and publicly available data, including high-resolution daytime and nighttime satellite imagery, researchers recently were able to explain up to 75% of the variation in local-level economic outcomes in Nigeria, Tanzania, Uganda,

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[1] UNCTAD, 2017, Issues Paper on New Innovation Approaches to Support the Implementation of the Sustainable Development Goals, available at
http://unctad.org/meetings/en/SessionalDocuments/CSTD2017_Issues01_SDG_en.pdf

[2] UNCTAD, 2017, Issues Paper on the Role of Science, Technology and Innovation in Ensuring food security by 2030 (2017), available at http://unctad.org/meetings/en/SessionalDocuments/CSTD2017_Issues02_STI_en.pdf

[3] UNCTAD, 2014, Innovation policy tools for inclusive development, available at:
http://unctad.org/meetings/en/SessionalDocuments/ciid25_en.pdf

Malawi, and Rwanda.[4] Specifically, with respect to food security, big data can be used in the fight against chronic hunger and undernutrition. For example, a program coordinated by UN Global Pulse, the Indonesian government, and the World Food Programme used public tweets mentioning food prices to develop a real-time food index. The International Center for Tropical Agriculture uses big data on weather and crops to better adapt to climate change. Early warning systems - like the Chinese Academy of Sciences' Cloud Based Global Crop Monitoring System - have played critical roles in disseminating country and region-specific information to help farmers maximize productivity.

### c. ICTs for pro-poor financial inclusion

Information and communications technologies (ICTs) are creating new possibilities for pro-poor financial inclusion. Innovations in credit and payment (e.g. mobile payment systems such as M-Pesa) are not only transforming mechanisms of transactions and finance, but also have the potential to reach and meet the needs of millions of people without access to formal financial services. Crowdfunding, peer-to-peer lending and social impact bonds are new ways to access capital, creating alternative sources of finance and contributing to business and community initiatives that might not be able to obtain funding through traditional credit markets. Newer technologies, including blockchain and cryptocurrencies, may contribute to reduced transaction costs and improved efficiencies for remittance transfers.[5] Furthermore, big data and the Internet of Things can be harnessed for a number of agricultural applications including index-based insurance schemes. For example, the International Livestock Research Institute created a program "Index-Based Livestock Insurance" to provide financial protection based on a rainfall index to trigger payments for pastoralists in the Horn of Africa.

### d. Innovation for food security

Food and nutrition insecurity is a key driver and consequence of poverty. About 795 million people are undernourished, with the majority living in developing countries and rural areas. New, existing, and emerging technologies can address the four dimensions of food security (availability, access, use/utilization, and stability). For example, genetic modification technologies for improving agricultural productivity, methods for improving soil fertility, and irrigation technologies can increase food availability. Post-harvest and agro-processing technologies can address food accessibility, biofortification can make food more nutritious, and climate-smart STI solutions - including the use of precision agriculture and early warning systems - can mitigate food instability. New and emerging technologies, including synthetic biology, artificial intelligence, and tissue engineering, may have potential implications for the future of crop and livestock agriculture. Innovative capabilities are critical not only for ensuring nutritious food at all times but also for harnessing agriculture and the broader food system as a driver of integrated poverty reduction strategies.[6]

### 3. Recommendations

The Report of the Secretary General on 'New innovation approaches to support the implementation of the Sustainable Development Goals' (E/CN.16/2017/2)[7] and the Report of the Secretary General on 'The role of science, technology and innovation in ensuring food security by 2030' (E/CN.16/2017/3)[8] include

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[4] For more information, please see forthcoming UNCTAD, 2017, Digital Tools for Foresight & Foresight of a Digital Future: Fostering Means for and Ends of the SDGs, UNCTAD Current Studies on Science, Technology, and Innovation.

[5] For more information, please see forthcoming UNCTAD, 2017, New innovation approaches to support the implementation of the Sustainable Development Goals, UNCTAD Current Studies on Science, Technology, and Innovation.

[6] For more information, please see forthcoming UNCTAD, 2017, The role of science, technology and innovation in ensuring food security by 2030, UNCTAD Current Studies on Science, Technology, and Innovation.

[7] Available at: http://unctad.org/meetings/en/SessionalDocuments/ecn162017d2_en.pdf.

[8] Available at: http://unctad.org/meetings/en/SessionalDocuments/ecn162017d3_en.pdf.

several concrete suggestions for Member States, the international community and the CSTD. Some of these are also relevant to the 2017 ECOSOC theme.

### a. Policy coherence and integration for poverty reduction

The 2030 Agenda for Sustainable Development provides an opportunity for policymakers to support the emergence of, and experiment with, new forms of innovation for poverty reduction and sustainable development. This underlines the importance of policy coherence across government actors in the design of policy mixes. A coordinated approach is needed, widening the policy focus of innovation systems both in terms of the actors involved and the means of interaction and collaboration. Sustainable development is possible if effective governance mechanisms are put in place and policy coherence is fostered between sustainable agricultural development, food systems, environmental concerns, social protection, education, nutrition and health policies and programmes, as well as between their respective institutions, agencies and ministries at the national and international levels.

### b. Build capabilities to harness innovation for poverty reduction

Harnessing the potential of technologies for poverty reduction requires investments in research and development, human capital (including entrepreneurial skills), infrastructure, and knowledge flows. Creating an environment for innovation also benefits from an enabling environment, gender-sensitive approaches to technology development and dissemination, and regional and international collaboration. Technology foresight and assessment must be in place to manage potential technological risks while maximizing potential improvements to poverty reduction efforts.

### c. Address financial gap

UNCTAD estimates that achieving the SDGs requires an annual $2.5 trillion funding gap to be filled.[9] Public sector action and Official Development Assistance is indispensable, but on its own will be insufficient to meet demands across all SDG-related sectors. The CSTD is examining areas of investment with a positive impact on development and the achieving of the Goals. The international community should address financing challenges by sensitizing the finance community to the Goals and changing mindsets in the financial sector.

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[9] UNCTAD, 2014, World Investment Report, available at: http://unctad.org/en/PublicationsLibrary/wir2014_en.pdf