**Expert Group Meeting: STI for effective pathways
towards the SDGs in the Decade of Action**

Wednesday, 14 April 2021, 9-11 am NY time
(virtual meeting via MS teams)

Answers to guiding questions – key findings based on IATT and 10-MG answers to online questionnaire

Set 1: Ending poverty in all its dimensions, enhancing human well-being and building resilience (SDGs 1, 2, 3)

Selected most promising innovations and technologies:	How to quickly scale up access, in particular for most vulnerable groups and countries:
- Advanced analytics, including big data analysis, machine learning, remote sensing - Artificial intelligence CO_2 conversion technologies (e.g. artificial photosynthesis) - Digitalization of the economy, including education/digital talent; digital financial services; e-commerce - Innovative approaches to subsidize SMEs in the energy and water sectors - Internet platforms <u>Food security:</u> - Industrial biotechnology - Innovative agritech and agribusiness - Biotech applications in food value chain "Mobile trading" and "Electronic Commerce (E-Commerce)" to facilitate quick trading access to food markets - Precision agriculture, including cell-based protein farming	- Establish 4th industrial revolution infrastructure and platforms and have in place viable business model for deployment - Create innovation ecosystems, markets and economies, which are more inclusive and sustainable, including by encouraging innovative thinking and innovative behavior at local level and by supporting innovations with real impact - Overcome digital divide and high-tech insularity; ensure affordable relevant ICT connectivity to all - Use "home grown" innovative technologies and/or adapt emerging technology to local settings by identifying local needs and priorities - Seamless cooperation between stakeholders, including academia, private sector and decision-makers, including regional and international collaboration interventions via webinars - Strengthen nexus between different SDGs (e.g. water-food-energy nexus) - Legislation that mandates access and protection for vulnerable groups with enforcement of measures put in hand of regulatory agencies and civil society

• Space tech-based crop growth monitoring tech (e.g. CropWatch) • Synthetic biology; "Improved seeds" for increased food production in agro-pastoral societies Health and human well-being: • Biotech applications in health industry • biotechnology medicine platforms for fighting diseases • Harnessing therapeutic medicine development • Quality health care and reliable, affordable and sustainable diagnostic tools • Use of as Internet of Things (IoT) to facilitate healthcare services	• International effort to identify, finance and coordinate actions towards global public goods and services, including urgent vaccination in all countries by scaling up vaccine manufacturing capacity and ensuring efficient delivery systems • Financial support, scientific capacity-building and direct technical assistance; build innovation labs to support locals; generate digital talent; inclusive and coordinated approach to strengthen developing countries' capacities to respond to health emergencies and to increase their access to lifesaving health technologies, especially research, treatment and testing capabilities • Open science and universal access to all its resources and adding of newly-acquired expertise in real-time; remove barriers to research, by circumventing the need for commercial kits, and fostering open-source tools and protocols. • Monitoring, testing and sharing of innovative technologies by Member States, UN system, civil society • Create demand for innovations, including through government procurement • Support and empower start-ups, including by facilitating their access to finance and inviting them to competitions where they can be connected with investors, corporates and governments • Raise awareness via radio, television and internet/social media

Set 2: Transforming economies to support SDGs and restore the balance with nature (SDGs 8, 12, 13)

Most promising ways for STI to accelerate permanent shift toward low-carbon economies and sustainable consumption and production which support inclusive economic development:	How can transitions be just providing viable alternatives for those at risk of losing jobs and livelihoods, while also achieving universal access:
• Develop an inclusive global discourse and governance frameworks about normative aspects, from a developmental perspective, of rapid technological change • Ensure capacities in technology assessment at national, regional and international level that can enable global community to identify and exploit potential of frontier technologies for sustainable development, assess potential effects and risks of emerging technologies, and determine most likely mid-term and long-term technological developments	• Bridge digital divide, including by offering steady, high-speed fixed Internet connections, such as fibre optic cable, or high-speed mobile connections); enhance North-South cooperation • Affordable ICTs and connectivity to be guaranteed as human right rather than utility • Localization of STI based innovation and opportunities for implementation and tracking of SDGs

- Establish global public goods (e.g. COVID-19 vaccines)
- Social activism and grassroots innovation to play catalytic role in shaping directionality of frontier technologies
- Combat climate change and environmental degradation through generating indicators, metrics and criteria and use of AI; Establish and enforce standards that guarantee environment-friendly products and services; use incentives and rewards
- Retain and improve online meetings and webinars, improve hybrid learning and home-office work
- Enhance international R&D cooperation (e.g. for hydrogen fuel, CCU, CCUS, biodegradable plastics and other disruptive technology development); support R&D for low carbon models
- Implement STI roadmaps for carbon neutrality to engage multi-stakeholders coherently, monitor and evaluate progress, and make feedback loops
- Eliminate harmful subsidies and tax carbon-based replaceable products
- Foster best practices, collaboration and international cooperation for circular economy
- Transformation has to cover all dimensions of sustainable development: social and cultural, economic and environmental
- Promote models of sustainable production that are inclusive - not just mega-factories
- Communicate and disseminate the potentiality of RDI and engage relevant stakeholders to work together

Agriculture
- Smart agriculture
- Solar desalination
- Promote development of environment-friendly biofertilizers
- Develop technologies for development of biofuels through bioremediation and utilization of agricultural waste

Energy:
- New governance for clean energies and sustainable practices
- Encourage and subsidize energy farms that are technology based

- Public subsidies to (re-)educate people at risk of job change or loss and to support their livelihoods; Universal Basic Income for (extremely) poor communities
- Governments to create alternative areas of employment in collaboration with private sector
- New job opportunities in emerging sectors (e.g. renewable energy)
- Global programme of education for all with emphasis on creating digital literacy and talent, including digital skills related to frontier technologies, including ability to understand digital media, to find information, and use these tools to communicate with others
- Establish innovation labs powered by UN system and Member States
- Need for more R&D and knowledge on issue of just transition
- Vulnerable groups, including the poor, women, youth, the elderly and persons with disabilities, to benefit from national and regional anti-injustice programs and projects

• New public infrastructure for carbon-based energy • Use of renewable energy sources such as "Green Hydrogen-Based Direct Iron Reduction" and "solar photovoltaic" along with Artificial Intelligence (AI)	

Set 3: Responses to build more just and equal societies (SDGs 10, 16)

Technologies and innovations that have emerged during COVID-19 crisis to tackle persistent inequalities:	How can these be shared and scaled up:	Promising ways of strengthening STI capacity and equalizing access to ensure that STI contributes to reducing inequality
• Online learning • E-commerce • Telemedicine • Vaccination platforms • Technologies geared to home-bound people • Hyper-connectivity and digital communication platforms • Increased global communication and collaboration in new start-ups and innovations • Blockchain apps • Intelligent transportation systems • Cleaner energy production and consumption of goods and services • Surge of experience economy and creative industries	• Ensure equitable access to essential technologies • Expand access to education and training through virtual platforms • Improve online learning, e-commerce, telemedicine with regard to access quality and affordability for all • Crowdfunding for NPO activities which tackle inequalities - tax incentives necessary for scale-up • Share technologies through high-level meetings and forums, including STI Forum; give opportunity to startups to present in front of Member States and private sector (e.g. done at STI Forum) • Share and scale up best practice examples of technologies employed for COVID-19 response which also eliminate inequalities (e.g. Coalition of Cities for Digital Rights) • Develop ICT tools for quick payment of living subsidy to vulnerable persons at risk • Adapt and tailor innovations and technologies to fit low resource settings and most vulnerable population groups, including by using affordable, portable and easily interpretable, yet reliable, testing tools and methods	• STI education and STEM education to be encouraged in developing countries supported by dedicated international funds • "Open science" for all stakeholders • Enhance high-speed connectivity to internet in developing countries • Quick ICT survey and operation systems for timely providing vulnerable people with living subsidy and daily necessities • IT service development for persons with disability (e.g. IT navigation for blind people) • Establish governance and infrastructure for 4th industrial revolution and new general-purpose technologies (AI-machine self-learning; IoT; 5G; VR &AR; 3D&4D; genomics; synthetic biology; personalized medicine etc.) • Ensure universal health (global public goods)

• Scale-up local production and local use of technologies • Increase understanding of particular situation, challenges and needs of local communities and indigenous people to use their knowledge for technology development, ensure buy-in and/or better tailor and technologies and close inequality gap • Strengthen international cooperation and commitment to global solidarity to ensure that all countries have requisite technological capabilities and productive capacities • Use of mobile trading/e-commerce, E-Government, mobile banking and Artificial Intelligence • Share technologies through awareness raising via radio, webinars and televisions by governments, and through regional and international collaboration interventions or partnerships.	• Encourage partnerships with private sector (innovative companies or accelerators with global scope) • Enhance discussion about related ethical issues (e.g. in universities that teach STI and in companies that are leaders in STI space) – use TFM to discuss these issues • Production and distribution of STI should ensure environmental rights are protected and promoted especially when responding to a zoonotic disease (i.e. COVID-19) • Procedural environmental rights (access to information, public participation, and access to justice) should be fully integrated in production, designing and distribution of STI • STI should be designed to ensure environmental information is accessible by all population groups especially those that have difficulty accessing technology (e.g. indigenous peoples and local communities or those living in remote areas) and is disaggregated. • Information produced using STI should contribute towards promoting participation of all population groups in environmental decision-making and facilitate their access to justice in case of violation of rights. • Increase communication, dissemination, engagement and connection regarding STI • Transform research findings into practical solutions and offer open access to vital technologies, know-how and

		technical expertise to developing countries • Scale-up local production and local use of technologies as well as empower local scientists and enhance know-how transfer to ensure sustainability and equitable access to essential technologies and essential skills • Support digital sector and markets, adapting and enforcing competition rules, supporting business and social innovation • Support digitalization of production sectors and structural transformation in so-called Industry 4.0 with focus on production through automation of traditional manufacturing and industrial practices and using modern smart technology. • Review government policies • Increase international and regional collaboration