

**COMMISSION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT
(CSTD)**

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Synthesis Report

**Contributions by Member States to the call for information sharing on STI and ICT
initiatives against COVID-19**

Prepared by the CSTD Secretariat

DISCLAIMER: The views presented here are the contributors' and do not necessarily reflect the views and position of the United Nations or the United Nations Conference on Trade and Development

Introduction

This synthesis report compiles the contributions received from Member States on the role of science, technology and innovation (STI), including information communication technologies (ICTs) in tackling the outbreak of the COVID-19 pandemic.¹

STI can play an important role in strengthening the capacity of all countries for early warning, risk reduction and management of national and global health risks and their preparedness for future threats. ICTs can make a significant contribution: for instance, big data technologies (including through to the use of open data), can provide useful insights to manage the response to an epidemic. STI policy advice and international cooperation can also play a prominent role in current and future infectious disease preparedness and response. Although the precise socioeconomic implications of the COVID-19 pandemic are unclear, STI policies will likely play a catalytic role in supporting economic development and recovery, mitigating new and existing social inequities, and ensuring environmental sustainability as key pillars of the 2030 Agenda for Sustainable Development.

The outbreak of COVID-19 threatens to slow down or even reverse progress towards the achievement of the Sustainable Development Goals (SDGs). International collaboration in STI can ensure that countries are geared to face these threats and build their resilience to be able to make progress on the Goals. Developing countries are particularly vulnerable to new threats and can benefit from collaboration initiatives which seek to share knowledge, experiences and deploy resources towards STI.

Member States may wish to explore possibilities for collaboration to utilize STI in response to the COVID-19 pandemic and its associated socioeconomic impacts, with a particular focus on ensuring . It is expected that this information sharing exercise will raise awareness to help developing countries currently gearing up for the pandemic better understand the variety of STI and ICT policy options available for implementing appropriate short and long term responses to the outbreak.

It is important that the STI response to the COVID-19 pandemic and its associated socioeconomic impacts take into consideration the specific economic, demographic and societal patterns of developing nations as they differ significantly with sharp differences in the exposure and the efficient mitigating and protecting measures. Social and economic recovery will also benefit from customized rather than one size fits all policies.

The report is synthesized under the following headings:

- (1) Funding and resource allocation
- (2) Research and innovation
- (3) Use of digital technologies
- (4) International cooperation

¹ For detailed information on the full contributions received, please visit <https://unctad.org/en/Pages/CSTD/CSTD-and-COVID-19.aspx> and click on the “Contributions” tab.

Funding and resource allocation

The Federal Government of Austria is investing € 23 million to give an additional boost to research into a vaccine and effective drugs/therapies against COVID-19, and further €2 million going towards funding medical universities to implement clinical studies with companies.

The Ministry of Science, Technology, Innovations and Communications of Brazil (MCTIC) submitted a provisional legislative bill for the release of R\$ 100 million (100 million Brazilian reais) from the National Scientific and Technological Development Fund (FNDCT), to be utilized by various public research bodies.

Georgia has responded to the new challenges by increasing the amount of prototype grants, from GEL (Georgian Lari) 5,000 to GEL 15,000, which is dedicated to the Digital Services Prototype and is aimed to support: Implementation, testing and refining innovation for further commercialization. Also, an E-service component has also been added to the prototype grants, which will help Georgian businesses develop remote services in response to Covid-19.

Iran has implemented the Corona Plus Campaign with the aim of supporting startups active in the field of management and providing services during the transition from the Corona crisis. The program has defined and implemented 5 types of support, including financial facilities, providing technical infrastructure, supporting television advertising, supporting digital marketing and facilitating to remove barriers for these startups.

In Japan, new funding schemes for strengthening the nexus between Humanities/Social Sciences and Natural Sciences are being conceived. The Japan Science and Technology Agency (JST) has been implementing a funding mechanism for international collaborative research on COVID-19, where funding is envisaged for researchers in Japan who are currently in collaboration with or anticipate collaborating with researchers abroad who are funded or to be funded by eligible foreign funding agencies.

Collaboration with the private sector has supported the Mexican industry for the expeditious realization of various medical devices. To date, the first production batch of 700 respirators were completed by May 15 through collaboration between Government, the private sector, public research centers to obtain these products using Mexican technology.

The Scientific and Technical Research Council of Turkey (TÜBİTAK) established a rapid funding mechanism for SMEs that have research activities on COVID-19 diagnosis, protective and medical equipment as well as ICT solutions.

Research and innovation

In Belgium, various academic and research institutions have been working towards the development of diagnostic and medical equipment, including an automated testing method, a simplified prototype of respirators and a COVID-19 screening platform.

Costa Rica is working on scientific contributions to COVID-19 treatment based on the use of blood plasma.

Ecuador is prioritizing the topics that should be promoted in the field of scientific research, as well as the priority areas to establish national and international collaboration agreements. Likewise, scientific dissemination processes are being carried out for teachers/researchers from the technical and technological institutes to strengthen their capacities in terms of managing COVID-19.

Ethiopia established 5 task forces that work on the pandemic (Research, Community Service & Social Support, Educational Delivery, Resource Mobilization, and Public Awareness) A National COVID-19 Multidisciplinary Research Taskforce was established, survey research conducted, and its findings to be forwarded to science Organizations, academic and research institutions and the Government.

Iran is backing dozens of clinical research projects, including supporting the acquisition of know-how of vaccine production and antiviral drugs for COVID-19.

Japan is engaged in the development of medicine and rapid genetic testing system, including Loop-Mediated Isothermal Amplification (LAMP) and Smart Amplification Process (SmartAmp), as well as plans to utilize Supercomputers for research on COVID-19. The supercomputer Fugaku, which is currently being installed in Kobe, Japan under a RIKEN-led project, will be used to help combat the COVID-19 pandemic to the maximum extent possible, by giving priority to research selected by MEXT. Currently, five projects are being conducted by the scientists from RIKEN and other research institutions.

In Panama, the National Secretariat of Science, Technology and Innovation (SENACYT) has issued a call for a Rapid Response to COVID-19 in Panama. The call aimed to support interdisciplinary research, development and innovation initiatives oriented to address the challenges associated with the COVID-19 pandemic to propose solutions research-based innovations that address this national and global challenge.

In the Philippines, clinical testing and research on Virgin Coconut Oil and its components to supplement medicines and diet of COVID-19 patients is underway.

Portugal has been developing testing kits (PCR and other methodologies) and ventilators for emergency rooms via initiatives rolled out across various engineering and research centers. A call for ideas – “Science 4 COVID19” – has been issued. This is an open and inclusive call for ideas and the organization of task forces to collect and mobilize ideas from science and innovation players. A competitive Seed funding initiative known as “RESEARCH 4 COVID19” was issued for research and innovation proposals under preparation by the Portuguese Science Foundation (FCT) and the Agency for Clinical Research and Biomedical Innovation (AICIB).

South Africa’s national research entities are conducting a study of the medical innovations and systems (including institutions) in response to health impacts – this will cover, science skills and capacity as tool of trading in response to Covid-19 and assess the past disasters as well if

needs be. The Department of Science and Innovation established a Research and Innovation Committee on COVID-19 (R&ICC-19). The committee will mobilise funding, prioritise research strategies and create an enabling ethical and regulatory framework to facilitate research. The R&ICC-19 will also provide high level strategic advice on the research and innovation priorities and needs around the COVID-19 response, to the Department of Science and Innovation (DSI), Minister of Higher Education, Science and Innovation, and to provide feedback into the COVID-19 Ministerial Advisory Committee of the Minister of Health.

Turkey established the COVID-19 Turkey Platform – a sub-platform on COVID-19 – under the coordination of TÜBİTAK Marmara Research Center (MAM) Genetic Engineering and Biotechnology Institute. An Intern Researcher Scholarship Program (STAR) for COVID-19 Research Projects has also been created.

Use of digital technologies

In Brazil, the National Center for Research in Energy and Materials (CNPEM) is also employing tools computational biology and AI tools to evaluate the effectiveness of around 2,000 existing drugs against COVID-19. A nanotechnology startup created a disinfectant called *Gy*, which has the potential to substitute sanitizers and can eliminate COVID-19 among other communicable diseases. The Technology Association of Santa Catarina (ACATE) is also leading an effort comprised of several startups such as "CogniSigns", "Anestech" and "Hefesto" to design and produce 3D-printed ventilators. The open source prototypes will allow other innovation hubs equipped with 3D printers to also "print" the products, increasing the number and diversifying manufacturers across the country. The initiative is supported by the Albert Einstein Hospital, from São Paulo, through its innovation hub, the "Eretz.bio".

China is using an AI assisted diagnosis system. Guangzhou regenerative medicine and health laboratory in collaboration with the Sun Yat-sen Memorial Hospital of Sun Yat-Sen University has quickly developed and tested AI assisted COVID-19 diagnosis system on a basis of chest CT test and X-ray videography through collecting and analyzing big data of clinic videography for 500 000 various types of pneumonia. The system can effectively and especially distinguish the COVID-19 patients from the non-COVID-19 patients including those infected by other virus, bacterial pneumonia and fever. The accurate COVID-19 CT image diagnosis rate reaches 90%, and it takes no more than 20 seconds to complete one CT image diagnosis case. The system has since been allocated to various sites via the Cloud platform and used in seven designated hospitals in China.

Finland, alongside with many other countries, is developing a voluntary and temporary mobile application to support contact tracing as part of the public health strategy for countering the COVID-19 epidemic. The main goal of the application will be to complement manual contact tracing and possibly inform people when they have been in close proximity to virus carriers even if the carriers were not tested by the time of interaction. The application will be free to download on mobile devices. The application's effectiveness will depend on the number of people who install and use it. The estimated time for launch is Autumn 2020.

In Georgia, an online hackathon known as "Coronathon" was held to find solutions to the challenges of the pandemic – an initiative by the Minister of Economy and Sustainable Development. Teams participating in the technology competition were working on solutions to Covid-19 problems in areas such as: education, food supply, disease transmission, monitoring and

more. Startups, scientists, programmers and others were given 72 hours and with the help of mentors, participants had to create digital product prototypes online. The winner of the competition, which received a GEL 20,000 project grant, was for an idea to create low cost portable breathing apparatus.

Latvia has deployed COVIDBOTS – virtual assistants for reliable information on the pandemic and provides citizen's with answers round-the-clock. This initiative is led by two Latvian technology companies TILDE and TET. While Tilde provides the development and maintenance of the virtual assistant, TET coaches and updates the virtual assistant's knowledge base. Virtual assistants are posted on both companies' websites as well as public and local authority Internet portals. The Government has also established an official portal where all official information on Covid-19 gathered in one place and published online.²

Mexico has made scientific information on COVID-19 freely available for access by its population, via an open source digital repository.

Russia has deployed robotics technologies to tackle challenges ranging from disinfection to monitoring and control. For example, disinfection robots are designed to carry out disinfection autonomously at (1) streets and public places; (2) rooms and premises. There are a number of solutions in this segment in Russia developed by *Promobot*, *Sberbank Robotics Laboratory*, and others. *Thermocontrol* is an autonomous non-contact body temperature measuring terminal developed by *Promobot*. It measures body temperature in 5 second with accuracy of 0.2C°, recognizes faces and speech and, if necessary, sends notifications to security and access systems.

South Africa's Council for Scientific and Industrial Research, developed an APP called Covi-ID, that aims to develop a privacy-focused "immunity certificate" aimed at supporting safe easing of lockdown restrictions in the country.³ South Africa has also sought to strengthen 3D printing capabilities to support manufacturing of assistive devices like ventilators.

International cooperation

To further strengthen the international exchange of knowledge in basic research on COVID-19, funding agencies from Austria, Germany, Luxembourg, Poland, Switzerland, Slovenia and the Czech Republic are working closely together. An international network is being established for this purpose.

The Organisation Internationale de la Francophonie has set up a communication platform – a Slack – to share initiatives to deal with the crisis caused by Covid-19. Projects are then compiled in the form of files on this platform. Belgium and other countries participate in this platform.⁴

In Brazil the National Council of State Foundations of Research Support (CONFAP) released a proposal for Brazilian institutions to join the so-called "Development of therapy and diagnosis for fighting coronavirus infections" launched by `Innovative Medicines Initiative`, in cooperation with European Union and the European Federation of Pharmaceutical Industries and Associations (EFPIA). Its objective is to identify new therapeutic agents, early diagnostic systems, and reliable

² www.covid19.gov.lv

³ The APP is was launched on 16 April 2020 on Google Appstore. https://youtu.be/3totKQ_BnBc

⁴ www.covid19francophonie.slack.com

data related to Covid-19. Brazilian partners can participate in a co-financing scheme. The European side plans to disburse EUR 45 million.

China has expressed its desire to share information on scientific and technological outcome with other countries, exchange experiences, and contribute to strengthening the international collaboration in defeating the epidemic by the scientific and technological methods.

Ecuador is articulating proposals to promote participation in international calls on STI, whereby initiatives in the following areas have been evidenced in this process: genetics, serology, zoonosis, drug development and possible treatments, themes social, economic and political, modeling, among others.

Japan Science and Technology Agency (JST) has been implementing a funding mechanism for international collaborative research on the theme of COVID-19 and current pandemic as part of its J-RAPID program. In this mechanism, funding is envisaged for researchers in Japan who are currently in collaboration with or anticipate collaboration with researchers abroad who are funded or to be funded by eligible foreign funding agencies including through the RAPID program of the National Science Foundation (NSF) of the United States.

South Africa is engaged in various international partnerships in different regions to support research activities; sharing STI policy responses; participating in international conferences on 'open science', science diplomacy and supporting the development of an Africa Joint Continental Strategy for COVID Outbreak in collaboration with the African Union Commission.

Turkey is promoting increased interaction between researchers across disciplines and countries. At the international level, a teleconference was held with representatives of Academia Sinica and science academies in other countries. TÜBİTAK is dedicated to increasing interactions between researchers across disciplines and countries during COVID-19.