Means of implementation to match the scope of the crisis and the breadth of our ambition for 2030:

Science, technology and innovation

Friday, 10 July 2020, 10:00 AM - 11:00 AM

Secretariat Background Note

Executive summary

One of the key functions entrusted to the high-level political forum on sustainable development by Rio+20 and the 2030 Agenda for Sustainable Development is to strengthen the science-policy interface, including through the Global Sustainable Development Report and the Technology Facilitation Mechanism.

Progress in science, technology and innovation (STI) continues to accelerate, promising significant benefits but also risks to the 2030 Agenda for Sustainable Development. Science, technology and innovation will continue to have broad impacts on the economy, society and environment. Rapid technological advances have rarely been neutral and can present extraordinary policy and societal challenges. It is important to ensure that they are to the benefit of all, in line with the ambitions of the SDGs.

The Decade of Action explicitly recognizes that STI are essential ingredients as part of any feasible transformative pathway towards the SDGs. This is underscored by their role in understanding, responding to, and recovering from the COVID-19 pandemic.

Timely research, analysis and information are essential to allow identification, dissemination and adaptation of critical technology solutions. At the same time, a greater engagement with stakeholders across society is needed to ensure that these make a real and lasting difference, and potential trade-offs across goals and targets can be resolved.

The COVID-19 pandemic has revealed new innovations and forms of collaboration. The crisis has been a wake-up call for a better science-policy-society interface, for more effective international technology cooperation, and for building public trust in science related to all areas of sustainable development. Rapid improvements in these areas – improvements that are commensurate with the far-reaching rapid technological progress – are essential to realize the full promise of STI and to ensure that no one is left behind.

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To prepare for the HLPF, the 10 Member Group for the Technology Facilitation Mechanism, the UN Inter-Agency Task Team (IATT), the Independent Group of Scientists for the Global Sustainable Development Report, and other STI communities' have been reflecting on science, technology and innovation (STI) solutions, including effective science/policy response, for the SDGs in this first year of the Decade of Action and amidst the COVID-19 pandemic. These will build on other face to face meetings and consultations conducted in the early part of 2020

Successes and challenges

Science and technology are essential to humanity's collective response to the COVID-19 pandemic and to realizing the SDGs. Yet the extent to which policymaking is shaped by scientific evidence and by technological possibilities varies across governments and societies, and is often limited. At the same time, collaboration across science and technology communities has grown in response to the pandemic, holding promise for enhanced cooperation in the future.

Interlinkages, synergies and trade-offs

Beyond disciplinary or sectoral STI contributions (such as for food, health or energy), interdisciplinary approaches and science-policy-society interface have deepened the understanding of inter-linkages across multiple SDGs for policymakers to pursue synergies or manage trade-offs (such as between economic and social as well as environmental goals). Systemic gender disparity in key STI actors in STEM fields, beyond Targets under Goal 5, have been recognized as a key issue to be addressed. Traditional knowledge held by indigenous communities is also seen as part of important STI contributions to inclusive development.

Recommendations for action: Mechanisms and partnerships to accelerate progress

1. Strengthen national capacities for science-based decision making across all countries

Policy responses to the evolving pandemic have varied across countries, even though underlying assessments share many common features. Some of this reflects different country contexts, but it also underscores differences in science-policy advisory systems.

In poorer countries, such as the least developed countries (LDCs) and land locked developing countries (LLDCs), longer term structural weaknesses at the science-policy interface have been documented over the years.

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Guidance from trusted global sources such as the United Nations becomes even more important in such contexts.

Across other countries, arrangements vary, but even where systems exist and are well established, there is room for improvement. The brief highlights three priorities for action:

- Generate timely data to help make transparent, evidence-based decisions. Rapid and pro-active testing has been fundamental to early successes in several parts of the world.
- Strengthen multi-sectoral and inclusive assessments to help mitigate difficult trade-offs, including with impacts that may vary across different communities and population groups.
- Build institutional mechanisms and structures for science-policy advisory systems where weak or absent.

2. Enhance public trust in science

Public trust in science is essential for science-based policies to succeed. Surveys show that levels of trust in scientists are generally high, but there are differences across countries and regions and across groups in countries. Bringing societies together behind science will continue to be crucial to the recovery, for example in dealing with resistance to vaccines.

The brief highlights three priorities for action:
- Encourage clear and direct communications from scientists, enabling them to reach all sections of the population, irrespective of age, disability status, language and culture.
- Actively refute disinformation, particularly on social media. Involve public figures as champions; help develop guidelines for social media platforms to collaborate in this effort.
- Motivate longer term trust building through 'citizen science' initiatives where non-scientists also participate in scientific discovery.

3. Share knowledge and data to promote collaborative research

Barriers to collaboration across countries and across disciplines are coming down in response to the pandemic. Peer-reviewed articles in top scientific journals relating to COVID-19 are now accessible free of charge. Research and data are published online even before they go through the formal peer-review process. Early

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public sharing of the virus genome by researchers in China enabled scientists in Germany to develop testing kits, made widely available across the world by WHO.

Open access is key to harnessing expertise and promoting collaboration across disciplines and geographies towards solutions. It is especially important for developing countries that may otherwise find it difficult to participate in the latest research. At the same time, the rapid dissemination of results inevitably leads to some that are not valid becoming widely available. While they may be corrected later through the efforts of other researchers, their initial dissemination can fuel misinterpretation and lower credibility.

The brief highlights three priorities for action:
- Continue to make research results and data widely available to encourage global, inter-disciplinary collaborations towards advancing knowledge and discovery.
- Promote inclusion of developing country researchers and research networks in these efforts.
- Support the evolution of norms and guidance that will allow 'open science' to flourish beyond the pandemic, and contribute to the solution of other global challenges such as those impeding progress on the SDGs.

4. Ensure universal access to solutions

Coordinated multi-stakeholder and multilateral efforts are also needed to accelerate progress towards practical solutions and, when these become available, ensure universal access to them. The Coalition for Epidemic Preparedness Innovations (CEPI), launched in 2017 as a partnership between public, private, philanthropic and civil society organizations to accelerate the development of epidemic vaccines, has been at the forefront of coordinating funding.

The need for vaccines and medicines is global, but past experience shows that fair and equitable access is not a given. One of the most important functions of the science-policy-society interface at the global level is ensuring universal access to such global public goods that can check the disease and stop its transmission across the world.

Apart from medicines and vaccines, technology-driven solutions are also becoming available in different countries as they come to terms with the pandemic – flu symptom tracking through digital devices, movement

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tracing, low cost ventilator design, 3-D printed equipment, telemedicine and remote learning innovations to name a few.

The brief highlights three priorities for action:

- Continue the multi-stakeholder and multilateral collaboration around the financing, rapid development and deployment of vaccines and other medical treatments.
- Ensure universal access to these interventions.
- Facilitate the sharing of technology-based solutions to pandemic challenges through trusted multi-stakeholder networks.

5. Act with greater urgency on global scientific assessments

International collaborations across scientists and experts are a powerful means of bringing evidence and scientific consensus to the attention of policy makers to inform actions. Over the years, such assessments have been calling for urgent global action in several areas – pandemic preparedness, climate change and sustainable development. However, implementation tends to lag behind.

The brief highlights three priorities for action:

- Continue with credible, independent scientific assessments to present evidence and motivate action towards global challenges.
- Support national policy making towards implementation through strengthened science-policy-society interface at country level.
- Promote multi-stakeholder and multilateral collaborations to reflect findings in global policy discussions and partnerships to support action.

Guiding questions

- What are the most promising technology solutions, innovations, and transformative technology pathways towards the SDGs?

- What are the challenges and opportunities faced in developing and deploying STI for emerging challenges such as COVID-19 pandemic?

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- How can we mobilize science, technology and innovation to improve the lives of the furthest behind, and reduce inequalities, especially during rapid technological change?

- How can we strengthen international cooperation on science, technology and innovation to better deal with sustainability challenges?

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