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Science, technology and innovation for sustainable development

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Note by the secretariat **

Summary

To achieve the SDGs, countries will need to integrate STI agendas with the three pillars of sustainable development (economic, social and environmental). In order to ensure that sustainable development is inclusive, it will also be important to ensure that the principles of inclusivity, openness and collaboration are integrated in to STI policies and strategies.

The region is home to some of the most technologically advanced countries in the world but also some of the most deprived. In this regard, harnessing an open and inclusive innovation knowledge economy has the potential to ensure that “no one is left behind”.

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I. Introduction

1. In the closing months of 2015, the United Nations General Assembly adopted the most ambitious, all-encompassing agenda to guide the advancement of humankind for the next 15 years. Collectively known as the “2030 Agenda”, these agreements call on all countries to advance the welfare of their citizens in a sustainable manner to ensure the long-term viability of all development and growth. A key means of implementation of these Sustainable Development Goals (SDGs) is the effective use of science, technology and innovation (STI).

II. Science, technology and innovation for sustainable development

2. The SDGs are a significant break from the old ‘development’ agenda. Firstly, they are universal and as such, apply equally to developing and developed economies. Second, they are wide-ranging, cross-sectoral and all encompassing, and, if they are to be achieved, require coordinated action across the globe. Thus, when the United Nations Community endorsed the SDGs, they committed to taking a holistic view of development, specifically recognizing that to reach the goal of ensuring decent living standards for all of earth’s inhabitants, an explicit integration of the social and environmental into the economic was required. However, integrating these three pillars of Sustainable Development – economic, social and environmental – is not an easy task. The issues individually are complex and the respective goals, seemingly contradictory.

3. But for decisions to be made sustainably, each individual, business enterprise, civil society and government must fully and systematically consider the effects of their actions on economic outcomes, social outcomes and environmental outcomes. The sheer complexity of this exercise makes it nearly impossible to implement in any practical sense. The information necessary to weigh the various impacts of decisions has not been available. As a result, those aspects of the pillars that are not well measured (usually in the social and environmental categories) have had an implied value of zero, leading to decisions that are inherently unsustainable.

4. Enter STI with its promise of revolution and vast new possibilities. STI has been named (along with trade and financing) one of the three key means of implementation of the SDGs. Scientists and policymakers alike are looking to scientific breakthroughs, new technologies and innovative solutions to solve the problems facing us today. The argument is that the right STI policies will deliver the means we need to grow in a balanced (i.e. meeting our economic, social and environmental needs) way. However, this is a big ask, even for an area that has brought us Big Data.

5. While STI is no panacea, the possibilities exist to harness the capabilities brought to us through STI to meet the SDGs. While some are straight forward (scientific breakthroughs can increase crop yields and prolong storage time to increase both the amount and availability of food and decrease poverty and hunger), others are more complex (what are the implication of genetically modified foods on the natural environment and human health over the long run?). Each of the 17 goals can be tied to a scientific or technological development. All have economic aspects that affect both the human and the natural condition. It is the integration of these into a workable policy action agenda that presents one of the major challenges in the implementation of the SDGs.

6. There are some clear building blocks governments can put in place that will support and catalyze the integration of the three pillars, using STI. The foundation of these building blocks is understanding that countries need a knowledge-based society. Governments need to create a flexible ecosystem for innovation where firms and individuals alike are incentivized to turn science and technology into innovative solutions that support all three pillars. They need to create open flows of information and knowledge through networks that can focus on taking next steps, instead of re-inventing wheels.

7. What is needed is an enabling environment to support the development of the necessary technology and importantly the application of that technology through innovation. The essentially transformative nature of STI makes it difficult to regulate or design specific policies around it. However, government can act as a catalyst and provide the right ecosystem to allow society (civil and business) to embrace and support this transformation. If governments allow individuals and firms to try, succeed, and, importantly fail, an innovative architecture will be put in place allowing a natural progression to novel solutions.

8. However, this integration will not happen naturally. Governments must also support the internalization of the effects of actions across all aspects of society – not just economic – for viable solutions to be truly sustainable. And while it may meet with resistance, these requirements can be translated into new opportunities – new services to support firms efforts in including social and environmental costs in regular accounting exercises, new applications for phones to tell individuals the societal costs (or benefits) of certain actions. STI allows us to implement these innovative ways to integrate the three pillars in a way that can create jobs and improve welfare.

9. The exact way this plays out across the region cannot be foreseen as it requires tailor-made response to individual circumstances. However, the synergies that exist in the region implies that all countries – from the most technologically advanced to the most technologically dearth – can gain from interaction and knowledge sharing, just on different levels.

III. The STI challenges ahead

10. There are five broad issues that must be addressed to harness STI for sustainable development in the region.

- How can governments effectively integrate the three pillars of sustainable development in STI policy, mainstream across all line Ministries and measure success?
- How can governments develop an effective enabling environment for STI development that fully integrates the three pillars?
- How best can governments fund and incentivize investment in STI?
- How can governments best nurture innovative talent?
- How best could Member States create an inclusive regional knowledge economies for innovation to ensure “no one is left behind”?

IV. How ESCAP can support these efforts

11. Current intergovernmental STI cooperation in the region is disjointed and ad hoc. ESCAP, as the region's primary intergovernmental forum, provides a unique opportunity to link these disparate efforts, creating a whole that is greater than the sum of its parts. The most immediate avenue is the inaugural ICT/STI Committee meeting, which will take place in 2016. This Committee presents a unique opportunity to create a truly regional and integrated STI platform to share knowledge across the sub-regions and capture the diversity and dynamism of STI across the region.

12. While the ICT/STI Committee will provide an important venue to ensure the region remains 'on track', the biannual meeting schedule may hamper countries ability to keep pace with the fast changing landscape of STI. Thus an additional avenue of cooperation would be the establishment of an Innovation Forum, which could be convened more regularly. This Forum would complement the broad Global Forum on STI held by UNCTAD and the various Science Fora organized by UNESCO. It would provide a unique opportunity for countries to exchange experience in identifying opportunities and challenges. Activities could include baselining activities, developing blueprints for STI implementation for the SDGs, outcome monitoring, developing regional standards and cooperation agreements, implementing skills-based exchange programmes and determining the contours of an open innovation/on science regime across the region. To take advantage of the regions vibrant STI ecosystem and to support Member States in meeting their ambitions and commitments, ESCAP could support collaboration between Member States by:

- Acting as a bridge between the numerous sub-regional STI platforms (e.g. ASEAN, APEC, SAARC) to ensure that the region as a whole is fully informed on STI developments, challenges and opportunities.
- Coordinating a regional cross-government network on STI in support of knowledge sharing on STI of SDGs implementation;
- Holding an annual multi-stakeholder Innovation Forum for the SDGs;
- Ensuring regional needs and knowledge are integrated into the global STI agenda (e.g. for the TFM and Technology Bank);
- Hosting an online platform as a gateway for information on regional STI needs, solutions initiatives, and policy developments.

This platform could support more specific areas of work such as providing analysis and best practice assessment of STI policy, advocate for and facilitate commitments to key STI policy initiatives in the region (e.g. responsible business and social finance), and support donors in the region who have invested in innovation knowledge sharing platforms (such as the Global Innovation Exchange¹) to increase engagement from countries in the region.

¹ www.globalinnovationexchange.org/