

Evolution of Science, Technology and Innovation Policies for Sustainable Development:

The Experiences of China, Japan,
the Republic of Korea and Singapore



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Foreword

Science, technology and innovation (STI) have been heralded as key means of implementation for the 2030 Agenda for Sustainable Development. However, as the fourth industrial revolution begins, the wave of optimism surrounding the transformative potential of frontier technologies has been tempered by increasing concerns about the potential negative impacts on jobs and the future of work, ethical issues, regulatory considerations, and widening technological inequality.

It is important to note that the disruptive nature of technology is nothing new. It will be critical to learn from the past as we shape the future. For technology to be effectively implemented for inclusive and sustainable development, it is critical to first chart the practical steps needed for balanced and integrated development.

With these points in mind, this report charts the STI development in the four leading countries in the Asia-Pacific region as measured by the Global Innovation Index. The experiences of China, Japan, the Republic of Korea and Singapore serve as examples of an evolving landscape for STI policies, particularly as frontier technologies and public sector innovations feature more prominently in the future of STI policies.

Experiences from the four countries show the important - yet different - roles of international technology transfers in “catch-up” growth, as well as the role of government policies in building up the domestic ecosystem of STI for moving beyond the “middle-income trap”; including infrastructure, human resources, the financing of research and development, and public institutions. Continued investments in frontier technologies by each of these four countries are a conscious effort to further improve productivity and therefore competitiveness.

Although economic development was traditionally the main objective of STI policies, given the links between technological advancements and productivity, this objective is evolving in the light of the increased attention being paid to social and environmental challenges. In the era of the 2030 Agenda, we are seeing a divergence from historical approaches where environmental degradation and inequalities were seen as unavoidable trade-offs in pursuit of economic growth. In the four countries covered in this report, economic development remains an important dimension of STI policies. However, also seen are the integration of social and environmental dimensions into their STI policies.

Engaging with stakeholders from different sectors also emerges as a common element across the four countries. All four countries have developed deep partnerships with private sector firms as a source of innovation for the fourth industrial revolution, and to integrate some of these technologies into public services.

By explicitly including STI in both the Sustainable Development Goals and the Addis Ababa Action Agenda, the United Nations has made a commitment to support countries in their efforts to harness STI for inclusive and sustainable development.

ESCAP has a mandate to strengthen the regional STI agenda through our role as a convener, think tank, and policy adviser. ESCAP regularly facilitates intergovernmental STI dialogues - for example through the Committee on Information and Communications Technology and Science, Technology and Innovation - providing a platform for regional dialogue and collective action. ESCAP also conducts research and analysis - publishing reports on emerging STI agendas – as well as advising member States on STI policy, strategies and initiatives. Through the work of the Asia-Pacific Research and Training Network on STI Policy (ARTNET on STI Policy), ESCAP supports research and training for decision makers in critical policy areas.

I hope that ESCAP member States will benefit from knowledge-sharing and that the experiences of China, Japan, the Republic of Korea and Singapore contained in this report will assist them in the formulation of STI policies that support the implementation of the 2030 Agenda for Sustainable Development.



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The leading contributor to chapter I was Xielin Liu, Professor, University of Chinese Academy of Sciences, China. The leading contributor to chapter II was Sabrina Luk, Assistant Professor, Nanyang Technological University, Singapore. The leading contributor to chapter III was Joshua Chambers, Founder and Managing Director of GovInsider.

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