



Panama

SCIENCE, TECHNOLOGY AND INNOVATION POLICY REVIEW



OVERVIEW





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PREFACE

The Science, Technology and Innovation Policy Reviews prepared by the United Nations Conference on Trade and Development (UNCTAD) aim to contribute to the development of national capacities in this area so that national science, technology and innovation (STI) plans and programmes effectively support inclusive and sustainable development strategies by spurring growth, productive diversification and competitiveness and also respond to priority social and environmental problems. Thus, action on STI will lend impetus to strategies which contribute not only to economic growth and productive diversification, but also to sustainable and inclusive development.

This review is intended to be a tool for learning and reflection – not a rating mechanism, but an external and neutral assessment that enables all participants in the STI system to better understand the system's strengths and weaknesses and to identify its strategic priorities. This document has three fundamental goals: first, to provide to the Government of Panama and Panamanian society with an updated diagnosis of the effectiveness of STI policies, programmes and instruments; second, to strengthen such policies and measures by integrating them into the national development process; and third, to increase national innovation capacity and appreciation of innovation as a driver of the country's sustainable development strategy.

The Science, Technology and Innovation Policy Review of Panama was produced by UNCTAD in response to a request made in November 2018 by the National Secretariat for Science, Technology and Innovation of Panama (SENACYT). It was prepared with the support of the Secretariat and the United Nations Development Programme country office in Panama.

The review was prepared under the leadership of Shamika N. Sirimanne, Director of the Division on Technology and Logistics of UNCTAD and the supervision of Angel Gonzalez Sanz, Chief of the Science, Technology and ICT Branch. The team of experts included Claudia Contreras, UNCTAD (project coordination and chapter II) Jose Luis Solleiro, Senior Research Fellow at the Institute of Applied Sciences and Technology of the National Autonomous University of Mexico (chapters III and IV) and Isabel Bortagaray, Senior Lecturer at the University of the Republic, Uruguay (chapters IV and V).

The analysis drew on information from national and international economic and social reports, institutional documents and interviews with 69 SENACYT professionals and other actors and beneficiaries of the national STI system. Interviews were conducted during the course of a formal working visit to

Panama City between 4 and 15 February 2019. Several group meetings were held with entrepreneurs and researchers who are beneficiaries of SENACYT programmes. A series of virtual interviews took place between 18 February and 15 March 2019, since it was not possible to conduct all interviews during the visit. On 12 June 2019, a workshop to present the preliminary findings of the review was held in Panama City and was attended by more than 65 experts and national actors in the STI sphere. During the workshop, a first draft of the document was presented and a wide variety of comments and suggestions was received. This document sets out the analysis and the main conclusions and recommendations of the review.

This review would not have been possible without the cooperation of SENACYT, in particular that of the National Secretary, Dr. Jorge Motta, and the Chief of Planning, Ms. Diana Candanedo, and her team: Doris Quiel, Giancarlo Roach Rivas, Milva Samudio and Anthea Villanueva. The UNCTAD secretariat thanks them for their commitment to the project's success. Gratitude is also extended to all participants in the national workshop and to the persons and entities that generously gave their time and ideas.

OVERVIEW

Over the past 20 years, Panama has achieved significant progress in developing its national science, technology and innovation (STI) system. Thus, an institutional framework has been established that underpins STI policy and governance mechanisms and, under the leadership of the National Secretariat for Science, Technology and Innovation (SENACYT), a system has taken shape with a clearly defined structure that envisages action at different levels and provides the basis for the development and implementation of strategic plans.

In the last decade, the STI system has made important gains in terms of public investment in research and development, human resources training and access to information and communications technology. Scientific publications and patent applications have multiplied. In 2015, for the first time, a 25-year STI policy was adopted, together with a National Science, Technology and Innovation Strategic Plan (PENCIYT) for the period 2015–2019. Also for the first time, the Government of Panama is beginning to take into account the importance of innovation in its strategic planning. During this period, SENACYT has begun conducting specific mission-oriented research programmes in strategic areas, including water, energy and health. It is also in the early stages of implementing inclusive human capital formation programmes.

The analysis also highlights the country's capacity to design and organize STI plans. PENCIYT builds on a long tradition of STI planning and its programmes demonstrate a significant degree of structural coordination and coherence. It is an ambitious plan that addresses important aspects of research and development, attempts to push boundaries in different areas and seeks a balance between an open, cross-cutting approach and a focus on specific problems.

Nonetheless, Panama continues to perform poorly in STI in comparison with other economies in the region and more developed economies. In particular, spending on research and development remains inadequate and efforts are State-led with very little participation by enterprises. The STI system lacks a critical mass of researchers, while those who do engage in research operate in a context of limited resources. There are few linkages between academia and productive sectors, or with social actors who might benefit from the knowledge generated. Additionally, the STI system still lacks effective coordination mechanisms and is largely concentrated in the public sector, while little importance is attached to knowledge and innovation.

It is also observed that Panama lacks a broader and deeper vision of endogenous development in various policy domains. Panama is a trade-

based economy in which social and economic actors do not recognize knowledge as contributing to competitiveness and development. STI is confined to a few actors and is more closely linked to science than to innovation. Furthermore, the country's innovation model – based on the acquisition of technologies from abroad – facilitates short-term change but reduces the potential for strengthening innovation systems through inter-institutional coordination. The system must be strengthened and allowed to further mature if it is to drive changes in production patterns so that a knowledge economy emerges in which strong learning linkages are generated between different actors.

In addition to the need to reinforce the systemic dynamics of innovation, it is equally important to align innovation objectives with environmental and social challenges. Worsening inequity, poverty, climate change and pollution have been transformed into major challenges and opportunities for STI policy. Meeting those growing and ambitious challenges (as expressed in the Sustainable Development Goals) will require innovation to be directed towards transformative policies that allow for a transition to more sustainable and inclusive systems.¹

The objective proposed in PENCYT that Panama should move from a “transit” economy to a services economy and from there to a knowledge economy will require a reorientation and intensification of change. Competitive performance depends on intellectual capital formation and society's ability to innovate; accordingly, knowledge-based competitive strategies must encourage collective innovation processes involving multiple actors. It is also necessary to recognize that business is the key actor in innovation and that innovating requires macroeconomic conditions conducive to the creation of a set of favourable externalities, regional specificity – responding to the needs and socioeconomic conditions of different population groups and regions – and incentives to stimulate relevant processes and activities.

Growth in international trade and the increasing share of products with higher technological content do not necessarily imply a globalization of

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