

Dominican Republic

POLICY REVIEW

SCIENCE, TECHNOLOGY AND INNOVATION



The science, technology and innovation (STI) system in the Dominican Republic is incipient. Despite a lack of data and variables that accurately measure the country's performance, estimates seem to indicate that the levels of investment in research and development, scientific production, and business innovation are very low, and have been consistently below those of neighboring countries at the same level of development.

Since 2011, when UNCTAD carried out an STIP review, the main achievements have been in respect to the National Fund for Innovation and Scientific and Technological Development (FONDOCYT)¹, managed by the Ministry of Higher Education, Science and Technology (MESCYT)². FONDOCYT has assigned, over the last ten years, 2,755 million pesos (54 million US dollars) to 400 projects at universities and research centers. Together with the National Career for Researchers, FONDOCYT has been able to build research capacity, especially in basic and health sciences, as well as change the mentality at universities, who until very recently had turned their backs on research in STI.

Between 2008 and 2018, the Strategic Plan for Science, Technology and Innovation (PECYT+I)³ was in force, which included very ambitious goals. In practice, with the exception of the above-mentioned efforts and achievements of FONDOCYT, the plan remained largely unimplemented as a result of a lack of a well-articulated system of institutions and a significant commitment of resources.

¹ Fondo Nacional de Innovación y Desarrollo Científico y Tecnológico, FONDOCYT.

² Ministerio de Educación Superior, Ciencia y Tecnología, MESCYT.

³ Plan Estratégico de Ciencia, Tecnología e Innovación, PECYT+I.

The limitations in STI capacities had already been identified in the previous STI Policy Review (UNCTAD, 2012). This review provides an update of those findings and presents new opportunities to enhance the science and technology system for the Dominican Republic. This study also presents strategies, institutions and public policies that are effective in other countries and can also serve as a model to promote science, technology and innovation.

The recommendations of this study are aimed at:



i) raising awareness of the importance of STI for development;



ii) fostering an effective governance system that promotes active government, private sector and civil society participation; and,



iii) building a more effective allocation of resources to promote STI.



The main recommendations can be summarized as follows:

- 1** **While it is important to promote science, technology and innovation in all governmental departments and ministries, in accordance with their respective priorities and mandates, this should be done under a common and coordinated strategy.** This implies a governance system that involves and commits different ministries such as Higher Education, Science and Technology; Farming; Economy, Planning and Development; Industry and Commerce; Environment and Natural Resources; Public Health and Social Assistance. The Colombian experience offers some good practices in this regard.
- 2** **It is necessary to devise a new structure for STI in which the Presidency has a more prominent role,** one where the Presidential Commission for the Promotion of Innovation⁴ (CPFI) created in May 2020 takes the lead, for example in ensuring participation of the ministries involved in knowledge and innovation, and in assigning MESCYT the important function of STI plan and programme implementation.
- 3** **STI should be seen as an important tool for sustainable development.** In other words, it is necessary to link the country's sustainable development challenges, such as environmental vulnerability, poverty or unemployment, to possible solutions emanating from technology and innovation, along the same lines as those contained in the National Development Strategy 2030. A practical way of doing this would be to identify relevant challenges of development in social, environmental and economic spheres and linking those challenges with concrete and practical science and innovation solutions.
- 4** **It is important to design a new STI plan.** Although the new plan must be led by the highest political authority, it must also seek to generate the broadest possible consensus, and a change in the vision of the role of STI in national development that ought to involve the political and social players.
- 5** **A new plan must find a governance mechanism that ensures an effective coordination of STI policies,** beyond the MESCYT and involving other areas of government and business. Although the PECYT+I was structured so that the MESCYT was fully responsible for its implementation, the main actions and funding depended on decisions by many other institutions over which the MESCYT lacked authority. **A new plan must therefore be clearer in its conception and realistic in its execution.**
- 6** **It is essential to create a base of indicators on science, technology and innovation.** There are several international organizations and regional groups that can provide technical support in building these indicators; nevertheless, for this exercise to be of value it would also need sustained funding and training of personnel. The experience gained in the Dominican Republic with the Programme of Indicators of Agricultural Science and Technology⁵ or ASTI, although limited to the farming sector, can provide a useful reference.
- 7** Public funding for STI is insufficient to achieve the goals set out in the National Development Strategy 2030. Therefore, **it will be necessary to increase the endowment of FONDOCYT and other supportive mechanisms so that more projects can be implemented and have more impact.**
- 8** **FONDOCYT should not only be maintained and strengthened, it should also cover other research areas -including social sciences, arts and humanities-.** This should be done in conjunction with a plan to strengthen other funds that support research and development.
- 9** **The private sector invests too little in research and development (R&D). This is the result of a productive structure biased towards activities with little technological content. Therefore, it is urgent to find ways to encourage companies to invest in R&D,** for example, through partial subsidies for the execution of projects, tax exemptions for R&D investments or public procurement schemes, which have worked in other countries, and especially in the region.

⁴ Comisión Presidencial para el Fomento de la Innovación

⁵ Programa de Indicadores de Ciencia y Tecnología Agropecuaria (ASTI).

10 **A strategy is needed to enhance participation of the private sector in STI as well as to strengthen the links between academia and the private sector.** As early as UNCTAD's 2011 policy review, the creation of a fund for business innovation was recommended. In addition, associations between academia and the productive sector should be encouraged. In this connection, existing timid initiatives ought to be strengthened including the MYPIME Centers and the Santo Domingo Cyber Park. Equally important is to improve the ecosystem to support start-ups. Convincing Dominican entrepreneurs that a sustainable growth strategy involves investing in R&D will require a coherent incentive structure that is sustained over time. FONDOCYT may be able to facilitate and support progress in this regard.

11 The National Institute for Professional Technical Training (INFOTEP)⁶ is an institution with a large presence in the productive sector that has not taken full advantage of its position in order to promote technological development or innovation. Although this is the result of the low interest that most companies show in the issue, **the Government could promote programs within INFOTEP that stimulate innovation and technological development**, for example, following the example of SENA in Colombia.

12 **Increasing the research base in strategic areas for the country is vital.** The number of professionals with qualifications needed to undertake R&D remains too small. For example, the work of academic staff should include teaching, research as well as extension and outreach, since these three areas of work cross-fertilize and generate synergies that improve the quality of education. Universities should move towards a holistic approach to these three functions.

13 **The MESCYT should be included in the wider system of coordination of international cooperation**, an area that is not currently included in the scope of its managerial structure. This would enable and reinforce the focus of cooperation activities on STI objectives, taking advantage of the wide range of opportunities that exist at the bilateral and multilateral levels, and fully benefiting from the experience of MESCYT in building international collaborations in the academic sector.

14 **It is important to identify, adapt and follow best practices emanating from the experience of other countries, including strategies, institutional setting and public policy design and implementation in STI.** One of these lessons relates to the importance of institutional design. Experience in various Latin American countries shows that a major pillar is the separation between the roles of strategic policy-making and implementation. It is important to pay attention to the indicators that can support this functions, including gender approaches.

⁶ *El Instituto Nacional de Formación Técnico (INFOTEP).*

2020 is a year of unprecedented uncertainties and deep economic contraction. While responding to the immediate challenges posed by Covid-19, it will be necessary to maintain a long-term perspective and to propose a change in strategy that places value on scientific knowledge and innovation. Knowing that the current crisis threatens to seriously damage the country's productive sectors and reveals structural weaknesses in basic services, the Government should respond with sufficiently powerful instruments so that companies, academia and the public sector can adapt rapidly and deliver innovative solutions both to urgent problems and to long-standing ones that affect the prospects for sustainable and inclusive development in the Dominican Republic.

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.

The Science, Technology and Innovation Policy Review of the Dominican Republic was prepared by the UNCTAD secretariat in response to a request made by the Ministry of Higher Education, Science and Technology of the Dominican Republic (MESCYT).

The analysis was based on various reports and secondary sources, national and international databases, as well as interviews conducted between 25 November and 6 December 2019 with approximately 80 professionals from the science, technology and innovation system in Santo Domingo and Santiago de los Caballeros. A draft of the document was reviewed in five workshops during May 2020 organized by the Vice Ministry of Science and Technology (MESCYT).

The report presents the analysis, the main conclusions and the recommendations emanating from an in-depth review of the system of science and technology and innovation for the Dominican Republic. The assessments, judgments and conclusions made in this document are solely attributable to the UNCTAD secretariat.



For more information, please contact:

Angel Gonzalez-Sanz (angel.gonzalez-sanz@un.org)

Eugenia Nuñez (eugenia.nunez@un.org).

