

POLICY INSIGHT

Science and Technology Policy Making in the Philippines

A Review of Accomplishments and Needs

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The crafting and issuance of policies in science and technology (S&T) in any country is essential for its socioeconomic development and growth. In the case of the Philippines, while institutions that contribute to development through science and technology have existed for a long time, the crafting of policies in this area can arguably be traced only to the adoption of the Philippine Constitution in 1935, as well as its subsequent versions in 1971 and 1987. The provisions of the 1987 Constitution reflect the state policy on prioritizing science and technology in areas such as human resource development, research and development, invention, innovation and their utilization, the provision of incentives for private participation, the protection of intellectual property, as well as the adaptation of technology.

S&T policies can be seen embodied in laws, presidential decrees (PDs) or executive orders (EOs). They are also evident in the adoption of national programs that deal with science and technology in general, or in specific

sectors where S&T plays an important role. Moreover, they are apparent in administrative orders which are internal to specific departments like the Department of Science and Technology (DOST).

There are policies that are sectoral or functional in nature, which can also be categorized based on objectives they aim to achieve. As a whole it can be observed that S&T policy making in the Philippines has grown in terms of quantity, quality, and functionality over the last six decades. This growth began with the enactment of the Republic Act (RA) No. 2067, or the "Science Act of 1958," which had the goal of integrating, coordinating, and intensifying scientific and technological research and development, fostering invention, and provide funding for these efforts.

These were three important S&T laws passed in the 1960s: RA No. 3661 of 1963 or "An Act to Establish the Philippine Science High School"; RA No. 3850 of 1964 "An Act to Create a Philippine Inventors Commission, Define Powers, Functions and Duties, and for Other Purposes that Will Promote and Encourage Philippine Inventions and Their Manufacture"; and RA No. 5448 of 1968 or "An Act Imposing a Tax on Privately Owned Passenger Automobiles, Motorcycles and Scooters, Science Stamp Tax, to Constitute a Special Science Fund, Defining the Programs, Projects and Activities of Science Agencies to be Financed Therefrom and for Other Purposes."

In the 1970s and 1980s, there were also issuances of PDs and EOs which carried the force of law. These were during the martial law years and the early years before the enactment of the 1987 Constitution of the Republic of the Philippines. Policies reflecting support for S&T were implemented and exemplified by the PDs that established the Biotech Center of the University of the Philippines in Los Baños, the University of the Philippines National Engineering Center, and the National Science and Technology Authority (NSTA). The NSTA, created through EO No. 784, elevated the National Science Development Board (NSDB) into an authority with expanded functions in the executive branch.

EO No. 784 had clearly defined provisions which supported human resource development in S&T, a stronger national research and development (R&D) system, inclusive development in S&T, and the strategy for excellence in specific foundation areas of science. More specifically, the establishment of the Scientific Career System; the

creation of R&D councils for industry, energy, and health (in addition to the existing one for agriculture); the organization of regional S&T offices; and the conversion of academic departments at the University of the Philippines into national institutes were also embodied in EO No. 784.

The issuance of policies during this period culminated in the establishment of the DOST as a cabinet-level department through EO No. 128, highlighting the government's commitment to advancing S&T in the Philippines.

The 1990s, up to 2022, were very productive years in terms of S&T state policy legislation. Key highlights from this period include the enactment of RA No. 7687, also known as the Science and Technology Scholarship Act of 1994; RA No. 8439 of 1997 known as the "Magna Carta for Scientists, Engineers, Researchers, and other S&T Personnel in the Government"; RA No. 8496 or the Philippine Science High School (PSHS) System Act of 1997; RA No. 9107, also known as the Philippine Science Heritage Center Act of 2001; RA No. 9236 or the National Metrology Act of 2003; RA No. 10055 of the Philippine Technology Transfer Act of 2009; RA No. 10532 or the Philippine National Health Research System Act of 2013; RA No. 10535 or the Philippine Standard Time Act of 2013; RA 10692 or the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) Modernization Act of 2015; RA No. 10844 or the Department of Information and Communications Act of 2015; RA No. 11035 or the Balik-Scientist Act of 2018; RA No. 11337 or the Innovative Start Up Act of 2019; RA No. 11293 or the National Innovation Act 2019; and RA No. 11914 or the Provincial Science and Technology Office Act of 2022.

Additionally, there were also sector specific legislation which were S&Tbased that were approved during the 2000s. These include RA No. 9288 or the Newborn Screening Act of 2004; RA No. 11223 or the Universal Health Care Act of 2019; and RA No. 11363 or the Philippine Space Act of 2019.

S&T policies are also officially adopted by government agencies. The DOST issues administrative orders and memorandum circulars to establish programs or provide guidelines for their implementation and accessibility. While there is a long list of S&T policies and guidelines governing programs, a few notable examples are cited here. These include Administrative Orders (AOs) and Memorandum Circulars (MCs) issued between 2015 and 2023.

In 2003, the Technology Innovation for Commercialization Program (TECHNICOM) was launched to provide development support to commercially viable innovations. In 2022, DOST AO No. 007 was issued to formalize the Revised Policy Framework and Implementation Guidelines for TECHNICOM.

In 2015, following the implementation of the Technology Transfer Act of 2009, DOST Memorandum Circular No. 03 was issued to provide the Guidelines on the Constitution of the Fairness Opinion Board (FOB) and the Issuance of the Fairness Opinion Report under the Technology Transfer Act of 2009.

Another set of DOST guidelines was issued in 2021 for the Implementation of the Technology Super Highway Program. MC 2002 and 2021, to fast-track the filing of potential intellectual property (IP) applications at Intellectual Property Office of the Philippines (IPOPHIL).

In 2016, the DOST Science for Change Program (S4CP) was conceptualized and launched. It covered four components, all designed to significantly accelerate Science, Technology, and Innovation (STI) in the country through massive increase in investment on S&T HRD and R&D. Its four components focused on an accelerated R&D Program Capacity Building of R&D Institutions and in increasing industrial competitiveness. The four programs were: (1) Niche Centers in the Regions for R&D (NICER); (2) R&D Leadership (RD Lead); (3) Collaborative R&D to Leverage the Economy (CRADLE); and (4) Business Innovation through S&T for Industry (BIST).

From 2017 to 2019, implementation was guided by the DOST Grants-in-Aid Policy Guidelines. However, in 2020, DOST AO No. 18 was issued to institutionalize the implementation of the Science for Change Program. In 2023, DOST AO No. 11, titled "Guidelines on the Implementation of the DOST S&T Fellows Program" was issued. This program aims to enhance and strengthen human resource development of the DOST R&D Groups through a pool of researchers, scientists, engineers, and specialists referred to as "S&T Fellows."

It is, however, important to cite DOST AO No. 04 of 2021 because of its impact on Philippine diplomacy policy. The AO, titled "Guidelines in Forging S&T Agreements with International Partners" was issued to ensure coordination and consistency in the process of forming institutional S&T agreements. The DOST's policy of establishing and maintaining strategic bilateral and multilateral linkages to create broader opportunities in S&T and innovation has inspired the Department of Foreign Affairs to include science diplomacy in their strategies.

It can be observed that S&T laws, administrative issuances, and programs convey important state directions and strategies for using S&T in development. These aim to regulate, motivate, prioritize resource allocation, foster collaboration, and advocate for STI.

However, there remains urgent needs for policy issuances and adoption, particularly through legislation and executive orders. Among these are policies that will elevate regional niche research centers into national research and development centers, policies that will enhance public-private partnerships in S&T, and the adoption of a national program of action to achieve the goals of PAGTANAW 2050—a foresight document on S&T. This program of action needs to be integrated into national planning documents. In fact, all new S&T policies should be consistent with PAGTANAW 2050 and should look at the long term horizon.

State policies are also needed to ensure that useful, feasible, and sustainable technologies developed locally are prioritized in government spending and procurement. The same prioritization should be clearly expressed to support local enterprises established using locally developed technologies and innovations. In support of this policies that will enhance the effectiveness of technology transfer, including creative and responsive ways for universities to merge their intellectual properties are needed. There should also be policies that will help locally developed innovations to transition from small scale implementation to widespread national and international adaptation.

These should be accompanied by reforms that will streamline the processes involved in awarding R&D grants, in procurement for R&D and S&T services purposes, as well as in the accounting and liquidation procedures. These are to be geared towards improvement, efficiency, and accountability.

Looking at the future policy landscape, there has been significant progress in the official declaration and issuance of policies in the area of S&T. However, the focus should shift toward strengthening national S&T governance, ensuring R&D funding sustainability, accelerating technology transfer, and integrating industry.

Institutionalizing PAGTANAW 2050 as a national S&T roadmap should also be prioritized. It lays out the means and ways to achieve the Filipino people's aspirations "as expressed in the 1987 Philippine Constitution, the various Philippine Development Plans, the United Nations Sustainable Development Goals (SDGs), the Department of Science and Technology Harmonized National Research and Development Agenda, and the National Economic Development Authority's vision for the Filipino people, AmBisyon Natin 2040" (NEDA 2016 cited in NAST 2021).

As the Philippines continues to evolve its S&T landscape, it is crucial that the momentum generated by past policies is sustained and expanded. The integration of PAGTANAW 2050 into national planning will serve as a beacon, guiding the country toward innovative solutions that foster national progress and contribute to global scientific advancements. The next crucial step is to align existing policies with the long-term vision laid out in PAGTANAW 2050. With focused and strategic actions, the Philippines can harness the full potential of S&T to drive sustainable development, address critical challenges, and secure a brighter future for generations to come.

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