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SCIENCE AND TECHNOLOGY AGENDA  
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**If you become the next president, what is the role of science, technology, and innovation in your medium-term development plan?**

Insufficient government investment on science, technology, and innovation stunts the growth of industrial and agricultural productivity, hinders the development of strategies for disaster risk reduction and management (DRRM), and deters increased efficiency in public service delivery in general.

My administration will invest heavily on science and technology. The sector will immensely benefit from increased investment in infrastructure in general, to 5 percent of the gross domestic product (GDP). We will also widen the scope of the Public-Private Partnership (PPP) Program to include science and technology infrastructure.

On the first budget proposal we will submit to Congress, my government will aim for a research and development allocation equivalent to 1 percent of the GDP. This will gradually increase, to 2 percent of the GDP by our last year in office. Key investment areas will include:

- Agriculture, particularly for the development of farming technologies and crop varieties that will help the sector cope with disasters and climate change;
- Manufacturing and micro, small, and medium enterprises, particularly for the production of more high-valued products from agricultural raw materials;
- Health, particularly to improve strategies for non-communicable diseases;
- Renewable energy, to help address the country's power needs and achieve goals of reduced carbon emissions; and
- Environment, climate change, and disasters, particularly for hazard mapping, the development of early warning systems, and biodiversity protection.

## **How can the public sector, particularly the government, create an innovation economy?**

As senator, I have filed several bills aimed at creating an environment conducive to innovation and fostering collaboration among the government, the private sector, the academe, and research institutions. Unfortunately, these bills have languished at the committee level. Once elected, I will shepherd the following into approval:

- The Scientific Communications Act (Senate Bill No. 2882 in the 16<sup>th</sup> Congress), which seeks to train scientists and researchers better relay the results of their endeavors to policymakers;
- The Research and Development Efficiency Act (S.B. No. 2379), which seeks to establish under the Office of the President a Research and Development Support Committee to review regulations affecting research and development;
- The International Science and Technology Cooperation Act (S.B. No. 3126), which seeks to establish under the National Academy of Science and Technology a committee that will identify and coordinate with international partners for science and technology; and
- S.B. No. 1722, which seeks to establish the Commission on the Advancement of Women in Science, Engineering, and Technology Development.

We will revise procedures on government acquisition of scientific equipment and even the audit of research and development expenditures. The human resource arms of all government agencies related to science, technology, and innovation will also be better trained to hire and retain scientists and researchers.

My administration will highlight science, technology, engineering, and mathematics (STEM) in the curricula at all levels of education. At an early age, Filipinos will be equipped with the knowledge and skills that will be useful should they pursue STEM higher education tracks. We will ask Congress to re-file and pass:

- The Science Start Grant Program Act (S.B. No. 1738), which seeks to provide grants for pre-schools to provide age-appropriate science education programs;

- The Planting STEM in the Classroom Act (S.B. No. 1891), which seeks to provide government agencies and employees specializing in science and technology opportunities to support STEM activities in classrooms;
- The Model High Schools Act (S.B. No. 1756), which seeks provide grants to business and education partnerships for the purpose of establishing model high schools for science and mathematics;
- The Agricultural Science Early Education Act (S.B. No. 2075), which seeks to integrate agricultural science subjects in the elementary and secondary educational system; and
- The Nuclear Science and Nuclear Engineering Scholarship Act (S.B. No. 3120), which seeks to establish a national scholarship program for studies in nuclear science and nuclear engineering.

To help micro, small, and medium enterprises (MSMEs), we will establish engage academic and research institutions and establish extension networks to train business owners in accessing advanced technologies and global markets. We will also facilitate access to finance, so that they can acquire new facilities and knowledge.

Once elected, I shall actively seek out scientists and researchers based abroad and invite them to come home. We will provide additional incentives for experts and specialists. It is also important to improve the work environment of Filipino scientists, not only to retain them but also to improve the quality of their output.

I will also ask Congress to re-file and pass my proposed Pinoy Innovator Act (S.B. No. 1196), which seeks to establish a program to award prizes to individuals and entities who develop innovative technologies. If Congress fails to approve these proposals by midterm, I shall issue executive orders with the same effect.

**How will your development plan on science, technology and innovation translate to government programs, projects, and activities?**

### **Internet**

One of my key points of action as president is the improvement of the national information infrastructure, beginning with the installation of a high-speed Internet system. The government and the private sector should work hand in hand to solve the problem of slow yet expensive Internet services.

Experts estimate that given the present state of Philippine Internet, ₱800 billion in capital expenditures is needed every year to provide 80 percent of households an Internet speed of at least 2 mbps. The two Internet giants have been setting their capital expenditure at an average of ₱60 billion a year.

Clearly, the government must also invest. As president, I will allocate budget for the development of shared Internet infrastructure. My administration will encourage telecommunication companies to increase capital expenditure and commit to match private capital with public investment.

We will also seek to create, with legislative support, an environment that will encourage entry of more nationwide telecommunications providers. In the meantime, we must explore temporary solutions including Internet protocol (IP) peering, which allows traffic exchange between networks.

Under my watch, the Magna Carta for Internet Freedom, which I filed as S.B. No. 53, will be enacted. The law, which primarily seeks to protect individual rights from threats posed both by the online revolution and government response to it, also includes provisions on the standards of service for all Internet service providers.



## **Health**

Research and innovation is crucial in the health sector. As president, I will increase research and development support for non-communicable diseases. I also commit to strengthen the infrastructure for monitoring diseases. This will include an Undiagnosed Diseases Registry, as I have proposed in S.B. No. 3060, to facilitate early recognition, research, and control of such diseases.

We will upgrade food and drug testing facilities to conform to global standards. My administration will also train health workers and equip them with proper tools and technologies to care for their patients, especially in depressed areas. I will also launch a “next generation research initiative” in the National Institute of Health, as I have envisioned in S.B. No. 2705, to facilitate knowledge transfer among health experts.

## **Agriculture**

In the agriculture sector, research and development agencies will be mandated to coordinate with educational institutions in an effort to promote farm diversification and integration. We will shift from a single commodity to a farming systems approach. Our goal would be food security, not merely rice self-sufficiency.

I will advocate for the creation of an Agricultural Weather Office responsible for the collection and dissemination of weather information specifically for agricultural producers (S.B. No. 1770). My administration will also encourage urban agriculture, to be managed by a new office under the Agriculture Department (S.B. No. 2492).

My administration will encourage mechanization as well as energy self-reliance in all steps of the value chain. I shall push for the passage of the Food and Energy Farm Research Act (S.B. No. 1346), which seeks to encourage private sector participation in developing and applying renewable energy technologies in the agriculture sector.

### **Renewable Energy**

Renewable energy will be another key area for my government's science and technology development plan. Once president, we will place in launch in the pipeline large-scale introduction of the following energy options:

- Biogas for decentralized cooking and electricity;
- Small hydro power for local electricity;
- Small wind power for water pumping and local electricity;
- Solar photovoltaics for local electricity;
- Solar collectors for water and space heating;
- Ethanol and biodiesel for agriculture and transportation;
- Large hydro power for grid electricity;
- Large wind power for grid electricity; and
- Geothermal energy for heat and grid electricity.

### **Environmental Management and Climate Change**

My administration will launch a Climate Risk Baseline Project to effectively identify priority areas, draft and implement mitigation and adaptation strategies, and measure gains. The first budget proposal we will submit to Congress will have higher allocations for the development of reliable early warning systems.

I will direct relevant agencies to adopt and improve on indigenous knowledge that have proven helpful in conserving biodiversity. Existing indigenous community conservation areas such, as those in the Mt. Katalungan Range Natural Park in Bukidnon and the Sierra Madre Biodiversity Corridor, demonstrate how cultural preservation can strengthen environmental conservation.

Indigenous peoples are also on the forefront of watershed protection. By working with resource-poor communities, they can help rehabilitate the Chico River Basin in

the Cordillera Administrative Region and the Lake Lanao River Basin in the Autonomous Region of Muslim Mindanao, among others.

We will rely heavily on research and development in conducting a cost-benefit analysis on the implementation of the Mining Act. My administration will also push for the Water Use Efficiency and Conservation Research Act (S.B. No. 1800) and the Oil Spill Technology Research Act (S.B. No. 1578), which I have filed in the Senate.

### **How can the government leverage digital technology for inclusive development and poverty reduction?**

We must widen access to digital technology before we can dream of using it to impact the Philippine poverty situation. My administration, with the help of the private sector, will build information and communications technology hubs in rural areas, with computers, a digital media library, and reliable Internet access.

Through these “smart villages,” poor women and mothers will learn how to access health information for themselves and their families, children can complement the classroom experience, and men, especially those involved in agriculture, can make better informed farm decisions.

My administration will also provide grants and assistance for state-run schools to go online. Distance learning programs have high impact potential, as they can be offered to a wide number of students at minimal cost. We will prioritize technical-vocational institutions to equip the poor with life skills.