Philippine Journal of Science
146 (1): vii-viii, March 2017
ISSN 0031 - 7683

EDITORIAL

Scientists as Public Servants

Government employees serve in the public interest and their offices exist to help the citizenry lead meaningful productive lives. They fulfill their role as public servants by performing well their duties and responsibilities. The Philippine Statistics Authority estimated that there were 40.84 million employed persons in 2016 with about eight percent of them (3.31M) working in government and government corporations. In comparison, SM Investment Corporation - the largest Philippine company by market capitalization, employs more than 94,500 personnel according to the Financial Times.

On average the yearly National Expenditure Program that is submitted by the Executive Branch to Congress for its approval, is equivalent to 19.38% of the GDP of the previous fiscal year based on available figures in the last fifteen years ending 2017. The national budget is increasing steadily given the prevailing robustness of the Philippine economy. From 2002 to 2016 the nominal GDP (in Philippine pesos) grew at an average annual rate of 16.72%. The 2016 and 2017 budgets are equal to 22.6% (PhP 3.002T) and 22.8% (PhP 3.35T) of the pertinent GDP figures.

The 2017 budgets of the Department of Science and Technology (DOST) and the State Universities and Colleges (SUCs) respectively, are 6.46 (at PhP 20.773B) and 2.15 (at PhP 58.718B) times larger than they were in 2006. The 2017 budget (PhP 13.512B) of the University of the Philippines (UP) – the national university of the country, is 1.52 times bigger than it was in 2006. On average, UP gets 27% of the yearly appropriation for SUCs which number a hundred and thirteen today.

The DOST is the main provider of government R&D grants and scholarships in science, technology, engineering and mathematics (STEM). In addition, it operates the Philippine Science High School System together with a number of service and research institutes in weather forecasting and climate analysis, food and nutrition, marine resources, forest products and metallurgy as well as in information and nuclear technology. The DOST funds the National Academy of Science and Technology and the National Research Council of the Philippines. It also publishes this journal.

The SUCs are the main recipients of peer-reviewed R&D grants from the DOST and the Commission of Higher Education which also regulates the Philippine higher education system that is now composed of more than one thousand nine hundred institutions (HEIs). Most government scholars – undergraduate and graduate, study in the SUCs but only four - UP, Central Luzon State University, Visayas State University, MSU-Iligan Institute of Technology, are capable of functioning as graduate universities with tenable PhD programs in STEM. Barely a hundred STEM PhD graduates are produced each year – a rate that is insufficient to increase the number of graduate universities or even strengthen the capabilities of the few existing ones.

The energies and talents of scientists and researchers are considerable but still finite. They are best utilized in generating human capital i.e., at improving the accuracy of human insight of the physical, biological and social world as well as in training the next generation, rather than in augmenting personal income or in cultivating partisan social networks. For faculty members in the aforementioned SUCs this implies mentoring more PhD students and enabling them to graduate in a timely manner.

A PhD degree is granted to a qualified student who has made an original, novel and significant scientific contribution as ascertained in the publication of his or her dissertation research findings in a recognized peer-reviewed journal. UP accounts for about eighty percent of the annual STEM PhD graduate production. Baseline data indicate that the national PhD production rate is unlikely to improve steadily in the next ten years following AY 2013-2014 under prevailing working conditions.

Simply stated, the purpose of research is to publish in a journal that is widely read in the science community. From 2009 to 2015, the number of SCOPUS-indexed publications by Philippine-based authors grew at a rate of 136 ± 66.43 per year with UP contributing 35.57% of the total number within the said period. Unlike the national trend, the number of UP publications peaked in 2012 at 648 and then began to decrease to 618 by 2015. Among the six major ASEAN economies, the Philippines has the lowest SCOPUS publication per capita and the fewest number of researchers per million of population.

A country needs a large and ready pool of scientists to provide its political leaders, policy-makers and executives with possible solutions to existing as well emergent national challenges. These challenges - from rising income inequality and drastic climate change to bureaucratic inertia and inefficient deployment of assets and resources, are natural phenomena that are complex, multidisciplinary and evolving in time. Scientific expertise is essential in formulating and testing their corresponding physical models in order to develop a more accurate understanding.

Constituencies would suffer needlessly from the unintended consequences of policies, regulations and directives that are derived from mere speculation, unsystematic trial-and-error or convenient pandering to popular sentiments. During the time of Galileo (1564 – 1642) the conventional wisdom was that the Earth is the center of the Solar System. Public acceptance and institutional blessing did not prevent *geocentrism* from dismally failing to explain the observed behavior of planets and stars in the sky.

Structural changes are needed to enhance the capacity of the scientific enterprise system to absorb the increasing input of public funds for R&D and STEM human resource development. The offering of more scholarships will not result in more STEM PhD graduates if the number of capable and willing dissertation supervisors does not increase proportionally. The dangling of more R&D funds will not lead to palpable improvements in the quality of life if they just end up in a limited circle of overloaded scientists and researchers. Without a more nurturing and enabling environment the prospective returns to the Filipino taxpayers are diminishing with time.

As the recipient of the largest slice of the SUC budget, UP is duty bound to lead in improving the performance of the higher education system. It can start by measuring the extent that it has accomplished its purpose as stated in Section 3 of Republic Act 9500 – The UP Charter of 2008. UP is designated to play several institutional roles - to serve as a graduate and as a research university while acting as the leading HEI in public service and in innovations in teaching.

UP is a system of constituent universities (CUs) identified primarily on geographic grounds. Currently there are eight CUs that differ widely in campus land area, personnel complement, student population and number of undergraduate and graduate program offerings. In April 2011, 84% of all regular UP faculty members (3,430) were based in just three - UP Diliman (43.6%), UP Los Baños (24%) and UP Manila (16.4%). Only four CUs are offering PhD programs in STEM.

It is hard for an existing CU to fulfill the purpose of UP in its entirety and be all things to all taxpayers. Rethinking the concept of a CU into one that will function in a more focused role as a research and graduate, teaching, or as a public service university, might help UP become more successful as a whole. For one, administrators with the best positional fitness are most likely chosen to manage a more focused CU.

The vitality of DOST research institutes is enhanced if they are enabled to recruit highly skilled young postdoctoral fellows from here and abroad. Senior researchers will host the fellows in their respective laboratories for a fixed period of 12 to 24 months. Similar fellowship programs already exist in the national laboratories of Korea, Japan and Taiwan to name a few. A critical assessment of the DOST *Balik-Scientist* Program would yield lessons that are invaluable in the design and implementation of the postdoctoral program.

Scientists are relied upon to demonstrate that evidence-based decision-making is the best way of making government works for its citizens especially in a world where the most valuable resource is data.

CAESAR SALOMA
Editor-In-Chief