The Utter Need for More Scientists

Address delivered at the National Academy of Science and Technology's Investiture of New Academicians at the PICC July 9, 1981 by President Edgarco Angara of the University of the Philippines.

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The Filipino scientific community is our country's foothold on the 21st century. It is also the foundation of our efforts just to catch up with the present age. It is quite evident that in this technological era, our country's economic progress and national stability must rely on technological advance. That simply means of trained scientists available for the industrial and other needs of the Philippines.

Figures shown to me indicate that there are less than a hundred active research scientists with doctoral degrees who are involved in the Natural Sciences and Mathematics. That means less than 2 Ph.D's for every million Filipinos in the country today. If we multiply that figure 4—to take in scientists and technologists in other fields—that gives us only 8 Ph.D's for every million Filipinos.

The UNESCO, I understand has recommended that for viable and self-sustaining scientific undertakings for countries like the Philippines, we need about 400 research scientists and technologists for every million of the population.

That we do not have that number of scientific manpower at present and that there seems to be no central direction and unified program to attain that desired pool of scientists and technologists, poses a clear and present danger to the New Republic.

I need not remind you how essential the support of science is. And how overriding is our need for technology. For in a technological society, it is essential to have an adequate supply of scientific manpower capable of applying science and its methods to practical problems.

The development of science and its practical application in technology are the first and foremost concern of government everywhere. To a developing country like the Philippines, scientific development and technological advance are even urgent. They are crucial, not only to national growth, but to our capacity to grow. Technology has demonstrated its ability to telescope economic progress and leaf-frog over certain painful stages in economic development.

The Report of the Independent Commission on International Development Issues concludes that a country can benefit from additional technology only if it can absorb and adapt what it has already received. More, it is also necessary that it provides "the 'welcoming' structure which can connect up new technology to old societies".

But when we speak of the ability to absorb and adapt new technology or of establishing a "welcoming structure", we are really referring to the scientific manpower that is trained to understand the theoretical basis of the latest technology and capable of adapting the latest technology and capable of adapting that technology to our needs and resources, and for the solution of our problems.

When we refer to science in relation to national development, we are referring to people and not just to disembodied theories. We are stressing the need for a quantity and type of scientific manpower sufficient for scientists to take root in our society. If we want to join the ranks of the developing countries, the training of the required number of scientists and technologists is the first goal we must achieve, resolutely and at once. To attain that objective, however, requires a singular force and central direction which science in our country presently lacks. There is also no concerted effort to glamorize public opinion behind the need for sciences so that government and private industry can be influenced to allocate adequate funds for a rational science policy. There is therefore a need to educate the public on the importance of science.

A public indifference that borders on ignorance has made science, as a career, one of the least attractive in our country today. It suffers from a meager material incentives and lack of laboratories. It is plagued by an obdurate bureaucracy and requires scientists to take a vow of poverty without Christian promise of heavenly reward.

Our apathy to science is not induced by an inherent inability to learn and apply it to practical uses.

The membership of this Academy is the best proof that we, as a people, are not incapable of mastering the sciences. Academies of science are regarded with the highest respect. Politicians and rulers, who usually listen to no one, invariably need their advice on scientific matters, particularly on the scale and distri-

bution of resources for research and science education. The Royal Society of London is an example. It is the highest adviser of the British government on science matters.

The same role could be played by our own National Academy for some of our most eminent scientists compose its membership. Even now, the National Academy can become a potent force in forging a national will to draw Filipino talent into advanced science and technology.

The Academy is in a singular position to provide independent and disinterested advice to our people and government. As the New Republic embarks in a new economic program, I urge you to field your prestige and influence to bring about a fundamental change in popular attitudes regarding scientific research. This country must realize its true values as the indispensable basis for our progress into the 21st century.

We are fortunate to be present at this time and era in our history. With the proclamation of a New Republic comes a clear call for a fresh start in our effort to achieve, through science and technology, a better life for our people. It is my hope, as it is your aim, that the National Academy of Science and Technology will be at the forefront of this renewal of effort and resolution.

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