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# MESSAGE

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Chair, Steering Committee of the 45<sup>th</sup> ASM

We are indeed in a time of great innovation in science and technology. Our task as scientists and technologists is to support those innovations that deliver not just democratic empowerment but both **democratic empowerment and development.**

We make a distinction between democratic and developmental empowerment: by democratic empowerment, we mean any movement political, technological, or administrative that delivers “empowerment as an opportunity” to the many versus the few; by developmental empowerment, we mean any movement that delivers “empowerment as outcome” to the many. “One man, one vote” is democratic empowerment; Higher income, better health, and better education for the many are developmental empowerments. These two empowerments may agree but may also disagree. Their agreement we call “developmental democratization”.

We believe that Science and Technology can and should be harnessed to make developmental democratization the more likely outcome.

Democracy, viewed as *vox populi*, has a natural affinity for simple democratization but not necessarily for developmental democratization. Every democratic empowerment will of course be defended as developmental empowerment. It is the duty of scientists and technologists to parse these proposals and call out anti-developmental democratizations.

This task is not easy. A democratization may be developmental or anti-developmental depending upon the surrounding social circumstances. The task of social scientists and technologists is to characterize the prevailing circumstances as more likely to produce developmental or anti-developmental outcomes. This is far from easy.

In the late 18th century France, the big political debate was whether the Bourbon (Capetian) monarchy can be replaced by democracy. The accepted fiction then, inherited from the Greeks, was as the Bourbon Kings expressed it: *Après moi, le déluge* (“Democracy means anarchy”: Socrates’ version in The Republic). The French Academy of Science addressed the question as scientists rather than as a street rabble. The “Condorcet Jury Theorems” (Marquis de Condorcet, 1785): the *vox dei* version: “The judgmental competence of a competent electorate deciding by majority vote (50% + 1 one-man-one-vote) between two alternatives A (say, airport) and B (say, expressway) will exceed the judgmental competence of any monarch as the number of voters becomes very large.” The opposite holds (*vox diaboli* version): the judgmental competence of an incompetent electorate will fall to zero as the number of voters becomes very large.

It is therefore possible for democracy under a competent electorate to replace monarchy!

This should be our template: scientifically identify the conditions where democratic empowerment delivers development.

Last week (6 July, 2023), President Ferdinand Marcos, Jr. signed the “New Agrarian Emancipation Act” condoning the principal repayment to 58 billion pesos debt of Comprehensive Agrarian Reform Program (CARP) beneficiaries. What does this mean? As a theory, land reform empowers the many by reducing land ownership inequality; as praxis, the development goals defined as higher income for farmers can be frustrated as beneficiaries descend into “landed poverty”: Poverty incidence in the rural areas remains at 36% vs 13% in the urban areas.

Debt condonation recognizes that CARP has failed. It is a small but positive step toward true outcome emancipation. To make the initiative truly developmental, we have to reconnect farmers with the formal financial sector by raising the ownership ceiling from 5 hectares to 25 for farming households and 500 hectares for public corporations

#### Other Ongoing and Possible Outcome Empowerments

1. Ongoing: Renewable solar and wind energy and Battery Energy Storage System (BESS) are rebooting our electric power industry, making consumers the producers of their own power based on the bottom line and not just love of mother earth consideration. It reduces power cost and makes power more reliable! But possibilities remain only possibilities forever unless we put ourselves behind developmental empowerment. The nation needs scientists and technologists to inform and urge both the powers and the public in their direction.
2. Possible: Open Artificial Intelligence (AI) empowers teachers and students: empowering the students: chatbots can serve as personal private tutors to students. Students can quickly check the correctness of school- and teacher-supplied materials. (2.2) Chatbots can serve as teaching assistants to teachers. (2.3) Schoolroom dynamics: it can make students the built-in monitors of teaching and fact checkers. One reason for poor outcomes in the Program for International Student Assessment (PISA) and others, say, is poor teaching and poor access to information. Teachers impart ideas they may vaguely understand from outdated textbooks and often resort to authority for validity. Monitoring of teachers is difficult and culturally- and politically-dissonant for superiors. Monitoring teacher performance and accuracy of materials could become decentralized among students who can fact check in real time with a simple click chatbots; these allow students to become precocious readily correcting teacher mistakes and are considered disruptive. With such precocity at students’ fingertips, teachers will themselves be forced to resort to chatbots to keep up. Chatbots may even take costly textbooks out of the pedagogical equation. Providing students and teachers universal access to affordable and reliable internet access is therefore key.

In preparation for the ASM, the NAST PHL, in collaboration with the Department of Science and Technology (DOST) Regional Offices, held a series of Regional Scientific Meetings in Luzon, Visayas, and Mindanao, which discussed the role of science and technology in achieving greater development and empowerment.

I would like to extend my heartfelt gratitude to our DOST family, our partners, and stakeholders for their continued support and, most importantly, to the Academy and the hardworking individuals of NAST PHL.

*Maraming Salamat!*

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*National Scientist Raul V. Fabella is a renowned economist who has made significant contributions to the fields of economic theory, agricultural economics, and international economics. He is known for his work on the East Asian model, which he showed can achieve rapid growth if it is export-oriented, has a pegged exchange rate, and conservative fiscal and monetary policies. He has also been actively engaged in policy debates and political issues in the Philippines, and has been recognized for his work with numerous awards.*