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Challenges and Opportunities for Philippine Agriculture In the Time of Climate Change, Looming Water Scarcity and Increasing Energy Costs

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The Honorable Emilio Macias, Governor of the Great Province of Negros Oriental, The leadership, here led by the University President Dr. Ben Malayang, and the community of Silliman University, one of the country's most venerable universities, The leadership of FCSSP, led by the President of the Federation, Dr. Oñate, Component Societies and Associations of the FCSSP, their leaderships and members, Brethren in the service of the people, whether in the research and academic community, private industry, as entrepreneurs and farmers, civil society or public service,

Good morning.

Let me first thank all of you for the honor and privilege of being invited to deliver the keynote to open this apex scientific conference for the crop sciences in the country. I recall that while serving with PhilRice, the last time I attended this conference was way back in the 1990s of the last century right here in Silliman University

You have invited me to keynote this conference that proposes to address 'the challenges of water and energy crises'. I have every confidence that the dedicated scientific sessions will address those two critical issues much more pointedly. Please bear with the necessary comprehensiveness with which I intend to tackle this keynote, hoping that I can, with some success and precision, properly situate these two issues in the general scheme of things as a government bureaucrat like me would see things.

Unlike the vast agricultural areas of the Asian mainland, the Americas and Europe, the Philippines is archipelagic. Our production areas are spread over this archipelago and they nowhere near approximate the vast production areas in the mainlands. Nor the great rivers that nourish them with irrigation water. With as many production environments and their unique biophysical properties, the cost of anything from the development of suitable genetic material the accompanying farm technology including mechanization, irrigation and transport among other things, are relatively higher. This is of course further magnified by social factors like the predominance of small farms and a still to be completed agrarian reform program that

apparently did not benefit much from technical knowledge on the differences among various farming systems.

On biophysicals, we have a mixed bag. We have plenty of ambient solar radiation, relatively good although scarce land which frontier we reached in the middle of the last century, a tropical climate with plenty of precipitation, plenty of geothermal, solar and wind energy as well as lots of biomass and vast marine resources, On the other hand, we have a very prominent place in both the Typhoon Belt where we are probably considered the buckle, and the Ring of Fire where we also probably occupy the ringstone position.

On the government policy and domestic support side, we have a lot of catching up to do and the historical neglect has really caught up with us, especially in last year's food price crisis when our nation's very belly was exposed, We were able to manage supplies and procurement and we did not have the food riots that visited many developing countries but we could not afford another such episode.

Up to about four years ago, we spent heavily on irrigation systems construction to the tune of some six billion pesos annually, roughly half of the DA budget and mainly financed by foreign loans, but virtually nothing on repairs, maintenance and rehabilitation. Given a similar historical neglect of the watersheds, what we have now, and trying hard to address, are irrigation systems that are more precipitation-dependent rather than watershed-supported. As a consequence, we lost more hectareage annually to system degradation than the combined annual new hectareage from these construction projects. With the new fast tracked irrigation rehab and repairs program on the systems, we have made significant gains but we have lost precious time in finally completing the irrigation systems development program. The sooner we complete the program, the sooner we can shift more substantial support to non-rice crops that are just as strategic or where we are more competitive.

Rural infrastructure is another basic element in agricultural modernization. They provide physical access to the input and output markets for farmers, From the 1990s, DA must have averaged one billion pesos annually until about two years ago when we begun to invest more than double on farm to market roads. There would be more from DPWH, DAR and the LGUs. But the so-called FMRs are typically dirt roads with no permanent surface – good enough for rice, corn and sugar cane but not for perishables and high value crops susceptible to quality losses in transport. Being the buckle of the typhoon belt also meant redundant investments on these roads almost every year. We would need to quickly reverse the urban bias in transport infrastructure, not just land transport but also the ports and domestic water transport, if we are to enhance the transmission and precision of market signals to farmers. Bad transmission simply means bad farm management decisions and bad prices,

Our regulatory system has similarly suffered from consistent lack of modernization investment. The system has two basic functions: border protection so that no harmful elements are introduced into our borders and trade facilitation through the crafting of harmonized standards and their enforcement. Apart from having four separate quarantine agencies, a major flaw in

our border protection system lies in the fact that we are probably the only country in the world where goods imported into the country go through customs first before being directed, if at all, to the supposedly pre-border quarantine agencies. I can almost be sure that when Avian Influenza enters the country it will not be through the natural migratory routes of birds, It would most likely enter this country through the ports. Time and again, since 1998, we at the Department tried to invert this system on its proper head, only to be defeated by revenue targets. But this I can tell you: AI will obliterate the 120 billion-peso poultry industry and its growing prospects in a rapidly expanding multi-million dollar international market.

So outside of policy reforms, finally favoring agriculture the priority it deserves, where should we find our survival kit? No, more than that, our armaments to prevail under increasingly adverse conditions?

In the mid-1960s, when the developing world was on the verge of hunger and famine, on the threshold of another spate of oil price hikes, the world came together to establish and fully support the international commodity research organizations that gave us the First Green Revolution. Equipped with the critical mass of scientific talent and resources as well as the political "ill of governments, these organizations, for all the brickbats they have received over the years, have shown us what high possibilities science and technology can accomplish. The resulting modern seed-fertilizer technology enabled us to conquer photoperiodism and seasonality, poor and abused soil resources, the very poverty of traditional agriculture.

But that was almost 50 years ago. And I lament that given the rapid march of adversities that confront our agricultural production systems, except for some tweaks and fine tuning, we are still primarily dependent on the same 60s vintage technological platform which resiliency and viability are buffeted by the biophysical challenges of climate change, increasing scarcity of land and water resources, and the economic challenges of runaway financial market speculation and the impacts of the depletion of conventional energy resources. This old technological platforms will not be able to sustain the human population when it hits the eight billion mark in 30 years, nor will it be able to sustain our population when we reach 120 or ISO million in a couple or so decades.

With nothing else in the box, the agricultural extension system, or what is left of it, continues to propagate this technological knowledge among our farmers, in various versions and oftentimes in bits and pieces. Of course there are management technological packages developed years ago that now trickle down to farmers in a much more massive way - IPM, INM, PhilRice's Palayamanan among others. But still nothing much that integrate management practices that cater to the increasing demand for traceability, quality standardization, coping and adapting to the realities of climate change. Nor methodologies, beyond the pilot stage, of farmer access to technological and market information through modern information technology in a country that has been deemed the texting capital of the world, in a time of mainstreamed access to the internet. Providing farmers access to information, aside from enhancing their proficiencies, liberates them from bondage as it enhances their market power and has an equalizing effect on markets.

The Department of Agriculture has, in all international fora, continue to call for a renewed science and technology effort to develop new platforms of technology that would give quantum jumps in productivity, crop resiliency and tolerance to both biophysical and economic adversities. In a just world, this would have to be financed by those who are the primary cause of these adversities - those developed countries whose industries continue not only to pollute the biophysical environment but also the international trading environment by their distortive subsidies that continually motivated the overexploitation of the world's natural resource base and, as we have seen since last year, the international financial and commodity markets by the irresponsibility of their regulatory systems. The world definitely needs a massive rejuvenation of technology development for the primary production systems more than this spate of bailouts for the banks and industrial conglomerates.

But we do not live in a perfect world where international justice is a concept whose coming may be longer than John Maynard Keynes' long run. We of a country of scarce land resources, not enough water when needed and too much when not with an abundance of renewable energy resources, of declining forests but still lots of biomass, would need to put our heads together and put to good use the talents of our scientific community and unleash the entrepreneurship of our people.

In this conference, you will tackle the use of new tools like biotechnology. Will modern biotechnology be key to the development of these new platforms of technology? If it is, there is no other country in this part of the world that can nurture modern biotechnology development, as we are the only one with an established biotech regulatory system that can, in an objective and scientific manner, handle the whole chain from technology development to commercialization.

Before I end, let me tell you what small farmers face. I remember that our grandfathers, the farmers among them especially, used to rely on their Almanacs, those with the picture of the moon, the sun and the stars and that venerable patron saint of agriculture San Isidro de Labrador. That book and its adherents benefited much from the regularity of the seasons. The First Green Revolution consigned that book to obsolescence and yet modern technology allowed farmers to judge and evaluate the numerous elements of risk in agriculture, make decisions and progressively learn from their miscalculations. But these times of a double whammy of biophysical and economic challenges, a lot of those risks have degenerated into uncertainties. The seasons are no longer as predictable, and therefore, water and other factors of production. The commodity and financial markets have recently been under speculative attacks with shocks reverberating to the farms in terms of severe fluctuations in input and farm prices. Under this environment that is unfavorable to risk taking, we can only expect investments in agriculture to suffer, particularly those small investments that small farmers themselves make. Agricultural recovery and further growth therefore hinges on us being able help the farmer regain his bearings in these very choppy waters. The levels of risk need to be addressed and the nature of uncertainties better understood.

I am very sure there are among us with definite ideas on how these challenges can be addressed. I myself, now a bureaucrat and long out of the scientific community, do not see even the shape of the answers and to say that I am very much concerned for our future is really an understatement.

Knowing the nature of scientific conferences after having attended lots of them in my previous life, I have just the following wish and request: that a coherent resolution on these issues, or at least the two in the theme of the conference, come out of your deliberations and discussions: a consensus of this conference that government and this country cannot ignore. I know that I am probably asking too much beyond the customary presentations, awards for best papers and posters, the annual election of officers. But if the collective and unified voice of the biggest group of crop scientists gathered in one place cannot be harnessed to initiate urgent action, for what other higher purpose do we hold scientific conferences for?

I advance my apologies then, for making such an audacious wish and request, in case it is not possible under the circumstances. Just the same, I leave it as an urgent call to this conference and the community it represents.

Again, thank you very much for the honor and privilege of addressing such a distinguished community this morning. In behalf of the Department, I wish you a most productive and enjoyable conference.

Segfredo R. Serrano
Undersecretary