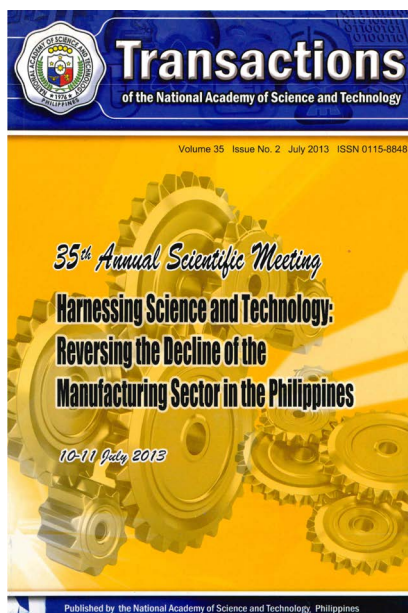


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Harnessing Science and Technology: Reviving the Philippine Manufacturing Sector

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**Keynote Address for the 35th Annual Scientific Meeting of the
National Academy of Science and Technology, Philippines
(NAST PHL)**

**HARNESSING SCIENCE AND TECHNOLOGY:
REVIVING THE PHILIPPINE MANUFACTURING SECTOR**

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First of all, I would like to thank the National Academy of Science and Technology for inviting me to give the keynote address to its 35th Annual Scientific Meeting. I would also like to congratulate this year's awardees. We are glad to see that the NAST is taking this opportunity to deepen the discussion on the role that science and technology can play in reviving the Philippine industries, particularly the manufacturing sector.

My presentation begins with an overview of the country's recent socioeconomic performance. It then proceeds to elaborate on the development imperatives for the second half of the Aquino administration. It moves on to specifically addressing the challenges for S&T and industry. It ends with concluding remarks on the way forward.

Our economy has grown remarkably over the past couple of years. This is particularly impressive given that much of the rest of world are either in crisis or slowly recovering from crisis.

From the start, we have emphasized the crucial role that industry, particularly manufacturing, plays in development. This is why we are very encouraged to see the latest data on the performance of the Philippine economy. Not only did we have a very good growth of 7.8 percent for the first quarter of 2013 after a better than expected full year growth of 6.8 percent in 2012; industry also led the pace of economic expansion, growing

at 10.9 percent, with manufacturing, the sector's biggest component, growing at an impressive rate of 9.7 percent despite the 8.4 percent drop in our goods exports. The main contributors to the strong growth were manufactures of food, household appliances, communication equipment and apparatus, chemical products, basic metals, machinery and other equipment, and transport equipment. The next highest contributor to industry's growth is construction, whose 32.5 percent strong growth indicates a good positioning towards an industry-led economy.

However, about 62 percent of the country's domestic output is concentrated in three regions in Luzon, namely Metro Manila, CALABARZON, and Central Luzon.

The huge disparity in development between the regions is also reflected in high income inequality. Inequality in incomes and opportunities can weaken the power of economic growth as a key strategic vehicle for eliminating acute poverty. Rising inequality can also undermine political and social stability, which is a necessary condition for sustainable development and prosperity.

Poverty remains high—and has not changed much in recent years. Based on the official poverty lines, the proportion of the population deemed poor decreased only slightly from 28.8 percent in 2006 to 27.9 percent in 2012.

The big challenge, therefore, is ensuring that the growth process is inclusive. By this, we mean that a lot more are able to participate in the growth process, but all benefit from the growth, particularly the poor. Clearly, more needs to be done.

For the past three years of this administration, we have been working to promote rapid, sustainable, and inclusive growth. We have learned useful lessons along the way. Among these are:

First, good governance has proven to be an effective platform upon which development strategies should be implemented.

Second, macroeconomic—fiscal, financial, external—and political stability fuels positive expectations that lead to growth.

Third, economic growth is necessary but not sufficient for poverty reduction.

Fourth, growth strategies need to have geographic and sectoral dimensions to ensure inclusivity.

And fifth, disasters, both natural and man-made, can negate the gains and even push back development.

With these lessons in mind, we are currently updating the Philippine Development Plan 2011-2016 to identify gaps and refine our strategies so that we can achieve our development targets.

The updated Plan is grounded on three basic principles. First, government plays a catalytic role, that is, government provides enabling conditions for the private sector to invest in productive sectors of the economy. Second, government advances equity goal by broadening access to opportunities through connectivity and human development. And third, the strategies and actions to achieve inclusive growth are doable within the Plan period, especially in the second half of this administration.

We are not giving up on the twin goals of rapidly increasing employment opportunities to substantially reduce the stock of unemployed persons and significantly reducing poverty to come as close as possible to our Millennium Development Goal (MDG) commitment.

The industry sector, particularly manufacturing, has a crucial role to play in helping us achieve rapid and inclusive growth. But we need to reverse its stagnation and decline. The Philippines had relatively high manufacturing-to-GDP ratio in the 1980s but since then other Asian countries have outpaced the country. From about 39 percent of GDP in the 1980s, Philippine industry fell to 33 percent in 2010-2012. This is a sharp contrast to Thailand, whose industry-to GDP ratio peaked 44 percent in 2010-2012 from 30 percent in the 1980s. National Scientist Raul Fabella calls our malady a "development progeria".

Employment levels in manufacturing have declined over the past two decades, which reflects the anemic state of Philippine industry. As of the April 2013 round of the Labor Force Survey (LFS), about 53 percent of the

employed are in services, 31 percent in agriculture, and 16 percent in industry. Manufacturing accounted for only about 8 percent of the total employed. There is strong evidence in the literature that links a thriving manufacturing sector with poverty reduction.

However, even assuming an annual growth of seven percent or higher, manufacturing can only absorb a small proportion of less-educated workers and as such complementing policies and programs that will boost productivity in agriculture, where a lot of the poor are, need to be implemented as well. And I am pleased to recognize the efforts of the group of Academician Emil Javier for coming up with such a program for agriculture.

In 2011, the Department of Trade and Industry (DTI) commissioned the Philippine Institute of Development Studies (PIDS) to come up with a Comprehensive National Industrial Strategy (CNIS). The CNIS is to be based on industry subsector roadmaps submitted by industry associations to DTI. DTI also asked PIDS to integrate roadmaps related to manufacturing into a manufacturing industry roadmap (MIR). Dr. Rafaelita Aldaba of PIDS is the lead person for the MIR.

This draft MIR was presented at the University of the Philippines last May. Among other things, the report indicates that the Philippine manufacturing faces a number of constraints, both cross-cutting and sector-specific. Common constraints include the high cost of power and domestic shipping, as well as issues in governance and regulation.

Meanwhile, sector-specific constraints include lack of domestic raw material suppliers, and lack of highly skilled workers.

Notwithstanding the recent high-growth-low-poverty-reduction experience in the Philippines, we are aware that, globally, rapid economic growth is necessary to reduce poverty and promote inclusion. Evidence shows that the substantial poverty reduction that was achieved in developing countries in the past two decades was due mainly to rapid economic growth and structural transformation in these countries, particularly in Asia. The structural transformation usually involved the massive movement of labor from low productivity areas in agriculture to high-productivity areas in industry, particularly manufacturing. Where agriculture grew rapidly as

structural transformation proceeded, the pressure for food prices (and wages) to rise remained muted, thereby further facilitating industrialization, and the generation of high-quality employment opportunities.

Globally, the rapid economic growth contributed nearly two-thirds of the observed poverty reduction in the developing world. Roughly, based on World Bank data, a 1% increase in GDP per capita reduces poverty by 1.7%.

To sustain our rapid growth, we need to transform the structure of our economy from one that is largely consumption-driven, fuelled by remittances, to one that is increasingly investment-led and employment-oriented. Given the favorable macroeconomic fundamentals, especially the fiscal space, and high business confidence, we have the opportunity to accelerate the implementation of development programs that will shift the economy to a higher growth trajectory.

The industry sector has great potential to boost inclusive growth. For instance, the results of the April 2013 Labor Force Survey showed that while employment in agriculture fell by about 624,000 workers, employment in the industry sector grew by 3.8 percent or 224,000 workers from April 2012 to April 2013.

The quality of employment in the industry sector also improved, with the number of persons working 40 hours and over per week increasing to about 79 percent in April 2013, from 64 percent in April 2012. This trend is also reflected in the increasing percentage of wage and salary workers, which rose to about 58 percent in April 2013 from 56 percent in April 2012. The wage and salary worker category is often seen as an indicator of the quality of employment. So when that category is rising in relative terms, it suggests that the quality of employment in the country is also improving.

Our drive to revitalize the Philippine industries, particularly manufacturing, is closely related to our strategy to massively generate quality employment, especially for low-skilled workers.

The following are the draft recommendations of the Manufacturing Industry Roadmap compiled by the PIDS:

In the short run (2014-2017), policies should focus on strengthening and rebuilding existing capacity of industries especially those with strong potentials to generate employment; addressing missing gaps; and creating linkages and spill-over effects in sectors such as automotive, electronics, food, garments, motorcycle, shipbuilding, chemicals, and allied or support industries.

In the medium run (2018-2021), and as domestic capacities are utilized, efforts in the initial stage should lead to expansion and new investments especially in the upstream, immediate or core sectors such as parts and components industries. By linking manufacturing with agriculture, construction, and services, supply chain gaps will be addressed and forward and backward linkages will be strengthened. As these efforts continue, the objective of having a globally competitive manufacturing sector will be achieved.

Broadly, the measures and strategies that are needed to promote inclusion are also the ones needed to increase the country's long-term competitiveness. For example, investing in human capital development, especially in health and education, will also enable us to develop a larger pool of potential S&T and R&D talents. Improving access to transportation, energy, communications, and financing will enable closer interconnections between companies, suppliers, and industry sectors, thus increasing efficiency, reducing barriers to entry, and creating greater opportunities for innovation in products and processes. Maintaining macroeconomic stability and a good business environment will help attract investments, thus creating employment opportunities and enabling more Filipinos to contribute to growth.

Inclusive growth does not come by chance. It requires deliberate policies that expand opportunities for remunerative employment and human development. It also demands development in the periphery through integration of the lagging areas or regions of the country with the fast-growing, leading areas or regions. Large-scale targeted programs also need to be in place to directly assist those who are unable to participate in the growth process. Scientific and technological innovations can also promote inclusiveness, not only by promoting rapid growth, but through its direct benefits in improving quality of life, food security, and environmental protection.

Reviving Philippine industries requires addressing a number of constraints to development and competitiveness. The World Economic Forum (WEF) defines competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country, which in turn, influence its income levels, returns to investment, and growth potential. In other words, according to the WEF, a more competitive economy is one that is likely to sustain growth.

The WEF has identified 12 pillars of competitiveness, which include the following:

- Institutions;
- Infrastructure;
- Macroeconomic environment;
- Health and primary education;
- Higher education and training;
- Goods market efficiency;
- Labor market efficiency;
- Financial market development;
- Technological readiness;
- Market size;
- Business sophistication; and
- Innovation.

If you will notice, three of these pillars--technological readiness, business sophistication, and innovation--are related to scientific and technical innovation. Meanwhile, two--health and education, higher education and training--are related to the development of potential S&T talent.

At present, our manufacturing exports are largely concentrated in three product groups, namely electronics, garments, and machinery and transport equipment. High-technology exports, particularly electronics, machinery and transport equipment, accounted for about half of our manufactured exports in 2011 and 2012.

However, many of these exports are low value products that are dependent on imported inputs, and have weak forward and backward linkages with other industries. Our industrial structure, as measured by firm size or number of workers, has also remained hollow, with a very small

proportion of small and medium enterprises (SMEs). The linkages between SMEs and large enterprises have also remained weak. SMEs have continued to face competitiveness problems and are continuously beset by difficulties in financing as well as technology and market access.

We need to harness appropriate science and technology to address the constraints and challenges facing the sector. But appropriate S&T is not manna from heaven. To harness the benefits of S&T, countries have to invest in research and development (R&D).

Many of our neighbors have long realized the value of science and technology in long-term growth and economic development, and have accordingly made significant investments in R&D. Meanwhile, Philippine investment in R&D has stayed at a level of around 0.11 to 0.14 percent of GDP, which is among the lowest in Asia.

The number of researchers in the Philippines is also one of the lowest in the region. As a result, new knowledge generated, as measured in terms of scientific and technical journal articles, is also one of the lowest. The number of patent applications by residents also reflects the same trend.

Enhancing the country's S&T capacity depends on good policies and practices that improve the investment climate for S&T and promote coordination and synergy between academe and industry. Policies that promote greater human resource development, facilitate demand for knowledge from the private sector, enhance public support for and management of knowledge institutions, and facilitate access to information and communication technologies (ICT) infrastructure must be coordinated and harmonized in order to create the conditions in which S&T capacity deepens and consolidates. Scientific research institutions and organizations like the NAST have a crucial role to play in generating the basic knowledge needed to build new technologies, and in promoting collaboration between researchers and entrepreneurs. A major part of the R&D work will still be initiated by government. But we hope that the private sector would increase their R&D efforts as well.

As we in government work to improve the business environment and invest in S&T and human capital development, we hope that our partners in the S&T community and in the industry sector will also take the necessary

steps to increase their efficiency, productivity, and competitiveness. As mentioned earlier, one way to do this is to increase research, development, and innovation efforts. To lessen our export dependence on mainly electronics and semiconductors, we hope that our private sector partners will also diversify and expand production of high value products, and increase investments on backward and forward linkages to boost the multiplier effects of our industries.

We are well aware that there are many other factors, aside from S&T innovation, that we must address if we are to truly revive Philippine industries and to ensure that growth is sustainable and inclusive.

To sustain the growth, we need to ensure that economic growth benefits everyone, regardless of location or social status. To do this we need to:

- Shift the structure of the economy from being largely consumption-driven to one that is increasingly led by investments
- Improve efficiency of public investment to serve as a catalyst for greater private sector participation
- Connect the regions to facilitate access to markets and basic services
- Address critical constraints to investments, particularly high power cost, poor infrastructure, policy inconsistencies and administrative inefficiencies
- Improve revenue and tax efforts to increase resources available for infrastructure and social spending; and
- Create new drivers of growth that will generate high quality jobs and strengthen regional comparative advantage. These sectors include manufacturing, agriculture, and agri-business, tourism, IT-Business Process Management (BPM), housing and infrastructure and logistics. These sectors and industries are spread across the country. Though some of these sectors are not in industry, there is still a lot that can be contributed by industry especially in enhancing backward and forward linkages.

To further increase the capacity of industries to grow and to generate employment, we are pushing for measures to support new investors and to improve access to financing, especially for small and medium enterprises. We are also reviewing the foreign investment negative list and rationalizing

fiscal incentives, giving preference to generators of high-quality employment and investment outside of NCR and Metro Cebu.

Successful implementation of these strategies demands a greater sense of urgency among us in government, as well as better coordination between and among the various agencies charged with implementing programs and projects. Under the leadership of our President, we are coordinating our programs and projects to maximize efficiency and effectiveness.

I would like to conclude by presenting you this challenge. We know that industrialization is crucial to sustained growth and that S&T plays a crucial role on the road to industrialization. But we also would like to see that industrialization-led growth is inclusive as well. As it now stands, as we mentioned earlier, industry is able to absorb only 16% of workers; manufacturing in particular, less than 9%. Our current fast-growing industries have low backward and forward linkages. This needs to change. We invite you to embark on strategies for inclusive growth. We are willing to listen, to work together.

Together, let us promote a culture of multi-disciplinary collaboration, knowledge sharing, open dialogue, and cross-fertilization of ideas, as we work to harness the benefits of science and technology to improve the lives of our people.

Thank you and good morning.