

SECTION 3

**Setting Sights on the Future:
Philippine Goals and Aspirations**

SECTION 3.1

THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS AND FUTURE EARTH PHILIPPINES

The United Nations (UN) General Assembly in 2015 decided to adopt 17 Sustainable Development Goals (SDGs) (Figure 3.1_1) intended for global achievement by 2030. These were born from the eight Millennium Development Goals that aimed primarily to “halving the world’s extreme poverty rates, stopping the spread of HIV/AIDS and providing universal primary education.” The SDG agenda has become a blueprint for galvanizing efforts to meet the needs of the world’s less-developed and poorer nations, a “shared vision of humanity and a social contract between the world’s leaders and the people.”

In the Philippines, being a maritime and archipelagic nation, the SDGs could be considered the bible for implementing development plans from the lowest level to the highest level of government. The indicators of the 17 SDGs are used as achievement benchmarks by the government, non-government organization, and academic institutions. The SDG committees or groups have been established in the legislative and executive branches of the government with the National Economic and Development Authority and the Philippine Statistics Authority acting as the consolidating and coordinating arm.

In 2019, the National Academy of Science and Technology, Philippines through the leadership of National Scientist Lourdes Cruz sought to align with the SDGs by developing the Future Earth Philippines Project—now being proposed to be expanded into the Future Earth Philippines Platform (FEPP). Patterned after the global Future Earth Program, the FEPP is focused on implementing transformative and trans-disciplinary research and networking, as well as in assisting in the achievement of the SDGs towards having a “safe and healthy Philippines” (Figure 3.1_2).

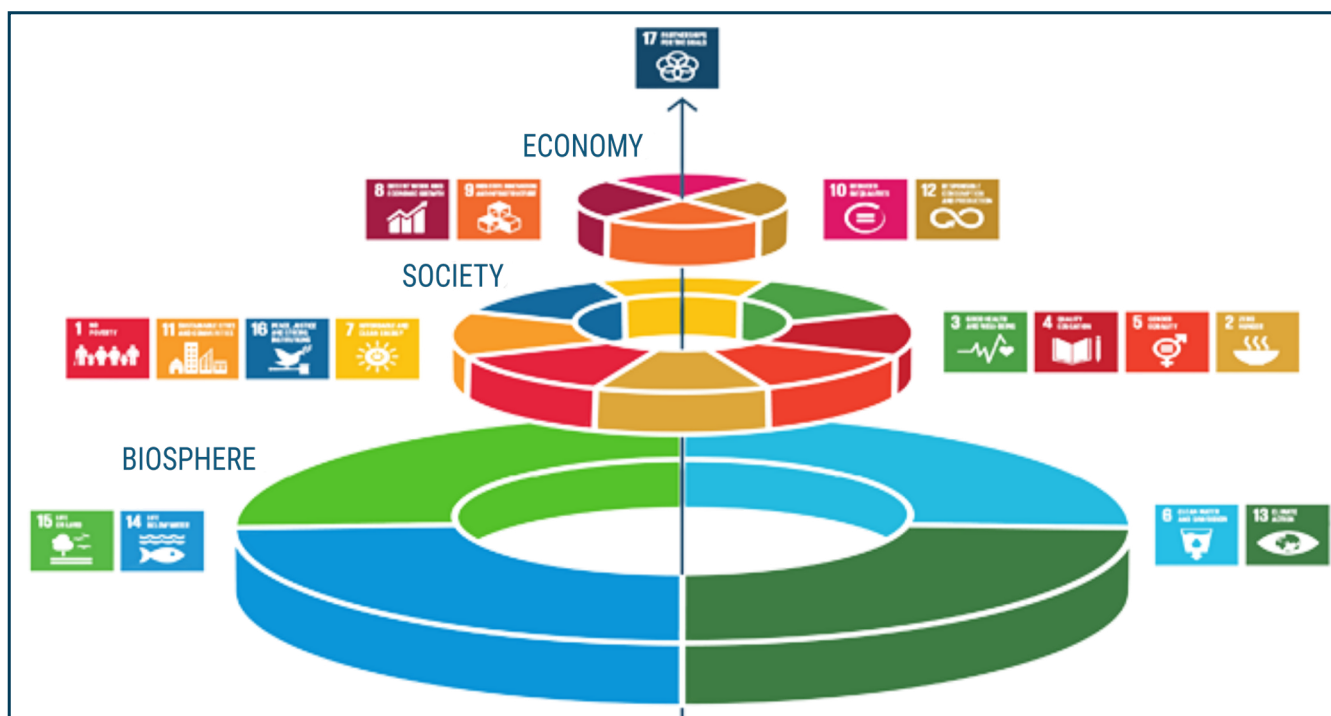


Figure 3.1_1. The 17 United Nations Sustainable Development Goals 2030
 Source: Stockholm Resilience Center (2016)

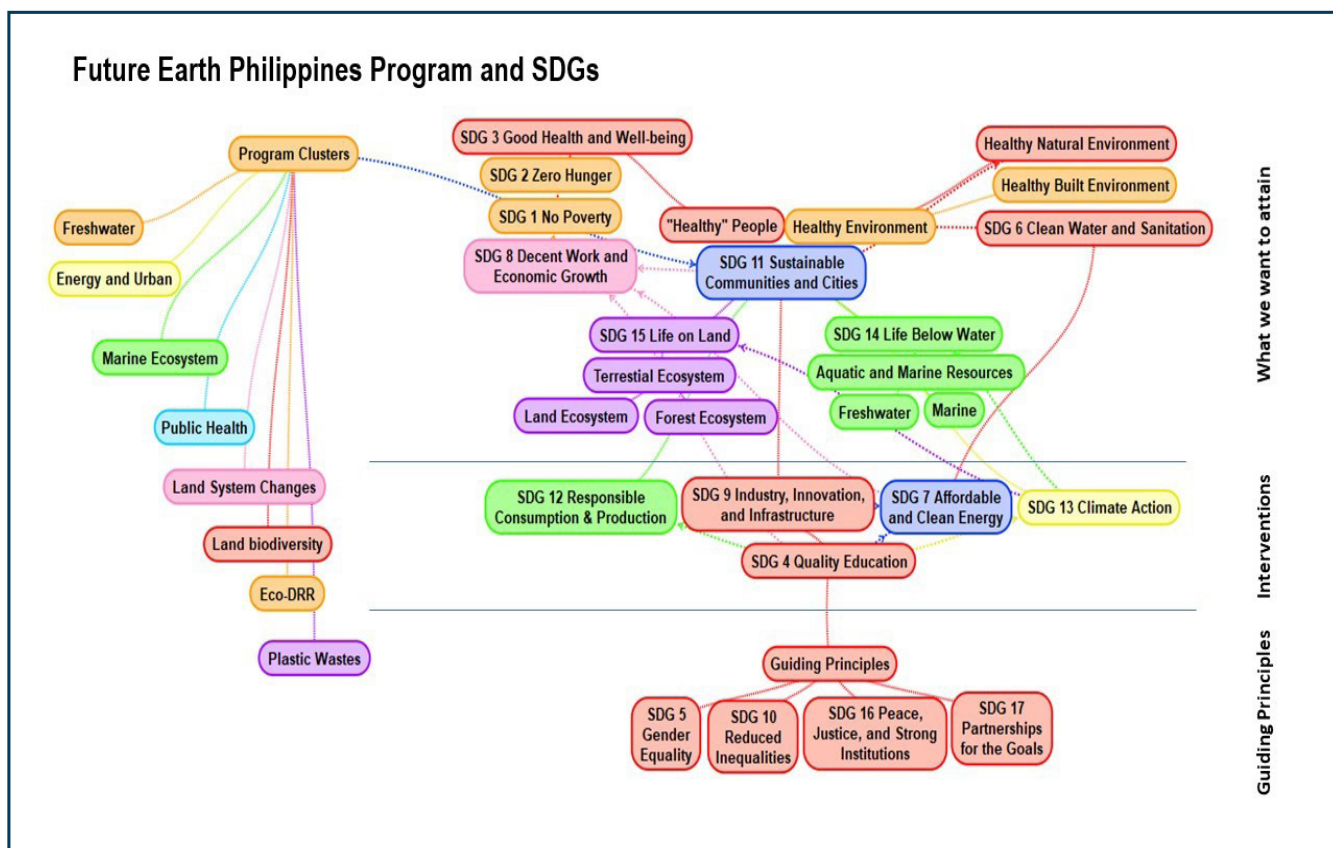


Figure 3.1_2. The Future Earth Philippines Program and the Attainment of SDGs
 Source: Azanza et al. (2018) as cited in FEPP (2019)

Three Spheres of the SDGs and Science, Technology, and Innovation support for Sustainability and Productivity

The SDG indicators are inter-related and interactive, as seen in Figure 3.1_1, where the environment/ biosphere is shown as a “bedrock” for sustainability and productivity of the society and its economy. A degraded and non-functioning or malfunctioning environment would not be able to provide the resource base for societal needs. Science, technology, and innovation are vital in the achievement of the SDGs to minimize, if not prevent, proliferation or initiation of approaches and methods that have become non- supportive in our changing world.

Multidisciplinary and trans-disciplinary systems analyses should consider the society’s values and preferences. Science- based education on needs and/or demands for old and new products will have to consider the current status and future projections of our environment, society and economy. The following approaches: sustainable consumption and production rates, integration of environmental protection into the countries’ developmental plans and circular economy/bio-economy should be major components of adaptive action plans.

The protection of biodiversity, especially in a maritime and archipelagic nation, has been one of the major dogmas for sustained and resilient productivity. More nuanced evaluation of temporally and spatially collected data for global assessments towards the protection of biodiversity and sustainable development is urgently needed; the currently prescribed SDGs are inadequate in protecting biodiversity or are being masked off by development indicators as pointed out by Zeng et al. (2020).

Holistic approaches to environmental sustainability that considers the interconnectedness from the highlands to the oceans, have long been put forward, and need serious consideration particularly in maritime and archipelagic nations such as the Philippines. Proper governance at all levels, with community cooperation are valuable for the SDG Knowledge to Action Programs to succeed, hopefully in the earliest possible time before 2030.

Highlights of COVID-19 Global Impacts on SDGs

The COVID-19 pandemic that started early in 2020 has affected the production and analysis of data for the SDG 2020 Report. Data gaps have reportedly been made serious, making the assessment of progress more difficult. The negative impacts of the pandemic on the different goals made their achievement more difficult in most countries. The following are highlights of the 2020 SDG report and the major influences of the pandemic on each of the 17 SDGs:

Goal No. 1: No Poverty. *The pandemic pushed millions of people to extreme poverty in 63 countries. Natural calamities and social conflicts exacerbated poverty in some of these countries.*

Goal No. 2: Zero Hunger. *Climate effects and social conflicts have been threats to food security with additional negative impacts from the pandemic. An estimated 47 million under five years old are wasting, and millions of the same age are stunted.*

Goal No. 3: Good Health and Well-being. *Less than half of the world is covered by Health Systems. The pandemic has reversed decades of health improvements, and it has interrupted child immunization in 70 countries.*

Goal No. 4: Quality Education. *Progress (for Inclusive and quality education on lifelong learnings), although slow in some countries, has been reversed by the pandemic. Remote learning is made difficult by a lack of infrastructures and appropriate materials.*

Goal No. 5: Gender Equality. *Gender equality has made progress in some countries. During the pandemic lockdowns increased violence against women has been reported. Since more women have been on the frontlines, their household burdens are heightened.*

Goal No. 6: Clean Water and Sanitation. *Before the pandemic, an estimated one billion people lacked access to safe water and basic sanitation facilities. Due to the pandemic, millions more could be displaced by water scarcity by 2030.*

Goal No.7: Affordable and Clean Energy. *Pre-COVID-19 estimates show that one out of four households in developing countries does not have access to electricity; financial support to developing countries for renewable energy source improvements has continued during the pandemic.*

Goal No. 8: Decent Work and Economic Growth. *Before the pre-pandemic, economic growth slowed down, but the worst happened during the pandemic, making unemployment increase further due to stoppage or closure of companies.*

Goal No. 9: Industry, Innovation, and Infrastructure. *Sustainable industrialization and infrastructures almost came to a halt during the pandemic with the deepest decline in aviation; lack of access to the internet negatively affected innovation.*

Goal No. 10: Reducing Inequality. *The Gini Index, which measures the distribution of income across a population, shows that the pandemic further made the Gini index in 38 of 84 countries fall. Thus, making the goal of reducing inequality less achievable by 2030.*

Goal No. 11: Sustainable Cities and Communities. In 2018, urban population was reduced by 24% globally, making city life more sustainable. However, the pandemic has affected urban cities the most by making urban life less safe.

Goal No. 12: Responsible Consumption and Production. Consumption and production rates in many countries are being slowly addressed by the circular economy approach. However, it is now being hampered by the pandemic in some areas where health concerns and food challenges have increased.

Goal No. 13: Climate Action. Before 2020, 85 countries have aligned with the Sendai Climate Change framework. A drop of about six percent in greenhouse emission has been recorded during the pandemic, but it is still short of the 7.6% reduction to lessen global warming by 1.5 degrees centigrade.

Goal No. 14: Life Below Water. Lack of data from some areas and continued degradation of coastal and marine habitats before and during the pandemic have been observed, but with the recuperation of some resources during the pandemic, plastic pollution remains to be a threat to life below water.

Goal No. 15: Life on Land. In 2020, forest degradation has been estimated to reach 2 billion hectares worldwide, affecting about 3.2 billion people. Biodiversity conservation efforts have intensified.

Goal No.16: Peace and Justice Strong Institutions. International cooperation for peaceful and safe societies has failed in some areas where there are still internal and external conflicts.

Goal No. 17: Partnerships to Achieve the Goals. That “no one should be left behind” through global partnership made possible, primarily through the Overseas Development Assistance remained unchanged until 2019 but this scheme could fall because of the pandemic since many of the donor countries were likewise affected.

SECTION 3.2

DEVELOPMENT PLANS: SOCIOPOLITICAL ISSUES, FILIPINO ASPIRATIONS, AND SCIENCE, TECHNOLOGY, AND INNOVATION

The social and political dimensions relevant to the pursuit of inclusive development in a maritime and archipelagic Philippines are herein identified to ensure inclusive growth and competitiveness that will benefit all Filipinos, especially those in marginalized sectors.

The Philippine population, though still generally younger, will have started to age by 2050, with 16% above 60 years old (Population Pyramid 2020). By contrast, those who are born in 2020 will be young professionals by then. Those younger than 30 years old will constitute 43.5% of the population. At the same time, two-thirds of Filipinos (65.6%) will be residing in urban areas in 2050, up from less than half of the population (48.6%) in 2010 (Navarro 2014). Such demographic transitions, along with patterns of economic growth and urbanization, are all linked to development. However, to make this development inclusive—a perennial challenge for the Philippine economy—social and political considerations need to be taken seriously.

We also need to understand these issues in relation to our collective aspirations as a people, for which science, technology, and innovation (STI) will play a fundamental role in both charting and navigating our way towards their attainment. In the latter part of this section, we endeavor to lay out the historical precedents and future functions of STI in the context of nation building.

Sociopolitical Issues

The following issues will be explained in detail: democratic challenges, youth welfare, Bangsamoro concerns, and China's persistent aggression. Although not exhaustive, these have been identified given their long-term impact on the ability of the Philippines to progress sustainably and equitably. Indeed, by the time the Philippine population breaches 144 million in 2050, these and other issues will continue to impact the country's sociopolitics as well as its economy. They demand immediate attention from social scientists and policy makers.

While these needs are already current, their consequences on Filipinos are predictably complex and long-term. Addressing them early on will ensure that economic gains are to be equitably shared. Each of these issues entails very specific needs, which will be explained in detail.

Democratic challenges. Although the Philippines regained its democracy in 1986, much remains to be desired when it comes to the quality of democratic participation among Filipinos. It is true that democratic institutions and processes are in place. Institutions such as the different branches of the government have been generally stable and processes such as the elections honored.

However, this democracy is defective. Despite the fact that the Philippines might officially be Southeast Asia's oldest democracy, clientelism in politics maintains the inequalities that have defined Philippine society for centuries (Teehankee and Calimbahin 2020). At the same time, scholars have brought up several concerns in recent years about the eroding quality of democracy in the Philippines. The popular support for strongman rule, for example, underpins the popularity of what Thompson (2016) considers "illiberal reforms" in the name of law and order.

Indeed, campaigns against criminality, including the war on drugs and the potential reinstatement of the death penalty, are widely supported, as they relate to people's fears and anxieties about security in their own communities (Curato 2016). Within a context of impunity, these sentiments will linger in the years to come, engendering distrust of state agencies mandated to administer peace and order. At the same time, inequality sustains these sentiments, as marginalized sectors feel that they cannot rely on the justice system to decide in their favor. Reinforcing these sentiments are anti-deliberative discourses. For one, statements made by public officials have de-legitimized the voices of critical citizens (Rüland 2020). Also, certain policies may be inimical to democratic participation.

Civil society actors have been alerted to the threat of the Anti-Terror Law in silencing dissent among themselves. The work of "networks of disinformation" that shape public opinion on social media can be added to the list (Cabañes and Cornelio 2017; Ong and Cabañes 2018). Indeed, disinformation in the form of "corrosive falsehoods", "moral denigration", and "unjustified inclusion" has been shown to arrest the potential of democratic conversations about pressing issues (McKay and Tenove 2020).

Furthermore, the call for greater democratic participation is intensified by the transformation of the youth, who are increasingly alienated from politics, as they are far more invested in personal economic advancement (Cornelio 2020a, b).

Taken together, these issues pose challenges for the future of democratic participation among Filipinos, with respect to the values it demands. These values include accountability, civil and political freedom, political and economic equality, and deliberative capacity. The latter, in particular,

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recognizes the need for citizens to engage with differing perspectives in the hope of coming up with conscious collective decisions (Curato 2015).

Youth Welfare. The second need concerns the future of the youth. The Philippines will continue to have a young population by 2050, even as society begins to show signs of ageing. Their overall welfare thus deserves particular attention.

One area that needs intervention is political representation that can effectively uphold their interests. This is much needed, given the inability of Sangguniang Kabataan (SK) to attract their attention. In recent elections, the SK failed to secure enough candidates for all open positions, and there are no signs that this will improve in the future. While SK proves to be a useful avenue for fostering political participation among the youth, this is not the case in many communities around the Philippines, where they are socialized into corruption by adult politicians (Ponce et al. 2013). Scholars in youth studies are of the collective opinion that the future of political participation rests on young people who are convinced that they can make a positive difference in society (Schwartz 2010).

The state of education is another area that needs attention to ensure that youth welfare is addressed. In the past decade, the government's *Pantawid Pamilyang Pilipino Program*, a conditional cash transfer mechanism, has increased school enrollment (Catubig and Villano 2017). K-12 education was also implemented with a view to preparing young people to become more globally competitive as a workforce.

The long-term impact of these policies on national development has yet to be seen (Adarlo and Jackson 2017). One critical area is not only sustaining retention, but ensuring the quality of education that fosters critical thinking and scientific consciousness.

At the same time, the quality of tertiary education is uneven across the country. This is worth investigating, given the subsidies accorded to state universities and colleges to foster universal education. Some scholars argue that this is a strategic investment for the country (Lim et al. 2018).

Another area is the capacity of the job market to absorb this highly-educated workforce in due course. Many advanced countries will continue to rely on foreign labor, certainly an opportunity for highly educated Filipinos (Tan 2019).

Finally, the physical well-being of the youth will remain a formidable challenge in the years to come. Malnutrition, stunting, and mortality are connected to the problem of hunger that affects the most impoverished families (Salvacion 2017). Securing their nutrition is directly tied to national development interests. No less than economist Cielito Habito (2020) claims that hunger is "a major factor behind our underdevelopment and historical lack of economic dynamism relative to our regional neighbors." After the incidence of hunger among households had fallen gradually from 19.1% in

2010 to 9.3% in 2019, it shot up again to 20.9% by mid-2020, as livelihoods were severely disrupted by the government's non-selective reactions to the COVID-19 pandemic (SWS 2020b).

Bangsamoro concerns. The welfare of the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) is the third socio-political need that will remain imperative in the years to come.

In 2019, BARMM officially replaced the Autonomous Region in Muslim Mindanao and adopted a parliamentary system with more powers devolved from the national government. With an overhauled government, the region aspires to progress economically and politically. While it is a culmination of a long journey for a collective identity and lasting peace, the Bangsamoro struggle is far from over (Caballero-Anthony 2007).

The region is the poorest in the country. This is true even after it registered high economic growth rates in recent years. In 2018, its Gross Regional Domestic Product grew by 7.2%, banking heavily on agriculture, hunting, forestry, and fishing (BARMM Government 2019a). By the end of 2019, many reforms were introduced, including the approval of the Bangsamoro Transition Plan, the decommissioning of Moro Islamic Liberation Front combatants, and wage adjustments (BARMM Government 2019b). Despite these laudable developments, formidable challenges remain for Bangsamoro, as it “has long been the most impoverished region in the Philippines, despite its high economic potential by virtue of its rich natural resources” (Taniguchi 2020).

Based on the Family Income and Expenditure Survey in 2018, the average annual family income in the region is PhP 161,000, the lowest in the entire country (PSA 2018d). Poverty and subsistence incidence rates reveal the same pattern. 61.8% of the population in the region are poor (PSA 2020c). The biggest proportion are in the provinces of Sulu (82.5%) and Basilan (73.5%). In terms of subsistence incidence, the region has the highest in the country, at 23.3%. The most affected provinces are Basilan (34.1%) and Sulu (31.5%). Worsening the poverty situation in Mindanao is the constant experience with conflict. Conflict turns poverty into a chronic problem, as it destroys livelihood, shelter, and communities (Malapit et al. 2003).

The Marawi Siege may have ended in 2017, but its repercussions are long-term. Delays in rehabilitation have made it impossible for the city's original inhabitants to return and reclaim their property. Many continue to be disenfranchised from the reconstruction process, thus engendering more resentment. In conflict and peace-building studies, the participation of locals in the reconstruction process is key in fostering ownership and preventing the resurgence of violent extremism (Schwartz 2010). This much is true in the experience of Moro youth (Cornelio and Calamba 2019). The persistence of conflict and violent extremism remains due to the remnants of Islamic State of Iraq and Syria Philippines in the region. Banlaoi (2019) warns that they can “undermine the implementation of the BOL [Bangsamoro Organic Law, RA 11054], sow terror in Mindanao, and ensure that peace remains elusive.”

China's persistent aggression. Finally, the rise of China as a superpower raises important social and political concerns for Filipinos in the future. As it is, China has already asserted its military might in the West Philippine Sea, which the Philippines has been unable to protect effectively.

To compensate for this inadequacy, the Philippines previously sought the intervention of the Association of Southeast Asian Nations in addressing regional security matters. Under the current administration, the government implemented a shift in foreign policy to appease China, hoping to generate investments in the Philippines from China's Belt and Road Initiative (de Castro 2020).

But beyond the military, the aggression of China spells many other social and political challenges for the Philippines, and Southeast Asia as a whole. The first is the historical basis of the claim over the South China Sea, a name that should be contested by the entire region. A cue could be taken from the decision of the Arbitral Tribunal on the Law of the Sea that China's "9-dash line" is spurious. For Malik (2013), "China's claim to the Spratly's based on history runs aground on the fact that the regions past empires did not exercise sovereignty. In pre-modern Asia, empires were characterized by undefined, unprotected, and often-changing frontiers." The claim of a "9-dash-line" is a narrative being perpetuated by the Chinese state among its own citizens, since it is not accepted by any other country in the world.

A serious area of concern is the influx of new immigrants from mainland China to the Philippines. This is a trend that is taking place all over the region, as Chinese investments and business interests grow. The work of the Overseas Chinese Affairs Bureau must be carefully monitored, as new immigrants have engendered tensions not only with local Filipinos but even with Chinese-Filipinos. For See and See (2019), Chinese-Filipinos "have acculturated and integrated into the mainstream of their respective countries. To treat these people as *huiqiao*, or consider them as 'assets' or 'secret weapons' of China, risks not only stoking their resentment at the forced co-optation but may also revive Cold War-era anxieties about their loyalties and allegiances."

Filipino Aspirations

The above sociopolitical realities will influence future development initiatives. It is important that we can relate these factors to our aspirations as we chart solid paths towards the wellbeing of an archipelagic and maritime nation.

The vision for science and technology (S&T), its role in national development, and the strategic agenda for each discipline, industry, and sectors within STI is situated within the context of a national vision for the country. Societal goals and visions are important guiding principles for the direction and objectives of any development agenda. For the country, these societal ambitions are deeply held values and ambitions, reflected in policy, and in fact, enshrined in the constitution. This section begins with the former, the

current societal goals as expressed individual ambitions of Filipinos gathered through a deeply consultative process. It is followed by a review of the legal statutes that, though decades old, still reflect the findings of the AmBisyon Natin 2040 initiative.

In 2015, the NEDA conducted a visioning exercise, a rigorous and methodical national public consultation with Filipino citizens to inform the formulation of a collective long-term vision for the country. It was not a vision only by leaders and elites in the society; it represented the Filipino people's aspirations, for their country, for their families, and for their children's futures. The resulting vision statement and document is AmBisyon Natin 2040, a set of goals for the year 2040 that would ideally guide each political administration's agenda between 2016 and 2040.

As a people, the life that Filipinos want to have is stable, comfortable, and secure. They are guided by strongly rooted values that place family, friends, and community at the center. People are concerned about hunger, health, education; they also aspire to provide for their children and their parents and have a life free of worry and hardship. The vision statement at the level of people is:

In 2040, we will all enjoy a stable and comfortable lifestyle, secure in the knowledge that we have enough for our daily needs and unexpected expenses, that we can plan and prepare for our own and our children's future. Our family lives together in a place of our own, and we have the freedom to go where we desire, protected, and enabled by a clean, efficient, and fair government.

What does this mean for the country? As a society, Filipinos' individual ambitions for their lives add up to a country vision that provides equal opportunities for all, allows prosperity that includes the poor and the vulnerable, and brings the marginalized into the economic development of the country. It is articulated in the Philippines' development ambition as:

By 2040, the Philippines shall be a prosperous, predominantly middle-class society where no one is poor. Our peoples will enjoy long and healthy lives, are smart and innovative, and will live in a high trust society.

These same societal aspirations and the values that guide them are enshrined in the 1987 Constitution. Articles II and III stress the central importance of equality of opportunities and improvement in the lives of the underprivileged. These have underpinned the goals and priorities of all Philippine Development Plans (PDPs) over the years. In particular, the priorities of national policies must include providing:

- (1) a more equitable distribution of opportunities, income, and wealth
- (2) a sustained increase in the amount of goods and services produced by the nation for the benefit of the people
- (3) an expanding productivity as the key to raising the quality of life for all, especially the underprivileged

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Consistent attention is placed on the welfare of the poor. In 1997, RA 8425 or the Social Reform and Poverty Alleviation Act was passed, and programs were implemented through the National Anti-Poverty Commission. The law sought to ensure that marginalized sectors participate in government decision-making and stipulates that every poor Filipino family shall be empowered to meet its basic needs such as:

- health, food and nutrition
- water and environmental sanitation
- income security
- shelter and decent housing
- peace and order
- education and functional literacy
- participation in governance
- family care
- psycho-social integrity

Filipinos have deeply rooted concerns for social and economic inclusion, for building a country where nobody is poor, nobody is hungry, and nobody is left behind. These remain relevant goals, more than 30 years after the 1987 Constitution was adopted. Inequalities in income, political participation, protection from shocks, opportunity for upward mobility, access to justice, and inclusion in civic life persist across social class, geographic boundaries, and other social categories. One way to illustrate the depth of this inequality is through income inequality, commonly measured through the Gini index. The Philippine Gini coefficient—high by Asian standards—had not reduced dramatically from 1997 to 2018 (Figure 3.2_1).

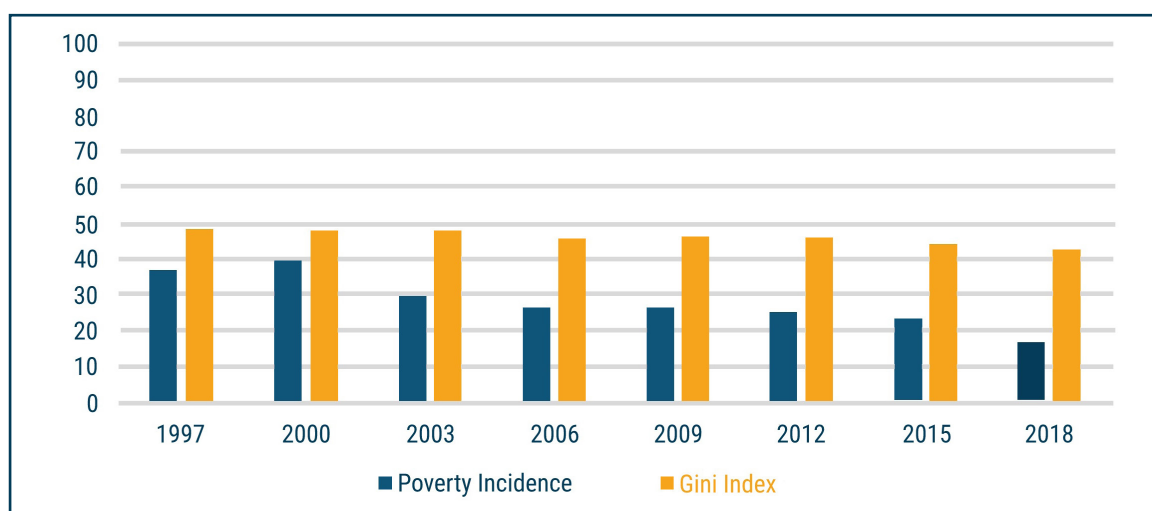


Figure 3.2_1. Philippines' Poverty Incidence and the Gini Index, 1997 to 2018.
Source: PSA (2015b, 2015c, 2019d, 2020c)

People's aspirations, desires, and concerns are stable. These will change only when real and inclusive economic and social progress is achieved. Filipinos' core values inform what they believe should be the priorities of a nation and its government. Even as governments change, as the country experiences deep shocks and windfalls, and even as the global context may change, that which the Filipino people hold dear and want to protect, will not. Thus, even if the work that informed AmBisyon Natin 2040 is now five years old and the Philippine constitution now over 30 years old, and even as the country is shaken by COVID-19 and natural hazards (typhoons, floods, earthquakes), the vision highly likely remains a relevant guidepost for Pagtanaw 2050.

Development Plans and Achievements Through the Years

This section will cover only the developments from the Cory Aquino administration to the present.

Since the beginning of democratic governance in 1987, government development plans focus on improving living standards, reducing poverty, achieving equitable growth, and making development environmentally sustainable development.

The 1970s and early 1980s were characterized by deep global recession, sharp falls in world prices of the country's traditional exports, and internal political turmoil punctuated by the assassination of Benigno Aquino, Jr. in 1983. Following the economic crisis of 1984–1985 and the Marcos regime's loss of political credibility, a new government was voted in February 1986, with Corazon Aquino as President.

The Corazon Aquino government's development program stressed poverty alleviation, generation of more productive employment opportunities, and promotion of equity and social justice. The strategy adopted to achieve these goals took a market-based development approach, calling for the removal of policy biases against agriculture and the rural sector, and thus, improving profitability of labor-intensive and agriculture-based non-traditional exports (Balisacan 2003). It embraced an employment-oriented, rural-based development strategy, with the Comprehensive Agrarian Reform Program, as its centerpiece. However, although the administration's central theme for poverty alleviation was rural development, it failed to address the single most important constraint to sustained rural development, namely the poor state of rural infrastructure, particularly transport, electricity, and water, including irrigation (Balisacan 2003).

Fidel V. Ramos' administration's (1992–1998) key strategy was people empowerment and international competitiveness through the development of a skilled workforce, investments in human capital, and upgrades of technology—most notably the Philippines' connection to the internet on March 29, 1994 (DICT 2015). The plan was to pursue industrialization and rapid growth in average incomes to achieve human development. People

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empowerment implied reliance on markets, entrepreneurship, innovations, and growth-facilitating institutions. There was a Social Reform Agenda (SRA) for achieving human development targets, a pioneering effort to push the various government sectors toward securing the minimum basic needs of families as a first priority. A package of government interventions was organized around “flagship programs” for the country’s 20 “poorest” provinces. But the SRA failed due to policy implementation problems (Collas-Monsod and Monsod 1999, cited in Balisacan 2003).

The Ramos administration plans included accelerating economic growth by building the international competitiveness of domestic industries, reforming regulation in services and industry in commercial banking, transportation, and telecommunications, and investing in basic infrastructure. Large and forward-looking investments in power generation and transmission, transport, and communication were also made. Overall, economic growth accelerated, and welfare of the poor responded respectably to this growth (Balisacan 2003). However, the Asian economic crisis of 1997–1998, combined with a severe El Niño, disrupted the momentum.

The brief period of the Estrada administration (1998–2001) had a pro-poor and “growth with equity” agenda that recognized broad-based sustainable rural development as a path to reduce poverty. The plan envisioned an aggressive delivery of basic social development services, removal of policy and regulatory distortions inhibiting resource allocation efficiency and equitable outcomes, sustained development of rural infrastructure, improvement in governance, and macroeconomic stability. A limited run of its flagship program *Lingap Para sa Mahihirap* (Looking after the Poor) led to poverty outcomes inferior to those of other schemes tried in the recent past (Balisacan 2003).

The Macapagal-Arroyo administration’s (2001–2010) ascension to power following the ouster of President Estrada gave birth to another program for direct poverty alleviation, called KALAHÍ (*Kapit-Bisig Laban sa Kahirapan or Joining Hands against Poverty*). This program engaged in asset reform, provision of human development services, creation of employment and livelihood opportunities, participation of so-called basic sectors in governance, and social protection and security against violence.

Between 2000 and 2010, new jobs were created by the expansion of call centers and business process outsourcing, information and communications technology, tourism, and mass housing. Creating new jobs, especially in urban areas. The implementation of the Agriculture and Fisheries Modernization Act (RA 8435 and 9281) to generate one million jobs in agriculture and related industries was planned, but funding far fell short of expectations. Self-employment and entrepreneurship were encouraged, with special emphasis on micro, small, and medium-scale industries development. Deregulating industries and privatizing government continued.

One new attribute of the plan was its emphasis on S&T and green production technologies. The plan was to develop high value-added products — products

which generate the most income for their Filipino producers — through investments in S&T, for which a culture of research and development would be fostered. There were efforts to step up the development of microenterprises (very small family- and community-based businesses) and small and medium enterprises, and promote clean production technologies to minimize the environmental impact of industrial growth.

Arroyo’s scorecard showed that it failed to address key social and economic challenges relating to persistent poverty and inequality. There were improvements on the policy front, but many governance challenges and social inequities largely left unaddressed (Rood 2010). It was further noted that based on the World Bank indicators, chronic problems such as corruption had worsened, which was deemed as a “key reason behind the Philippines’ anemic progress in economic and human development.” However, Arroyo’s smart 2003 “roll-on roll-off” maritime initiative, which brought down the shipping cost among the Philippine islands by 30 to 40 percent, was treated as a historic policy success. The lack of commitment to agricultural development reflected the broader underdevelopment of the rural sector. This contributed to a pattern of growth that left behind millions of Filipinos and failed to make major inroads in poverty reduction.

The Benigno S. Aquino III Administration’s (2010–2016) development plan centered on inclusive growth, defined as “growth that leaves no one behind,” where poverty reduction was seen in “multiple dimensions” (NEDA 2011) and massive creation of quality employment as the desired outcome. Strengthening the macroeconomic fundamentals was key to fostering consumer and business confidence in the economy, resulting in sustained high economic growth averaging 6.2% throughout the term as well as a substantial reduction of poverty incidence from 39.4% in 2000 to 16.7% in 2018. Investment, both public and private, in the production sectors (i.e., agriculture, industry, and services) was regarded as a critical determinant of the economy’s growth potential and its ability to create quality jobs. This administration highlighted the role of science and technology policy in influencing private investment in research and development to raise productivity and expand the range of products and services produced in the economy. The state of the country’s infrastructure (roads, ports, airports, telecommunications, transportation, etc.) and the availability of a healthy, highly trainable, and skilled labor force are important factors for a more efficient business climate. Likewise, the plan mentioned the important contributions of good governance, the high quality of natural environment, and national security to the economy’s productive potential.

The Philippine Development Plans (PDPs) are plans; they reflect what administrations intend to do. Outcomes of well-laid plans can only be realized when accompanied by strong performance in implementation. The above review of PDPs suggests a disconnect between development planning and actual outcomes that has to largely do with limitations in governance.

Over the decades, the PDPs have been broadly responsive to changing economic conditions and realities, including global trade and finance.

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However, the connection of development plans with budget decisions and policy choices has been quite weak. Little attention was paid to the governance that underlies effective implementation and success in the long haul. The challenge, therefore, is to build governance institutions that ensure the attainment of our aspirations.

The AmBisyon Natin 2040 was used to set development goals that would guide each political administration over the next 25 years, starting with the Presidential term of Duterte (NEDA 2016). These goals are defined along four areas:

- (a) Building a predominantly middle-class society
- (b) Promoting a long and healthy life
- (c) Becoming smarter and more innovative
- (d) Building a high-trust society
- (e) Disaster Risk Reduction and Climate Change Adaptation (DRR CCA)

In pursuing these goals, the Duterte administration's PDP 2017-2022 (NEDA 2017) strategic policies, programs, and projects to achieve the following medium-term outcomes:

- (a) The Philippines will be an upper middle-income country by 2022.
- (b) Growth will be more inclusive as manifested by a lower poverty incidence in rural areas.
- (c) The Philippines will have a high level of human development by 2022.
- (d) The unemployment rate will decline from 5.5% to 3.5% in 2022.
- (e) There will be greater trust in government and society.
- (f) Individuals and communities will be more resilient.
- (g) Filipinos will have a greater drive for innovation.

Many of these medium-term targets and the long-term aspirations envisioned in AmBisyon Natin 2040, are endangered by the massive disruptions caused by the COVID-19 pandemic. In particular, the health crisis and the sharp economic contraction in 2020 have reversed gains in job creation and poverty reduction in recent years. That could mean some lost years of socioeconomic development. The challenge ahead is taking decisive actions to get the economy to recover quickly and use the crisis as an opportunity for policy and governance reforms to strengthen the health care system and make the economy more resilient to shocks and risks.

Science, Technology, and Innovation Towards Inclusive Prosperity and A Globally Competitive Knowledge Economy

Filipinos' top concerns are the fundamental problems of poverty, hunger, equal opportunity, and financial security. As such, the strategic role of STI to contribute to AmBisyon Natin 2040 is an enabling tool toward attaining the country's aspiration to be a predominantly middle-class society free of poverty.

Based on the national survey conducted for AmBisyon Natin 2040, most Filipinos believe that the most important condition the country should strive for by 2040 is that no one is poor (29%), no one is hungry (25.7%), and all Filipinos should have a chance to get a job that adequately provides for their needs (18.2%).

The prioritization for the country's STI agenda can directly address some of the critical constraints individuals experience in their daily lives. For example, based on the qualitative group discussions that informed AmBisyon Natin 2040, Filipinos aspire for their country affordable high-quality health care and education, western-level development that respects Asian values, an urbanized and modern and technologically advanced country, and widely available welfare support. They want a just and fair society where opportunities are available to all and progress is felt in all areas of the country. STI can point to pathways toward improving public health and medicine for the specific needs of communities or fostering innovation in green growth and improving air pollution, for instance.

Instability is a part of Filipino life, and shocks to income and personal safety require resiliency at the level of people, community, and environment. Natural calamities, poor management of densely populated areas, and armed conflicts are some of the sources of these shocks. Hazards are understood as products of environmental degradation and pollution. As such, Filipinos place much importance on conservation, environmental protection, and working toward building sustainable communities that are resilient against natural hazards. Those living in urban centers are concerned about how economically oppressive it can be and how the emphasis should be on building "livable cities." These are all aligned with the goals articulated in [Section 4.1] on green growth, marine conservation, blue economy, and other work meant to contribute to the climate agenda.

Within this context where Filipinos' ambitions and constraints are clearly articulated, how can STI best serve the demands and the needs of the people?

STI can play a critical role in attaining these development goals by (UN ECOSOC 2013):

- fostering access to knowledge
- increasing productivity
- industrialization
- economic growth
- creating decent jobs
- promoting health and access to essential drugs
- achieving food security through sustainable
- equitable agricultural systems
- raising production and incomes
- especially of smallholder farms
- promoting renewable energy technologies to respond to the dual challenge of reducing poverty while mitigating climate change

DEVELOPMENT PLANS

STI was first explicitly mentioned in the Macapagal-Arroyo PDP (NEDA 2004), with reference to green technologies and more environmentally sustainable issues. The Aquino PDP (NEDA 2010) created space for private sector investments in STI for job creation. The current administration is highly supportive of STI and its role in attaining the Filipino aspirations.

Among the various goals and values reflected by the citizenry, two particularly stand out as having a strong link to STI. The first is **inclusive prosperity**, namely equal access to the most basic services that will allow people to work toward their own betterment, such as knowledge or education, health, and a long life, and the ability to compete for opportunities with others, on equal footing, regardless of their social and economic backgrounds. Extreme economic and political concentration in the country is deeply felt and understood by many as a constraint not only on individuals but also on the Philippines' overall national development. Breaking the trend toward further concentration, and pursuing equality in opportunity, will require a strong contribution from STI to ensure that the opportunities it opens up do not exclude those who have not had a good education or do not have access to technologies.

Innovations can easily lead to more vast gaps between the haves and the have-nots. This has been the pattern for digital divides, availability of quality STEM education, or accessibility of cutting-edge medical care. How can innovations be more inclusive? How can these be designed or incentivized to specifically close gaps, allow the have-nots to catch up, and for new technologies to diffuse to all?

The second is the national goal to be a **globally competitive knowledge economy**. What will the country need to move from being a service economy to a knowledge economy? We will require investments in building intellectual capital, in creating an environment where Filipino scientists, engineers, and others have the tools, resources, and capacity to generate knowledge and trade in it. STI will need to be strongly linked to other knowledge economies, so that the country can evolve from trading in goods and labor to generating productivity from intellectual property and innovation. More importantly, the country will need to develop a corps of skilled workers with high-quality STI-related education.

Whether competitiveness in the knowledge economies is something the Philippines is prepared for at this point is, in many ways, influenced by the global context. Development of STI to build a knowledge economy is necessary, even just to catch up and not be left behind. Where it would best serve the demands of Filipinos is in its focus on the subjects that people need and care about, for instance, focus on building an STI ecosystem that is specifically inclusive for those from poor families, or have a focus on biodiversity conservation for the green and blue economies to protect the country and its people from natural hazards. Thus, where PAGTANAW 2050 can meet AmBisyon Natin 2040 is in its focus areas and how well these serve the people's aspirations as a maritime and archipelagic nation.