

## The COVID-19 Pandemic and the Readiness of Nations

The COVID-19 pandemic is a seismic event that is testing the capability of countries to meet the healthcare needs of citizens under extremely demanding conditions. It is exposing gaping holes in existing healthcare access that, in the time of the “old normal,” were not apparent. These issues range from the operational inadequacies of existing public safety nets and research and development (R&D) institutions to the lethargic response of manufacturers and distributors to provide testing supplies and protective equipment to frontline personnel in the public services sector.

The pandemic is showing us that an effective national response is a delicate iterative combination of nonpartisan political leadership and prudent use of available scientific evidence. Savvy pragmatism by seasoned political operators is not necessarily good science for the common good. The mounting casualties have triggered a debilitating atmosphere of uncertainty and anxiety that is exacerbated by the still unconcluded attempts of R&D institutions and regulatory bodies to find and deliver a vaccine or a treatment against COVID-19.

To curb the dreaded spread of the novel coronavirus, draconian measures have been imposed—albeit reluctantly—by mandated political leaders and executives in the government bureaucracy. But the longer that social and economic interactions are suppressed, the deeper is the wound that such paralyzing actions inflict in terms of job loss and productivity decline. Resuscitating a comatose economy is unlike flicking on a light switch since the world economy is a heterogeneous network of disparate national economies. Global economic activity will rebound asymmetrically—volatile in the short- and hysteretic in the long-run, particularly in the absence of international solidarity and high-minded intergovernmental coordination.

Rapid and reliable diagnostic testing at a high-population sampling rate, coupled with precision contact-tracing, would allow authorities to pinpoint quickly the spatiotemporal extent of COVID-19 infection in a community. Both technical capabilities are crucial in softening the intensity of another surge that may arise when lockdown orders are eased and lifted. Having them in place will boost the confidence of people to resume meaningful social interactions, especially in their workplaces while allowing the surgical re-imposition of a lockdown when necessary. Understandably, the said healthcare infrastructure is doubly hard to build and operate in due time for the Philippines (PH), which is a net importer of precision bio-medical instruments and high-end integrated information systems.

The World Health Organization first reported that 41 cases with COVID-19 symptoms were diagnosed by Chinese authorities in Wuhan City from 08 December 2019 to 20 January 2020. On 30 January, PH registered its first confirmed case involving a foreign tourist who recovered and then its first locally transmitted case on 05 March. The PH government imposed a partial lockdown on the National Capital Region (population: 12.22M or 13% of PH; area: 0.21% of PH) on 12 March followed by an enhanced community quarantine (ECQ) of the entire island of Luzon (population: 53% of PH) on 16 March. By 15 May, the Department of Health confirmed a total of 12,091 cases (+45% from 21 April), including 806 fatalities (+46%) with 64% (69.7%) and 15% (16.2%) located in the National Capital Region (NCR) and Quezon City, respectively. The steady numbers for the NCR and Quezon City are more likely due to the testing of relatively more samples from the other PH regions within the period of reckoning.

Countries are coping with and suffering from COVID-19 in disparate degrees. As of 15 May 2020, the deaths per million (*dpm*) was 39.5 (+32% from 30 April) for the world population as a whole (March 2020 estimate: 7.8B), with the following countries reporting *dpm* numbers that were several times higher (worldometer.info): Belgium (773; +18%), Andorra (634; 17%), Spain (587; +12%), Italy (523; +13%), the United Kingdom (UK) (501; +27%), France (422; +13%), the Netherlands (329; +17%), Sweden (361; +41%), the United States (US) (267; +38%), Switzerland (217; +8%), and Luxembourg (167; +16%). On the other hand, the following conducted the highest testing rates per million

(*tpm*): Luxembourg (96,039; +41%), Belgium (56,711; 176%), Spain (52,784; +70%), Italy (47,553; +45%), Belgium (56,711; 176%), Switzerland (38,660; +26%), Germany (37,565; +24%), the UK (34,686; 161%), the US (33,306; +73%), Andorra (21,657; 0%), France (21,219; +91%), Sweden (17,590; +33%), and the Netherlands (16,809; 31%). For the six major ASEAN (Association of Southeast Asian Nations) economies, the following rates were recorded: Indonesia [*dpm*: 4; *tpm*: 654 (+89%)], Malaysia [3; 13,132 (+165%)], PH [5; 1,755 (+85%)], Singapore [4; 38,372 (+56%)], Thailand [0.8; 4,099 (+61%)], and Vietnam [0; 2,829 (+6%)]. No *tpm* figures are available for China (*dpm*: 3; 1,439.32M) and for the entire world.

The human development index (HDI) measures the level of human development that has been achieved for a population of a chosen country. A higher HDI score means a higher life expectancy, education attainment, and *per capita* income. The inequality-adjusted HDI (IHDI), on the other hand, is the HDI of the average person after inequalities in health and education access and income distribution are factored in the calculation. For two countries with the same HDI score, the one with a more uniform income distribution will usually merit a higher IHDI ranking.

The following are the 2018 IHDI rankings of selected countries (Human Development Report 2019 – United Nations Development Program): Norway (1<sup>st</sup>), Japan and Switzerland (3<sup>rd</sup>), Sweden (6<sup>th</sup>), Netherlands (8<sup>th</sup>), Germany (11<sup>th</sup>), Belgium (14<sup>th</sup>), the UK (15<sup>th</sup>), Luxembourg (19<sup>th</sup>), Singapore (23<sup>rd</sup>), France (24<sup>th</sup>), US (28<sup>th</sup>), South Korea (30<sup>th</sup>), Italy (32<sup>nd</sup>), Spain (37<sup>th</sup>), China (64<sup>th</sup>), Thailand (65<sup>th</sup>), Indonesia (80<sup>th</sup>), PH (82<sup>nd</sup>), and Vietnam (83<sup>rd</sup>). IHDI scores are not available for Andorra and Malaysia. Countries placing lower than the 79<sup>th</sup> place have IHDI scores that are below the world average. For reference, the rankings of selected countries based on their 2018 composite HDI scores are: Norway (1<sup>st</sup>), Switzerland (2<sup>nd</sup>), Singapore (9<sup>th</sup>), the UK and the US (15<sup>th</sup>), Japan (19<sup>th</sup>), Luxembourg (21<sup>st</sup>), Andorra (36<sup>th</sup>), Malaysia (61<sup>st</sup>), Thailand (77<sup>th</sup>), PH (106<sup>th</sup>), Indonesia (111<sup>th</sup>), and Vietnam (118<sup>th</sup>).

Generally, the countries with high IHDI scores were able to ramp up their *tpm* rates in tens of thousands per million by 15 May. For PH and Indonesia (273.16M) the rates have remained disconcertingly low given that they are the most populated in the ASEAN. Between 03 and 30 April, PH managed to increase its *tpm* rate from 136 to 950—an underperformance when compared to Vietnam (2,119; 95.55M), Thailand (2,043; 69.43M), and Malaysia (3,923; 2019 population: 32.77M).

The Global Health Security Index ([ghsindex.org](https://ghsindex.org)) first reported in October 2019 that the following countries are the most prepared for epidemics and pandemics: the US (1<sup>st</sup>), the UK (2<sup>nd</sup>), The Netherlands (3<sup>rd</sup>), Australia (4<sup>th</sup>), Canada (5<sup>th</sup>), Thailand (6<sup>th</sup>), Sweden (7<sup>th</sup>), Denmark (8<sup>th</sup>), South Korea (9<sup>th</sup>), Finland (10<sup>th</sup>), and France (11<sup>th</sup>). The ASEAN countries are ranked as follows: Malaysia (18<sup>th</sup>), Singapore (24<sup>th</sup>), Indonesia (30<sup>th</sup>), Vietnam (50<sup>th</sup>), PH (53<sup>rd</sup>), Myanmar (72<sup>nd</sup>), Laos (73<sup>rd</sup>), Cambodia (89<sup>th</sup>), and Brunei (128<sup>th</sup>). Meanwhile, China, India (*dpm*: 0.8; *tpm*: 1,480; 1,378.31M), and Russia (*dpm*: 6; 145.93M) are in the 51<sup>st</sup>, 57<sup>th</sup> and 63<sup>rd</sup> places, respectively. The following parameters were used to assess the pandemic readiness of 195 countries: (a) prevention of emergence or release of pathogens, (b) detection and reporting, (c) response in mitigating epidemic spread, (d) health system, (e) compliance with international norms, and (f) risk environment in connection with the political system and government effectiveness.

Surprisingly, the US (330.77M)—which topped the GHS rankings—has also recorded the highest number of COVID-19 related deaths at 88,391 followed by the UK (33,998; 67.84M), Italy (31,610; 60.47M), Spain (27,459; 46.75M), and France (27,529; 65.26M) as of 15 May. Together, they account for 68% of the world's total—only a shade lower than the 72% in 30 April. The facts on the ground indicate that the GHS formula needs to take better cognizant of the relative impact of political dysfunction, population comorbidity profile, and cultural inertia. Germany (83.75M) is experiencing a significantly lower *dpm* figure (96) than many of its less populated neighbors while China, India, Russia, and Japan (*dpm*: 6; 126.52M) accounted for only 3% of the world's total casualty. Unranked but vigilant Taiwan (*tpm*: 2,675, *dpm*: 0.3, 23.81M) has admirably responded without resorting to an island-wide lockdown while Vietnam has remained casualty-free.

The latitude and archipelagic geography of PH are natural barriers that help to localize the spread of COVID-19 in the country. It also matters that the next PH election is still many months away in May 2022. By and large, Filipinos have digested the logic of the ECQ and its drastic consequences on public life as they knew it. There is no open defiance nor a deep-seated popular resentment against social distancing measures, including the mandatory wearing of masks in public. According to the Philippine National Police, the index crime rate decreased by 60.5% (17 March – 30 April;

Luzon: 67%, Visayas: 58%, Mindanao: 51%) as compared in the immediate pre-ECQ period (01 February – 16 March; 6,756 incidents). Despite fiscal and logistical constraints, local government units—together with private donors—were also able to set up a grassroots social amelioration program that has stemmed widespread hunger.

It is highly desirable for PH to increase its testing capacity—a task that is easier announced than carried out. To drive its rate to the mid-May European *tpm* levels of 50,000 by 15 June, a total of 5.2925M tests (at 176,000 tests per day on average) needs to be done starting from 16 May to address a prevailing countrywide deficit. This particular effort is projected to cost more than PhP 42B since every RT-PCR (reverse transcriptase – polymerase chain reaction) test is worth about Php 8,000. And it may not be good enough due to the numerous asymptomatic but infected individuals still roaming in the general population, and because a negative test-result will not guarantee immunity from a future infection.

Nonetheless, the terror wrought by COVID-19 will wane because people and societies adapt come what may. In its wake are invaluable lessons that, if learned earnestly and implemented faithfully, will inculcate further the profound importance of scientific R&D in the national consciousness. The pandemic is generating huge amounts of multi-dimensional data that must be properly collected, organized, stored, and then made readily available to concerned Filipino scientists and researchers. This trove of veritable information can be utilized to vastly improve the PH healthcare system and to validate the accuracy of novel approaches that seek to improve the predictive power of mean-field simulations of adaptive social networks. It is also a resource for the better implementation of laws like the Philippine Identification System Act (Republic Act 11055) of August 2018.

The COVID-19 pandemic is reminding us that capable R&D institutions which can be relied upon to provide timely technological solutions to our urgent national needs do not simply materialize by chance or out of wishful thinking, nor upon the issuance of a well-meaning memorandum. They are a product of sustained, fastidious investments in advanced STEM (science, technology, engineering, and mathematics) human resource and infrastructure development backed by proactive search and metric-based selection of competent R&D managers across time.

Let me conclude by paraphrasing the author Milan Kundera: the continuing struggle of the Filipino against COVID-19 and the next pestilence is a struggle of the Filipino collective memory against nationwide forgetting.

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