The Global Preparedness Monitoring Board calls for a Scaled-Up Global Response to COVID-19: Estimated Costs and Funding Sources

Executive Summary

The rapid spread of COVID-19 has already had profound health, social and economic impact around the world. As the true scale of infection becomes apparent, disruption to people, communities, businesses, health systems and economies will continue to grow - international financial institutions and the major economic nations must respond decisively and immediately to the global response at a scale commensurate to the size of the problem. **This is why the Global Preparedness Monitoring Board (GPMB) is calling for the immediate injection of at least $8bn of new funding**.

The GPMB warmly welcomes the announcement from the World Bank on 03/03/2020 to commit up to $12bn of support for the COVID-19 country response, which will help strengthen the preparedness and response capacities of countries with the weakest health systems. The IMF's $50bn coronavirus package announced on 03/04/2020 will be key to supporting economies. But there remain significant urgent gaps that this money does not address.

Key needs include: ▪ fully funding the WHO to coordinate and prioritize support efforts to the most vulnerable countries ▪ developing new diagnostics, therapeutics, and vaccines ▪ strengthening unmet needs for regional surveillance and coordination ▪ ensuring sufficient supplies of protective equipment for health workers.

The costs of inaction, or responding slowly, are significant both in human and economic terms. Investing now will significantly reduce these costs. Dr Tedros Adhanom Ghebreyesus, WHO Director General has been clear on the urgency, stating that "We are at a decisive point…If you act aggressively now, you can contain this virus".

Multilateral financial institutions and G7 and G20 governments should provide immediate funding to meet these needs.

The challenge the world is facing in health

Health – it is only a matter of time before COVID-19 reaches countries with much weaker health systems than China, South Korea, the US or Europe. When it does, the case fatality rate may increase due to lack of access to critical care facilities for the most severe cases. We already have the first cases on the African continent. Even in countries with strong healthcare systems, the pressure on emergency room services and laboratories will cause huge challenges.

- COVID-19 is highly transmissible (someone with COVID-19 will, on average, infect two to three other people) and has a case fatality rate higher than that of seasonal influenza.
- COVID-19 has spready rapidly with around 90,000 confirmed cases in 73 countries, and 3,112 deaths (as of 03/03/20). It is highly likely these figures are substantial underestimates (perhaps up to 20 times lower) due to the challenges of identifying and recording cases.
- COVID-19 has put strain on already stretched health systems and infecting large numbers of health workers.
- The number of cases and deaths has already significantly exceeded those of the 2003 SARS outbreak - there have been 10 times the number of cases in one quarter of the time.
- A range of future scenarios is possible but the prospect of a pandemic with multiple waves is increasing.

The wider impact of COVID-19 – lives and livelihoods

COVID-19 is now a whole of society issue impacting many aspects of society and reaching across industries.

Social – COVID-19 has brought significant disruption to societies around the world. Businesses and schools have closed, large public gatherings been cancelled, cities and towns placed in lockdown, and travel restricted. Fear is taking hold – fake news is gathering ground.

Economic – the growth of cases reported around the world led to a stock market plunge last week, with around $6tn knocked off global share prices. The outbreak is on course to knock 1.3% off global GDP. On its current trajectory, China is expected to lose up to $62bn in the first quarter of 2020 with global losses estimated to be $280bn within the same period. Such losses would be greater than the economic losses from SARS (2003), Ebola (2014-2016), MERS in South Korea (2015), and Zika (2015-2016) *combined*. While it is desirable to end public health measures as early as possible to ease the social and economic disruptions, that increases the risk of recurrences.

Supply chains – China, as well as other affected areas such as northern Italy, manufactures essential goods for many industries. Of particular concern for this outbreak, China is the supplier of active pharmaceutical ingredients for many medicines – a significant disruption to production could substantially impact supplies of antibiotics and other critical drugs. There are many similar examples across sectors and across countries.

What international financial institutions and major economic nations must do

We cannot wait to take action given the unprecedented speed at which this epidemic is progressing. A massive global response is required, one that assumes a worst-case scenario. This is a problem that has already gone far beyond the public health sphere. The international financial institutions and the major economic nations should act as if we are facing a global pandemic with an impact which may reach 1918 influenza proportions.

The Global Preparedness Monitoring Board (GPMB) estimates that a minimum of $8bn of new funding is required immediately to address the most urgent threats posed by COVID-19 - mobilizing these financial resources should be an urgent priority requiring bold leadership from G7, G20 and Multilateral Financial Institutions now.

The GPMB calculates that the most critical funding gaps which need to be addressed are:

Activity	Estimated cost ($bn)
Support for emergency response via the WHO	1
Strengthening unmet needs for regional surveillance and control efforts for COVID-19	0.25
Development of COVID-19 vaccines	2.0
Distributed manufacturing and delivery of COVID-19 vaccines	1.0
Development of therapeutics to treat COVID-19	1.5
Development of diagnostics for COVID-19	0.5
Manufacturing and delivery of COVID-19 therapeutics and diagnostics	1.0
Stockpiling of COVID-19 vaccines and PPE (single replenishment cycle)	0.75
Total	**8**

Section1: The challenge the world is facing in health

COVID-19, is highly transmissible. Someone with COVID-19 will, on average, infect two to three other people. Infected people who are asymptomatic or have just mild symptoms can transmit the disease. The case fatality rate is higher than that of seasonal influenza. The largest study conducted to date, which included 72,314 confirmed cases of COVID-19, found that the overall case fatality rate was 2.3%. This is close to that of the 1918 Spanish Flu which may have killed close to 50 million people.

No specific treatment or vaccine is available. Research efforts have started on both therapeutics and vaccines, but this has to be done at a speed and at a scale that is unprecedented, from research through development to manufacturing that can meet the global demand in an accessible and equitable way. Multiple candidates need to be developed in parallel at scale and at risk – there is not the time to do in sequence.

New cases outside mainland China now exceed the number inside and all G7 nations have confirmed cases. There is an increasing likelihood of a pandemic. In the Republic of Korea, Italy, and Iran, the number of reported infections more than doubled in just two days. There are also concerns that Southeast Asian countries including Myanmar, Laos, Brunei, East Timor, and Indonesia may be undergoing "a silent epidemic."

As of 3 March 2020, the WHO reports more than 90,000 confirmed cases in 73 countries, and 3,112 deaths. It is highly likely these figures are substantial underestimates due to the challenges of identifying and recording cases. In comparison, there were 774 reported deaths from the 2003 SARS outbreak; there have been 10 times the number of cases of COVID-19 in one quarter of the time.

COVID-19 is placing huge demands on health systems. At the start of the outbreak, Hubei Province, the center of China's outbreak, had less than 2000 hospital beds to treat patients with infectious diseases. Two new hospitals with more than 2000 beds were built within two weeks to treat critically ill patients with COVID-19 and 11 gymnasiums or exhibition centers were turned into makeshift COVID-19 hospitals with over 10 000 beds. Italy, Republic of Korea, and Japan have also taken extraordinary measures to increase the capacity for treating patients.

Hospitalized patients have a high risk of needing intensive care. Overall, in the study cited above, 3,110 people out of the 72,314 infected people (4.3%) required critical care. However, once hospitalized, the risk of needing such care is much higher. Hospitalized patients in Wuhan have had a high rate of transfer to the intensive care unit: a study by Wang and colleagues of 138 hospitalized patients found that 36 patients (26.1%) were transferred to the intensive care unit because of complications.

A large number of health workers are infected, placing strain on already stretched health systems. China's National Health Commission reports (in a Chinese language publication) that 1,716 health workers have been infected (87.3% of these cases are in Hubei) and six have died. This strain on health systems also interrupts the care of people with other diseases. For example, over 30,000 doctors and nurses from other regions of China have been sent to Hubei —leaving shortages of health professionals elsewhere. Countries like Italy are also experiencing a great amount of pressure on the health system with reports of insufficient intensive care capacity to accommodate all the individuals severely affected by COVID-19. The WHO estimates that about 89 million medical masks, 76 million examination gloves and 1.6 million goggles will be required globally for health care workers.

A range of future scenarios is possible but the likelihood of a pandemic with multiple waves of COVID-19 is increasing. The costs of inaction, or responding slowly, are huge both in human and economic terms. Investing now will save lives and significantly reduce economic costs.

Section 2: The wider impact of COVID-19 – lives and livelihoods

Social – COVID-19 has brought significant disruption to society. Businesses have closed, large public gatherings been cancelled, cities placed in lockdown, and travel restricted. These public health measures have materially impacted lives and livelihoods. Fear is increasing. Access to trusted information has also been challenging for some communities and there are organized disinformation campaigns.

Economic – COVID-19 is fast becoming an "economic pandemic." Four of the world's top economies, China, Japan, Korea and Italy— representing about 27% of global GDP—are now battling to contain transmission and the lifting of public health measures too early could cause recurrences and further disruption. This epidemic is impacting all G7 and G20 nations but will disproportionately affect vulnerable people in low- and middle-income countries.

The reporting of more cases outside of China **led to a stock market plunge last week, with the biggest weekly losses since the 2008 financial crash** and around $6tn knocked off global share prices. If the coronavirus becomes a pandemic, it could cost the global economy more than $1tn in lost output, or 1.3% of global GDP. Another recent report suggests the hit to global GDP could be far larger at between 2.3 – 9.2 trillion USD. If the outbreak continues on its current trajectory, China is expected to lose up to $62bn in the first quarter of 2020 with global losses estimated to be $280bn within the same period. South Korea recently injected more than $13bn in emergency funds to stoke economic activity. The OECD has cut Europe's GDP estimate by 0.3% while Italy, the country most affected in Europe so far, is expected to lose 0.4% of its GDP. Sectors such as tourism are expected to take a big hit in Italy, with an expected cancellation of over 22 million reservations and an economic loss of Euro 2.77bn. Such global losses would be greater than the economic losses from SARS (2003), Ebola (2014-2016), MERS in South Korea (2015), and Zika (2015-2016) *combined*.

Supply Chains – China, as well as other affected areas such as northern Italy, manufactures essential goods for many industries and has more than doubled its share of trade with the rest of the world since the 2003 SARS epidemic. Of particular concern for this outbreak are the impacts from a health perspective. China is the main supplier of active pharmaceutical ingredients for the world's antibiotics' manufacturers – a significant disruption to production could substantially impact supplies of these critical drugs. There are many similar examples across sectors, including in automobile production and mobile phone manufacturing, with supply chain issues emerging in northern Italy and many other countries. Given the extent of disruption of the workforce in those countries affected already, the impacts of this in the coming months could be significant.

Return on investment. Proactive action now can alter the course of this epidemic and mitigate its global impact. World Bank estimates strengthened health systems that avoid the damages associated with pandemics would result in global public benefit of over $30bn a year. Recently, we have seen the benefits of investing in preparedness in the context of weak health systems, such as the effective responses to Ebola in Nigeria and Uganda.

Section 3: What international financial institutions and major economic nations must do

World leaders and international financial institutions cannot wait to take action given the unprecedented speed at which this epidemic is progressing. A massive global response should be mounted, one that assumes a worst-case scenario. This is a problem that has already gone far beyond just the health sphere and needs the support of heads of state, finance ministers and other economic actors to solve it. Private-public cooperation will be crucial and should harness the appetite from companies to support the COVID-19 response, including groups being coordinated by World Economic Forum. The global response must be commensurate to the enormous human, social, and economic toll that COVID-19 has already inflicted, and the possibility of far more suffering.

The GPMB estimate that a minimum of $8bn of new funding is required immediately to address the most urgent threats posed by COVID-19 - mobilising these financial resources should be an urgent priority for G7, G20 and the Multilateral Financial Institutions.

In order to ensure a comprehensive set of actions they must:

1. *Strengthen the preparedness and response capacities of those countries with the weakest health systems*

   Resource-constrained countries that are already tackling an outbreak need support to bolster their treatment and containment efforts. The most acute need in many countries is to strengthen clinical services, including in-patient and intensive care, urgently closing gaps in medical supplies (e.g. oxygen), protective equipment for healthcare workers, and diagnostics. Low- and middle-income countries need urgent help to strengthen their pandemic preparedness capabilities, including national surveillance and screening systems.

2. *Fully provide the financial means to enable the WHO to coordinate worldwide efforts and prioritize support to the most vulnerable countries*

   The WHO's Strategic Preparedness and Response Plan coordinates the global response and supports national preparedness and response for COVID-19, helping countries to develop national operational plans and scale-up country readiness and response operations.

3. *Develop new diagnostics, therapeutics and vaccines to treat COVID-19 and build surge capacity to manufacture them*

   Efforts to develop COVID-19 vaccines, therapeutics, and diagnostics must be accelerated. Once these are developed, we must also ensure that they are available to all at an affordable price. There are other research priorities for controlling the epidemic including how to optimize standard of care, the use of protective equipment and understanding animal hosts and virus transmissibility.

4. *Strengthen regional surveillance and coordination*

   In the wake of other outbreaks such as Ebola in West Africa, a number of initiatives were launched to coordinate regional pandemic preparedness efforts, including regional surveillance. Two examples are the Africa CDC and the Indo-Pacific Health Security Initiative. These types of activities should be fully supported.

5. *Ensure sufficient supplies of protective equipment for health workers*

Funding of $8bn could make a substantial difference in tackling this global epidemic. About half of this could fund the development, deployment, and stockpiling of critically needed technologies, including new vaccines. This

investment is dwarfed by the $280bn of costs that COVID-19 is already on course to cause in the first quarter of 2020. It would help prevent even greater losses than this.

The immediate need is to prevent further illness, deaths, and social and economic devastation from the current COVID-19 outbreak. Over the longer term, these investments would also help to put in place a pandemic response system that is "fit for purpose" in handling the inevitable outbreaks of the future.

Section 4: Costings

In order to establish these five priorities, an approximate "price tag" was derived from using a combination of existing estimates of the costs and professional judgement. A reasonable conservative estimate is approximately $8bn. A breakdown is given below:

- **Fully fund the WHO to support preparedness and emergency response: $1bn**. WHO's emergency appeal for the COVID-19 response requests $61.5m for the period February to April 2020. This figure is included in WHO's Strategic Preparedness and Response Plan, which calls for a total resource requirement of $675m. Full replenishment of the Contingency Fund for Emergencies, which has a capitalization target of $100 million and needs to be replenished with around $25-50 million annually depending on the number and extent of outbreaks, would be $100 million. Finally, $225 million is needed to close the annual shortfall facing the WHO's Health Systems Preparedness Programmes.
- **Strengthen unmet needs for regional surveillance and control efforts: $250m**. The World Bank previously funded the Africa CDC, along with the Federal Republic of Ethiopia and the Republic of Zambia to "strengthen continental and regional response systems to combat epidemics and advance critical public health priorities." Replenishment at the same level of funding would be reasonable in the wake of COVID-19.
- **Development of COVID-19 vaccines: $2bn.** CEPI estimates that it needs up to $2bn to accelerate vaccine development.[1] This estimate presumes development to the point at which the vaccines can be licensed or used under emergency use provisions—the figure *does not include* costs for subsequent manufacturing, delivery or administration.
- **Distributed manufacturing and delivery of COVID-19 vaccines: $1bn**. A highly conservative estimate is that manufacturing and delivery to Gavi-eligible countries would be at least $1bn.
- **Development of therapeutics to treat COVID-19: $1.5bn**. This estimate is based on a portfolio modeling tool, the Portfolio-to-Impact (P2I) tool, developed by TDR and CPIGH. It would cost about $1.5bn to develop one simple new chemical entity (NCE), one complex NCE, one simple repurposed drug, and one complex repurposed drug, and one biologic (monoclonal antibody product).
- **Development of diagnostics for COVID-19: $0.5bn**. This estimate assumes development costs to develop a suite of diagnostics—including diagnostic assays and simple technical platforms.
- **Manufacturing and delivery of COVID-19 therapeutics and diagnostics: $1bn**. A highly conservative estimate is that manufacturing and support for delivery in LMICs would be at least $1bn.
- **Stockpile of COVID-19 vaccines and PPE: $0.75bn** (single replenishment cycle) Previous estimates suggested that stockpiling of an H5N1 vaccine would cost about $360m per replenishment cycle.

An investment of $8bn now is small compared to the costs of inaction.

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[1] CEPI paper, February 14 2020, "Investment Case: Rapid Vaccine Development for COVID-19."