

DIGITALES ARCHIV

ZBW – Leibniz-Informationszentrum Wirtschaft
ZBW – Leibniz Information Centre for Economics

Abbasi, Kashif Raza; Hussain, Khadim; Noureen, Rani Saima et al.

Article

Linking protective strategies effects to manage the COVID-19 risk on global environment : fresh evidence from the best responsive approach

Provided in Cooperation with:

International Journal of Energy Economics and Policy (IJEPP)

Reference: Abbasi, Kashif Raza/Hussain, Khadim et. al. (2021). Linking protective strategies effects to manage the COVID-19 risk on global environment : fresh evidence from the best responsive approach. In: International Journal of Energy Economics and Policy 11 (5), S. 389 - 401.

<https://www.econjournals.com/index.php/ijeep/article/download/11393/6037>.

doi:10.32479/ijeep.11393.

This Version is available at:

<http://hdl.handle.net/11159/7854>

Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics
Düsternbrooker Weg 120
24105 Kiel (Germany)
E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)
<https://www.zbw.eu/econis-archiv/>

Standard-Nutzungsbedingungen:

Dieses Dokument darf zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden. Sie dürfen dieses Dokument nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, aufführen, vertreiben oder anderweitig nutzen. Sofern für das Dokument eine Open-Content-Lizenz verwendet wurde, so gelten abweichend von diesen Nutzungsbedingungen die in der Lizenz gewährten Nutzungsrechte.

<https://zbw.eu/econis-archiv/termsfuse>

Terms of use:

This document may be saved and copied for your personal and scholarly purposes. You are not to copy it for public or commercial purposes, to exhibit the document in public, to perform, distribute or otherwise use the document in public. If the document is made available under a Creative Commons Licence you may exercise further usage rights as specified in the licence.



Linking Protective Strategies Effects to Manage the COVID-19 Risk on Global Environment: Fresh Evidence from the Best Responsive Approach

Kashif Raza Abbasi^{1,2*}, Khadim Hussain³, Rani Saima Noureen^{3,4}, Uzma Bashir⁵

¹School of Economics, Shanghai University, No. 99, Shangda Road, Baoshan Campus, Baoshan, District, Shanghai, China, ²Department of Business Administration, Faculty of Management Sciences, ILMA University, Karachi, Pakistan, ³Department of Economics, Mirpur University of Science and Technology (MUST), Mirpur 10250, AJK, Pakistan, ⁴Department of Economics, International Islamic University Islamabad, Pakistan, ⁵Department of Management Sciences, National University of Modern Languages (NUML), Rawalpindi, Pakistan. *Email: kashifabbasi@shu.edu.cn

Received: 15 March 2021

Accepted: 16 June 2021

DOI: <https://doi.org/10.32479/ijeep.11393>

ABSTRACT

The coronavirus pandemic appeared as the most critical global health disaster of this century to date, which caused environmental, health, and energy crises worldwide. Humanity has encountered the most challenging health emergency since the earlier calamity of World War-II, which posed economic crisis, social, and environmental challenges to entire communities. It severely disrupted the global economy, international relations, and social interactions. Global efforts initiated to mitigate the COVID-19's rapid spread by launching testing facilities, quarantining suspected cases, treating affected patients, restricting large social gatherings, and imposing full or smart lockdown measures. This research evaluated the strengths and weaknesses of twenty selected countries' best responsive model in overcoming the global crisis and environmental effects and 20 chosen countries responsive strategies. Findings suggest eight crucial strategies/core recommendations to minimize environmental effects, air quality and rivers water quality, reflected better for the short-term, and biodiversity thrived after the COVID-19 outbreak. The study suggests self-produced medical equipment and consolidated supply chain operations to avoid relying on other countries. This article suggests empowering companies to practice social responsibility policies to provide resources for producing environmentally friendly products.

Keywords: COVID-19, Novel Coronavirus, Learning Lessons, Overcome Crisis, Environmental Effect

JEL Classifications: H51, H52, H53

1. INTRODUCTION AND MOTIVATION

On December 31, 2019, the China office of the World Health Organization (WHO) received the first news of a formerly unidentified virus causing multiple cases of pneumonia in Wuhan, a city in eastern China with a population of over 11 million. The COVID-19 outbreak began in the Chinese city of Wuhan. It remains to spread all over the world. What started as an epidemic primarily confined to China has now become a truly global pandemic! COVID-19's spread has been the most

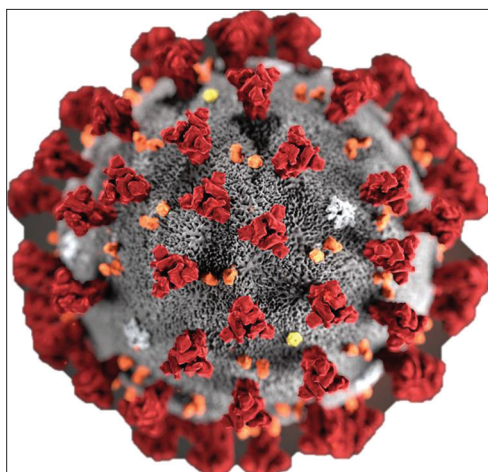
severe challenge humanity has confronted in this century. How to win the battle against the virus is a matter to be answered by every country and government. According to the (WHO, 2020b) coronavirus disease dashboard, which gathers information from national and international health authorities, globally, 8,043,487 confirmed cases of COVID-19, including 439,487 deaths, were registered to WHO as of 10:43 am CEST, June 17, 2020. However, at the same time, John Hopkins University has been reporting total confirmed cases 8,210,642 and global deaths 444,563 (Covid-19 Dashboard, 2020).

It has been stated that if economic and transport shutdowns occur, it will lead to the first global emission decline since the global financial crisis of 2008. Carbon Brief's analysis shows that this year's COVID-19 pandemic could reduce Carbon dioxide emissions by 1600 million tons, which is about 5.5% of total global emissions in 2019. To put that in perspective, this is equal to taking 3.46 billion passenger cars off the roads for a year, as measured using the Greenhouse Gas Equivalence Calculator by the Environmental Protection Agency. The reduction in air pollution has also had major health benefits, but this does not mitigate the catastrophic consequences of the pandemic, resulting in millions of cases and hundreds of thousands of deaths worldwide as at the beginning of May 2020 (Fedunik-Hofman, 2020). Air travel lets travellers navigate the world in less than a day safely. It concerns the in-flight transmitting prospects of the virus among travelers, which identified with SARS (Lee, 2020). Figure 1 shows the novel coronavirus.

The global change in CO₂ emissions fall below 2%, 4% or 6% decrease compared to 2019 levels in 2020. The approximate COVID-19 emission impacts for the global oil sector, the EU carbon market, China, the US and India (*power sector only) in 2020. The five biggest decreases ever observed in annual global CO₂ emissions are in millions of tons of CO₂ (Fedunik-Hofman, 2020). Although the outbreak of COVID 19 and the global lockout situation has a massive negative effect on the world economy, but the atmosphere has got rid of the enormous anthropogenic pressure like major pollutant emissions of various kinds (Mandal and Pal, 2020; Taufiq Rohman, S.Pd.I, 2019). This lockdown circumstance has provided a golden opportunities to evaluate on a very local to global scale the anthropogenic effect on qualitative deterioration of environmental factors. The population of every country at a higher risk of COVID-19 hazards. The present concerns are then surrounding the outbreak of COVID-19. However, health care services are inadequate in low- and middle-income nations (Anjum, 2020; Mahato et al., 2020). This coronavirus has locked up lots of global operations around the globe.

Nevertheless, COVID-19's main impacts divided into Financial, Phycological, Social and educational and also indirect effect on environment. For this reason the indirect environmental effects of the virus has been scarcely analyzed. Many countries

Figure 1: Visualization of the coronavirus



took preventive measures on time to overcome the effects of COVID-19. The initial studies predicted a positive indirect environmental impact. Climate experts on the one hand forecast that since World War II greenhouse gas (GHG) emissions could drop to ratios never before seen. This effect is largely due to the policies of social distancing that the governments have adopted following the pandemic appearance. However, several other countries still in the worst condition to fight against this pandemic. The best responsive countries are the motivation and can be way forward if they learn the lesson and follow their steps would be beneficial for countries still suffering in this pandemic.

With this motivation, the current study uses qualitative data of ten best and worst responsive countries. Such as China, Singapore, South Korea, New Zealand, Australia, Canada, Argentina, Germany, Iceland, and UAE; (Time, 2020) contrary, USA, Brazil, Russia, India, UK, Spain, Peru, Chile, Italy, and Iran are declared most affected countries reported by (Worldometer, 2020b), respectively. The qualitative analysis based on the responses of the countries. The major contributing in various following wayss. First, the study find the answer which initiatives are taken by the best responsive countries? Second, also we explore the lackings of the worst responsive countries. Third, lockdown effects on environment during COVID-19. Last but not least, the study suggests the lesson learning or way forward to encourage policymakers for time tested intiatitives. This study could be helpful to the officials and decision-makers to overcome the COVID-19 crisis.

The remainder of the study as following: section 2 COVID-19 effects on the environment; section 3 shows the worst responsive countries; section 4 lessons learning and way forward and section 5 conclusion and recommendations.

2. COVID-19 POSITIVE AND NEGATIVE EFFECTS ON THE ENVIRONMENT

The study adopts secondary qualitative data to achieve the goal. All the data have collected from reliable sources, including various articles, newspapers, and the internet. The comparative research focused globally on the best and worst responsive countries.

2.1. Diminished Levels of NO₂ and PM2.5

Air quality is vital for the health of people; conversely, 91% of the world's population lives in countries where poor air quality surpasses the limits allowed. Each year, the repercussions of air quality degradation reflect themselves in a significant percentage of global mortality. In this regard, the World Health Organization (WHO) report for 2016 indicates that air pollution contributes to nearly 8% of total deaths worldwide; the states most affected are those found in Africa, Asia and part of Europe (WHO, 2016). China has placed strict traffic controls and self-quarantine measures in place to monitor the SARS-CoV2 expansion. Those activities have brought about improvements in air quality. At Wuhan and China, respectively, NO₂ was reduced by 22.8 µg/m³ and 12.9 µg/m³ due to quarantine. In Wuhan PM 2.5 decreased by 1.4 µg/m³ but by 18.9 µg/m³ in 367 cities. Figure 2 resulted in a dramatic decrease in concentrations of nitrogen dioxide (NO₂) and particulate matter

with a diameter of less than $2.5 \mu\text{m}$ (PM_{2.5}) in the major Chinese cities (CAMS, 2020; ESA, 2020).

In comparison, the Copernicus Sentinel-5P readings the satellite shows a significant decline in NO₂ concentrations over Rome, Madrid and Paris, Europe’s first cities to implement strict quarantine. The use of automobiles also decreased markedly. All this has resulted in a drastic decrease in concentrations of nitrogen dioxide (NO₂) and particulate matter with a diameter of $<2.5 \mu\text{m}$ (PM 2.5) in the major Chinese cities (Zambrano-monserrate et al., 2020). Illustration in Figure 3 shows daily concentrations of NO₂ from 14 to 25 March 2020 (panel b), relative to the 2019 monthly average (panel a).

In addition, the European Union’s Copernicus Atmosphere Monitoring Service (CAMS) reported last February a decrease in PM_{2,5} compared with the previous three years. According to (CAMS, 2020) in large parts of China, a decrease of about 20-30% of PM 2.5 is noticed when analyzing the discrepancy between the monthly average for February 2020 and the monthly average theme for February 2017, 2018 and 2019. All these changes in air quality have generated health benefits for humans in China alone that have outnumbered recorded deaths of SARS-CoV2 so far.

2.1.1. Clean beaches due to COVID-19

Beaches are one of the most important natural assets contained in the areas around the coast. It provide facilities (land, sand, leisure, and tourism) that are vital to coastal communities’ sustainability,

and have fundamental values that must be guarded from over-exploitation. Utterly irresponsible use by humans, however, has led many beaches in the world to pose environmental pollution. As a result of social distancing measures due to the latest corona virus pandemic, the shortage of visitors has caused a drastic shift in the appearance of many beaches in the world. Beaches like Acapulco (Mexico), Barcelona (Spain), Dubai, India, or Salinas (Ecuador) ecetra, for example, now look cleaner and with crystal clear waters (Zambrano-monserrate et al., 2020).

2.1.2. Decline of environmental noise pollution

Environmental noise is characterized as an unwanted sound which may be created by anthropogenic activity (for example, industrial or commercial operation), motor vehicle traffic, and high volume melodies. Natural pollution is a significant source of irritation for the population and the environment, causing health issues and altering the ecosystem’s natural conditions. The adoption of quarantine measures by most governments has forced people to stay at home. This has greatly limited the use of private and public transport. Economic operations have almost absolutely stopped too. All of these improvements have caused the noise level to drop dramatically in the world’s most cities (Zambrano-Monserrate and Ruano, 2019).

2.1.3. Upsurge in wastage

The quarantine policies, set up in close countries, have led customers to increase their appetite for home delivery online shopping. Consequently, household-generated organic waste has growing. Food

Figure 2: (a and b) Progression of NO₂ concentrations in China (ESA, 2020)

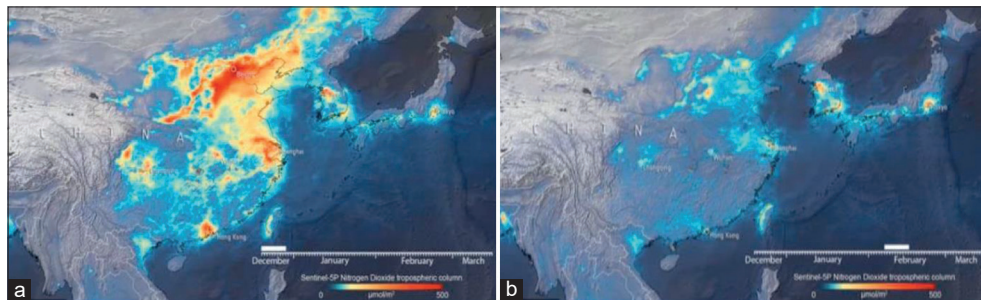
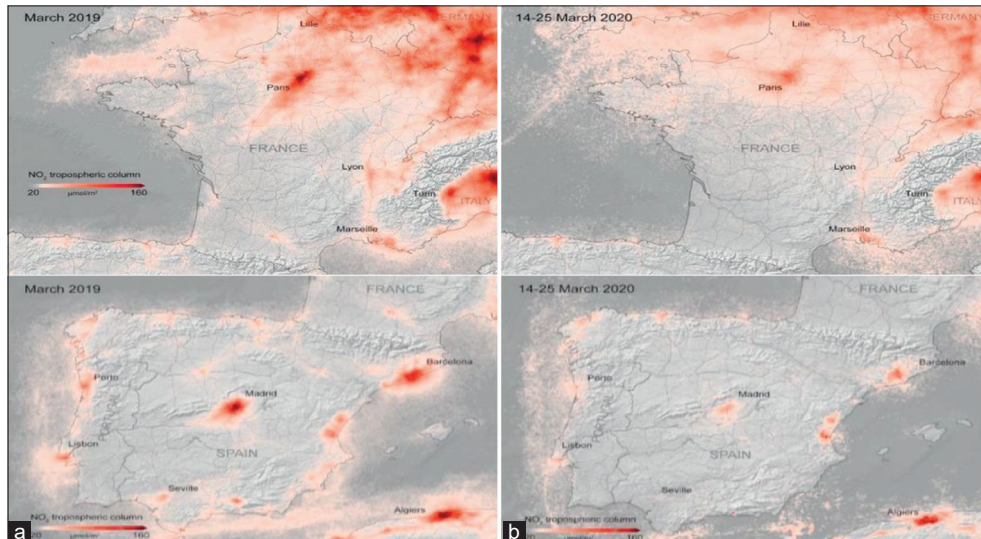


Figure 3: (a and b) Progression of concentrations of NO₂ in some parts of Europe (ESA, 2020)



bought online is also delivered wrapped, and inorganic waste has risen as well. Medical waste is on the rise too. Wuhan hospitals created an during the epidemic, an average of 240 tons of medical waste per day compared to the previous peak of less than 50 tons. The spike in waste from personal protection gear such as masks and gloves has been observed in many countries such as the USA (Calma, 2020).

2.2. The Best Responsive Countries in COVID-19

It is June 2020, and according to the World Health Organization, the epicentre of the coronavirus now shifted to America. When the world moves into the next stage of the global epidemic, now is the time to focus on which countries managed the initial reaction to the pandemic better than others — both as an illustration for other countries to emulate and to gauge which countries have best prepared themselves for whatsoever happens later. The only reason as bad as being the epicentre of an international pandemic in the beginning phases of an epidemic is being right next door to one. Table 1 shows the number of diagnosed cases and deaths reported in the ten best responsive countries. China, Canada, and Germany's mortality rate is higher than in other countries in terms of percentage. While a higher number of cases recorded in Germany, Canada, and China than other countries, respectively.

2.2.1. China and Singapore COVID-19

Since mid-December 2019, China has been battling with COVID-19, and, as of March 19, the newly reported cases decreased to zero across the state. The Chinese government has taken the most systematic and stringent precautionary measures at its core, several of which have distant increased the international standards health guidelines. He inspired the Chinese people and gave trust to the world, which demonstrated the firm resolve and clear commitment of the world to conquer the epidemic (Bijian, 2020). How to win the fight against the virus? It is a concern that must be addressed by every country and its people. The Chinese response is triple. First, it is as necessary to protect the health and welfare of the world's people as it is to protect one's people. This allowed China to align counter-epidemic initiatives with the slow recovery of the social and economic order. This all done with both domestic and international effects in mind. Second, China's early success in defeating the virus has increased international trust. In China, 85,018 documented cases of coronavirus with 4,646 deaths occurred from January 11 to June 22, 2020 (WHO, 2020a).

Singapore was among the first nations praised as a “conqueror” for its COVID-19 reaction, well-deserved credibility for its robust interaction-tracing strategy (which also included screening

people's I.D.s in supermarkets) and extensive studies. In some ways, Singapore maintained quite a stable position to outclass others in its battle against coronavirus; earlier rapid response is the lessons for others. The SARS epidemic, its tiny size (total of 5.7 million people), and centrally controlled “minder state” strategy not only imperative to health-care crises but also other policy aspects. In order to house COVID-19 patients, the government constructed temporary bed spaces at breakneck rates, keeping the fatality rate small (<0.1% of reported cases) regardless of public health or environmental issues, the economic effects of both the pandemic and climate change would be massive (Time, 2020).

2.2.2. South Korea and New Zealand

South Korea initially struggled to respond immediately to contain COVID-19, which resulted in a spike in the country's number of infections. South Korea soon became the country after China in late February, with the second-highest coronavirus cases. By then, Korea has placed numerous steps to effectively “straighten the curve” and provide the affected with prompt medical treatment. Countries around the globe are experiencing a similar spike in infectious diseases, while their doctors and hospital personnel are at risk of exposure without appropriate equipment and supplies (AHN, 2020).

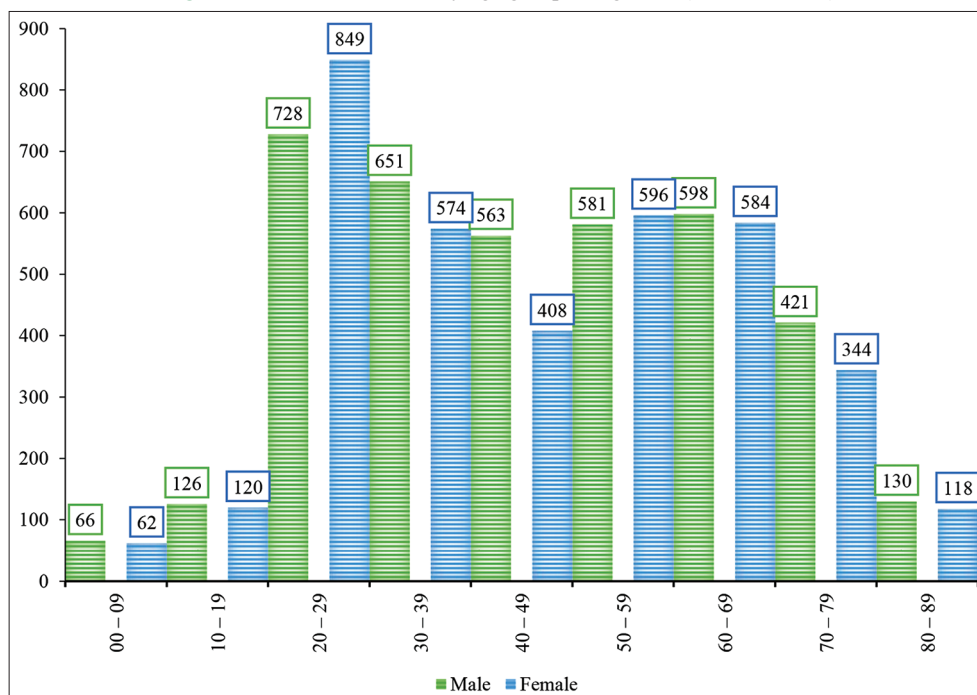
New Zealand tends to help to be an island country hidden away in a wide-ranging corner of the world when it comes to a global pandemic. But the increase in rankings by New Zealand is so plentiful more than good geographical treasure. The first case in New Zealand observed on February 28 and, compared to other countries, moved quickly to locked down the state – <3 weeks. Afterwards, the country closed its borders to external passengers, and a week later not only locked down non-essential industries. Additionally, setting up a “level 4 lockdown” which aimed that people could only interact with individuals to stay inside their homes in a challenge to ‘eliminate’ the virus altogether—escorted by emergency text messages that clearly described what expected from people. New Zealand has been following an elimination strategy since the start of the coronavirus outbreak, which ultimately results in strict lockdown initiatives. The nation has come together amid New Zealander's hard hit by a lack of jobs, social alienation, and dramatic shifts in sport and leisure. Politicians have worked across the political divide as well; however, in September, the nation will hold an election. Throughout a national emergency, they explore how well a nation governed or how poorly. But the progress of New Zealand so far fighting to remove COVID-19 is not due solely to top leadership. It was a joint achievement with the most “ordinary” kiwis and solidarity through political divisions (Duncan, 2020). New Zealand had reported 1,504 cumulative cases as of this writing, and 22 coronavirus related deaths.

2.2.3. Australia and Canada

Australia's doing comparatively well in its reaction to the coronavirus pandemic. The nation has 7,391 recorded coronavirus cases as of June 18 and has reported 102 deaths (Australian, 2020). Such numbers should be considered capable of the broader epidemic scheme for a country of 25 million population, with an internationally linked economy, a huge urban population, and a robust tourism sector. While any demise is a disaster, Australia has managed to diminish the effects of the virus. Figure 4 statistic

Table 1: Best responsive countries

Country	Cases	Deaths	(%)
China	84,653	4,640	5
Singapore	42,432	26	0
South Korea	12,535	281	2
New Zealand	1,504	22	1
Australia	7,521	103	1
Canada	103,767	8,512	8
Argentina	47,203	1,078	2
Germany	192,480	8,914	5
Iceland	1,802	10	1
United Arab Emirates (UAE)	45,683	305	1

Figure 4: COVID-19 losses by age group and gender (NNDSS, 2020)

reveals the number of recorded coronavirus cases per age group for males and females as of January 22, 2020. The bottom axis indicates age distribution from zero years old to over 90 years old at 10-year intervals. The vertical axis exhibits the number of cases reported with COVID-19. In males and females, the proportion of cases is approximately equivalent—most cases recorded in those aged between 20 and 79. The number of cases is the largest in the age group of 20-29 years. The highest disease rate is among those in the age group 60-69, actively followed by the age group 70-79. Young kids make up a small national proportion of the cases.

There is also one clear part that has acceptable Australia to reduce the virus' spread. The nation blessed with favourable geography, which has helped it to close itself off from the world and avoid the entrance of new virus causes. Nonetheless, with COVID-19 spreading, a state cabinet of federal and national politicians from all over the political continuum was developed to harmonize comments, perceiving their initiative from science and medical officers instead of the other way around. The Outcome? 93% of Australians acknowledge their administration "has managed COVID-19 perfectly well." (Time, 2020). That is undoubtedly proved critical in being able to develop the constraints for limiting coronavirus spread in Australia and keeping relatively low incidences. Maintaining that public confidence as the country begins to sense the pandemic's economical prices will be its next big dispute (Grant Wyeth, 2020).

Canada as the coronavirus pandemic triggers the cancellation of public crowds across the nation, recent moves by Canada highlight the rapid development of the country reaction to stop the spread of the virus as well as reduce the economic damage. Spite of the fact that Prime Minister Justin Trudeau is in chosen self-isolation, following the testing positive for COVID-19 by his wife Sophie Trudeau after a trip to the U.K. They, together with provincial and native leaders, Canada's cabinet ministers and public health

authorities continue to examine the current situation. Besides it, formulate potential public policy strategies to reduce the infection rate ("straightening the curve") to avert the epidemic from crippling the existing health care systems (Ramírez, 2020). The main objective of many countries to reduce an increase in the number of people becoming ill altogether in response to the crisis. Many of citizens tested 2,254,481 total cases 99,853 recovered 62,017 deaths from 8,254 to 17 June 2020 (Canada, 2020). Prime Minister released the COVID-19 economic action plans. This \$82 billion incentive program offers Canadians and business owners with immediate and direct financial help to reduce economic ambiguity (Government of Canada, 2020). Non-essential travel from across borders between the USA and Canada is partially confined. The agreement made on Wednesday by current prime minister Justin Trudeau and President Donald Trump does not extend to trade and commerce in an attempt to avert the chaos of supply chains for food, fuel, and life-saving drug (Walsh et al., 2020).

2.2.4. Argentina and Germany

COVID-19 reports came out of China last December, and, when the pandemic's epicentre shifted to Europe in February, and then to the United States in March, the reports hotspots moved there too. Nonetheless, only a few global news sources have published on how South American nations, and Argentina in specific, are fighting against the epidemic. As a state with a new president, which began with a pre-existing economic crisis this year, it's worth taking a look at the recent local condition, along with various government's policies to both maintain the public health structure and resolve the financial difficulties triggered by the epidemic (Argentina News, 2020).

2.2.5. The Domestic Struggle to Combating the Pandemic

In Argentina, people were not allowed to leave their residences as of March 20, except for carrying out essential grocery shopping,

and less than a third of the professions are deemed necessary and executed in the situation. Moreover, to protect human health, the findings seem promising so far as the nation has acquired time to expand the number of beds in hospitals, responsibility physicians, and other health factors without a rise in the number of deaths. Following those figures, the quarantine in the districts with the shortest levels of COVID-19 cases began to reduce after 4 weeks, and the government started allocating control over the condition to the authorities. As of now, Argentina currently ranked in all COVID-19 statistics in the middle of the South American countries (about 42785 cases, 1016 deaths recovered 13153 and 2,000 tests per million people at the time of written article). Excluding Brazil, in late March, all states in the region forced strict lockdowns and quarantines, exact after the first cases began to emerge (Julián Colombo, 2020). Figure 5 illustrates the confirmed cases, recovered, deaths, and active case numbers registered in Argentina.

In Germany, total reported cases 190,126, recovered 174100, and deaths 8946 show 95% recovery and 5% death ratio. However, as of today, June 19 infected cases 7080 in which 8884 (94%) with the mild condition and 396 (6%) are in critical (Worldometer, 2020c). A global epidemic is a perfect time to evaluate which countries are working, and which are not. In today's emergency, the massive respect for professionalism by Germans, and their deeply rooted sense of national commitment, again proves how and why their nation has become so successful. That lights up an unpleasant shade on the failures of America — not only in recent months, even over decades (Kinzer, 2020). Due to its well-financed health system, technical advantage, and proactive leadership, Germany has handled the COVID-19 crisis excellently compared with so many other nations. Although beyond any particular aspect of the

German system, there is something that can be repeated by all countries: a firm commitment to establishing public trust (Jens Spahn, 2020).

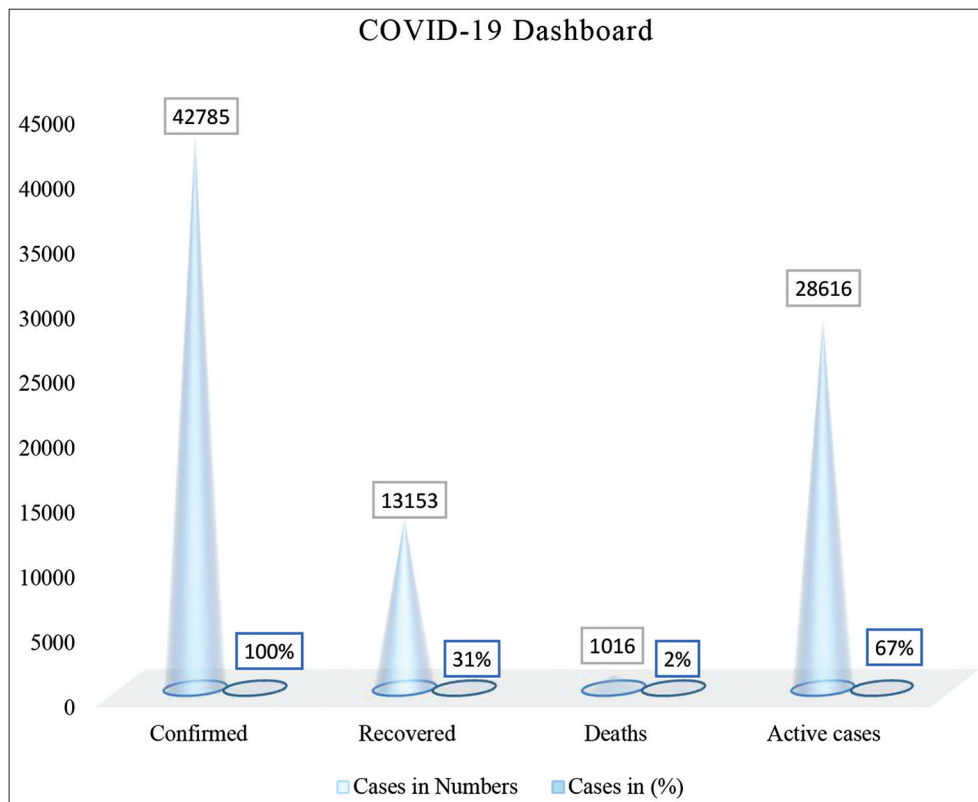
2.2.6. Iceland and the United Arab Emirates (UAE)

Iceland on May 25, Icelandic officials lifted the national emergency imposed on February 28, after confirmation of the first local coronavirus patient diagnosed. Iceland is now in the third stage of easing constraints on the virus (Review, 2020). Iceland is well tempering the pandemic-with 1,802 patients of the virus and 10 demises. It looks well equipped to adapt to the global changing that generating by the pandemic. The new cases of COVID-19 every day have dropped from 106 at the epidemic pike with about one case every 5 days. The achievement of Iceland is mainly due to its small population of some 364,000.

Nevertheless, early awareness and action may have been important. Health authorities rushed to control the multiply, with the management facility up a team of interaction tracers to consult those with a positive diagnosis and trace people who are in touch. Though after worrying reports of surges in infectious diseases after re-opening nations like China, South Korea, and Germany, Iceland authorities are pretty convinced they can succeed against the virus (Kelly, 2020). Various other régimes are still in the primary stages with their impartial apps or are evolving services based on the as-yet-unreleased technology developing by Apple and Google (Johnson, 2020).

Iceland's government announced several steps to alleviate the economic and general impacts of coronavirus spread (Iceland, 2020). Icelandic industries that also have suffered significant sales

Figure 5: Total cases in Argentina (Worldometer, 2020a)



losses as an outcome of the COVID-19 emergency will be allowed to apply for government assistance to pay a portion of the salary costs during the notice period, defend the rights of employees and avoid a wave of industry bankruptcies. The government passed three measures to help workers and enterprises. The purpose of the reforms is to reduce the damage affected by massive layoffs and massive collapses, thus ensuring the safety of workers while encouraging greater resilience across the economy overall (Ministry of Finance, 2020). Figure 6 shows active cases and recovered cases.

UAE creating this list is difficult, making lists even harder whereas also participating in international oil price warfare. However, the United Arab Emirates has achieved it. Mopping up virus COVID-19 is a complicated process. Since the Gulf states confronted the introduced virus before it reached the United States, their perception of how to mitigate the second spike in the outbreak had been weeks ahead (Karasik, 2020). In the UAE, the administration has played a pivotal role from an authoritative, regulatory, and economic point of view in handling the crisis (El-Kinawi, 2020). It is useful that all expenses of COVID-19 are provided by the management regardless of the insurance policy. More debatable action is to impose \$5,500 fines on anybody who reveals any medical report on social media that does not abide to the narrative of the administration, an excellent strategy to limit both speculations of conspiracy along with other sorts of speech. Ultimately, this surveillance program helped ensure the effectiveness of initial lockout measures; the penalty was substantial, but the control process served to discourage violations. They did so by taking strict social distancing steps such as lockdowns + curfews, even suspending public Eid ul Fitr prayers celebrations, and vigorous campaigns to clean up disinfection. That is helping to restrict overall coronavirus deaths to less than 300 despite getting their first reported case back on January 29. Taken collected, the UAE’s reaction to coronavirus grades pretty good, and it does so despite the rest of the other geopolitical disturbances

that it has been going through nowadays (Time, 2020). As of June 20, 2020, the status is showing in Figure 7.

3. WORST COVID-19 RESPONSIVE COUNTRIES IN THE WORLD

According to (Worldometer, 2020b) data lists countries most affected by a coronavirus, in terms of numbers recorded cases and deaths as of June 22, 2020, at 8:06 pm. With more than 4,27,046 cases of coronavirus, India is one of the ten countries worst severely impacted by COVID-19. As per Worldometer records globally, 90,81,175 people infected with the novel coronavirus as on June 22, 2020, it has declared a pandemic by (WHO). The United States has the most cases confirmed in the world. Here is a list of the countries most affected for reported cases and deaths Table 2 showing the top ten most affected countries of COVID-19. The USA numbers are higher than the others. However, Chile and Iran touched a higher figure of recovered patients with a percentage of 83% and 80, respectively, while the death ratio in Russia is 1% lower than in other countries.

Table 2: Top ten COVID-19 affected countries

Country	Cases	Death	Recovered	Death (%)	Recovered (%)
USA	2357667	122269	980367	5	42
Brazil	1086990	50659	579226	5	53
Russia	592280	8206	344416	1	58
India	427046	13717	237929	3	56
UK	305289	42647	155000	14	51
Spain	293352	28323	150000	10	51
Peru	254936	8045	141967	3	56
Chile	242355	4479	200569	2	83
Italy	238499	34634	182893	15	77
Iran	207525	9742	166427	5	80

Red colour digits denote death numbers and (%). Source: (Worldometer, 2020b) as of June 22, 2020.

Figure 6: Active cases and recovered in Iceland (Review, 2020)

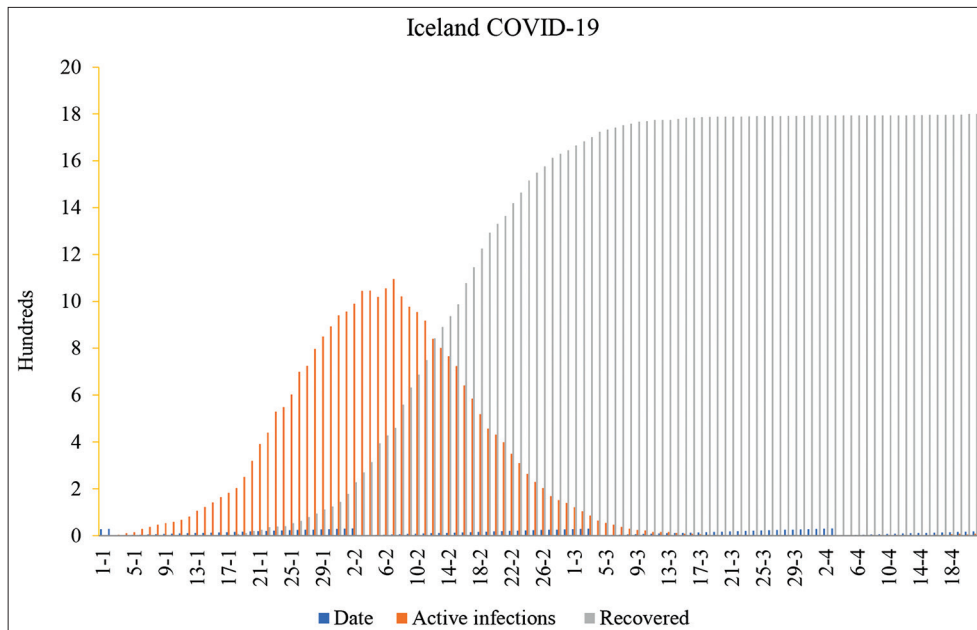
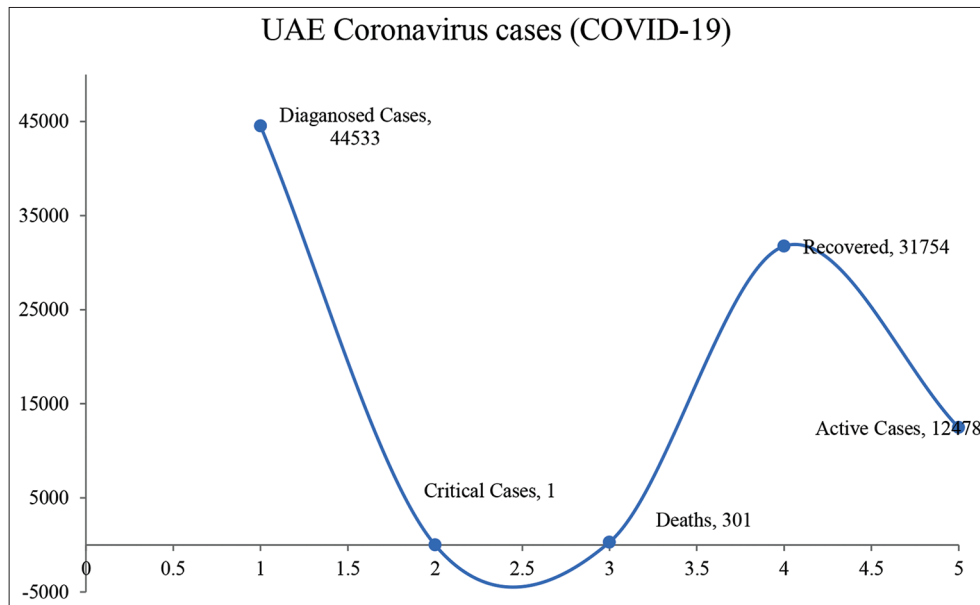


Figure 7: Total COVID-19 Cases (UAE, 2020)

3.1. USA and Brazil

The first diagnosed patient of coronavirus in the U.S. stated on January 21; however, the cases accelerated from the second half of February and more in March as the national monitoring dramatically increased. Also, reported patients of coronavirus in the U.S. risen exponentially in the 3rd week of March. While screening became faster and overtook China's on March 26 made the U.S. the most affected country on the earth by a coronavirus, at present, by the number of cases. Earlier, the US COVID-19 patients crossed South Korean cases, on March 19, going beyond 33,500 on March 23, increasing to over 240,000 on April 02, whereas the mortality toll also augmented dramatically beyond 5,800. As of 22, June the USA has a higher number globally. Community transmitted and late screening has been a critical problem for Americans as there are not sufficient test kits existing across the states. However, the inadequacy of ventilators still leads to higher deaths (Duddu, 2020).

Brazil has now become the second state to report more than 50,000 COVID-19 mortality, after the U.S. (BBC, 2020). Brazil's number of deaths by coronavirus surpassed Britain's on Friday to converted the world's second-highest. But the World Health Organization (WHO) has announced the country's health structure stood up to the test (Al-Jazeera, 2020). On Friday, the Ministry of Health reported 909 casualties taking the total to 41,828. It also announced an aggregate total of 828,810 recorded coronavirus outbreaks, with 25,982 new contagions in the past 24 h-figures seconds only to those in the United States. The WHO said North and South America accounted for over 60% of the 183,000 new patients recorded worldwide in 24 h. However, its 100,000 inhabitants never had access to appropriate health-care, education, or clean water. So, as the coronavirus began to spread through the densely populated alleys, Gilson Rodrigues realized he had to take matters into his own hands. The community leader appointed three private ambulances and eight medical practitioners to deal with the impending disaster through fundraising and a few charitable private donations. Almost all people don't even understand what's

going on. "People keep walking on the main roads as if the virus did not arrive in our community, like if the virus only affected wealthy people who were travelling outside the state." There is no question that the virus is here, with thousands of people now already exhibiting symptoms. The health system in Brazil isn't perfect. But particularly when compared to other South American countries, it is not dreadful either. Though in the case of coronavirus, a "nightmare scenario for bad results" witnessed at first hand (Lipson, 2020).

3.2. Russia and India

Russia currently has the second-highest number of checked COVID-19 cases in the world, with more than 250,000 cases as of May 15, 2020. Anyone in shops and on public transport expected to wear face masks and gloves. Auto traders, non-food shops, barbers, and many other service-sector industries are also closed in Moscow. But some of those companies permitted to re-open in many other provinces of Russia. Residents should still not allow leaving their homes except they have to purchase groceries, work, or walk the dog and have a digital travel approval. Specific areas, he said, would be relaxed while keeping the laws in place and step-by-step exit with caution. "We have a long and difficult path ahead of us, with no room for mistakes," the President said. (Roache, 2020). Whereas a global response to the coronavirus crisis is required, Russia does not allow it to add to its interests. So, the Kremlin uses the crisis to destabilize the world even further. While false news, nevertheless, it can probably be accredited to Russian trolls performing this and other alike online operations, particularly given how the Russian administration uses this global crisis to destabilize the west further and test its solve (Boulègue, 2020). Russia cannot possibly have a mortality rate of just 1.02-1.12%, some have asserted in the Western media. Moscow, the spread's epicentre, is here. The capital has become the high-hit so far; however, on May 28, the new patients dropped to 2,054, it is lowermost since the peak reached in early in May. Kremlin criticizers say the virus data stated in many other cities were inaccurate, indicating a much higher number of patients, as it

seems to be in Dagestan's Southern, Muslim area (Rapoza, 2020). They did not practice social distance; also travelled throughout the metropolitan area, used services that were supposed to be shuttered, got together with friends, sniffed, sneezed, coughed, and even spit in public. They squeezed every tomato in a bin in unmasked and barehanded stores before going on to investigate broccoli, then moved and hovered at the cash register amid social distancing marks on the pavement.

India, on Wednesday, June 24, India, reported the largest single-day shock of almost 17,000 COVID-19 instances. On Wednesday, Delhi outpaced Mumbai's numbers. Maharashtra recorded 208 deaths while reporting a new spike of 3,890 positive patients. National death toll scaled to 6,739 and shot a total of 1,42 lakhs. Just Mumbai viewed 120 deaths. The majority of cases in the city increased by 1,118 to 69,528. With 3,788 new patients, Delhi's coronavirus score increased to over 70,000 on Wednesday, exceeding Mumbai to become the badly-hit city in the overall. Gujarat reported 572 instances of coronavirus-the second highest in a day, which increased its count to 29,001 ("Covid-19 India," 2020).

3.3. The U.K. and Spain

According to an investigation from a renowned think tank, the U.K.'s comeback to the coronavirus pandemic is one of the worst among similarly developed countries, such as the USA. As per a study by the Economist Intelligence Unit (EIU), achievement in attempting the outbreak revealed coronavirus is not directly connected to treasure. Chile's act, for instance, is equivalent to that of France, and far better than that of the U.K. (Rigby, 2020). It was patently clear to several scholars and researchers by early March that the strategy taken by the U.K. was distinctly different from those followed by other nations. Many also introduced some social distancing initiatives, banning large-scale gatherings, closing schools or extending holidays, and encouraging those who could do homework (Toby Helm, 2020). The condition in the U.K. was "like a nightmare you can't wake up from, Yet you have landed by your own mistake or incompetence," said the influential liberal-conservative paper, adding that Britain appeared to be "a prisoner of its own" (Henley, 2020).

Spain, there was no strong voice in the government's late February and start of March, warning of the urgency of the pandemic. Fernando Simón, the epidemiologist who leads the response from the Spanish administration, said at the end of January that Spain would likely "have no more than a few patients." He told journalists late February, a crucial moment in the outbreak of the virus across the nation that "the virus isn't in Spain." As a consequence, Spain abandoned to make sure medical supplies, examinations, and safety gear until it was too late – concerns intensified by budget cuts to the health-care sector in the austerity years following the financial crisis of 2008. About 20,000 health-care staff in Spain have infected with COVID-19 so far (Zampano, 2020). That is one of the blackest and most intense moments in the Spanish history of recent memory. Spain has taken top position from Italy in the chilling table of daily deaths from the coronavirus pandemic-with 738 dying over 24 h. Spain has now become the hotspot of the global epidemic, a ghoulish term that has been

spread over four months from state to state – starting in Wuhan, China, and passing across Iran and Italy. The death toll per capita is already three times that of Iran and 40 times more than that of China (Tremlett, 2020).

3.4. Peru and Chile

The majority of countries that saw their COVID-19 patients erupt in the past month Sweden, the U.K. Epidemiologists vigorously criticized the U.S. for rejecting the rigorous social distancing steps needed to curb the outbreak of the new coronavirus. Peru, which now has the second-highest per-capita rate of new infections per day in the globe, is a different story. Peruvian President Martín Vizcarra formally announced of national emergency on March 15, when only 71 cases of COVID-19 reported in that country. The directive closed the Peruvian borders and forbade Peruvians to leave the building, except for obtaining essential goods or doing required work. But it hasn't functioned as expected. As of May 28, Peru had almost 142,000 deaths associated with COVID-19 and 4,099 cases. It is Latin America's third-highest toll, an area that has become the pandemic's current epicentre in those months led by its two main states, Brazil, and Mexico (Nugent, 2020).

Chile is the second most affected region in Latin America and the Caribbean. It has 4,471 recorded Novel Coronavirus cases with 34 deceases. The first case of the COVID-19 identified on March 3, and the country entered the coronavirus spread stage 4 in <2 weeks. It's the worst point when the spread becomes unmanageable, and there are many large infection clusters across the world (Wadhwa, 2020). Some of the key advice pieces to keep people safe from coronavirus is to wash your hands frequently. "It's terrible to live without water," Dilma Castillo, who lives with her children on one of the hills around El Melon, a town of 22,000 near the coastal village of Valparaiso whose river has begun to dry up, said. Further, she said, "the very rudest thing is there is no understanding, even among the population. I am extremely depressed because living in these conditions is painful"(AFP, 2020).

3.5. Italy and Iran

As any amateur of the "Italian grandmothers making pasta," video type could conclude, the community of Italy has the second-highest number of older adults worldwide. Twenty-three percent of people in the country are over 65, and 20% of older Italians reside with at least one child. Italy's age-diversity multi-generational culture, high-density living, has criticized. In an aspect, for the situation, coronavirus spreads through parts of the state like wildfire, resulting in what has to date been one of the peak mortality rates per capita due to virus globally (Landman, 2020). Besides that, Italy's national public health system, destroyed by years of financial cuts, has ineffective national leadership and restricted regional and local information-gathering capacity. That left decisions made at the local level about testing techniques and preventative measures of infections within medical facilities, such as nursing homes — and these decisions often demonstrated deadly (Rosenbaum, 2020).

Iran has been one of the countries most disturbed by the coronavirus pandemic, responsible for almost 1,000 fatalities and approximately 16,000 infections. Several other Iranian government

professionals and critics say the virus is highly probable to be far more serious than authorities report, claiming leaders tried to cover up the true extent of the spread. As the nation deals with a shortage of medical supplies and safety equipment, American sanctions against Iran have come under criticism in the escalating crisis. A series of alarming satellite pictures have also revealed the destructive virus power — workers have dug mass grave pits over weeks (Mark, 2020). The Islamic Republic of Iran experienced a horrific number of deaths from the latest coronavirus, which just surpassed those in Italy, Spain, and China. While China has taken restrictive steps to hold the spread, and Italy and Spain have been completely opaque about the decease toll to caution others of the harmful effects of contentment, neither has Iran. Yet Iranian universities and health authorities warn that millions of casualties could finally be seen absent from urgent, extreme action. The story of how the virus spreads to, from, and within Iran has established. When coronavirus cases started mushrooming in Iran in mid-February, administration spokespersons admittedly curtailed the news to keep voter turnout in assembled parliamentary elections in the country (Sadjadpour, 2020).

4. RESULTS AND DISCUSSION

As of now, we explored seven main reasons that why and how best responsive countries are got through this crisis considerably well. Firstly, the health-care system went into crisis in good shape; everybody had full access to medical care. It indeed merits not only of the present government but that of a system designed over several governments. Healthcare facilities should focus solely on the more critically ill with an excellent network of medical professionals available for dealing with fairly mild COVID-19 cases. Secondly, for instance, Germany isn't the first country to get hit by the viral infection, and therefore had time to organize. Although they maintained a significantly higher

quantity of hospital beds accessible, especially in intensive care units (ICU) also taken the COVID-19 situation extremely from the outset. Appropriately, the capacity of ICU in the country amplified exponentially by 12,000 beds to 40,000. Thirdly, Germany has several labs which could test for the virus and to many renowned professionals in the field, which to assistances understand Why did the first successful COVID-19 test come up here. They can conduct up to one million screening tests per day, with a population of approximately 83 million people. Soon, they will be able to perform about five million antibody tests per month. Rigorous testing is like pointing a spotlight into the dark: without it, you can only see shades of grey, but along with, you can see specifics quickly and clearly. So, when it comes to an epidemic of disease, you are powerless to control what you cannot see. Only history will prove if they have made the correct decision, so at this moment, I'm extremely cautious of drawing lessons from the global recession. But for me, a couple of things also seem pretty evident. Fourth, it is necessary that government officials not only raise public awareness about what they understand but also what they don't understand. There is no other way to develop the confidence that is required in a modern democracy to combat a deadly virus. No democratic system can compel its people to change their behaviour-at least not without huge costs. Accountability and reliable information are much more successful than intimidation in seeking a coordinated and integrated, coordinated approach. Fifth, in regards to letting the public know, government officials should demonstrate that they depend on citizens to understand the problem. As educated, all citizens realize that without a vaccine, no return to normality is possible. The strategy to follow as much normality possible with much security as required when thinking about our modern, everyday routines. Six, the pandemic indicates why global crisis management needed in a globalized world. Unfortunately, in recent years, even among major allies, multilateral cooperation has become more difficult. Now that we've seen how much we need

Table 3: A summarized analysis of key learning points

Difficulties about the immediate response	Event taking place	Repercussions	Specific lesson notes
Transparency failure	Abusive behaviour practitioners who reported COVID-19 earlier	Slow in disclosure of COVID-19 details of the case	Set clear whistle-blowing strategies for future world health emergencies
Constraining travel delays	Airlines services serviced at international frontiers for more than a month after the initial outbreak with negligible medical screening	Before medical checks, people travelling from high-risk areas were able to move easily across major airports.	Safety measures can be introduced sooner, including screening people returning through high-risk areas.
Delayed quarantine	The first COVID-19 statement published on December 31, 2019. On January 23, 2020, Wuhan started quarantining, just a month later.	It permitted COVID-19-infected individuals theoretically to spread the outbreak locally and internationally.	High-risk locations of quarantine pinpointed as soon as a possible medical risk is perceived.
Incorrect information to the public	Lack of information makes it possible to spread fake news, rumours, and misleading information among the citizens.	Racism, misguided public precautionary measures, and unexpected fear about COVID-19.	To prevent fabrication, openness, and transparent accessibility to all the information is important.
Delay in declaring the emergent situation	International Concerned Public Health Emergency clarified by the WHO on December 30, 2019, a month after the preliminary panic.	The extent of the epidemic was not generally known or transmitted. That may have slowed down steps for restraint.	The strategy for the rapid transmission of infections should be established to intensify the status of risk earlier.
Research and development (R & D)	Lack of investment in the preliminary phase of vaccination research and development and COVID-19 diagnosis.	Globally, more than 477,395 lives have been lost from COVID-19, and the mortality rate continues to increase regularly.	Further research is needed to develop successful drugs and to create reliable methods for preventing potential highly contagious epidemics.

each other, there should be a wake-up call to the present crisis. Neither any single country can handle a pandemic on its own. We require global cooperation, because if the organizations that are functioning for that purpose do not perform well enough, then we need to act together to repair them. Seven, the people all over the world need to rethink how to handle globalization. Moreover, understanding that the manufacture of vital products such as medical equipment within the country according to importance is essential. However, consolidating the supply chain operations to prevent relying entirely on one region or country. Eight, The positive and negative results are illustrated in-direct. The positive indirect results are for reducing concentrations of PM 2.5 and NO₂ in China, France, Germany, Spain and Italy. One of the main environmental concerns in developing countries is primarily the high concentrations of these pollutants. The enhancement of the condition of the beaches and the decrease of ambient pollution were also noted as positive indirect results. A further negative indirect impact of SARS-CoV2 was the ban on recycling waste in countries like the USA and Italy.

Conversely, reevaluating globalization does not imply that collective action is being cut back. Conversely, joint efforts between countries are already dynamic growth towards a vaccine. Once the vaccine discovers, it will only be advisable to make sure that supplied in one country, even as given access globally. It provides opportunities, as do most crises. It has played an important part us in multiple areas: a strong sense of belonging, a greater commitment to supporting others, and enhanced versatility and innovation. There must be no wonder that the global epidemic will have challenging repercussions on the medium to long term. Yet I remain hopeful, despite all the challenges and uncertainties that emerge. Table 3 summarizes all the learning points in a note.

5. CONCLUSION AND RECOMMENDATIONS

The current COVID-19 spread was declared a worldwide health epidemic emergency. The majority of detected cases has constant to increase globally, and it is presently at 9,263,918 laboratory-confirmed cases with more than 477,395 deaths. It is very obvious that quarantine alone may not be adequate to control COVID-19 from spreading, and the global effect of this viral illness is one of the major concerns. The study explored the way forward from the best responsive countries that could be the learning lesson for the most affected countries still facing a crisis. As a case study, we selected ten best reaction countries to fight against coronavirus and ten worst responsive countries. To achieve the goal, we used secondary qualitative data. Comparatively, best responsive countries began instant preventive measures such as strict lockdown, closed borders, international trade, and flights. Moreover, they decided on a time to a health emergency and used all the best resources to provide the best health services as per medical officials. It is important to remember that while some GHG emissions have dropped as a result of the pandemic, this decline may have little effect on the overall concentrations of GHGs that have persisted in the environment for decades. A long-term structural transition in the economies of the countries will

take place to a substantial decline. That outcome can be reached by ratifying the contributions made to the community. Further, digital economies where have a strong online system helped a lot to execute these firm decisions. Additionally, the leadership of the country played an important role to making a right and bold decisions on time. However, the strong health care system is a fundamental right of every citizen beyond the borders; this recent crisis exposed the democratic countries claimed the best health care facilities.

Circumstances like these, with fears of a new recession and economic crisis, call for robust and powerful leadership in health-care, industry, government, and broader society. Instant relief steps must be formulated and executed and tailored for those that can slip through the crashes, despite this crisis, medium- and long-term preparation required to rebalance and reactivate the economy. There is also a necessity for a wide socio-economic improvement plan, which includes every sector step by step policy and an environment that encourages innovation so that those with vigorous conditions and viable technologies could thrive. It is sensible that government officials and financial institutions are constantly evaluating and reassessing the current state of affairs and ensuring that the pledge of ‘whatever it takes’ is genuinely fulfilled. There is no question that more work is required to establish better the precise mechanism of human-to-human and animal-to-human transmission to encourage the creation of a vaccine unique to the virus. Also cease beaches, noise pollution, hospital wastage, and better air quality have significant and positive effect on health as we seen during pandemic days it should be take into account.

REFERENCES

- AFP. (2020), Chile Drought Causing Water Shortage Amidst Virus Crisis. From Bangkokpost. Available from: <https://www.bangkokpost.com/world/1893465/chile-drought-causing-water-shortage-amidst-virus-crisis>. [Last accessed on 2020 Jun 26].
- Ahn, M.J. (2020), Combating COVID-19: Lessons South Korea. Available from: <https://www.brookings.edu/blog/techtank/2020/04/13/combating-covid-19-lessons-from-south-korea>. [Last accessed on 2020 Jun 18].
- Al-Jazeera. (2020), Brazil’s Coronavirus Death Toll Now World’s Second Highest. Available from: <https://www.aljazeera.com/news/2020/06/brazil-coronavirus-death-toll-world-highest-200613050629869.html>. [Last accessed on 2020 Jun 25].
- Anjum, N.A. (2020), Good in the Worst: COVID-19 Restrictions and Ease in Global Air Pollution. United States: Academy of Management.
- Argentina News. (2020), Argentina: COVID-19 Cases Spike as Pandemic Grips Poor “Villas.” Available from: <https://www.aljazeera.com/news/2020/06/argentina-covid-19-cases-spike-pandemic-grips-poor-villas-200619162334234.html>. [Last accessed on 2020 Jun 22].
- Australian. (2020), Coronavirus (COVID-19) Current Situation and Case Numbers, Australian Government Department of Health. Available from: <https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/coronavirus-covid-19-current-situation-and-case-numbers>. [Last accessed on 2020 Jun 19].
- BBC. (2020), Coronavirus: Brazil Becomes Second Country to Pass 50,000 Deaths-BBC News. BBC News. Available from: <https://www.bbc.com/news/world-latin-america-53132225>. [Last accessed on 2020 Jun 25].

- Bijian, L. (2020), China and Covid-19. The News. Available from: <https://www.thenews.com.pk/print/633518-china-and-covid-19>. [Last accessed on 2020 Jun 22].
- Boulègue, M. (2020), In a COVID-19 World, Russia Sticks to International Distancing. Chatham House. Available from: https://www.chathamhouse.org/expert/comment/covid-19-world-russia-sticks-international-distancing?gclid=CjwKCAjwltH3BRB6EiwAhj0IUOaVxBhyuvJQXpwjwYvc-gPCDMHoalZLmpEdiRvOJWKxBsjkAzCPjRoCkTsQAvD_BwE. [Last accessed on 2020 Jun 25].
- Calma, J. (2020), The COVID-19 Pandemic is Generating Tons of Medical Waste. The Verge. Available from: <https://www.theverge.com/2020/3/26/21194647/the-covid-19-pandemic-is-generating-tons-of-medical-waste>. [Last accessed on 2020 Aug 04].
- CAMS. (2020), Amid Coronavirus Outbreak: Copernicus Monitors Reduction of Particulate Matter (PM_{2.5}) Over China. Copernicus. Available from: <https://www.atmosphere.copernicus.eu/amid-coronavirus-outbreak-copernicus-monitors-reduction-particulate-matter-pm25-over-china>. [Last accessed on 2020 Aug 04].
- Canada. (2020), Coronavirus Disease (COVID-19) Outbreak Updates, Symptoms, Prevention, Travel, Preparation. Available from: <https://www.canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19.html>. [Last accessed on 2020 Jun 19].
- Covid-19 Dashboard. (2020), Coronavirus COVID-19. John Hopkins University. Available from: <https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>. [Last accessed on 2020 Jun 17].
- Covid-19 India. (2020), Mumbai Mirror. Available from: <https://www.mumbaimirror.indiatimes.com/coronavirus/news/covid-19-latest-updates-mumbai-maharashtra-delhi-west-bengal-lockdown-india-pune-bmc-thane/liveblog/76616032.cms>. [Last accessed on 2020 Jun 25].
- Duddu, P. (2020), COVID-19 Coronavirus: Top Ten Most-affected Countries. Pharmaceutical Technology. Available from: <https://www.pharmaceutical-technology.com/features/covid-19-coronavirus-top-ten-most-affected-countries>. [Last accessed on 2020 Jun 23].
- Duncan, G. (2020), New Zealand's Response to Coronavirus Has United the Country. World Economic Forum. Available from: <https://www.weforum.org/agenda/2020/04/new-zealand-coronavirus-elimination-covid19-participation>. [Last accessed on 2020 Jun 18].
- El-Kinawi, M. (2020), UAE Gets COVID-19 Response Right: A Note. ORF. Available from: <https://www.orfonline.org/expert-speak/uae-gets-covid19-response-right-note-within-65363>. [Last accessed on 2020 Jun 21].
- ESA. (2020), ESA-COVID-19: Nitrogen Dioxide Over China. ESA. Available from: https://www.esa.int/Applications/Observing_the_Earth/Copernicus/Sentinel-5P/COVID-19_nitrogen_dioxide_over_China. [Last accessed on 2020 Aug 03].
- Fedunik-Hofman, L. (2020), What Impact Will COVID-19 Have on the Environment? Australian Academy of Science. Available from: <https://www.science.org.au/curious/earth-environment/what-impact-will-covid-19-have-environment>. [Last accessed on 2020 Aug 03].
- Government of Canada. (2020), Government of Canada Takes Action on COVID-19. Available from: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/canadas-reponse/government-canada-takes-action-covid-19.html>. [Last accessed on 2020 Jun 19].
- Grant Wyeth. (2020), How Well Has Australia Managed COVID-19? The Diplomat. Available from: <https://www.thediplomat.com/2020/04/how-well-has-australia-managed-covid-19>. [Last accessed on 2020 Jun 19].
- Henley, J. (2020), "Complacent" UK Draws Global Criticism for Covid-19 Response. The Guardian UK. Available from: <https://www.theguardian.com/world/2020/may/06/complacent-uk-draws-global-criticism-for-covid-19-response-boris-johnson>. [Last accessed on 2020 Jun 26].
- Iceland. (2020), Covid-19 Information. Government of Iceland. Available from: <https://www.government.is/government/covid-19>. [Last accessed on 2020 Jun 20].
- Jens Spahn. (2020), How Germany Contained the Coronavirus. World Economic Forum. Available from: <https://www.weforum.org/agenda/2020/05/how-germany-contained-the-coronavirus>. [Last accessed on 2020 Jun 19].
- Johnson, B. (2020), Nearly 40% of Icelanders are Using a Covid App-and it Hasn't Helped Much. MIT Technology Review. Available from: <https://www.technologyreview.com/2020/05/11/1001541/iceland-rakning-c19-covid-contact-tracing>. [Last accessed on 2020 Jun 20].
- Julián Colombo, A.P. (2020), Between the Virus and the Economy: The Situation of Argentina in Times of Covid-19. Policy Center for the New South. Available from: <https://www.policycenter.ma/opinion/between-virus-and-economy-situation-argentina-times-covid-19#XvCKm5ozbIU>. [Last accessed on 2020 Jun 22].
- Karasik, T. (2020), Lessons the US Can Learn from the UAE About the Decontamination of COVID-19. Atlantic Council. Available from: <https://www.atlanticcouncil.org/blogs/menasource/lessons-the-us-can-learn-from-the-uae-about-the-decontamination-of-covid-19>. [Last accessed on 2020 Jun 21].
- Kelly, É. (2020), After Taming COVID-19, Iceland Re-opens with Confidence. Science Business. Available from: <https://www.sciencebusiness.net/news/after-taming-covid-19-iceland-re-opens-confidence>. [Last accessed on 2020 Jun 20].
- Kinzer, S. (2020), Germany's Pandemic Response Shows that Good Government Matters. The Boston Globe. Available from: <https://www.bostonglobe.com/2020/05/14/opinion/germanys-pandemic-response-shows-that-good-government-matters>. [Last accessed on 2020 Jun 19].
- Landman, K. (2020), Italy and the Coronavirus: How the Pandemic Got so Bad. Elemental. Available from: <https://www.elemental.medium.com/why-the-coronavirus-was-so-deadly-for-italy-dbd79c56240>. [Last accessed on 2020 Jun 26].
- Lee, A. (2020), Wuhan novel coronavirus (COVID-19): Why global control is challenging? Public Health, 179, A1-A2.
- Lipson, D. (2020), Brazil is on Track to Become One of the Countries Hit Worst by Coronavirus. This is Where They Went Wrong. ABC News. Available from: <https://www.abc.net.au/news/2020-05-24/why-brazil-is-racing-up-the-global-coronavirus-death-toll-charts/12276256>. [Last accessed on 2020 Jun 25].
- Mahato, S., Pal, S., Ghosh, K.G. (2020), Effect of lockdown amid COVID-19 pandemic on air quality of the megacity Delhi, India. Science of the Total Environment, 730, 139086.
- Mandal, I., Pal, S. (2020), COVID-19 pandemic persuaded lockdown effects on environment over stone quarrying and crushing areas. Science of the Total Environment, 732, 139281.
- Mark, M. (2020), COVID-19 is Causing a Breakdown in Iran. Here's How it Unfolded. Business Insider. Available from: <https://www.businessinsider.com/iran-coronavirus-covid19-deaths-cases-updates-2020-3>. [Last accessed on 2020 Jun 26].
- Ministry of Finance. (2020), Government of Iceland Announces Increased Support for Companies and Extension of Part-time Unemployment Benefits. Government of Iceland. Available from: <https://www.government.is/news/article/2020/04/28/Government-of-Iceland-announces-increased-support-for-companies-and-extension-of-part-time-unemployment-benefits>. [Last accessed on 2020 Jun 20].
- NNDSS. (2020), Health, Communicable Diseases Branch. Commonwealth Department. Australia: National Notifiable Diseases Surveillance System.
- Nugent, C. (2020), How Peru's Coronavirus Outbreak Got So Bad:

- What to Know. Available from: <https://www.time.com/5844768/peru-coronavirus>. [Last accessed on 2020 Jun 26].
- Ramírez, M.S. (2020), Canada's Response to Coronavirus. Wilson Center. Available from: <https://www.wilsoncenter.org/article/canadas-response-coronavirus>. [Last accessed on 2020 Jun 19].
- Rapoza, K. (2020), How Bad, Really, Is The Coronavirus Pandemic In Russia? Available from: <https://www.forbes.com/sites/kenrapoza/2020/06/01/how-bad-really-is-the-coronavirus-pandemic-in-russia/#59d9c7bd1230>. [Last accessed on 2020 Jun 25].
- Review, I. (2020), What's the Status of COVID-19 in Iceland? Iceland Review. Available from: <https://www.icelandreview.com/ask-ir/whats-the-status-of-covid-19-in-iceland>. [Last accessed on 2020 Jun 20].
- Rigby, J. (2020), UK Response to Coronavirus Pandemic One of the Worst in the World. The Telegraph. Available from: <https://www.telegraph.co.uk/global-health/science-and-disease/uk-response-coronavirus-pandemic-one-worst-world-report-finds>. [Last accessed on 2020 Jun 26].
- Roache, M. (2020), Russia's Coronavirus Outbreak: Why Cases Are Rising. Time. Available from: <https://www.time.com/5836890/russia-coronavirus>. [Last accessed on 2020 Jun 25].
- Rosenbaum, L. (2020), Facing covid-19 in Italy-ethics, logistics, and therapeutics on the epidemic's front line. *New England Journal of Medicine*, 382, 1-3.
- Sadjadpour, K. (2020), Iran's Coronavirus Disaster. Carnegie Endowment for International Peace. Available from: <https://www.carnegieendowment.org/2020/03/25/iran-s-coronavirus-disaster-pub-81367>. [Last accessed on 2020 Jun 26].
- Taufiq Rohman, S.Pd.I. (2019), Exposure to Air Pollution and COVID-19 Mortality in the United States: A Nationwide Cross-sectional Study. United States: Psikologi Perkembangan.
- Time. (2020), The Best Global Responses to COVID-19 Pandemic. Time. Available from: <https://www.time.com/5851633/best-global-responses-covid-19>. [Last accessed on 2020 Jun 18].
- Toby Helm, E.G.H. (2020), How Did Britain Get Its Coronavirus Response so Wrong? The Guardian UK. Available from: <https://www.theguardian.com/world/2020/apr/18/how-did-britain-get-its-response-to-coronavirus-so-wrong>. [Last accessed on 2020 Jun 26].
- Tremlett, G. (2020), How Did Spain Get Its Coronavirus Response So Wrong? The Guardian Spain. Available from: <https://www.theguardian.com/world/2020/mar/26/spain-coronavirus-response-analysis>. [Last accessed on 2020 Jun 26].
- analysis. [Last accessed on 2020 Jun 26].
- UAE. (2020), UAE Coronavirus (COVID-19) Updates. Available from: <https://www.covid19.ncema.gov.ae/en>. [Last accessed on 2020 Jun 21].
- Wadhwa, T. (2020), Chile is Another Example of the Failure of Neoliberalism to Respond to Coronavirus. Peoples Dispatch. Available from: <https://www.peoplesdispatch.org/2020/04/07/chile-is-another-example-of-the-failure-of-neoliberalism-to-respond-to-coronavirus>. [Last accessed on 2020 Jun 26].
- Walsh, M., Morrow, A., Dickson, J. (2020), Canada U.S. Border to Close Except for Essential Supply Chains-The Globe and Mail. The Globe and Mail. Available from: <https://www.theglobeandmail.com/canada/article-trump-confirms-canada-us-to-close-border-to-non-essential-travel>. [Last accessed on 2020 Jun 19].
- WHO. (2016), Available from: <https://www.who.int/mediacentre/news/releases/2014/air-pollution/en>. [Last accessed on 2019 Dec 01].
- WHO. (2020a), China: WHO Coronavirus Disease (COVID-19) Dashboard. (COVID-19) Dashboard. Available from: <https://www.covid19.who.int/region/wpro/country/cn>. [Last accessed on 2020 Jun 22].
- WHO. (2020b), WHO Coronavirus Disease (COVID-19) Dashboard. Available from: https://www.covid19.who.int/?gclid=CjwKCAjw_qb3BRAVEiwAvwq6VqSqq9-gLj_5PTtU3INsvJ0ydht02KBKs0RR7plOkH1REwDNs0epsxoC44oQAvD_BwE. [Last accessed on 2020 Jun 17].
- Worldometer. (2020a), Argentina Coronavirus: 42,785 Cases and 1,016 Deaths. Available from: <https://www.worldometers.info/coronavirus/country/argentina>. [Last accessed on 2020 Jun 22].
- Worldometer. (2020b), Coronavirus Cases. United States: Worldometer.
- Worldometer. (2020c), Germany Coronavirus Cases. Available from: <https://www.worldometers.info/coronavirus/country/germany>. [Last accessed on 2020 Jun 19].
- Zambrano-Monserrate, M.A., Alejandra, M., Sanchez-Alcalde, L. (2020), Indirect effects of COVID-19 on the environment. *Science of the Total Environment*, 728, 138813.
- Zambrano-Monserrate, M.A., Ruano, M.A. (2019), Does environmental noise affect housing rental prices in developing countries? Evidence from Ecuador. *Land Use Policy*, 87, 104059.
- Zampano, A.M. (2020), COVID-19: What Went Wrong in Italy and Spain? Available from: <https://www.aa.com.tr/en/europe/covid-19-what-went-wrong-in-italy-and-spain/1797461>. [Last accessed on 2020 Jun 26].