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## COVID-19 and the Environment: Reflections on the Pandemic in Asia

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## COVID-19 and the Environment: Reflections on the Pandemic in Asia

### Cover Page Footnote

Hao Huang is the Bessie and Frankel Endowed Chair in Music at Scripps College. He has served as a four-time United States Information Agency Artistic Ambassador to Europe, Africa and the Middle East. Dr. Huang was a Fulbright Scholar in Music and American Studies at Eötvös Lorand University in Budapest, Hungary. His scholarship includes the articles in refereed journals of Great Britain Hungary, Greece, Japan, China and the USA.

## COVID-19 and the Environment: Reflections on the Pandemic in Asia

Hao Huang, Scripps College

The continuing story of the COVID-19 global pandemic, which currently has over twenty-five million confirmed cases worldwide and is approaching a million deaths (worldometers.info, late August 2020),<sup>1</sup> has become an all too familiar tale of these times. Efforts to determine the origin of global Covid-19 disease have raised important questions that align with a new discipline, planetary health, which investigates the connections between the wellbeing of humans, other living things, and the entire global ecosystem.

The idea of planetary health as a form of scholarly analysis and scientific investigation has particular relevance to the COVID-19 pandemic and to Asia, where the outbreak of the novel coronavirus was first reported. Over the past three decades, the continent's rapid urbanization and industrialization have played a significant role in the region's economic growth, increase in per capita income and the concentration of wealth, and the creation of some of the world's fast-growing cities. These profound benefits have come with some serious consequences, however, and planetary-health experts have stressed that one of them has been the sharp uptick in zoonotic diseases such COVID-19.

“We invade tropical forests and other wild landscapes, which harbor so many species of animals and plants – and within those creatures, so many unknown viruses,” writes David Quammen, author of *Spillover: Animal Infections and the Next Pandemic*. “We cut the trees; we kill the animals or cage them and send them to markets. We disrupt ecosystems, and we shake viruses loose from their natural hosts. When that happens, they need a new host. Often, we are it.”<sup>2</sup> From that perspective, Covid-19 is yet another life-threatening zoonotic disease along the lines of Ebola (1976), HIV (1981), Hanta/Sin Nombre (1993), Hendra (1994), bird flu (1997), Nipah (1998), West Nile (1999), SARS (2002-3), MERS (2012), Ebola redux (2014), that have been transferred from animals to humans over the past five decades.

In 2008, 335 diseases that emerged between 1960 and 2004 were identified by Kati Jones, chair of ecology and biodiversity at University College London and a team of researchers. More than 60% came from animals. Further research indicates that these zoonotic diseases are linked to environmental change and human behavior. Mining, logging and farming contaminate or destroy wildlife habitats, forcing wild animals into confined or unfamiliar environs that are likely to induce stress or even sickness. Increasingly, humans and their domestic animals come into contact with some of those animals.

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<sup>1</sup> <https://www.worldometers.info/coronavirus/> (accessed 8/30/2020 at 4:41 pm)

<sup>2</sup> David Quammen, “We Made the Coronavirus Epidemic,” *The New York Times*, Jan. 28, 2020. <https://www.nytimes.com/2020/01/28/opinion/coronavirus-china.html> (accessed 8/30/2020 at 4:56 pm)

Jones believes that the subsequent transmission of disease from wildlife to humans is “a hidden cost of human economic development... We are going into largely undisturbed places and being exposed more and more. We are creating habitats where viruses are transmitted more easily...”<sup>3</sup> Disease ecologist Thomas Gillespie, an associate professor in Emory University’s department of environmental sciences, studies how shrinking natural habitats and changing behaviors add to the risk of diseases transmitted from animals to humans. “I am not at all surprised about the coronavirus outbreak,” he says. Gillespie asserts that humans are creating the conditions for the spread of diseases by making “major landscape changes [that] are causing animals to lose habitats, which means species become crowded together and also come into greater contact with humans. Species that survive change are now moving and mixing with different animals and with humans.”<sup>4</sup>

### Environmental Consequences

Coronavirus 19, the novel infectious disease, was first reported in the Wuhan, China in December 2019.<sup>5</sup> This disease (SARS-CoV-2 or COVID-19) was later dispersed worldwide; in response, many countries around the world enforced quarantine lockdowns to contain the spread of the disease. Chinese government Covid 19 lockdown restrictions on social and industrial activities led to a decline in measurable air contaminants (Shrestha et al., 2020; Wang and Su, 2020; Zhang et al., 2020).<sup>6</sup> Data collected by the Ozone Monitoring Instrument (OMI) on board the Aura satellite (NASA) and TROPospheric Monitoring Instrument (TROPOMI) on board the Sentinel-5P satellite (ESA) have documented reduction of tropospheric trace gases related to air pollution.<sup>7</sup>

Recently, the Ministry of Ecology and Environment of the PRC has gone on record as stating that concentrations of six major air pollutants during the early phase of the COVID-19 pandemic (January–March 2020) were significantly reduced in comparison to previous year(s), citing a mean reduction of –20% for PM10, –15% for PM2.5, –25% for

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<sup>3</sup> John Vidal, “Tip of the iceberg’: is our destruction of nature responsible for Covid-19?” *The Guardian*, March 18, 2020. <https://www.theguardian.com/environment/2020/mar/18/tip-of-the-iceberg-is-our-destruction-of-nature-responsible-for-covid-19-aoe> (accessed 8/30/2020 at 4:59 pm)

<sup>4</sup> John Vidal Ensia, “Destroyed Habitat Creates the Perfect Conditions for Coronavirus to Emerge” in *Scientific American*, March 18, 2020. <https://www.scientificamerican.com/article/destroyed-habitat-creates-the-perfect-conditions-for-coronavirus-to-emerge/> (accessed on August 30, 2020 at 5:38 pm)

<sup>5</sup> Huang C., Wang Y., Li X., Ren L., Zhao J., Hu Y., Zhang L., Fan G., Xu J., Gu X., Cheng Z., Yu T., Xia J., Wei Y., Wu W., Xie X., Yin W., Li H., Liu M., Xiao Y., Gao H., Guo L., Xie J., Wang G., Jiang R., Gao Z., Jin Q., Wang J., Cao B., “Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China” in *The Lancet*. 2020, v. 395: 497–506.

<sup>6</sup> Shrestha A.M., Shrestha U.B., Sharma R., Bhattarai S., Tran H.N.T., Rupakheti M., “Lockdown caused by COVID-19 pandemic reduces air pollution in cities worldwide,” preprint, <https://eartharxiv.org/edt4j/> (accessed 8/28/2020 at 9:28 pm); Wang Q., Su M., “A preliminary assessment of the impact of COVID-19 on environment—a case study of China” in *Science of the Total Environment*, 2020, 728; Dutheil F., “COVID-19 as a factor influencing air pollution?” in *Environmental Pollution* 2020; 263.

<sup>7</sup> Arkin F. Asian, “COVID-19 lockdowns clear the air of pollutants” in *SciDev.Net: Science & technology for global development* 2020. <https://www.scidev.net/asia-pacific/environment/news/asian-covid-19-lockdowns-clear-the-air-of-pollutants.html> (accessed 8/28/2020 at 9:44 pm)

NO<sub>2</sub>, –6% for CO, and –21% for SO<sub>2</sub>.<sup>8</sup> Substantial reductions in air pollutants were also noted in the Yangtze River Delta, as determined by the WRF-CAMx model (which converts the WRF outputs to CAMx-ready meteorological inputs in a multi-scale photochemical modeling system for gas and particulate air pollution).<sup>9</sup>

Furthermore, a separate scholarly study has reported an average reduction of 52% in NO<sub>x</sub> emissions in east China during the period after the lockdown compared to the levels measure a year earlier.<sup>10</sup> The Global Carbon Project estimates that industrial shutdowns in China have caused a 25% drop in CO<sub>2</sub> emissions in February 2020, compared with the same month in 2019.<sup>11</sup> Lauri Myllyvirta, analyst at the Centre for Research on Energy and Clean Air who covers air quality and energy trends in China, concurs: “Taken together, the reductions in coal and crude oil use indicate a reduction in CO<sub>2</sub> emissions of 25% or more, compared with the same two-week period following the Chinese new year holiday in 2019.”<sup>12</sup>

Additionally, data generated by Himawari 8 I (a Japanese weather satellite operated by the Japan Meteorological Agency) and AERONET (Aerosol Robotic NETwork, a global network for ground-based aerosol monitoring) suggest that Southeast Asian (SEA) governmental measures to restrict transmission of Covid 19 reduced air pollution caused by atmospheric aerosols in Brunei, Singapore, Malaysia, Thailand, the Philippines and other SEA countries.<sup>13</sup>

The World Bank, by contrast, has not come to any conclusions about the effect of the lockdown on what it considers to be “the most dangerous form of air pollution – PM<sub>2.5</sub> particulates, which have an aerodynamic diameter of less than 2.5 microns – about one-

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<sup>8</sup> Ministry of Ecology and Environment of China (2020), “Report on the state of surface water and ambient air quality nationwide in March and January–March 2020.”

[http://www.mee.gov.cn/xxgk2018/xxgk/xxgk15/202004/t20200414\\_774254.html](http://www.mee.gov.cn/xxgk2018/xxgk/xxgk15/202004/t20200414_774254.html) (accessed 8/28/2020 at 9:53pm)

<sup>9</sup> Li L., Li Q., Huang L., Wang Q., Zhu A., Xu J., Liu Z., Li H., Shi L., Li R., Azari M., Wang Y., Zhang X., Liu Z., Zhu Y., Zhang K., Xue S., Ooi M.C.G., Zhang D., Chan A., “Air quality changes during the COVID-19 lockdown over the Yangtze River Delta region: an insight into the impact of human activity pattern changes on air pollution variation” in *Science of the Total Environment*, 732, August 2020.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7211667/> (accessed 8/28/2020 at 10:04 pm)

<sup>10</sup> Zhang W., Xu H., Zhang L., “Assessment of Himawari-8 AHI aerosol optical depth over land” in *Remote Sensing and Digital Earth*, 11:9, May 2019. <https://www.mdpi.com/2072-4292/11/9/1108> (accessed 8/28/2020 at 9:58 pm)

<sup>11</sup> Global Carbon Project (2020), , <http://www.globalcarbonatlas.org/en/content/welcome-carbon-atlas> (accessed on August 29, 2020 at 11:48 am).

<sup>12</sup> Lauri Myllyvirta, “Analysis: Coronavirus temporarily reduced China’s CO<sub>2</sub> emissions by a quarter,” *CarbonBrief*, February 19, 2020.

<https://www.carbonbrief.org/analysis-coronavirus-has-temporarily-reduced-chinas-co2-emissions-by-a-quarter> (accessed on August 29 at 12:03 pm)

<sup>13</sup> Kasturi Devi Kanniah, Nurul Amalin Fatimah, Kamarul Zaman, Dimitris G.Kaskaoutis, Mohd Talib Latif, “COVID-19’s impact on the atmospheric environment in the Southeast Asia region” in *Science of The Total Environment* v. 736, 20 September 2020.

<https://www.sciencedirect.com/science/article/pii/S0048969720331788#!> (accessed 8/28/2020 at 6:29 pm)

thirtieth the width of a human hair.”<sup>14</sup> Since PM2.5 has an extended travel range and derives from both natural and anthropogenic sources across many sectors, the World Bank considers that relevant factors are more complex than simple cause and effect related to the Covid pandemic lockdown. It contends that current scientific findings do not definitively demonstrate that drops in PM2.5 levels are decisive. In fact, data from the Center for Research on Energy and Clean Air (Crea) show concentrations of fine particles (PM2.5) and nitrogen dioxide (NO<sub>2</sub>) across China are now at the same levels as the previous year.<sup>15</sup>

Nevertheless, many people with friends and relatives in Asia have heard anecdotal testimony about how the shuttered factories, empty streets and “bluing” of perennially smoggy skies over many cities have provided welcome relief from routinely crowded, polluted Asian urban environments. Covid 19’s unanticipated benefits include instances of deer in Nara Park, Japan; monkeys in Lopburi, Thailand; other long unseen wildlife venturing into Asia’s now ghostly urban jungles. Residents of Chinese towns and cities report hearing wild bird songs for the first time in years, even decades. Even endangered leatherback turtles have reclaimed Phuket (Thailand) beaches to lay eggs. It is striking that the last time anyone reported seeing a live leatherback on a Phuket beach was eight years ago.<sup>16</sup>



*Leatherback turtles are returning to Thai beaches - Wikicommons*

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<sup>14</sup> John Roome, “COVID-19: a time to rebuild a stronger, greener South Asia” in *World Bank Blogs*, June 10, 2020. <https://blogs.worldbank.org/endpovertyinsouthasia/covid-19-time-rebuild-stronger-greener-south-asia> (accessed 8/28/2020 at 10:38 pm)

<sup>15</sup> Damian Carrington and Niko Kommenda, “Air pollution in China back to pre-Covid levels and Europe may follow,” *The Guardian*, June 3, 2020. <https://www.theguardian.com/environment/2020/jun/03/air-pollution-in-china-back-to-pre-covid-levels-and-europe-may-follow> (accessed 8/29/2020 at 8:51 pm)

<sup>16</sup> Nanticha Ocharoenchai, “In Thailand, the Return of the Leatherbacks,” *U.S. News*, April 24, 2020. <https://www.usnews.com/news/best-countries/articles/2020-04-24/endangered-turtles-reclaim-thailands-beaches-during-coronavirus-lockdown> (accessed 8/29/2020 at 10:35 am)

As greenhouse gas emissions have been declining due to the Covid-19 shutdown, China and the United States have chosen different approaches to regulating CO<sub>2</sub> emission. In March 2020, the USA Environmental Protection Agency announced a sweeping relaxation of environmental rules in response to the coronavirus pandemic, allowing power plants, factories and other facilities to determine for themselves if they are able to meet legal requirements on reporting air and water pollution.<sup>17</sup> Contrarily, in May 2020, China's National Development and Reform Commission (NDRC) announced that the PRC's finance ministry will allocate a total of 407.3 billion yuan (@\$60 billion) to environment protection in 2020, up from 390.6 billion yuan last year (@\$57 billion). The NDRC will impose ultra-low emission standards at more steel mills and continue to tighten emissions controls at coal-fired power plants.

These starkly divergent policy statements from the USA and China about controlling greenhouse gas emissions during the Covid 19 pandemic period plainly reveal the differences in environmental values between the current USA Trump federal administration and Xi Jinping's People's Republic of China regime. This despite the fact that both governments are eager to relax environmental regulations as businesses struggle with layoffs, personnel restrictions, and other difficulties caused by the coronavirus outbreak.

Also in May 2020, Minister of Ecology and Environment Huang Runqiu asserted: "In the 14th five-year plan period, we will continue to improve ecological and environmental quality by reducing pollutant emissions, and vigorously promote ecological protection and restoration."<sup>18</sup> Regrettably, despite Huang's bold statement that China will not relax its environmental protection measures, NO<sub>x</sub> measurements have recently approached pre-Covid levels in some Chinese provinces after the termination of the Covid-19 quarantine period and resumption of industrial and commercial activities.<sup>19</sup>

Despite the devastating health and economic toll on human beings, some environmentalists hold the hope that the global pandemic lockdown may be an opportunity to reset our ecological practices in order to delay or halt climate change. It is true that all over the world, travel limits have severely limited car and airplane traffic, so observable air quality has improved globally. And given concerns about zoonotic diseases, the most significant response to the coronavirus may involve wildlife conservation efforts in Asia. All over Asia, there is heightened government monitoring of "wet markets" (a complex of stalls selling fish, meat and wild animals as opposed to dry goods); Vietnam has recently banned all wildlife imports and has shut down wildlife markets.<sup>20</sup>

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<sup>17</sup> Lisa Friedman, "E.P.A., Citing Coronavirus, Drastically Relaxes Rules for Polluters" in *The New York Times*, March 26, 2020. <https://www.nytimes.com/2020/03/26/climate/epa-coronavirus-pollution-rules.html> (accessed 8/29/2020 at 12:09 pm)

<sup>18</sup> "China won't relax ecological, environmental protection: minister," *Xinhuanet* May 25, 2020. [http://www.xinhuanet.com/english/2020-05/25/c\\_139087080.htm](http://www.xinhuanet.com/english/2020-05/25/c_139087080.htm) (accessed 8/29/2020 at 12:33 pm)

<sup>19</sup> Zhang et al., 2020.

<sup>20</sup> Hau Dinh, "Vietnam bans wildlife imports, markets amid new health fears," *The Washington Post*, July 24, 2020. [https://www.washingtonpost.com/world/asia\\_pacific/vietnam-bans-wildlife-imports-markets-](https://www.washingtonpost.com/world/asia_pacific/vietnam-bans-wildlife-imports-markets-)

These improved conditions have led to a common misconception that during the Covid-19 pandemic lockdown in Asia, nature has enjoyed a respite from environmental degradation. Rather, many rural areas in Asia experienced an upsurge of opportunistic illegal logging, mining, and wildlife poaching that capitalized on lax environmental law enforcement during the pandemic period. Millions of unemployed day laborers have had to return to their rural villages, putting a strain on their local ecologies. Many people have been forced to exploit local forests, rivers, and other natural resources to collect food and other necessities. Exposure to wildlife may also increase the risk of COVID-19 zoonotic transmission.



*There are reports of increased deforestation during the Covid -19 pandemic  
Image: Haroldo Castro/Conservation International*

### **The plastic problem**

There is also troubling environmental news on another front. The World Economic Forum has found that “Coronavirus waste has become a new form of pollution as single-use personal protective equipment (PPE) floods our ocean. Covid-19 has had a number of unexpected impacts on the environment, curtailing recycling and increasing the use of plastic around the world.”<sup>21</sup> COVID-19 has triggered an estimated global use of 129

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[amid-new-health-fears/2020/07/25/0d4c28dc-ce2d-11ea-99b0-8426e26d203b\\_story.html](https://www.weforum.org/news/2020/07/25/0d4c28dc-ce2d-11ea-99b0-8426e26d203b_story.html) (accessed 8/30/2020 at 6:29 pm)

<sup>21</sup> “Covid-19 plastic pollution: Masks made from banana-tree species could help cut Covid plastic waste,” ed. Saumya Sharma, *Hindustani Times*, July, 19, 2020. <https://www.hindustantimes.com/health/covid-19-plastic-pollution-masks-made-from-banana-tree-species-could-help-cut-covid-plastic-waste/story-o1JY1UM1Q0UW9j2NoUmPAK.html> (accessed 8/30/2020 at 10:18 pm)



billion face masks and 65 billion gloves per month. In China, daily production of face masks soared to 116 million in February 2020, 12 times higher than the previous month. Hundreds of tons of discarded masks have been collected daily from public bins during the Covid-19 outbreak; this does not include the many others that have been discarded in household waste systems.<sup>22</sup>



*Plastic waste piling up on Hong Kong beaches, Image Credits: Pixabay, Tim Evans/Twitter*

Single-use masks, gloves and bottles of sanitizer that shield people from the spread of COVID-19 are “leaking” into the seas and endangering wildlife. They have even reached the uninhabited Soko Islands, a few nautical miles from Hong Kong. Gary Stokes, Director of Operations of the conservation group OceansAsia, recently found some 100 masks washed up over the course of three visits to the Soko beach. “We hadn’t noticed this many masks before in such a remote location,” said Stokes, who suspects they came from nearby China or Hong Kong. “When we found them, it only had been six to eight weeks since people had started using these masks.”<sup>23</sup>

Even in Hong Kong, where littering is rare due to heavy fines and social ostracism, there are many ways for masks to reach the sea. People can unintentionally drop masks as they pull out other items from their pockets; and if masks are put in the garbage, they are light enough to blow away. “[In Hong Kong waters,] we’ve got pink dolphins and green turtles coming through this place,” said Stokes. “A recently published study showed that when

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<sup>22</sup> Jacob Duer, “The plastic pandemic is only getting worse during COVID-19,” *World Economic Forum*, July 1, 2020. <https://www.weforum.org/agenda/2020/07/plastic-waste-management-covid19-ppe/> (accessed 8/30/2020 at 10:28 pm)

<sup>23</sup> Farah Master and Yoyo Chow, “Discarded coronavirus masks clutter Hong Kong’s beaches, trails,” *Reuters*, March 11, 2020. <https://www.reuters.com/article/us-health-coronavirus-hongkong-environme/discarded-coronavirus-masks-clutter-hong-kongs-beaches-trails-idUSKBN20Z0PP> (accessed 8/30/2020 at 7:16 pm)

plastic is left in the water long enough and algae and bacteria grow on it, it actually smells like food to turtles."<sup>24</sup>

During the Covid-19 quarantine period, use of single-use plastic has surged in Asia. As crude oil prices collapsed, plastic became more affordable to use than ever. The low cost of oil and natural gas, the raw materials used to make plastic, expanded the price disparity between alternative materials and virgin plastic. Businesses all over the globe found it profitable and reassuring to customers to package goods in cheap virgin plastic.

Increased reliance on food delivery services and online shopping platforms has generated a corresponding increase in disposable packaging. One of the biggest factors in the surge in plastic trash has been food delivery. Many housebound consumers have developed an affinity for food delivery during quarantine, resulting in expanded usage of plastic containers and wrapping materials that promise viral protection. For example, Grab, a Singaporean food delivery app, has enjoyed a 400% rise in orders.

Indonesia has suspended waste generation management plans due to Covid-19 pandemic budget strains, social distancing rules and stay-at-home orders, even though it generates 6.8 million tons of plastic waste each year. "The increase in the amount of plastic waste is certainly very worrying, especially if it is not managed and is leaked into the environment," said Muharram Atha Rasyadi of Greenpeace Indonesia. Siti Nurbaya Bakar, Indonesia's minister of environment and forestry, recently announced that due in part to pandemic quarantine measures, Indonesia produced more than 1,100 tons of medical waste over four months, from March to June 2020.<sup>25</sup>

Thailand has also turned to disposable plastics since its lockdown began in late March 2020. The home delivery service Foodpanda Thailand has enjoyed an increase of 300% in orders. According to the Thailand Environment Institute (TEI), the average amount of plastic waste produced by the country went from 2,120 tons per day in 2019 to approximately 3,440 tons per day between January and April 2020.<sup>26</sup>

### How will Asia respond?

In the aftershock of coronavirus pandemic shutdown measures, Asian governments earmarked a massive amount of stimulus money to revive industrial output, consumption, employment and tourism. China's economic growth forecast has dropped to 1 percent this year, as opposed to 6.1% in 2019. The World Bank estimates a 3+% contraction of

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<sup>24</sup> Nikolia Apostolou, "Coronavirus plastic waste polluting the environment," *Global Ideas*, DW, April 23, 2020. <https://www.dw.com/en/coronavirus-plastic-waste-polluting-the-environment/a-53216807> (accessed 8/30/2020 at 7:20 pm)

<sup>25</sup> Tashny Sukumaran, Randy Mulyanto, Jitsiree Thongnoi, Elyssa Lopez, "Plastic pollution plagues Southeast Asia amid Covid-19 lockdowns," *South China Morning Post*, August 9 2020. <https://foodindustry.asia/documentdownload.axd?documentresourceid=32864> (accessed 8/29/2020 at 5:21 pm)

<sup>26</sup> Deutsche Welle, "Coronavirus Worsens Thailand's Plastic Waste Crisis," *EcoWatch* May 28, 2020. <https://www.ecowatch.com/thailand-plastic-coronavirus-2646114108.html?rebelltitem=3#rebelltitem3> (accessed 8/29/2020 at 5:33 pm)

economic growth for Malaysia, 2% for the Philippines, and 5 percent for Thailand.<sup>27</sup> How will Asia's post-Covid 19 economic recovery efforts impact the environment? "Recognizing the immediate need to generate jobs, you also have to look at whether measures do not lock you into a high-carbon future," said Milag San Jose-Ballesteros, director for East, Southeast Asia, and Oceania at the C40 Cities Climate Leadership Group, an international consortium of local governments.<sup>28</sup>

Efforts to revamp the Asian regional economy to a "greener" model will be for naught without genuine commitment from China, the world's largest user of coal and emitter of carbon dioxide. Furthermore, the central government of the PRC holds sway over the entire Asian region's "greening" progress by virtue of its massive international Belt and Road Initiative. "Asia and the world will not meet their targets if China doesn't meet their targets or if China doesn't decide to stop building a lot of those coal-fired power projects,"<sup>29</sup> observes Jorrit Gosens, a Research Fellow at ANU Crawford School of Public Policy's Centre for Climate and Energy Policy.

Even before the Covid-19 pandemic struck, Southeast Asia was not on track to reach the climate-related goals of the 2030 UN Sustainable Development Agenda and the Paris Agreement. UNESCAP's latest assessment concludes that the Asia-Pacific region is behind on all seventeen Sustainable Development Goals, including clean energy and climate action. Home to sixty percent of the world's population, Asia is home to 99 of the world's 100 most polluted cities, according to a global report on annual air pollution levels by Beijing-based monitoring firm AirVisual and Greenpeace published in March 2019.<sup>30</sup> Vietnam, Myanmar, the Philippines, and Thailand are among 10 countries in the world most affected by climate change over the past two decades, according to the Global Climate Risk Index (pdf) compiled by Germanwatch, an environmental group.<sup>31</sup> These ratings have not changed much during the Covid 19 pandemic period.

Regrettably, national financial priorities seldom align with the aspirations of environmental advocates. Although the World Bank counts Vietnam among five countries most likely to be affected by global warming in the future, during the Covid 19 pandemic period, Vietnam has continued construction of eight China-backed coal plants according to Greenpeace. These projects are ongoing despite the fact that Vietnam's coal-power capacity under active development is already the third largest in the world after China's and India's, according to a March 2018 report by environmental groups,

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<sup>27</sup> Catherine Putz, "Asia and the Global Economy's COVID-19 Plunge," *The Diplomat*, June 10, 2020. <https://thediplomat.com/2020/06/asia-and-the-global-economys-covid-19-plunge/> (accessed 8/29/2020 at 10:38 am)

<sup>28</sup> Francesca Regalado, "Asia risks missing 'green' economic reset after coronavirus" in *NIKKEI Asian Review*, June 23, 2020. <https://asia.nikkei.com/Spotlight/Asia-Insight/Asia-risks-missing-green-economic-reset-after-coronavirus> (accessed 8/29/2020 at 10:40 am)

<sup>29</sup> Regalado (accessed 8/29/2020 at 12:19 am)

<sup>30</sup> Robin Hicks, "Of the world's 100 most polluted cities, 99 are in Asia," *Eco-Business*, March 7, 2019. <https://www.eco-business.com/news/of-the-worlds-100-most-polluted-cities-99-are-in-asia/> (accessed 8/29/2020 at 2:15 pm)

<sup>31</sup> Germanwatch (2020), [https://germanwatch.org/sites/germanwatch.org/files/20-2-01e%20Global%20Climate%20Risk%20Index%202020\\_14.pdf](https://germanwatch.org/sites/germanwatch.org/files/20-2-01e%20Global%20Climate%20Risk%20Index%202020_14.pdf) (accessed 8/29/2020 at 2:30 pm)

including the Sierra Club and Greenpeace.<sup>32</sup> Vietnamese government authorities are using the imperative of economic recovery to push through projects that will negatively impact the environment. An anonymous Vietnamese environmental activist has asserted that "the pandemic provides perfect cover for approval."<sup>33</sup>



*Vietnamese coal-fired plant, WikiCommons*

Thailand, one of the top 10 countries in the world most affected by climate change over the past 20 years, has taken a different tack. At the 27<sup>th</sup> session of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) in late May 2020, Thai Prime Minister Prayuth Chan-ocha encouraged member states to "build back better," calling for a reset of national economies toward environmental and social sustainability: "the COVID-19 crisis has gravely impacted national and global economies. It will also affect our endeavors to achieve the sustainable development goals, or SDGs. But in every crisis lies an opportunity."<sup>34</sup> Despite Prayuth's lofty rhetoric, a recent report from the UN Resident Coordinator in Bangkok stated that Thailand's three stimulus packages worth a combined \$76.2 billion have yet to pave the way for a "green" transition.

The coronavirus crisis has challenged Asian nations to try to balance competing priorities for economic recovery and long-term environmental protection measures.<sup>35</sup> The C40 Cities Climate Leadership Group, composed mayors of global cities who represent millions of people worldwide, has released a statement of principles that pledges "to

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<sup>32</sup> Christine Shearer, Neha Mathew-Shah, Lauri Myllyvirta, Aiqun Yu, and Ted Nace, "Tracking the Global Coal plant Pipeline" in *Boom or Bust 2018*, 12. [https://endcoal.org/wp-content/uploads/2018/03/BoomAndBust\\_2018\\_r4.pdf](https://endcoal.org/wp-content/uploads/2018/03/BoomAndBust_2018_r4.pdf) (accessed 8/29/2020 at 2:33 pm)

<sup>33</sup> Regalado (accessed 8/29/2020 at 12:59 pm)

<sup>34</sup> Regalado (accessed 8/29/2020 at 1:19 pm)

<sup>35</sup> Kim DeRidder, "Covid-19 vs Climate Change: What Can We Learn?" *The Asia Foundation*, June 10, 2020. <https://asiafoundation.org/2020/06/10/covid-19-vs-climate-change-what-can-we-learn/> (accessed 8/29/2020 at 1:36 pm)

build a better, more sustainable and fairer society out of the recovery from the COVID-19 crisis.”<sup>36</sup> Added Ahmed Saeed, the Asian Development Bank’s vice president for East Asia, Southeast Asia and the Pacific: “Any recovery post-pandemic must be green and it must be sustainable. This crisis is a reminder to all of us that the problems that are foretold do often come to pass.”<sup>37</sup>

## Conclusion

Environmental changes caused by human intrusion spurred by rapid urban development in Asia may be linked to the recent emergence of zoonotic viruses such as Covid-19, SARS, MERS, and Ebola. The current pandemic is a byproduct of human behaviors, as is its corollary, climate change. The blue skies over Asian cities may portend an environmentally sustainable future, or they may present a brief interlude before a final environmental catastrophe. Asian governments’ stimulus packages must choose between fostering low-carbon alternatives, renewable energy or high-quality sustainable infrastructure, or they will promote even more desperate exploitation and abuse of the natural environment. For example, an UN brief calculates that Indonesia and Brunei can fund “most or all” of their national stimulus packages with removal of fossil fuel government subsidies.<sup>38</sup>

An even more hopeful development concerns a potential substitute for plastic: abaca, a fiber derived from a relative of the banana tree found in the Philippines. Abaca, also known as Manila Hemp, is as durable as polyester but will decompose within two months, contends Director of the Philippine Fiber Industry Development Authority Kennedy Costales. He believes that abaca demand will grow “exponentially” this year, with 10% of production going to medical uses, compared with less than 1% in 2019.<sup>39</sup>

A preliminary study by the Philippine Department of Science and Technology found abaca paper to be more water resistant than the plastic of a commercial N-95 mask, and to have pore sizes within the U.S. Centers for Disease Control and Prevention’s recommended range to filter hazardous particles. “Abaca fiber is rapidly gaining popularity as governments and manufacturers all around the world scamper to produce more reusable and safe medical garments for healthcare professionals,” declares Pratik Gurnani, senior consultant at Future Market Insights.<sup>40</sup>

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<sup>36</sup> “Cities & sustainability II.” <https://www.dianaswednesday.com/2020/08/cities-sustainability-ii/> accessed 8/29/2020 at 2:57 pm)

<sup>37</sup>Johanna Son, “Southeast Asia: Going Greener, Post-COVID-19?” *Heinrich Böll Stiftung*, August 24, 2020. <https://eu.boell.org/en/2020/08/24/southeast-asia-going-greener-post-covid-19>  
<https://asiafoundation.org/2020/06/10/covid-19-vs-climate-change-what-can-we-learn/> (accessed 8/29/2020 at 2:51 pm)

<sup>38</sup> United Nations Policy Brief: The Impact of COVID19 on South-East Asia, July 2020, 24. <https://www.unescap.org/sites/default/d8files/2020-07/SG-Policy-brief-COVID-19-and-South-East-Asia-30-July-2020.pdf> (accessed 8/30/2020 at 1:17 am)

<sup>39</sup> “Covid-19 plastic pollution: Masks made from banana-tree species could help cut Covid plastic waste,” <https://www.hindustantimes.com/health/covid-19-plastic-pollution-masks-made-from-banana-tree-species-could-help-cut-covid-plastic-waste/story-o1JY1UM1Q0UW9j2NoUmPAK.html> (accessed 8/30/2020 at 10:40 pm)

<sup>40</sup> *Ibid.*



*Abaca fabric*, <https://www.cmoparis.com/en/tissu/mixed-abaca/>

This represents a chance for an Asian country to provide an organic, eco-friendly surrogate for plastic in Covid-19 protective masks, that have recently become a major source of pollution in our oceans. Instead of being among the top producers of global plastic, Asian nations can take advantage of an opportunity to support an alternative that may help to save our oceans. A hopeful sign is that even though Abaca is more expensive to produce than plastic, manufacturers of protective health gear from China, India and Vietnam have recently placed new orders for the fiber during, prompting Philippine abaca fiber factories to double their output.<sup>41</sup> The Covid-19 global pandemic crisis challenges Asian governments to produce policies that promote long-term sustainability in economic-stimulus packages. Their choice may do much to determine the future of our global environment and its diverse biota.

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<sup>41</sup> *Ibid.*