

Empowering Food and Agriculture to Respond as Critical Infrastructures to COVID-19 and Future Pandemics

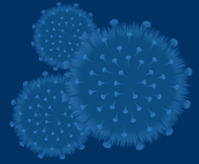
Part 2: The Pandemic Takes Hold in the
Critical Infrastructures of Agriculture and Food



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This publication is part of a partnership between Auburn University's McCrary Institute and Air University pursuant to which challenges related to cyber and critical infrastructure security are examined for the purpose of advancing U.S. national security.

ABOUT US



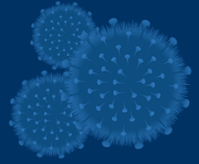
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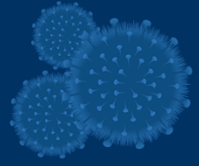
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PART TWO



The coronavirus pandemic, known as COVID-19 has dramatically damaged the economy. For the first time in a very long time, grocery store shelves and freezers in the U.S. started to empty, as Americans not knowing what the future held, stocked up on canned goods and meat. The shortages were in part due to the critical infrastructures of agriculture and food that started to falter in March and April, 2020, as processing plant personnel became infected with the SARS-CoV-2 virus. Food processing was heavily reliant on human labor, since automation, in the works before the pandemic, was not yet complete. In the past, human labor was considered more economical, since automation was not perfected. Plant personnel were better than the machines. Their precision and hard work drove efficiency and keep prices lower than in most parts of the world. Once a strength for the food processing industry, this dependency on human labor became a liability, as pre-existing labor issues morphed into public health issues, which in turn became national security issues – in particular, food security.

COVID-19 Gains a Foothold

The novel coronavirus (SARS-CoV-2) outbreak that started in Wuhan China, sometime late in 2019¹, quickly spread across the globe, as individuals unknowingly infected by the virus were allowed to travel out of the outbreak area by the Chinese government. On 31 December 2019 Taiwan health officials sent an email to the WHO, enquiring about the then unidentified pneumonia that had been occurring in Wuhan, China. "Taiwanese and U.S. officials have seized on the email to argue the WHO ignored an early warning that the coronavirus could likely be transmitted between people. In the weeks following the Dec. 31 note, the WHO echoed Chinese officials that there was "...no clear evidence of human-to-human transmission"— even as cases began cropping up that raised suspicion of contagion."²

On 2 April 2020, "The United States...accused the World Health Organization of putting politics first by ignoring Taiwanese warnings over China's coronavirus outbreak, laying out its case against the UN body...The United States is "deeply disturbed that Taiwan's information was withheld from the global health community, as reflected in the WHO's January 14, 2020 statement that there was no indication of human-to-human transmission," a State Department spokesperson said."³ The U.S. further specifically targeted a problematic

¹ Congressional Research Service (2020). "COVID-19 and China: A Chronology of Events (December 2019-January" 2020). Updated May 13, 2020. Report # R46354. Link: <https://assets.documentcloud.org/documents/6889758/R46354-1.pdf>.

² Watt, Louise (2020). "Taiwan Says It Tried to Warn the World About Coronavirus. Here's What It Really Knew and When". Posted 19 May 2020. Time Magazine. Link: <https://time.com/5826025/taiwan-who-trump-coronavirus-covid19/>.

³ Anonymous (2020). "US criticizes WHO for ignoring Taiwan virus warnings". Posted 9 April 2020. France 24. Link: <https://www.france24.com/en/20200409-us-criticizes-who-for-ignoring-taiwan-virus-warnings>.

situation update made by WHO on 14 January 2020, which was filled with errors, but was also largely reflective of China's public stance.

The update referred to a case in Thailand, which involved a woman who had recently traveled from Wuhan stating, "To date, China has not reported any cases of infection among healthcare workers or contacts of the cases. Based on the available information there is no clear evidence of human-to-human transmission. No additional cases have been detected since 3 January 2020 in China."⁴ The U.S. had by then developed deep concern that the WHO was being unduly influenced by China, which had already begun obfuscation efforts on the true nature of the then outbreak.

Evidence for the U.S. claim of obfuscation timeline is subject to interpretation, but can be seen in the Congressional Research Service Report entitled, "COVID-19 and China: A Chronology of Events (December 2019-January 2020)"⁵. The Trump Administration reportedly was given a classified briefing on Chinese obfuscation by the U.S. Intelligence Community in the last week of March 2020. "China has concealed the extent of the coronavirus outbreak in its country, under-reporting both total cases and deaths it's suffered from the disease, the U.S. intelligence community concluded in a classified report to the White House, according to three U.S. officials."⁶

Responding to a question by the press, Vice President Mike Pence characterized the problem with China's candor, "The reality is that we could have been better off if China had been more forthcoming...What appears evident now is that long before the world learned in December that China was dealing with this, and maybe as much as a month earlier than that, that the outbreak was real in China."⁷ China has subsequently been accused by others with trying to cover the full extent of the outbreak^{8,9,10}.

The Chinese media reported the first death on 11 January, 2020, characterizing it as caused by a "...unexplained viral pneumonia", which was one of 41 cases reported by the Wuhan Health Commission.¹¹ The first case in the U.S. quickly followed and was reported on 22 January

⁴ WHO (2020). "Novel Coronavirus – Thailand (ex-China)". Posted 14 January 2020. Link: <https://www.who.int/csr/don/14-january-2020-novel-coronavirus-thailand-ex-china/en/>.

⁵ Congressional Research Service (2020). "COVID-19 and China: A Chronology of Events (December 2019-January 2020)". Updated May 13, 2020. Report # R46354. Link: <https://assets.documentcloud.org/documents/6889758/R46354-1.pdf>.

⁶ Wadhams, N. and J. Jacobs (2020). "China Concealed Extent of Virus Outbreak, U.S. Intelligence Says". Posted 1 April 2020. Bloomberg. Link: <https://www.bloomberg.com/news/articles/2020-04-01/china-concealed-extent-of-virus-outbreak-u-s-intelligence-says>.

⁷ IBID

⁸ Enos, Olivia (2020). "Holding the Chinese Communist Party Accountable for Its Response to the COVID-19 Outbreak". Issue Brief No. 5074. 12 May 2020. Heritage Foundation. Link: <https://www.heritage.org/sites/default/files/2020-05/IB5074.pdf>

⁹ Anonymous (2020). "China continues to hide, obfuscate COVID-19 data from world: Mike Pompeo". The Tribune – India. 18 May 2020. Link: <https://www.tribuneindia.com/news/world/china-continues-to-hide-obfuscate-covid-19-data-from-world-mike-pompeo-82559>

¹⁰ Jaros, Kyle (2020). "China's Early COVID-19 Missteps Have an All-Too-Mundane Explanation How intergovernmental dynamics influenced the coronavirus outbreak in China. The Diplomat. 9 April 2020. Link: <https://thediplomat.com/2020/04/chinas-early-covid-19-struggles-have-an-all-too-mundane-explanation/>.

¹¹ Source: 武汉确诊41例感染新型冠状病毒肺炎患者

2020, from a man in Washington State, who reportedly had traveled to Wuhan, but had had no known association with the Wuhan seafood and live-animal market, which at the time was thought to be the epicenter of the outbreak.^{12,13} The market was closed down by Wuhan public health officials on 1 January 2020¹⁴, while China did not lock down travel into or out of Wuhan until 23 January 2020.¹⁵ Between 22 January and 29 February 2020, 24 cases were reported in the U.S. The numbers of cases quickly climbed, so that by the end of March that same year, 186,101 cases had been reported.¹⁶

On 28 February 2020, the World Health Organization (WHO) released a report entitled, "Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19)"¹⁷, which had occurred 16-24 February and headed by Dr. Bruce Aylward¹⁸ of the World Health Organization (WHO) and Dr. Wannian Liang of the People's Republic of China. The Joint Mission included 25 experts from China, Germany, Japan, Korea, Nigeria, Russia, Singapore, the U.S. and WHO. The sole U.S. participant on the panel was Dr. Clifford Lane, Clinical Director, National Institute of Allergy and Infectious Diseases, U.S. National Institutes of Health, Bethesda¹⁹.

WHO stated, "The overall goal of the Joint Mission was to rapidly inform national (China) and international planning on next steps in the response to the ongoing outbreak of the novel coronavirus disease (COVID-19) and on next steps in readiness and preparedness for

2020-01-11 08:50:23. Link: http://www.xinhuanet.com/2020-01/11/c_1125448269.htm

¹² Source: CDC (2020). "Number of COVID-19 Cases in the U.S., by Date Reported". Link: <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/previouscases.html>.

¹³ Schumaker, Erin (2020). "1st confirmed case of new coronavirus reported in US: CDC". ABC News. 21 January 2020. Link: <https://abcnews.go.com/Health/1st-confirmed-case-coronavirus-reported-washington-state-cdc/story?id=68430795>

¹⁴ Congressional Research Service (2020). "COVID-19 and China: A Chronology of Events (December 2019-January 2020)". Updated May 13, 2020. Report # R46354. Page 2. Link: <https://assets.documentcloud.org/documents/6889758/R46354-1.pdf>

¹⁵ Schumaker, Erin (2020). "Timeline: How coronavirus got started". ABC News. 23 April 2020. Link: <https://abcnews.go.com/Health/timeline-coronavirus-started/story?id=69435165>.

¹⁶ CDC (2020). Number of COVID-19 Cases in the U.S., by Date Reported. Link: <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/previouscases.html>.

¹⁷ Source: Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). World Health Organization. Posted 28 February 2020. Link: [https://www.who.int/publications-detail/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-\(covid-19\)](https://www.who.int/publications-detail/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-(covid-19))

¹⁸ Dr Bruce Aylward is a Canadian physician-epidemiologist who serves as Senior Advisor to the Director-General (WHO) for Organizational Change. Dr. Aylward had previously served in the United Nations Office for the Coordination of Humanitarian Affairs (August 2016 through August 2017); Helped develop the WHO Health Emergencies Program (December 2015-July 2016); Served as Special Representative of the Director-General for the Ebola Response (September 2014-July 2016). Source: <https://www.who.int/dg/who-headquarters-leadership-team>. Dr. Aylward became controversial when in an interview with a Journalist from the Hong Kong Free Press, he refused to answer a question about Taiwan's potential admittance in WHO. The interview is available on line at: <https://www.rthk.hk/tv/dtt31/programme/thepulse/episode/619602>. Taiwan has participated in the WHO Assembly's annual meetings, but to date had been blocked from membership at the insistence of China, which claims the island as part of its territory. Source: Grundy, Tom (2020). "Video: Top WHO doctor Bruce Aylward ends video call after journalist asks about Taiwan's status". Posted 29 March 2020. Hong Kong Free Press. Link: <https://hongkongfp.com/2020/03/29/video-top-doctor-bruce-aylward-pretends-not-hear-journalists-taiwan-questions-ends-video-call/>. Taiwan subsequently criticized China for blocking its entrance to the WHO, stating it was "vile" and "evil" during the pandemic. Source: Tan, Huileng (2020). "Taipei lashes out at China for blocking Taiwan's access to the World Health Organization". Posted 6 February 2020. CNBC. Link: <https://www.cnbc.com/2020/02/06/coronavirus-taiwan-lashes-out-at-china-for-blocking-who-access.html>.

¹⁹ Annex A. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). Link: <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>

geographic areas not yet affected.”²⁰ The WHO press release further characterizes the findings as, “...based on the Joint Mission’s review of national and local governmental reports, discussions on control and prevention measures with national and local experts and response teams, and observations made and insights gained during site visits. The figures have been produced using information and data collected during site visits and with the agreement of the relevant groups.”²¹

WHO declined to designate the outbreak in China as a “Public Health Emergency of International Concern (PHEIC)”²² on 23 January 2020, citing the limited spread of the virus outside of China²³, but a week later reversed that, declaring a PHEIC on 30 January 2020.²⁴ The statement accompanying the PHEIC, the sixth in its history²⁵ stated,

“Representatives of the Ministry of Health of the People’s Republic of China reported on the current situation and the public health measures being taken. There are now 7711 confirmed and 12167 suspected cases throughout the country. Of the confirmed cases, 1370 are severe and 170 people have died. 124 people have recovered and been discharged from hospital....The WHO Secretariat provided an overview of the situation in other countries. There are now 83 cases in 18 countries. Of these, only 7 had no history of travel in China. There has been human-to-human transmission in 3 countries outside China.”²⁶

Clearly, much of this data was available the prior week, when WHO had chosen not to declare a PHEIC. Although, there had been serious debate among the member committee, WHO chose not to act. The eventual statement by WHO is puzzling because of its apparent effusive praise of China. “The Committee welcomed the leadership and political commitment of the very highest levels of Chinese government, their commitment to transparency, and the efforts

²⁰ WHO Press Release: “Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19).” Link: [https://www.who.int/publications-detail/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-\(covid-19\)](https://www.who.int/publications-detail/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-(covid-19)).

²¹ IBID

²² A Public Health Emergency of International Concern (PHEIC) is designated upon the recommendation of the Emergency Committee, convened by the WHO Director-General under the International Health Regulations (IHR) (2005). Source: [https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov))

²³ Source: Joseph, Andrew (2020) “WHO declines to declare China virus outbreak a global health emergency”. Posted 23 January 2020. Stat News. Link: <https://www.statnews.com/2020/01/23/who-declines-to-declare-china-virus-outbreak-a-global-health-emergency/>.

²⁴ WHO (2020). “Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV)”. Posted 30 January 2020. Link: [https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov))

²⁵ Schumaker, Erin (2020). “Timeline: How coronavirus got started”. Posted 23 April 2020. AVC News. Link: <https://abcnews.go.com/Health/timeline-coronavirus-started/story?id=69435165>.

²⁶ WHO (2020). “Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV)”. Posted 30 January 2020. Link: [https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov))

made to investigate and contain the current outbreak”²⁷, which even then was being questioned by the U.S.

WHO further indicated, “The Committee does not recommend any travel or trade restriction based on the current information available”, requiring further, “Countries must inform WHO about travel measures taken, as required by the IHR. Countries are cautioned against actions that promote stigma or discrimination, in line with the principles of Article 3 of the IHR.”^{28,29}

WHO chose not to declare a pandemic until 11 March 2020.³⁰ There is currently a heated global-debate on whether WHO needlessly delayed the declaration of a pandemic and whether this may have caused confusion or worse yet, actually inadvertently contributed to the spread of the disease across the globe. The Centers of Disease Control and Prevention (CDC) defines the term as, “A pandemic is a global outbreak of disease. Pandemics happen when a new virus emerges to infect people and can spread between people sustainably. Because there is little to no pre-existing immunity against the new virus, it spreads worldwide.”³¹

Writing in *The Lancet*, Manfred Green stated, “There are several situations in which it could be helpful to use well defined terminology to control the spread of an infectious disease. The resources for controlling a pandemic are both different, substantially larger, and generally much more far-reaching than for a localised outbreak or epidemic.”³² In terms of travel restrictions, he further noted, “...although these are guided by the International Health Regulations, countries have the option to adopt unilaterally their own barriers to international travel.”³³

Green believes that there was an element of imprecision in the term “pandemic”, which may also have contributed to confusion and delay.

“If the term pandemic is clearly defined, it can communicate much more clearly the seriousness of the situation and help justify the extreme measures instituted. It can also provide the international health community with a common term to enlist the cooperation of the general public and convey the necessary sense of urgency to decision makers. This should stimulate rapid introduction of preventive

²⁷ IBID

²⁸ IBID

²⁹ “The International Health Regulations, or IHR (2005), represent an agreement between 196 countries including all WHO Member States to work together for global health security.” Source: <https://www.who.int/ihr/about/en/>.

³⁰ Ducharme, Jamie (2020). “World Health Organization Declares COVID-19 a ‘Pandemic.’ Here’s What That Means”. Posted 11 March 2020. *Time Magazine*. Link: <https://time.com/5791661/who-coronavirus-pandemic-declaration/>.

³¹ CDC (2020). Situation Summary. Updated 19 April 2020. Link: <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/summary.html>.

³² Green, Manfred S. (2020). “Did the hesitancy in declaring COVID-19 a pandemic reflect a need to redefine the term?” Posted 13 March 2020. *The Lancet*. Link: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30630-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30630-9/fulltext)

³³ Green, Manfred S. (2020). “Did the hesitancy in declaring COVID-19 a pandemic reflect a need to redefine the term?” Posted 13 March 2020. *The Lancet*. Link: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30630-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30630-9/fulltext).

measures such as social distancing to reduce the pace of the spread, providing valuable time for upgrading of the medical services, and preparing the community.”³⁴

In late March and early April 2020 plant closings began in North America for multiple animal species. The first was a beef processing plant in Souderton, PA on 31 March 2020, followed by a poultry processing plant in Moultrie, GA on 2 April, another beef plant in Tampa, Iowa on 8 April, the same day the first poultry plant closed down in Brampton, Ontario, Canada.³⁵ This geographic distribution of closures provides clear evidence that the SARS-CoV-2 virus was widespread, as also evidenced by the number of diagnosed U.S. cases, which numbered at 213,144 on 1 April 2020³⁶. By the end of April aggregate data collected by the CDC indicated a total of 4,913 COVID-19 cases (20 deaths) among 115 meat or poultry processing facilities in nineteen states

The Food Processing Industry Responds³⁷

Implementation of strategies to prevent transmission of COVID-19 in poultry processing facilities by the poultry industry was well underway by late March 2020. Based on recommendations provided by the CDC, poultry processing facilities focused on wide range of approaches for ensuring worker safety through employee communication and wellness, social distancing, enhanced facility sanitation, and restrictions on travel and visitors.

Employee communications were addressed by posting information in common areas about what COVID-19 and how to prevent the spread both on the job and at home. This information was posted in multiple languages based on the employee population of that particular facility. Any employees experiencing symptoms of illness or any employee that had been in direct contact with someone testing positive were required to stay home for the recommended 14 day quarantine period. Facility entrance security stations were enhanced by checking employee temperatures and required hand sanitation. Wearing of cloth masks was also encouraged.

Social distancing requirements were also implemented in poultry processing facilities, both “on the line” and in common use areas. Dividers were added in production areas as well as break rooms. Shift times and break times were staggered in order to minimize the number of employees moving through the facility at any one time. Face-to-face meetings were changed to video conferencing and, whenever possible and office employees were allowed to work from home.

³⁴ IBID.

³⁵ McCarthy, Ryan and Sam Danley (2020). “Map: COVID-19 meat plant closures”. Meat and Poultry. Link: <https://www.meatpoultry.com/articles/22993-covid-19-meat-plant-map>.

³⁶ CDC (2020). “Number of COVID-19 Cases in the U.S., by Date Reported”. Link: <https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/previouscases.html>.

³⁷ Bourassa, D.V. (2020). This section is based on personal communication with multiple poultry processing companies. Note: Red meat processing facilities responded similarly.

Facility sanitation was also increased, particularly in common use areas, such as facility entry security stations, break rooms, production floor entries and exits, and common use vehicles (pallet jacks, yard trucks, etc.). Sanitation on the production floor, which had always received close attention due to food safety requirements, was given further attention, particularly on plant floor production surfaces.

Restrictions on travel and facility visitors were immediately implemented and followed the recommended CDC guidelines. Essential visitors and contractors were screened upon entry similar to employees and new applicants are isolated during application and interview.

Concerns about Food Safety

The U.S. Food and Drug Administration (FDA)³⁸, U.S. Department of Agriculture (USDA)³⁹ and CDC⁴⁰ have each developed a food safety resource webpage. There is concurrence between the agencies that the SARS-CoV-2 virus is not transmitted by food. FDA goes farther stating, "We do not anticipate that food products would need to be recalled or be withdrawn from the market because of COVID-19, as there is currently no evidence to support the transmission of COVID-19 associated with food or food packaging."⁴¹ FDA did however indicate that, "It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their mouth, nose, or possibly eyes, but this is not thought to be the main way the virus spreads."⁴²

Although, there were some discrepancies in verbiage within and between federal agencies responsible for food safety relative COVID-19, nothing substantive changed in terms of maintaining food safety standards in the United States. Some food safety experts within the food industry did wonder whether a loss of trained employees, including federal inspectors within processing plants would cause a decline in adherence to food safety requirements. Those concerns however were largely not borne out. Plant closings did indeed happen, but when open all plants continued to adhere to federal guidelines⁴³. Food borne illness rates often lag, but to date the CDC has not noted any uptick in the case estimates on their

³⁸ FDA Food Safety Webpage Link: <https://www.fda.gov/food/food-safety-during-emergencies/food-safety-and-coronavirus-disease-2019-covid-19#foodsupply>.

³⁹ USDA Food Safety Webpage Link: <https://www.usda.gov/coronavirus/food-supply-chain#food-safety>.

⁴⁰ CDC Food Safety Webpage Link: <https://www.cdc.gov/foodsafety/newsletter/food-safety-and-Coronavirus.html>.

⁴¹ FDA (2020). Food Safety and the Coronavirus Disease 2019 (COVID-19). Answer to question posed: Do I need to recall food products produced in the facility during the time that the worker was potentially shedding virus while working? (Posted 17 March 2020). Link: <https://www.fda.gov/food/food-safety-during-emergencies/food-safety-and-coronavirus-disease-2019-covid-19#foodsupply>.

⁴² FDA (2020). Food Safety and the Coronavirus Disease 2019 (COVID-19). Answer to question posed: How do I handle self-service food buffets such as salad bars in a retail setting related to COVID-19? (Posted 17 March 2020). Link: <https://www.fda.gov/food/food-safety-during-emergencies/food-safety-and-coronavirus-disease-2019-covid-19#foodsupply>.

⁴³ Norton, R.A. (2020). Personal communications.

webpages dedicated to the topic during the COVID-19 outbreak.⁴⁴ Food Safety recalls also do not appear to have experienced an uptick⁴⁵.

Concerns about Food Defense

FDA defines Food Defense as, "...the effort to protect food from acts of intentional adulteration."⁴⁶ Under FDA's authorities, "The FDA Food Safety Modernization Act (FSMA) final rule is aimed at preventing intentional adulteration from acts intended to cause wide-scale harm to public health, including acts of terrorism targeting the food supply."⁴⁷ Another agency responsible for Food Defense is USDA's Food Safety and Inspection Service (USDA-FSIS)⁴⁸, which states, "Food defense is the protection of food products from contamination or adulteration intended to cause public health harm or economic disruption. The food system within the United States continues to increase in complexity, diversity, and reliance upon interconnected domestic and global systems. Concurrently, the threat landscape and potential sources of intentional adulteration continue to evolve and increase in complexity, which could ultimately have a powerful impact on public health and the economy."⁴⁹

USDA links Food Defense⁵⁰, Food Safety and Food Security explaining, "In order to prevent, protect against, mitigate, respond to, and recover from threats and hazards of greatest risk to the food supply, it is important that preparedness efforts encompass food safety, food defense, and food security. While there are distinct differences between these three concepts, a comprehensive approach that addresses food safety, food defense, and food security

⁴⁴ CDC (2020). Estimates of Foodborne Illness in the United States. Link: <https://www.cdc.gov/foodborneburden/index.html>; Burden of Foodborne Illness: Findings. Link: <https://www.cdc.gov/foodborneburden/2011-foodborne-estimates.html>.

⁴⁵ Recall lists are available at CDC Link: <https://www.cdc.gov/foodsafety/>; FDA Link: <https://www.fda.gov/safety/recalls-market-withdrawals-safety-alerts>; USDA-FSIS Link: <https://www.fsis.usda.gov/wps/portal/fsis/topics/recalls-and-public-health-alerts/current-recalls-and-alerts>

⁴⁶ FDA (2020). Food Defense. Link: <https://www.fda.gov/food/food-defense>.

⁴⁷ FDA (2020). FSMA Final Rule for Mitigation Strategies to Protect Food Against Intentional Adulteration. Link: <https://www.fda.gov/food-safety-modernization-act-fsma/fsma-final-rule-mitigation-strategies-protect-food-against-intentional-adulteration>.

⁴⁸ Webpage: <https://www.fsis.usda.gov/wps/portal/fsis/home>

⁴⁹ USDA FSIS (2020). Food Defense Overview. Link: https://www.fsis.usda.gov/wps/portal/fsis/topics/regulatory-compliance/food-defense-planning/ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOINAg3MDC2dDbwMDIHQ08842MTDy8_YwMhYvyDbUREAhrzf7A!!/.

⁵⁰ USDA Definitions:

- Food Defense - the protection of food products from contamination or adulteration intended to cause public health harm or economic disruption
- Food Safety - the protection of food products from unintentional contamination
- Food Security - when all people, at all times, have both physical, social, and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Food and Agriculture Organization, 2014).

Source: USDA-FSIS (2020). Food Defense Overview. Link: https://www.fsis.usda.gov/wps/portal/fsis/topics/regulatory-compliance/food-defense-planning/ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOINAg3MDC2dDbwMDIHQ08842MTDy8_YwMhYvyDbUREAhrzf7A!!/?1dmy¤t=true&urile=wcm%3Apath%3A%2Ffsis-content%2Finternet%2Fmain%2Ftopics%2Ffood-defense-and-emergency-response%2Ffood-defense-overview

considerations improves resilience and protects public health.”⁵¹ Although, ISIS has in the past expressed aspirational goals to attack the food supply, no specific threats to the food supply have been noted during the pandemic. The food supply is very large and complex, making virtually impossible a coordinated attack of sufficient magnitude to cause a single point of failure or initiate cascading effects that would dramatically affect its wide scale availability. Even so, the kinds of effects observed during the COVID-19 pandemic could in the future be intentionally introduced by malign actors to disrupt the trust of the American public in its food supply.

“The primary goal of terrorism is to create terror, terror that is sufficient to cause some kind of political or religious (again, read political) effect on the public. Terrorized people know (or at least think they know) that their government somehow failed to protect them. Terrorism is all about creating the maximum effect, so that the politically less powerful (i.e., the terrorists) can confront the politically more powerful (government, armies, corporations, etc.). This is often described by the military as ‘asymmetry’...Poisoning food, whether or not anybody actually dies, would be an effective terrorist strategy because people would start doubting the safety of the food supply. The intentional poisoning of just a few boxes of product would cause massive disruption and panic and cost piles of money. This, too, is terrorism.”⁵²

Jihadist groups have certainly celebrated the social upheaval that COVID-19 has wrought. “Governments around the world are rallying to respond to the pandemic, taking robust measures to protect citizens and save lives. Meanwhile, extremist actors continue to exploit the global crisis to pursue their own ideological agendas and objectives. From propaganda and disinformation campaigns to providing health and social services, extremists are directly and indirectly responding to the Covid-19 pandemic.”⁵³ Hashd al-Shaabi (Iraq), a pro-Iranian armed Shia militia in response to COVID-19 did mount a propaganda campaign, which included food distribution in the city of Qom.⁵⁴

Concerns about Food Security

The term “food security” does not have a precise (i.e. quantifiable) meaning, since USDA has included a range of definitions, which have changed over time. Food

⁵¹ USDA-FSIS (2020). Food Defense Overview. Last Modified 12 December 2019. Link: https://www.fsis.usda.gov/wps/portal/fsis/topics/regulatory-compliance/food-defense-planning/!ut/p/a0/04_Sj9CPykssy0xPLMnMz0vMAfGjzOINAg3MDC2dDbwMDIHQ08842MTDy8_YwMhYvyDbUREAhrzf7A!!/?1dmy¤t=true&urile=wcm%3Apath%3A%2Ffsis-content%2Finternet%2Fmain%2Ftopics%2Ffood-defense-and-emergency-response%2Ffood-defense-overview

⁵² Norton, R.A. (2018). “What Changed the Game for Food Defense?” Food Safety Magazine. Link: <https://www.foodsafetymagazine.com/enewsletter/what-changed-the-game-for-food-defense/>

⁵³ Tony Blair Institute for Global Change (2020). “Snapshot: How Extremist Groups Are Responding to Covid-19 (6 May 2020)”. Posted 6 May 2020. Link: <https://institute.global/policy/snapshot-how-extremist-groups-are-responding-covid-19-6-may-2020>.

⁵⁴ IBID.

security ranges from “high food security”, which is defined as “no reported indications of food-access problems or limitations”) to “marginal food security”.⁵⁵ COVID-19 data relative food security/insecurity and hunger is at the time of this publication not fully available. Early on there were concerns that hunger could become an outcome if the pandemic persisted. Although, those concerns have largely subsided in the U.S., they remain for other parts of the world, most prominently for third-world countries that do not have robust economies or social support systems capable of weathering any crisis, much less one in which public health and food availability are inter-mingled. “The COVID-19 health crisis has brought on an economic crisis, and is rapidly exacerbating an ongoing food security and nutrition crisis. In a matter of weeks, COVID-19 has laid bare the underlying risks, fragilities, and inequities in global food systems, and pushed them close to breaking point.”⁵⁶

The International Panel of Experts on Sustainable Food Systems (IPES) clearly defined the scope of the problem in a communique released in April 2020 stating,

“The lockdowns and disruptions triggered by COVID-19 have shown the fragility of people’s access to essential goods and services. In health systems and food systems, critical weaknesses, inequalities, and inequities have come to light. These systems, the public goods they deliver, and the people underpinning them, have been under-valued and under-protected. The systemic weaknesses exposed by the virus will be compounded by climate change in the years to come. In other words, COVID-19 is a wakeup call for food systems that must be heeded.”⁵⁷

One of the take-home points made by IPES is that “COVID-19 has laid bare the massive vulnerabilities of global food systems to shocks of this nature. It has underlined that food is not a commodity like any other.” Given the likelihood that other pandemics will follow it is important that new solutions be found and most importantly perhaps, quickly developed. IPES indicates that changes have already begun globally.

“(T)he crisis has offered a glimpse of what new and more resilient food systems might look like. Governments at multiple levels have moved quickly to secure worker protections and food entitlements – often working in concert with civil society... The crisis has also prompted people to seek new and more direct ways of sourcing their food. Online ordering and home delivery of food and groceries is skyrocketing in many countries with the necessary infrastructure, and could lead to lasting shifts in the way people purchase their food. In some

⁵⁵ USDA-ERS (2019). Ranges of Food Security and Food Insecurity. Link: <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx>

⁵⁶ International Panel of Experts on Sustainable Food Systems (2020). “COVID-19 and the crisis in food systems: Symptoms, causes, and potential solutions - Communiqué by IPES-Food, April 2020”. Link: http://www.ipes-food.org/_img/upload/files/COVID-19_CommuniqueEN.pdf.

⁵⁷ IBID.

countries (for example, in France, Poland, the US, and China) demand has soared for CSA [Community Supported Agriculture schemes, farm shops, and other forms of direct sales. While some of these networks are struggling with the sudden spike in demand and are facing logistical constraints, CSAs are generally managing to sustain and expand their distribution, thereby providing a valuable alternative for fresh food provisioning.”⁵⁸

Global Security Implications

Challenges to the US security apparatus as it grapples with COVID-19 are not limited to conventional military means overseas. Foreign nation-state hackers have been observed targeting organizations, such as healthcare institutions and research facilities, working on treatments for COVID-19⁵⁹. It’s also important to note that non-state actors have also exploited the situation in the cyber-domain. The Department of Homeland Security (DHS) Cybersecurity and Infrastructure Security Agency (CISA)⁶⁰ have observed a significant number of malware campaigns, spam campaigns, and outright scams that are preying on the fears and uncertainties of the global population⁶¹. Since the outbreak of the coronavirus in the US, the National Security Agency and Cyber Command have launched offensive cyber-action in an attempt to counter a wide range of foreign attacks, including disinformation.

Extremist organizations including Islamic State⁶² and al-Qaeda⁶³ have also taken advantage of COVID-19 by leveraging their vast on-line propaganda networks to validate their ideologies, to lure more recruits, and to plot new attacks. Although, there have been no calls for lone-wolf attacks targeting US food infrastructure, it remains a concern given previous guidance in extremist media publications such as “Inspire Magazine”, which encouraged al-Qaeda-inspired extremists in the US to conduct attacks of opportunity at home. While traditional Islamic extremists frame the pandemic as divine retribution, right-wing extremists in the West have blamed migrant communities, particularly the Jews and Chinese, for bringing contagion, and have called for strong borders, protectionism, and anti-immigration policies. Such propaganda efforts targeting CONUS could create a new set of grievances while exacerbating existing ones, resulting in deprivation and disenfranchisement that

⁵⁸ IBID.

⁵⁹ Landi, Heather (2020). “U.S., U.K. security agencies warn state-based hackers targeting healthcare, medical research”. Fierce Healthcare. Posted 6 May 2020. Link: <https://www.fiercehealthcare.com/tech/us-uk-authorities-warn-state-based-hackers-targeting-healthcare-essential-services>.

⁶⁰ Website: <https://www.cisa.gov/>

⁶¹ Smith, Jordon (2020). “CISA Issues Guidance to Curb COVID-19 Disinformation”. MeriTalk. Posted 8 May 2020. Link: <https://www.meritalk.com/articles/cisa-issues-guidance-to-curb-covid-19-misinformation/>.

⁶² McKay, Holly (2020). “How ISIS is exploiting the coronavirus pandemic”. Posted 20 May 2020. Fox News. Link: <https://www.foxnews.com/world/how-isis-is-exploiting-the-coronavirus-pandemic>.

⁶³ Basit, Abdul (2020). “How terrorist and extremist groups are exploiting coronavirus cracks in society”. SCMP – The Coronavirus Pandemic. Posted 1 May 2020. Link: <https://www.scmp.com/comment/opinion/article/3082368/how-terrorist-and-extremist-groups-are-exploiting-covid-19-cracks>.

could lead to new forms of political violence in an already unstable environment in the United States which is suffering significant unrest and wide spread protests following the death of George Floyd in Minneapolis.

Summary

Food security is a fundamental physiological need and captures a core well-being outcome. Food insecurity creates grievances among citizens and increases demand among them for action against the government. Extremist organizations provide the opportunity for citizens to channel their grievances against the government by resolving collective action problems and mobilizing citizens⁶⁴. This effect is not only exacerbated by the current COVID-19 pandemic inside the United States, but can have a potential wider rippling effect on global instability, as the United States has traditionally led international efforts aimed at fostering global food security. Studies by the Center for Strategic and International Studies (CSIS) have shown the connections between global food security and political instability and conflict⁶⁵.

COVID-19 has had a devastating effect on public health and the economy. Agriculture and Food, as Critical Infrastructures have been disrupted in unexpected ways. The medium to long-term effects of the pandemic continue to play out. Instability has emerged in parts of the world (e.g. Africa), already plagued with other issues, including climate change and economic hardships. China is very active in these same areas and seeks global economic and military domination, as well as displacement of the United States. As the next phases of the pandemic continue to develop, we can expect continued stresses on agriculture and food, as well as increasing malign activities by adversarial nation states and terrorist organizations. How these challenges will align is unknown. In Part 3 of this series, we will further examine the strategic implications of COVID-19 and the resulting pressures from malign actors on critical infrastructure vulnerabilities.

⁶⁴ Source: Bellinger, N., Kattelman, K.T. (2020). Domestic terrorism in the developing world: role of food security. J Int Relat Dev. Link: <https://doi.org/10.1057/s41268-020-00191-y>

⁶⁵ CSIS Global Food Security Project. Link: <https://www.csis.org/programs/global-food-security-program/covid-19-and-food-security>.