Mass Consumption Is What Ails Us

To Avoid Pandemics, Our Whole Economy Needs to Change

By Sonia Shah - April 17, 2020 – Foreign Affairs

FOREIGN AFFAIRS

The effectiveness of our protections against future pandemics will hinge upon how we think about where they come from. The emerging conventional wisdom casts pandemics as fundamentally inscrutable and unpredictable, comparable to natural disasters and acts of terror. The most society can do to gird itself, in that case, is hope for the best and prepare for the worst. Bill Gates recommends researching and developing vaccines and mobilizing soldiers and medical workers. Former White House biodefense adviser Rajeev Venkayya suggests improved disease surveillance. And Elizabeth Warren, the Democratic senator from Massachusetts, calls for more funding for government health agencies.

But a wide range of potentially more effective and lasting interventions becomes possible when pandemics are understood in a different light: not as arbitrary calamities but instead as probabilistic events, made more likely by human agency. This means that humans can do more to avert pandemics, reducing the risk that pathogens erupt in our bodies in the first place and minimizing the probability that they will spread. But doing so will require a fundamental restructuring of the global economy and the current way of life, which rests upon the accelerating consumption of natural resources.

Where the wild things are

Since 1940, hundreds of new pathogens have caused outbreaks around the world, most of them originating in the bodies of animals. The novel coronavirus is just the latest, and it is unlikely to be the last. As I have written elsewhere, industrial expansion—driven by mass consumption—has helped many of today's novel pathogens emerge. Industrialization increases the probability that animal microbes will find their way into human bodies by providing opportunities for them to spread in growing cities and by facilitating their transit to susceptible populations around the globe.

Microbes become pathogenic when they can colonize novel habitats, feasting on a new host's tissues before that host can mount a targeted immune response. The microbes most successful at colonizing human bodies are those that live inside the bodies of animals—especially other mammals, such as bats and pigs, and birds—which have acted as reservoirs of human pathogens for millennia.

Historically, zoonotic microbes have made only slow incursions into the human body. For an animal microbe to move from its wild host to a human, the two species must come into intimate, prolonged contact. Further, to cause a pandemic, that microbe must reach sufficient numbers of susceptible human hosts, often by being ferried into large and distant populations. In the preindustrial world, such opportunities were scarce. Just a few hundred years ago, the world was dominated by forests and wetlands. Urban centers were few, and transport between them was slow and uncertain. A 2010 study estimates that most of the planet's surface was wild or semi-wild in 1700. These conditions offered relatively few opportunities for animal microbes to turn into human pathogens and cause pandemics.

But as industrial activities expanded, the landscape transformed. Today, human settlements and activities dominate more than half the planet's land. Less than a quarter of the global landscape is still wild. This shrinkage of habitats forces the remaining species to cram into patches of land closer to towns, cities, farms, and mines, increasing the probability that an animal microbe will come into intimate contact with a human body. Once such microbes spill over into humans, they can spread around the world on fast-moving trains, trucks, ships, and airplanes—the transportation systems humans have devised to ferry goods and commodities from one part of the planet to another. Industry's domination over the planet has paved a wide path for animal microbes to turn into human pathogens.

Human consumption, not population growth, has driven these changes in land use. Over the past 50 years, human populations have doubled, but consumption of the planet's natural resources has tripled. Traditionally, people living in high-income, industrialized countries consume most of the world's natural resources. Despite efforts to recycle and increase efficiency, these populations consume more than 13 times as much per capita as populations living in low-income countries. Since 2000, a rise in global household incomes has led people in middle-income countries, such as China and India, to become major consumers, as well. Instead of relying

on locally sourced staples and minimally processed foods, wealthier households purchase more animal products, which, per calorie, require 76 percent more land to produce than plant-based foods. The business of growing, processing, and transporting these resource-intense products paves over more wildlife habitats and increases the likelihood of a pathogen spreading from animals to humans.

Tropical developing countries—which grow the luxury products that the rising middle class demands, such as coffee, tea, and cacao—fulfill about a quarter of the global demand for natural resources. The tropics have greater biodiversity than the temperate regions but more limited disease-surveillance and health-care systems that could spot and contain outbreaks. Not surprisingly, two of the most successful pandemic-causing pathogens—cholera and HIV—erupted during the era of colonial expansion into tropical regions; cholera was prompted by the spread of rice farming into the Bangladeshi wetlands (known as the Sundarbans) under the British Raj in the nineteenth century, and HIV emerged after the city of Leopoldville expanded into the jungles of Belgian Congo in the early twentieth century.

This expanding industrial footprint has accelerated the flow of pathogens into new territories around the world. In Central Africa, the growth of bushmeat hunting—linked to a dearth of local fish due to Chinese and EU overfishing—has spread monkeypox, a smallpox-like virus, from rodents to humans. In China, the growing prosperity of the middle class has led to an increased demand for the luxury "yewei" cuisine, which revolves around the consumption of rare, exotic wild animals; live animal (or "wet") markets, where such wild animals are sold, have grown accordingly. These wet markets facilitated the emergence of SARS-CoV-1 in bats, civet cats, and humans in 2002 and, some speculate, the novel coronavirus in 2019. And in southeast Asia, rising incomes have led to the increased consumption of pork and the growth of pig farms. The expansion of swine farming in Malaysia precipitated the transmission of Nipah virus from bats to pigs and then humans in 1998; similarly, in China, the expansion of swine farming has led to the frequent emergence of highly virulent forms of avian influenza viruses and antibiotic-resistant pathogens.

Humans are not the only victims of novel pathogens as boundaries between habitats erode. Pathogens have also been carried by humans into animals. Since the late 1990s, Batrachochytrium dendrobatidis, a fungus most likely spread by humans, has decimated amphibians around the world. Spelunkers and other people visiting caves have introduced Pseudogymnoascus destructans, or white-nose syndrome, to North American bats, millions of which have died of the fungal pathogen since 2007. And in 2014, a highly virulent strain of avian influenza—hatched in Asia's booming factory farms—decimated North American poultry, causing what the U.S. Department of Agriculture called the worst animal disease epidemic in U.S. history.

Going green

For years, expanding human appetites and growing industrialization have helped unleash a steady stream of pathogens, from cholera and the Ebola virus to SARS and the novel coronavirus. Preventing these pathogens from emerging and spreading in the first place requires taming the underlying drivers that allow them to do so.

Mass consumption would be impossible without the global bonfire of fossil fuels, which powers the machines that cut down the forests, provides the petrofertilizers for industrial farms, and fuels the airplanes that spread pathogens around the world, just as it thickens the blanket of carbon in the atmosphere. Preventing the next pandemic, then, will be impossible without greener policies.

To date, neither the growing toll of the climate crisis nor the thousands of extinctions caused by habitat destruction have convinced political leaders to embrace sustainable consumption of energy and other natural resources. Perhaps the mass graves being excavated to bury COVID-19 victims and the economic devastation suffered by tens of millions of people who have lost their livelihoods due to nationwide lockdowns will. If so, the COVID-19 pandemic may present a unique opportunity for the kind of transformative lifestyle changes that could save lives, livelihoods, wild species, and our shared ecosystems.