Who Pays? Hazardous Technologies After COVID-19

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Background (added November 2026). Ernie Kee drafted this op-ed in the last days of March 2020, as the COVID-19 pandemic was shutting down much of the world, with comments from his colleague Pranav Kannan at the Institute for Public Awareness and Understanding of Hazardous Technology Risks (HazTechRisk.Org). It applies ideas from his work on protective systems in nuclear power—who bears a risk, who benefits from it, and whether the protections against it are fair—to the global food and trade systems in which the pandemic emerged. The draft was never published. The text below has been edited for clarity and flow; the argument is unchanged.

The COVID-19 pandemic is a hazard we knew would come but had, in many ways, pushed to the back of our minds.[1] It forces a serious question: which hazardous technologies must we now address, and what protections should a connected world require?

Until now we have mostly thought of hazardous technologies as the ones we adopt to meet the challenges nature puts before us. We need energy to keep warm or cool, transportation to move food to market, buildings and sanitation systems to live in, and dams for irrigation and hydroelectric power. These technologies are the foundation of the quality of life we now enjoy.

We have also become familiar with the accidents they produce. Those accidents have cost lives and health and damaged the environment. Their costs are absorbed, often as a "cost of doing business," and then answered with revised policies that protect against further exposure. Engineers in regulatory agencies, and those working in regulated industries, are charged with putting protective systems in place to reduce the "risk" of similar accidents in the future.

Food processing, however, we have treated as a local problem, as if the only people exposed were those who eat the product. Why should citizens in one country care whether food-processing standards in another are lax or absent, especially when that country produces goods that help their own companies earn greater profit margins? We have come to accept lax regulation in places where, as a result, goods can be produced cheaply. But food supply chains are global, and so are the people who work in them. As a world citizen who must now help pay for a pandemic, I doubt my share of the risk is fair.

[1] See, for example, Bill Gates's 2015 TED talk, "The next outbreak? We're not ready," `https://youtu.be/6Af6b_wyiwI`.

What is a fair share of risk?

We usually think of risk as some loss we expect to suffer *in the future*, although, as Sven Ove Hansson points out in "Philosophical Perspectives on Risk," the meaning of the word can be vague.[2] Hansson proposes a rule for fair exposure:

> Nobody should be exposed to a risk unless it is part of an equitable social system for risk-taking that works to her advantage.

Applying that rule is enormously difficult, both as a matter of knowledge and as a matter of ethics. To weigh a risk properly, we would have to foresee every way a chain of protections could break down and when, and then put a price on every kind of harm and weigh it against the benefits gained. Utilitarian cost–benefit reasoning may appeal to engineers, but it has produced some spectacular failures in balancing risk.[3]

Engineers of a certain generation talk about the "monkey wrench in the works," or Murphy's Law—euphemisms for failures that seem to come out of nowhere, and an admission that no one can foresee every kind of breakdown in a complicated technological process. Generous safety factors can cover many of them, at a price, but not all. Even if we could know *what* breakdowns and harms might occur, knowing *when* they will occur, and in what combinations, is truly insurmountable. And even if the probabilities could be known, the ethical problem would remain: how can society's overall welfare be balanced fairly against the harm to individual citizens?

Who benefits, and who pays?

The pandemic gives every citizen an occasion to reflect on the balance Hansson's rule describes. Has the risk to the world's citizens been distributed fairly? Those who must pay for the recovery—people living now, and probably future generations—may well think not.

Now may be the time to ask the hard questions about who actually benefits and who actually pays when regulatory standards and effective protective systems are set aside across the world's economies in pursuit of greater profit and cheaper goods and services. Will citizens, as involuntary stakeholders, now demand trade policies that protect those who are exposed to that moral hazard?

[2] S. O. Hansson, "Philosophical perspectives on risk," *Techné: Research in Philosophy and Technology* 8(1) (2004): 10–35.

[3] See, for example, *Grimshaw v. Ford Motor Co.*, 119 Cal. App. 3d 757 (1981), `https://law.justia.com/cases/california/court-of-appeal/3d/119/757.html`.