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appropriately compensated. That bottleneck is one reason why the idea of a temporary IP waiver for the duration of the pandemic has become popular, and needs to happen. If properly organized, and an agreed process is followed, it will allow countries to quickly get on the first few rungs of the vaccine-manufacturing ladder.

Scientists in the public and private sectors have an important part to play here. They have been central to vaccines research, laboratory testing, clinical trials, evaluation, regulation and roll-out. Researchers have relationships with almost everyone involved. Understandably, and often for good reasons, researchers mostly avoid becoming involved in policy or diplomatic debates, such as whether a temporary IP waiver should be granted. But if the pandemic continues on an exponential path, the arguments for holding on to COVID-19 IP will become harder to defend — and researchers have the influence and knowledge to change the debate.

Vaccines as public goods

How could researchers become involved? There aren't many examples to fall back on, but the food crises of the late 1960s offer some lessons. Back then, researchers were starting to develop high-yielding crop varieties through what became known as Green Revolution agriculture. The challenge was how to bring the new technologies into the mainstream. As Lowell Hardin, one of the scientists behind the Green Revolution, wrote in a *Nature* series published in 2008 called 'Meetings that changed the world', researchers needed to convince governments and aid donors that the technologies could have world-changing consequences — but also that they would remain in the public domain (see go.nature.com/3armkuv). The idea that agricultural technologies were public goods, and should be shared widely, was central to the Green Revolution. Another rationale was that there should not be profiteering from developing technologies that would be used to feed hungry people.

Of course, that was a different time. It was before a landmark law was passed in the United States, the 1980 'Bayh-Dole Act', which opened the door to universities commercializing their discoveries; and before another landmark decision, a US Supreme Court ruling of the same year, in which the first patent on a genetically modified organism was granted. Both these developments mean that, today, it is more difficult for researchers to argue that technologies should be treated as public goods. But that doesn't mean they shouldn't try. It should be possible to find a way to compensate inventors while building national R&D capacity, and keeping life-saving technologies in the public domain. If this principle can be agreed upon, the task will be easier.

The world's researchers have created, and continue to create, innovative vaccines. But it is now time to grow and share this knowledge with colleagues in under-served regions, especially in Africa. Their intervention in Africa's vaccine-manufacturing ambitions might well be too late to make a difference during the present pandemic, but it will almost certainly help to ensure that the continent's people are much better protected during the next.

> **"There needs to be renewed urgency in ending the pandemic."**

A grim milestone for COVID deaths

The pandemic has taken too many lives, and set back efforts to tackle other diseases.

This month, the world passed a devastating milestone, with three million deaths attributed to COVID-19. As the World Health Organization (WHO) has reported, globally, the pandemic remains on a steep upward curve.

Although vaccines have been developed in record time, more than 10,000 people are dying each day — around one-third of whom are in Brazil or India. And, as we report in a Feature on page 502, deaths from other infectious diseases are likely to rise, because diagnosis and treatment of these diseases has suffered as COVID-19 has been prioritized.

The greatest impact seems to have been on tuberculosis (TB), with the number of people having treatment down by more than one million. Partly as a result, an extra 500,000 people might have died from TB last year, in addition to the 1.4 million who die from it annually. Scientists say that this has set back TB treatment efforts by at least a decade.

Measles cases worldwide were already on the rise before the pandemic, with some 210,000 people, mostly young children, dying annually. A year ago, many countries suspended measles immunization campaigns in response to guidance from the WHO to prioritize COVID-19 — and in 24 countries, these have still not resumed.

It is hard to predict when non-COVID immunization might return to pre-pandemic levels. Companies in India normally produce around 60% of the world's vaccines, according to the Centre for Science and Environment in New Delhi, but supplies are being interrupted as India concentrates on producing vaccines against COVID-19.

At present, recorded measles cases worldwide are low — in 2020, there were just 89,000, compared with 870,000 in 2019. Researchers say this is down to a combination of factors, including reduced surveillance and the effects of lockdowns, which have limited the disease's spread. But they are concerned that cases will surge among unvaccinated children once restrictions are eased.

Many lives could have been saved had national leaders taken earlier action on the three essential tools for managing a pandemic: competence in testing, tracing and isolating infected people and their contacts; limiting gatherings and enforcing social distancing; and, when necessary, mandating lockdowns. Many leaders rejected some or all of these measures. Some doubted the dangers of the virus.

There needs to be renewed urgency in ending the pandemic, but we must not lose sight of other diseases. That means continuing with all essential public-health interventions, and it also means vaccine equity — getting vaccines out, especially to the most vulnerable, as fast as possible.