



**Rapid
Transition
Alliance**

Lessons from Lockdown

The possibilities of immediate change

A case study report on rapid transition and the climate,
ecological and economic emergencies

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Introduction: Pandemic lessons for the climate, ecological and economic emergency

Key lessons

- **Pandemics reveal the ability of governments to respond at speed and scale** and rapidly shift economic priorities to put public health and the public interest first. A clear understanding of risk can lead to much faster, coordinated responses to an emergency. When communicated to the public it can explain and justify policy changes that otherwise might appear challenging and therefore not gain support.
- **Rapid, physical mobilisation of resources can happen alongside quick shifts in behaviour.** People can change their daily habits very quickly, and adapt to new social norms.
- **Where adaptations and behaviour changes reveal possibilities for more sustainable behaviour – such as avoiding unnecessary travel – they could be encouraged to become the new norm,** and made part of the broader response to the climate emergency.
- **Pandemics and the threat of them change business-as-usual overnight.** Governments mobilise huge resources to tackle the problem and compensate for its impacts. At the same time, people depend on the civil and public domains for advice, protection, health services and the whole infrastructure of response. Expectations around how we travel, work and entertain ourselves shift, and we quickly learn to behave in ways that minimise risks of transmission.

Flying to attend a conference, for example, might swiftly be replaced by holding an event online. In the midst of the coronavirus alert, airlines internationally experience significant falls in passenger bookings that are set to [drop still further](#) as people opt not to fly. Reactions to the novel coronavirus, SARS-CoV-2, in China have led to emissions reductions in different industrial sectors [ranging from 15%–40%](#). What if plummeting levels of air pollution gave publics a lasting taste for cleaner air, could it shift expectations and open up new possibilities for change?

Comparing pandemic responses to action on climate is more than a simply theoretical exercise. Both require communicating the urgency of action and simple advice on what to do. With pandemics, public health bodies have learned the importance of providing quick, clear information across multiple platforms from text messages to newspapers, online and broadcast media. The spread of diseases too is [strongly linked to global heating](#). One difference that argues for even more vigorous action on the climate emergency is that, whilst health authorities are constantly on alert for new pandemics, they cannot know in advance the precise nature of the threat and must race each time to develop a vaccine, the climate crisis and its solutions have been well known for a long time. Inadequate action on the climate could even be described as something like knowing the cure to COVID-19, and failing to manufacture, distribute and treat people with it. Even though necessary climate actions require more than rolling out a vaccine, they are well known and understood.

As some of the [latest climate research](#) points to a growing gap between action commitments on the climate emergency and what the science says is needed, and a much shorter time in which to act, three lessons on rapid transition stand out from global pandemic responses:

- A clear understanding of risk can lead to much faster, coordinated responses to an emergency
- Rapid, physical mobilisation of resources can happen alongside behaviour change. People can change their daily habits very quickly, and adapt to new social norms
- Where adaptations and behaviour changes reveal possibilities for more sustainable behaviour – such as avoiding unnecessary travel – they should be encouraged to become the new norm, and made part of the broader climate emergency response.

On May 8, 1980, the 33rd World Health Assembly officially declared the world free of smallpox,¹ which killed between 300–500 million people during its 12,000 year existence. Granted, this was almost two centuries after Edward Jenner published his hope that vaccination could annihilate the disease, but it was due specifically to public health programs carried out in a relatively short period from 1959–1977. This is still considered the biggest achievement in international public health. In recent years, the global community faced the [new threat of HIV](#), which has killed 36 million people to date.² Today, in most countries, the HIV virus can be controlled using a cocktail of drugs to prevent AIDS developing, thanks to cooperation between governments,

health agencies and companies enabling the production of generic drugs. The issue now is ensuring that poorer people have access to the medical help that can save them. Since 1995, death rates from HIV have dropped by 80%.

The novel coronavirus SARS-CoV-2 marched inexorably into peoples' lives from late 2019 and they started to notice sniffles, coughs and spluttering as a potential threat rather than a seasonal nuisance. What can we take from this and earlier pandemic responses that might prove useful for the even bigger, systemic climate challenge? The STEPS Centre [pointed out](#) that big social-environmental problems perhaps need more plural, locally-sensitive approaches that do not necessarily sit comfortably within an 'emergency' mindset. Yet in many emergency situations, local communities are often 'first responders' and their responses are diverse. Managing pandemics and the climate emergency both require an enabling large-scale framework for effective local action. And, there is still much to learn from the collaborative global approach to public health that is seen in sharp focus at times of pandemics. From analysing the actual dangers versus hype, and calculating the risk of taking any particular strategy, to encouraging the wider population on board to take preventative action without creating panic, there is much to discover.

We have coped with pandemics in the past and are better equipped than ever to cope with similar future events. In 1918, the "Spanish Flu" pandemic infected over a third of the world's population and killed 20-50 million; life expectancy

for the average American plummeted by a dozen years in a single year.³ There were no vaccines or anti-viral drugs – the first licensed flu vaccine did not appear until the 1940s. But by the 1950s, vaccine manufacturers were routinely producing vaccines that would help control and prevent future pandemics. Flu vaccines are now produced quickly in response to new strains. This has been made possible thanks to international cooperation coordinated through the World Health Organisation (WHO), bringing together research, funding and feet on the ground to carry out the necessary programmes of work.

Similar coordination on rapid transition could be mobilised on the ground through a range of international agencies; instead, countries have been left to come up with their own ways of reaching the aims of the Paris Agreement. The rhetoric of international cooperation heard at global summits, can be contradicted by the reality on the ground where inefficiencies arise in sharply competitive markets, with companies struggling for space in the market. Policy on climate change is being done via ad-hoc approaches involving elements of international cooperation, voluntary compliance, and faith in positive outcomes. In the absence of a body having jurisdiction over the global environment with corresponding legal enforcement authority, the international community has abdicated management of the world's environment to a system of pledges based on trust in well-meaning states.⁴

Pandemics cause governments to prioritise and decide what is most important –

economic growth or human life, fulfilling a dream to travel or looking after our most vulnerable people. With the current viral threat, governments have sought to delay the spread even as we accept we cannot stop it entirely, in order to protect older people, who are more likely to die from its effects. When facing illness, we understand instantly how important it is to protect and prioritise life; yet we have not taken steps with similar urgency in the face of our climate crisis. Partly this is the result of more easily understood cause and effect leading to action, and generally well-developed public health procedures which are permanently braced for crises, even if these too can be sorely tested by actual events. But that does not excuse the absence of a similar infrastructure for response and preventive measures regarding the climate emergency, and raises questions concerning the nature and treatment of relevant scientific advice by decision makers. Heatwaves, like the one that [hit Europe in 2003](#) causing more than 30,000 additional, premature deaths, disproportionately among older people, are set to become more common. What should a response equivalent to the pandemic response look like to address the climate emergency?

This report brings together lessons from the experience of the COVID-19 pandemic ranging across our transport and food systems, working life, arts, culture and consumerism, nature, the logistical challenges of achieving rapid change, mutual aid and leadership during crises by communities. It reveals that – despite some lamenting the apparently impossible scale of action needed to reverse climatic upheaval – people demonstrate they can do just that. They can act rapidly, using the best information at the time, and focus effort and resources with laser-like accuracy where they were needed. The same can be done in the challenge of preserving a habitable climate.

We hope, above all, that it demonstrates that rapid transition is not only possible, but that it could solve several problems in addition to the climate emergency and bring about better lives for all.

Additional resources

A range of additional resources on lessons from lockdown, including briefings, infographics and short films are available from the Rapid Transition Alliance at: [Lessons from lockdown](#)

These include resources themed around:

- [Looking after each other better](#)
- [More space for people and nature](#)
- [Living with less 'stuff'](#)

Case studies

When behaviour changes overnight – from staying-at-home, to smoke free air and switching sides of the road

Photo: Kungsgatan, Stockholm, on Dagen H., 3 September 1967, during the night Sweden had changed from left-side traffic to right-side traffic. By Jan Collsiöö (public domain)

Key lessons

- **It is possible for whole populations to switch behaviour overnight** when the reasons for doing so are in the public interest and well explained
- **Even decisions meant to improve public health and safety that initially enjoy only minority support can quickly gain broader backing** in the right context. Engrained habits that manifest as strong opposition to change can adapt quickly and opposition evaporate quickly once the change has been introduced.
- **People are keen to back positive, forward-thinking ideas**, and will back measures intended for the care and protection of the broader community.

What happened

How quickly, in peacetime democracies, are people prepared radically to change their behaviour? The COVID-19 pandemic provides some clues. One of the most common measures introduced to control its spread has been the 'stay at home' order. Normally known as 'lockdown' these instructions have been policed differently, with varying exemptions for 'key workers' and degrees of compulsion around the world. To an extraordinary degree, people have complied, and this is not the first time

populations have accepted and adapted to suddenly introduced behaviour changes.

In the United States, by the end of March 2020, [stay-at-home orders](#) covered 94% of the population, 308 million people. And from Italy to France in Europe, and New Zealand in the southern hemisphere, lockdowns changed people's lives overnight. Even in Donald Trump's America, and in spite of a few high profile news reports of incidents of non-compliance, polling shows large-scale public support for restrictive measures in the cause of public safety. [One study](#)

showed majority public support for all of eight proposed policies including bans on movement outside of homes and even, where necessary taking control of businesses. Another study showed [bipartisan support](#), 95% from Democrats, and 87% from Republicans, for the cancellation of major public events.

The range of national circumstances makes precise comparisons of responses difficult, but their impacts are reflected in some general changes of behaviour. Great differences have been reported also within countries, for example, where poorer households have been compelled by economic necessity, and by being disproportionately represented under 'key worker' categories, to keep leaving home. As reported by [New York Times](#), the wealthiest people in the top 10% of income were able to limit their movement more than those in the bottom 10% who were living in the same areas.

Nevertheless, changes in response to lockdown were rapid and on a huge scale. Anonymised data from Google's [mobility tracker](#) showed a drop in visits by Americans to retail and recreational venues (places like restaurants, cafes, shopping centres, theme parks, museums, libraries, and movie theaters), against a baseline, up to the 9th May 2020. Figures for many European countries were much higher with France showing a 76% fall, the UK 78%, Spain 84%, Italy 63%, and less badly hit Germany still on 40%. In New Zealand, before the more recent easing of restrictions the figure was down 71%.

At other times in recent history different experiments in behaviour change –

difficult for different reasons – have resulted in people successfully making overnight adaptations.

On a single day, 3 September 1967, the entire Swedish road system changed from driving on the left to driving on the right to align with driving patterns in neighbouring countries. Signposts, road markings and other street infrastructure had to be altered overnight. The day was officially known as Högertrafikomläggningen (right-hand traffic diversion) or simply Dagen H (H-Day). Thanks to careful planning, education and meticulous organisation, the work was completed on time and the traffic started up the next day on the other side of the road. There were no more accidents than usual – in fact, numbers were down perhaps because everyone was driving cautiously – and Sweden was now more conveniently aligned with its neighbours and able to buy cheaper left-hand drive cars. A massive change had happened literally overnight that affected everyone, involving changes in behaviour, to a huge number of physical structures on the ground and in legislation. And all this happened despite the fact that a majority of the country was initially against the move.

Preparing the country for the change was a costly and complicated endeavor. Traffic lights had to be reversed, road signs changed, intersections redesigned, lines on the road repainted, buses modified, and bus stops moved. A massive PR campaign was conducted to prepare the public for the change and educate them about how it would be implemented. Dagen H even got its own logo, which appeared on everything from milk cartons

to underwear, and a song contest (the winning tune was “Håll dig till höger, Svensson” – “Keep to the right, Svensson” – by The Telestars).⁵

The point of change itself was at 4:50 a.m. on September 3, 1967, with crowds of people gathering to watch, as all vehicles on the road were instructed to come to a halt, move carefully from the left side of the road to the right, and wait. At the stroke of 5:00am, following a countdown on national radio, the announcement came – “Sweden now has right-hand driving” – and the traffic restarted. *Time Magazine* called the event “a brief but monumental traffic jam.”⁶

Although an extreme example, it is not a one-off. There have been other similarly rapid transitions, brought about at a single point in time and often for health reasons, where science and public opinion unite to make what might seem impossible possible. On March 29, 2004, Ireland went further than any other country and banned smoking in the workplace. The change came in overnight with claims that everyone would disobey, but broadly speaking the rules held and life changed forever in Dublin’s pubs, offices and factories. Publicans had been up in arms over the impending ban for the previous two years, predicting that driving out smokers would decimate their trade. Employers were also nervous, fearful of factory-floor rebellions and onerous inspection regimes. The tourism industry was worried that visitors would feel unwelcome and stay away, while smokers claimed civil liberties abuses, and others simply decried the nanny state.⁷

The reverse was actually the case; the ban spawned copycat laws across the globe once policymakers saw the success of Ireland. Norway and New Zealand followed that same year, as did Uganda. Today smoking bans are commonplace in countries from Brazil to Bhutan, although there is still variation – and in the US the laws are at state level, meaning that they vary hugely from one city to another.⁸

As described above, recent coronavirus induced changes to behaviour have also happened quickly, nationally and with a surprising level of compliance across the globe. Different countries have adopted varying methods to educate and encourage their populations, but lockdown is an international word and widely understood. This shows that where there is a genuine understanding of the significance and reasons for the change and its benefit to people – the majority of people can and will shift behaviour fast. In the case of COVID-19, there is an immediate threat to life and a strong desire to protect our families, but in the case of the Irish smoking ban and the Swedish lane change, a majority were not initially in support. It took far-sighted, committed governments that were ready to enforce laws to make change happen.

Wider relevance

Leadership is vital for rapid national change – as is a believable and actionable plan. The Swedish Minister of Communication (and later Prime Minister), Olof Palme, put himself squarely behind the lane change. On the morning of Dagen H, he spoke on national radio, saying “This is a very large change in

our daily existence, our everyday life. The doubts have naturally been great. But our innate hesitancy towards a fundamental transformation of our daily traffic environment has given way before a rational internationalism, before a reform that we are confident will benefit traffic safety. I dare say that never before has a country invested so much personal labor, and money, to achieve uniform international traffic rules".⁹ As promised, as Swedes began their working week on the day after H-Day, 157 minor traffic accidents were reported around the country, slightly less than average for a typical Monday and nobody died.¹⁰

In Ireland, the smoking ban was driven by the Health and Children Minister Micheal Martin. In the southern city of Cork, some called for the minister to be sacked for "being a zealot". But on March 29, the ban went ahead, and overnight, ashtrays vanished from over 10,000 pubs, as well as clubs and restaurants. Those caught smoking faced a hefty €3,000 fine. Despite early scepticism, it soon became obvious that the ban had been a huge success. Cigarette sales fell by 60pc in bars and it was reported that 7,000 people gave up smoking in the first 12 months after the ban came into effect. But enraged vintners continued to decry it as unworkable. Within months, pub owners reported a 25% drop in sales with rural pubs being worst hit, and called for the ban to be eased.¹¹

One change can open up opportunities around it for other innovations and developments. Several cities including Stockholm, Malmö and Helsingborg also used the change to road use to implement

other alterations to the transport system, such as closing tram lines to allow for more bus routes. Hundreds of new buses were purchased by municipalities around the country in preparation, and around 8,000 older buses were reconfigured with doors on both sides. The total cost of amending public transportation came in at 301,457,972 Swedish kronor (\$69m). The entire project cost was equivalent to \$283.6m today – a relatively small sum for a major national infrastructure and behaviour change project.¹²

Similar spin-offs have happened in the coronavirus lockdown, where calling for people to stay at home to prevent the spread of disease has resulted in our urban environments being noticeably cleaner and quieter. This has in turn generated a number of initiatives to increase walking and cycling across the world. The European cities of Milan and Brussels have already taken steps to prioritise walkers and cyclists in their urban centres and the UK announced a £250m investment in cycle lanes to encourage people to commute by bike. France started a €20 million (£17m; \$21.7m) scheme to cover bike repairs of up to €50 at registered mechanics and improve cycling infrastructure.¹³

In Scotland, huge year-on-year increases have been recorded by dozens of cycle counters placed on roads by the pressure group [Cycling Scotland](#). Edinburgh saw unprecedented weekday increases of up to 252% and huge weekend increases of up to 454% in the first three weeks of April. In Glasgow, cycle traffic rose by 74%.¹⁴ Across the UK, bicycle manufacturers and shops have reported a boom in demand,

and many expect a further increase in sales as people consider resuming journeys to work when restrictions ease. Brompton, the UK's largest bike manufacturer, producing almost 50,000 folding cycles a year, has seen a fivefold increase in online sales since the start of April, and bike retailer Halfords has reported a "strong performance" and a 23% increase in share price.¹⁵ Cycling UK's campaign for space for social distancing worked with Dr Robin Lovelace, Dr Joey Talbot and Dr Malcolm Morgan from the University of Leeds [Institute for Transport Studies](#) to identify where ten English authorities, including Manchester and Birmingham, could place pop up cycle lanes that will allow the most people to cycle safely to work while also maintaining social distancing. These temporary cycle lanes could be quickly created using traffic cones and signs, including dual carriageway roads and roads with high cycling potential. Activists from the group Extinction Rebellion have also taken it upon themselves to use stencils to add additional temporary cycle lanes in cities and towns across the UK to indicate the sorts of changes they'd like to see on a permanent basis.

Context and background

The decision to move Swedish traffic to the other side of the road was not taken lightly. H-Day (the "H" is for "Högertrafik," Swedish for "right-hand traffic") was actually the reversal of a 200-year-old driving regime, a left-side driving paradigm that held sway since 1734. It wasn't officially recognized as law until

1916, around the time cars started to become more commonplace.¹⁶ In fact, the idea had repeatedly been voted down during the preceding decades. In 1955, a popular referendum showed that 83% of the Swedish population was opposed to the change. However, in May 1963 the Swedish Parliament voted overwhelmingly in favor of implementing the switch to right-side driving. With all of Sweden's neighboring countries driving on the right, it made sense for Sweden to do the same. Also, despite the left-hand driving rule, cars in Sweden typically had the steering wheel on the left because retailers found it too pricey to have the wheel moved. This led to many accidents, especially on narrow roads when the driver could not see to overtake.¹⁷

As well as hoping to boost the country's international reputation, the Swedish government had grown increasingly concerned about safety, with the number of registered vehicles on the roads shooting up from 862,992 a decade earlier to a figure of 1,976,248 recorded by [Statistics Sweden](#) at the time of H-Day. Sweden's population was around 7.8 million. Despite driving on the left, many Swedes already owned cars with the steering wheel on the left-hand side of the vehicle, since many found it easy to buy them in neighbouring countries and major Swedish car manufacturers such as Volvo had chosen to follow the trend. However, there were concerns that this was a factor in rising numbers of fatal road traffic accidents, up from 595 in 1950 to 1,313 in 1966, alongside an increased frequency of collisions around Sweden's borders with Denmark, Norway and Finland.¹⁸

In the case of the Irish smoking ban, although driven by the Health minister, was not born in isolation. The World Health Organization (WHO's) 2004 Framework Convention on Tobacco Control (FCTC) also has played a key role in establishing the future social norms for tobacco as a dangerous substance to public health. That treaty, now ratified by 145 countries, stipulates numerous provisions for its members, among them to eliminate tobacco advertising, to enhance warning labels on tobacco products, to establish clean indoor air laws, and to clamp down on tobacco smuggling, which involves some 6–8.5% of the 5.5 trillion cigarettes produced every year worldwide, according to the 2000 World Bank/WHO report on *Tobacco Control in Developing Countries*. Many of the European measures were put in place after the FCTC was enacted by countries now obligated to put them in place.¹⁹

Enabling factors

In Sweden, the investment in the planning and logistics needed to prepare the roads clearly helped to avoid confusion among drivers. But a large part of the government's budget for Dagen H was also spent on communication initiatives designed to educate the Swedish public and get them behind the change. On paper, it didn't look easy: in a public referendum in 1955, 83% of voters had actually been against the switch. The information campaign – costing around 43 million kronor (out of the total 628,349,774 total spent) – included television, radio and newspaper advertisements, and talks in schools. Dagen H had its own logo,

emblazoned on billboards, buses and milk cartons.²⁰

It is also possible that a general “culture of conformism” and trust in authorities prevalent in Sweden at the time helped enable the shift in public opinion. Commentators since have noted that the media at that time was less critical than today and that they tended to report what the experts told them; if the experts said that this would not be very costly and it would benefit everybody, then the media were more accepting of that and the public were likely to follow. There was also only one television channel and one radio channel, which made communication simpler – everybody watched and listened to the same channels.²¹

Similarly, the Irish smoking ban was supported by historic efforts elsewhere. Beginning in the early 1980s, several US cities and towns began enacting ordinances (local laws) that restricted, but did not eliminate, smoking in public places, workplaces, and restaurants. As understanding of the health effects of secondhand smoke grew, especially as a matter of worker protection, these more commonly completely prohibited smoking, and expanded the locations covered by the law.²² Ireland's policy was significant because it showed a workplace ban could succeed across an entire country. “We had officials from [throughout Europe] come here so they could see what we had done with their own eyes,” says Luke Clancy, director general of the independent Research Institute for a Tobacco Free Society in Dublin, and one of the people who spearheaded the Irish campaign. “How much influence we had is perhaps



Photo: istockphoto.com

best known to those who asked for our advice,” he says. “But they did ask, and now many have done the same.”

The ban came in smoothly despite the rows that preceded it and it was enforceable through the existing licencing system. For most publicans it was too big a risk to let people smoke, because their alcohol licence was at stake. It was a shock to the system at the start, but once established and accepted, the majority of the pub trade fell in line quickly. Of course, pubs are open to the public and any transgressions are highly visible and easy to report. Even the public health community, who were charged with the enforcement, was surprised at the ease with which the public took to it. But something no one could have predicted occurred in bars and nightclubs. As the air cleared of noxious tobacco fumes and punters were beginning to enjoy the

absence of smoke from their clothing and hair after a night out, new smells were revealed. Air fresheners started to be used more to cover stale smells long masked by cigarette smoke.²³

Coronavirus lockdown was similarly made easier by the sense of threat to life and personal emergency, and the fairly consistently supportive treatment given to the measure by each nation’s media. By contrast, tackling climate change is currently seen as an impossibly complex goal without clear and concrete actions set against it, and one that remains in the realms of government rather than at the level of individual responsibility. If the human response to climate change globally could be faced honestly with the full set of economic and social tools available to governments facing pandemics, we might already be in a different place.

Key facts

- On a single day, 3 September 1967, the entire Swedish road system changed from driving on the left to driving on the right.
- A left-side driving paradigm had held sway since 1734. It wasn't officially recognized as law until 1916, around the time cars started to become more commonplace.²⁴
- In 1955, a popular referendum showed that 83% of the Swedish population was opposed to the change. However, in May 1963 the Swedish Parliament voted overwhelmingly in favor of implementing the switch to right-side driving.²⁵
- There were concerns that this was a factor in rising numbers of fatal road traffic accidents, up from 595 in 1950 to 1,313 in 1966, alongside an increased frequency of collisions around Sweden's borders with Denmark, Norway and Finland.²⁶
- The point of change itself was at 4:50 a.m. on September 3, 1967 as all vehicles on the road were instructed to come to a halt, move carefully from the left side of the road to the right, and wait until 5:00am to restart.²⁷
- The day after, 157 minor traffic accidents were reported around the country, slightly less than average for a typical Monday and nobody died.²⁸
- Hundreds of new buses were purchased by municipalities around the country in preparation, and around 8,000 older buses were reconfigured with doors on both sides.²⁹
- The total cost of amending public transportation came in at 301,457,972 Swedish kronor(\$69m).³⁰
- On March 29, 2004, Ireland went further than any other country and banned smoking in the workplace.
- The World Health Organization (WHO's) 2004 Framework Convention on Tobacco Control (FCTC) also has played a key role in establishing the future social norms for tobacco as a dangerous substance to public health.
- Ashtrays vanished from over 10,000 pubs, as well as clubs and restaurants.³¹
- Those caught smoking faced a hefty €3,000 fine.³²
- Despite early scepticism, it soon became obvious that the ban had been a huge success. Cigarette sales fell by 60pc in bars and it was reported that 7,000 people gave up smoking in the first 12 months after the ban came into effect.³³
- Today smoking bans are commonplace in countries from Brazil to Bhutan, although there is still variation - and in the US the laws are at state level, meaning that they vary hugely from one city to another.³⁴



The great nature rebound – how nature steps up when people step back and both benefit

Photo: "These swans do not care about the radiation, Pripjat, Chernobyl zone" by Gytizz (CC BY-SA 2.0)

Key lessons

- **Nature can bounce back quickly** when given space to recover. Protecting nature brings improvements in human health and well-being too
- **There is an opportunity to reverse dramatic declines in biodiversity loss**, and instigate consolidated national plans to address an issue that has been on the agenda for decades
- When people either have a direct stake in nature because their livelihood already depends on it, or are given such a stake, **more sustainable relationships between nature and society are possible.**

What happened

As humanity retreated where possible behind closed doors to wait out the ravages of COVID-19, the rest of the natural world emerged from the shadows. Some of these examples have been widely publicised because of their strangeness and humour, and they have been watched with fascination by people unused to seeing wildlife at such close quarters.

The film "[Coronavirus lock down effects on animals](#)", has over six million views for scenes of wild boar roaming Italian

towns, Japanese sika deer walking the streets of Nara and a family of Egyptian geese crossing the empty tarmac of Tel Aviv's Ben Gurion Airport. The [water is visibly cleaner](#) in Venetian canals, wild goats were seen [browsing clipped garden hedges](#) in Wales, and flocks of [wild turkeys strutting about Harvard Yard](#) as if they remember the forests that once grew there.³⁵ But these are just urban examples of what happens anywhere when people step-back and "make space for nature" – also the title of the UK's [Lawton Report](#) on the urgent need to share our planet better. It has been known this for some time and there are many examples of places

where wildlife and the wider ecology has bounced back successfully when left to recover. Endangered Leatherback sea turtles, for example, [making a comeback](#) on Thailand's deserted beaches. What is still lacking is a coordinated plan of how to redress the balance and the political will to enforce it.

The [Danube Delta Biosphere Reserve](#) is fast becoming a landscape of abundant wildlife, but until recently, much of it was highly degraded – dried out by excessive land draining. In the 1970s, 11 earth dams were built on the Sarata and Kogilnik rivers as footbridges to access the area's aquifers. Previously, these local rivers had meandered slowly through a rich wetland ecosystem that stored, held back and slowly released water after heavy rains. The dams dried up the wetlands, leaving cracked, denuded soils and killing vegetation, and everything that lived on or in it. Today, thanks to a project run by Rewilding Europe, this landscape is being allowed to reflood naturally, and the shallow waters and reedbeds are becoming new spawning grounds and nesting sites for many endangered fish and birds. The speed of change in [rewilding](#) can be impressive; here, it may look like a case of "just add water", but perhaps the unspoken element is that human activity driving the degradation of ecosystems must also be dramatically reduced.³⁶

Given the conflict between our growing human population and the widespread assumption that the rest of the natural world is there only to serve humanity, it is also important to look at examples where some kind of viable balance has been achieved. This is often done with the help of people whose livelihoods

directly depend on healthy ecosystems. For example, the marine conservation charity Blue Ventures worked along the coast of Madagascar with fishing communities who are dependent on dwindling octopus and crabs. By "closing" certain areas to allow them to recover – more than 250 closures have been carried out to date – communities are able to fish sustainably and support themselves. This is important, because more than one billion people throughout the world rely on fish as a source of protein, and small-scale fisheries support the livelihoods of at least 500 million people worldwide. Marine ecosystems and traditional coastal livelihoods are facing unprecedented pressures from overfishing and climate change, with 90% of global fish stocks either overfished or fully fished.³⁷ The growth of Marine Protected Areas is a response to this, first introduced in the late 19th century, they have steadily increased but still cover only an estimated four% of the world's oceans.

In the Amazon, indigenous peoples had managed to save a vast area from exploitation and destruction, thanks to legal recognition (for the Kayapo and Xingu people at least). As a result, ten legally ratified indigenous territories totaling 35 million acres (14 million hectares) remained as green forest in a surrounding sea of brown, and home to roughly 12,500 Indians from 14 different groups. However, other areas in Brazil seem to be under increasing threat, thanks to extreme rightwing President Bolsonaro's support for agribusiness and mining at the expense of environmental protection and local populations. Deforestation in the Amazon rainforest surged so quickly in 2019 that [scientists warned](#) the Amazon

could begin transforming into a savanna. If this were to happen, we would lose one of the world's greatest carbon sinks and the effect on the global climate could be catastrophic. This shows how easy it is to lose gains made; nature can recover at speed, given the chance, but can be destroyed equally quickly. It will be important to remember the joy at seeing the wild return to lives disconnected from nature if we are to prevent a return to the environmentally rapacious ways of business as usual.

Wider relevance

These examples illustrate what is possible when humanity literally take's it's foot off the gas and makes space for nature. It reveals that hope for a future where humans can live in balance with their environment is not impossible, or an unreasonable request, but it is also a reminder of the daily damage caused by destructive patterns of development. There are currently thousands of species of fish, wildlife, and plants receiving a temporary break from the pursuit of economic growth at all costs and a return to normal will cause this to reverse once again. Some suggest even that biodiversity loss is as solid an indicator of economic activity as GDP itself.^{38,39}

The coronavirus pandemic can be seen as a wake-up call to stop exceeding the planet's limits and, particularly in wealthier countries, it's consequence in the reduction of unnecessary travel sends a postcard from what the near future might look like in terms of reduced air pollution and reimagined urban space.

Deforestation, biodiversity loss, and climate change all make pandemics more

likely. Deforestation drives wild animals closer to human populations, increasing the likelihood that animal viruses like SARS-CoV-2 will make the cross-species leap into people.⁴⁰ Researchers have long known that new diseases typically arise at the nexus between forest and agribusiness, mining, and other human development, such as the terrifying Ebola virus emerging from the Gabon forest in the form of infected chimpanzee flesh. On this basis, areas like the Amazon basin may be the site of the next pandemic outbreak.⁴¹ Deforestation causes altered habitats that offer less food, forcing foraging wildlife into contact with neighboring human communities, and creating vectors for bacteria, viruses and parasites carried by those animals. The US Centers for Disease Control and Prevention (CDC) estimates that three-quarters of new or emerging diseases that infect humans originate in animals.⁴²

David Quammen, author of *Spillover: Animal Infections and the Next Pandemic*, recently wrote that, "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."⁴³ It is ironic that, as human-made systems falter in the face of a virus, the rest of the natural world is able to flourish. As one pundit wryly put it, "it's as if COVID-19 is enforcing the Paris Climate Accords".⁴⁴

Of course humans are also benefiting from the reduction in our own polluting activities in the form of cleaner air and water. Some are also able to find a better work-life balance with time saved from reduced commuting, and able to take

more, regular exercise outside, make their own entertainments and develop new skills. Researchers at Columbia University saw emissions of carbon monoxide over New York City decline more than 50% below typical levels over a single week in March – a change linked to the drop in car traffic across the city, while Los Angeles’ infamous rush hour disappeared.⁴⁵ We have covered this in more detail in our case study about the [reduction in traffic](#) causing emission to plummet. This crisis in our environment has caused huge changes to our behaviour in a very short time – a matter of weeks – such as [working from home](#), reductions in consumption and the explosion in [new ways of connecting and contributing](#) to society remotely.

Context and background

We have known for many decades that some forms of human activity are having an unsustainable effect on the rest of our biosphere. Voices have spoken from around the world in support of sustainable living: the American scientist Rachel Carson’s warned in the 1960s in her seminal book *Silent Spring* about the devastating effect of our reliance on agrochemicals; India’s Vandana Shiva’s fought for the right of Indian farmers to keep and use their own seeds; and Kenya’s Wangari Maathai won the Nobel prize for her campaign to plant trees in Africa. Endless reports from reputable scientific institutions have tracked the plummeting numbers of wildlife, what has been described as a sixth mass extinction event and the increasing poverty of our soils and the growing salination of our water.

Against this rise of scarcity and reduction in biodiversity, there have been moments of clarity, when destructive activities have been banned or restricted. The famed rewilding of Yellowstone National Park in the US has returned the wolf as the top predator and restored a thriving ecosystem while discouraging people from getting too close; and the Seychelles has put 30% of its marine area under protection – 400,000 square kilometres of sea to safeguard the Indian Ocean’s only dugongs, critically endangered turtles, and spawning grounds for rare and economically vital species including tuna.

Other sites have been abandoned by people after man-made disaster has made them too dangerous: on the unpopulated Bikini Atoll in Micronesia, corals thrive in craters left by nuclear testing bombs⁴⁶ – even as coral reefs in less contaminated waters die as a direct result of climate change; and scientists think the Chernobyl Exclusion Zone, which straddles what is now Ukraine and Belarus and has been sealed to the public after a nuclear power plant exploded in 1986, could become a refuge for all kinds of animals—from moose, deer, beaver, and owls to more exotic species like brown bear, lynx, and wolves. It is not known how radiation is affecting them, but they are becoming abundant in number. Dozens of swans paddle in the radioactive cooling pond and beavers are everywhere, quickly returning the wetland to its ancient shape by felling trees, coppicing scrub and diverting rivers to spread out across the land.⁴⁷ The rare greater spotted eagle has returned to the Palieski reserve next to the Chernobyl site and is the only place in Belarus where their numbers are rising. Unexpected in these scrubby fields, which are not the

eagles' typical habitat – they usually favour marshland -, experts are now wondering if it could be the other way round, and they adapted to wet areas to avoid people.⁴⁸ This throws an interesting light on much of the way we judge habitats and where animals choose to live.

Recent research done at the [Yale University School of Forestry & Environmental Science](#) reinforces the idea that ecosystems are, up to a point, quite resilient and can rebound from pollution and environmental degradation within a single human lifetime. The researchers looked at data from peer-reviewed studies over the past 100 years to examine the rate of ecosystem recovery once the source of pollution was removed. Published in the journal [PLoS ONE](#), the study shows that on average, forest ecosystems can recover in 42 years, while it takes only about 10 years for the ocean bottom to recover. If an area has seen multiple, interactive disturbances, it can take on average 56 years for recovery. In general, most ecosystems take longer to recover from human-induced disturbances than from natural events, such as hurricanes. But, where species and ecosystems are pushed too far they may never recover, and at least not within a time frame that is meaningful to human experience.

Enabling factors

This time a respite for nature has been dictated from above in the interests of public health and wellbeing – by governments hoping to curb a pandemic and restrict the speed and range of coronavirus by limiting our contact with

each other. In other situations where human behaviour needed to shift in order to benefit the wider biosphere, the fight has been harder. Although we depend entirely on the rest of the natural world, for much of humanity – and especially those in cities – this may not feel tangible; the rainforests fall and the coral reefs die, and still there is always food in the shops and electricity at the flick of a switch. But this imbalance cannot remain indefinitely and ways of mitigating our behaviour to make space for nature will become increasingly important as the global climate changes.

In places where campaigners have the right and courage to sound the alarm, where local communities can be involved in decision-making, and where regulators respond to recognise the [rights of nature](#) in law, meaningful action can be taken. The hunting of wolves was banned in Europe (unless they threaten human life) in the 1970s and populations have rebuilt gradually but successfully inside a legal framework that tries to balance the rights of the animals with the rights of farmers. Wolf packs have returned to the Alps, parts of Germany, Italy, France, Austria, Switzerland and even places like Brittany, in northern France, and Belgium. The population across 28 countries in Europe (excluding Russia, Ukraine and Belarus) is estimated at over 12,000.⁴⁹ Skilled at scavenging and adaptation, wolves have likely benefited not only from the hunting ban, but also from the desertion of rural areas and Alpine valleys by humans.⁵⁰

Organisations such as the [European Rewilding Network](#) bring together sites and organisations consciously trying to



Photo: 'Nature 070' by Mark Harrington (CC BY-ND 2.0)

make wild space for nature, exchanging knowledge and offering financing advice to projects. However, this movement remains patchy and entirely reliant on individual landowners with sufficient wealth and/or vision to take the risk of changing their land use. In Scotland, for example, [more than half the land is owned by fewer than 500 people](#). According to the academic and land reformer, Jim Hunter, this equates to “the most concentrated pattern of land ownership in the developed world”.⁵¹ While land remains so expensive, it seems unlikely that many people will choose to leave it for restoration, ask people to stay away – and ensure that they do.

There are a number of other reasons why people leave places: war (Nicosia airport on the Greek side, abandoned in 1974), economic failure (Russian villages on the steppes after the fall of the Soviet

Union), lack of connection to other places (island communities the world over), contamination, terrible histories (concentration camps), disease (North River Island in New York, home to the now abandoned typhoid hospital), and natural disaster (Indonesian villages close to volcanoes). What is immediately noticeable in photos is the swift incursion of nature, with trees growing inside buildings and creatures inhabiting once-human spaces. Perhaps the ultimate versions of these are the gigantic temples of the short-lived Inca empire centred on what is now Peru, which was swallowed by the forests for millenia. We have learned in the last few weeks how fragile our global structures are; it is not beyond our imagination to see that – should we fail as a species to strike a balance with the rest of the natural world – it may not take long for the towers of Wall Street to become accidental glasshouses for plant growth and echoing with birdsong alone.

Key facts

- The [water is visibly cleaner](#) in Venetian canals, wild goats were seen [browsing clipped garden hedges](#) in Wales, and flocks of [wild turkeys strutting about Harvard Yard](#) as if they remember the forests that once grew there.
- In the 1970s, 11 earth dams were built on the Sarata and Kogilnik rivers as footbridges to access the area's aquifers. Today this landscape is being allowed to reflow naturally, creating new spawning grounds and nesting sites for many endangered fish and birds.
- Marine conservation charity Blue Ventures worked with Madagascan fishing communities dependent on dwindling octopus and crabs to close off certain areas to allow them to recover. More than 250 closures have been carried out to date.
- More than 1 billion people throughout the world rely on fish as a source of protein, and small-scale fisheries support the livelihoods of at least 500 million people worldwide.
- Marine ecosystems and traditional coastal livelihoods are facing unprecedented pressures from overfishing and climate change, with 90% of global fish stocks either overfished or fully fished.⁵²
- Ten legally ratified indigenous territories in the Amazon basin, totaling 35 million acres (14 million hectares) remain as green forest in a surrounding sea of brown, and are home to roughly 12,500 Indians from 14 different groups.
- Researchers have long known that new diseases typically arise at the nexus between forest and agribusiness, mining, and other human development, such as the terrifying Ebola virus emerging from the Gabon forest in the form of infected chimpanzee flesh. On this basis, areas like the Amazon basin may be the site of the next pandemic outbreak.⁵³
- The US Centers for Disease Control and Prevention (CDC) estimates that three-quarters of new or emerging diseases that infect humans originate in animals.⁵⁴
- Researchers at Columbia University saw emissions of carbon monoxide over New York City decline more than 50% below typical levels over a single week in March – a change linked to the drop in car traffic across the city.⁵⁵
- The Seychelles has put 30% of its marine area under protection – 400,000 square kilometres of sea to safeguard the Indian Ocean's only dugongs, critically endangered turtles, and spawning grounds for rare and economically vital species including tuna.
- On the unpopulated Bikini Atoll in Micronesia, corals thrive in craters left by nuclear testing bombs.⁵⁶
- Chernobyl Exclusion Zone, which straddles what is now Ukraine and Belarus and has been sealed to the public after a nuclear power plant exploded in 1986, could become a refuge for all kinds of animals—from moose, deer, beaver, and owls to more exotic species like brown bear, lynx, and wolves.

Converting industry – how rapid transition happens in crises and upheavals

Key lessons

- At times of crises – both short and long-lived – **governments need to prioritise welfare and sustainability over business as usual production.** Despite the shocks and disruption, new models of business can emerge which provide the basis of a more sustainable economy. Rapid industrial conversion is possible with many sectors having transferable skills that allow for diversification and sometimes unlikely switches, such as from Formula 1 cars to making medical equipment, or North Sea oil rigs to wind turbines.
- **When industries need to change and convert to a new purpose, some of the most innovative and effective ideas can come from the communities and workforces affected.** Smaller companies can prove more able to convert their business quickly to new kinds of work than large firms. Small and Medium Enterprises (SMEs) can often convert their business to other purposes more easily as their technology and business model is rarely as specialised as large businesses and therefore more adaptable. The importance of local level collaboration during the coronavirus emergency suggests lessons for government procurement, which tends to prefer tenders from large firms. Many smaller firms have responded flexibly en masse, for example in response to food procurement – with local caterers turning to delivery overnight.
- **Successful conversions have been marked by consortiums working together,** collaboration, learning from others and operating within a specific geographic area. Regional responses generally deal better with assisting not only major companies, but also small firms. Incentives and state support in the medium-term helps overcome companies' institutional resistance to diversification, while the regional approach can coordinate behaviour that would benefit the wider region for the common good.

Photo: 'Say hello to Punk Sanitiser' by Fresh On The Net/RC from @brewdogofficial (CC BY 2.0)

What happened

A brewer of 'craft' beer starts making sanitising hand gel and a car maker converts one of its factories to make medical face masks. Just two of the many global examples of how different industries are responding to the health crisis and economic shock of the coronavirus pandemic. Several other times have revealed the ability for rapid industrial conversion, not just to tackle tragic but transient challenges, but long-term economic and geo-political shifts. Are there lessons about industrial conversion for the long term rapid transition to a low carbon economy, not just from the pandemic response, but also ranging from conflict to the end of the Cold War?

In China where the pandemic began, a car plant run by the manufacturer Fiat Chrysler was converted to [make face masks](#) for health and other key workers, with several more in the car industry redirecting resources to address the shortage of hospital ventilators.

Making ventilators is, however, a highly specialised task not easy to begin quickly. For that reason clinicians at London's teaching hospital, UCLH, worked with engineers from car maker, Mercedes, to develop and rapidly introduce for testing a simpler breathing aid which still gets oxygen to the lungs, but without a full ventilator. In the United States a team of car prototype designers from the maker Ford worked with a range of others including doctors and even a hair stylist, to design and [begin producing by hand](#)

protective face shields for health workers and 'first responders' in Detroit.

Elsewhere, a distillery in Aberdeen, Scotland, was repurposed from making beer to help [meet the shortage](#) of hand sanitiser. On a larger scale, Aberdeen is a city that has been synonymous with the oil and gas industry which is now [planning to transfer its' skills](#) to convert to be a leading renewable energy player. For other sectors it has been a matter of changing how their businesses operate. With restaurants and many fast food outlets closed due to the pandemic, the Leon chain coordinated food suppliers and distributors instead to begin delivering meals to front line health staff. The Cooperative, meanwhile provided free meals to the children of its Co-op academy schools, as well as delivering to food banks.

Current responses echo a long and dynamic history of innovation during upheavals. In times of emergency such as war - and today's global pandemic - the need for certain skills and products comes sharply to the fore. In wartime, airplanes are needed more than domestic cars and in times of mass respiratory illness, face masks and ventilators matter more than executive bonuses. Governments play an important role in directing where energy should be focused, but they cannot magic all the products that are in short supply into being. Only manufacturers, designers, engineers and workers can bring to life the items and perform the tasks we need. This ability to be flexible is what links a 1940s hand-built wooden plane, a Formula One team, and an Indian train company.

When the world's first multi-role combat aircraft, the De Havilland Mosquito, entered service in 1941 during the Second World War, it was nicknamed 'The Wooden Wonder'. Although it was one of the fastest operational aircraft in the world, the Mosquito was not made from modern materials in a shiny new military factory; instead, it was made from pieces of wood, pressed and glued together in moulds. This helped to preserve scarce metal reserves, was fast to produce, and used existing skills easily found in furniture factories and among cabinetmakers, luxury car builders and piano makers.

It turned out that wood, which was more plentiful than metal in wartime, when covered with a thin layer of 'doped' fabric (material with a layer of plasticised lacquer added), made a remarkably smooth, drag-cheating surface free of rivets and seams. Plus, battle damage could be repaired relatively easily in the field. The Mosquito went on to become one of Britain's most successful war planes, with 6,710 built during WWII and production continuing until 1950. It was an example of shifting production and matching it to the needs and capabilities of the times.⁵⁷

The changing scenarios of geo-politics and the enormous budgets involved in making arms mean that many countries have used state intervention to transition in or out of military hardware. During times of war, factories are often requisitioned for the manufacture of weapons, ammunition and military vehicles. But in times of peace, these same industries face shrinkage and the loss of jobs that accompanies such industrial change. After the end of the

Cold War, state run programmes in many countries invented ways to keep the skills needed alive, while developing alternative products in mainstream commercial markets. This relied on partnerships with the private sector and collaboration from the workforce. The UK has seen the same conversations around the proposed end to the Trident nuclear missile programme, with many MPs and campaigners stressing the potential for redeploying resources elsewhere without creating unemployment and losing skill pools.

These same elements come into play today, as we face the challenges of needing to scale-up the production of protective clothing, ventilators and respirators overnight. A consortium of Formula One designers McLaren, Rolls Royce, Airbus, Ford, Siemens and GKN aim to start production soon of an existing ventilator design on multiple sites across the UK. In the US, Ford Motor Company is working with 3M and GE Healthcare to manufacture respirators, ventilators, and face shields. General Motors has meanwhile teamed up with Ventec Life Systems in an initiative led by [StopTheSpread.org](https://www.stopthespread.org), an organization that is uniting the business community and the public sector. GM will use its purchasing power, logistical expertise and production facilities to begin assembling the ventilators which are designed by Ventec Life Systems. The UK manufacturer Dyson, known for their vacuum cleaners have joined other designers and specialist engineers to create a new ventilator for the NHS, that is currently awaiting approval. In India, the Integral Coach Factory (ICF) in Chennai, makers of India's first electric semi-high speed train, is

attempting to manufacture ventilators, while the Rail Coach Factory (RCF) in Kapurthala is converting unused train carriages into isolation wards for those with COVID-19.

Wider relevance

As we see how skills and resources can be repurposed in times of emergency, it raises the prospect of how skilled engineering talent from the arms industry could transfer into efforts to fight climate change. This is far from being a fanciful proposition. There is some clear crossover in the skills needed and there are genuine human security benefits in halting climate breakdown. Defence sector skills are geared towards working as a team to solve immediate problems, while the arms industry supplying it contains highly trained and able engineers. There is potential for bringing people, brainpower and physical resources to catalyse innovation for rapid transition. It is worth noting that globally, some 11 million people are already employed in the low carbon and renewables sector,⁵⁸ but the numbers of people and resources currently focused on fossil fuel industries and their dependent products and services remain vast.

Importantly, the best ideas do not always come from above. In times of emergency, there is a tendency to revert to a command and control, highly centralised economy, but this form rarely encourages innovation – unless the ability to try out new ideas is devolved out to those in the best position to trial them. A 2018 report by the Nuclear Education Trust, “Defence Diversification: International learning for Trident jobs” pointed out that innovative ideas often

come from the workers and affected communities – but that a broad partnership is needed to successfully tackle the issues. This might include the former arms companies, national and local government, trade unions, civil society, academia and other stakeholders, supporting the workers and affected communities in making decisions for their future. Any such coalition must be given appropriate support in organising, analysis and planning as well as implementation – and years of preparation can be needed for a plan to be successful.⁵⁹ Current efforts to engage communities through citizens assemblies might also form a suitable way to discuss repointing our economies toward rapid transition.

It’s not just manufacturers that are able to adapt; individual people have always responded to changes in the external environment by retraining. In times of emergency, this can happen very quickly as people are rushed through to take up frontline roles. The UK family firm of holiday coaches, Baker Dolphin, are working with the local ambulance service to retrain coach drivers for ambulance work – a couple of days’ training and they will be part of a medical team responding to calls from the public. Fire services staff are also being retrained to assist the ambulance service where possible, and grounded airline cabin staff with first aid training being approached to support health service workers. Staff within the UK’s National Health Service (NHS) who are not used to working with ventilators are being trained in the expectation that thousands more people will need such care. In addition, 20,000 ex-NHS workers have volunteered to return to support existing staff, while a call for volunteers

from the public was suspended within days after being overwhelmed by 750,000 offers of help.

Context and background

In the UK, any discussion of industrial conversion, and specifically defence diversification, often refers back to the ambitious 1970s Lucas Plan – a ground-breaking union-led proposal to protect jobs threatened by redundancy at the company Lucas Aerospace. This was about the need to move people from making arms to designing and manufacturing commercial products. A multi-union combined shop stewards' committee drew up a plan to save jobs by converting workers' skills and facilities to new products, while protecting workers' rights. After a call went to experts and produced only three suggestions for alternative things to manufacture, the workforce itself was asked. Ideas then flooded in. Among the list narrowed down to 150 proposed alternative products that Lucas could produce were several that have now become mainstream; wind turbines; hybrid car engines; cheap heating systems and medical products such as dialysis machines. The plan gained widespread support and became an international cause célèbre, taking their ideas to the United States, Sweden and Germany. Although the plan didn't ultimately secure cooperation from the company's management to go ahead, many of the products suggested did go on to be made and the plan was nominated for a Nobel Peace Prize.⁶⁰ One of the leading actors in the Lucas Plan, Mike Cooley, moved on to work at the Greater

London Council. There he established Technology Networks that produced innovations for everything ranging from disability aids, to electric bicycles, small-scale renewable energy including wind turbines and energy conservation services. Prefiguring by decades the work of the hacker community, they re-manufactured and repurposed products, developed equipment for children's play, and supported community computer networks, including a women's IT co-operative.

Under President Obama, the US invested in defence diversification programmes that offered a region-based, community-orientated programme with the emphasis on empowering local communities to choose how to use resources to help themselves.⁶¹ They have a number of long running, government funded projects to mitigate the impact of forces base closures and to assist diversification, known as the Defence Industry Adjustment programme (DIA). It is currently working with 44 communities across the country. In order to be funded, communities have to show that they are affected by the Department of Defence (DOD) cuts or are at risk. An important difference from diversification programmes in other countries is that the Office of Economic Adjustment (OEA) funds communities or their services providers and not companies. Network learning is also encouraged, with an annual conference for all the grantees to update each other and talk about their experiences.⁶²

In the 1990s, as in many European countries, Italy carried out large post Cold War cuts to military spending. By 1995, the Italian state arms procurement budget was at 50% of its 1988 level in real terms.

Workers and unions at the 90% military aerospace company Aermacchi, proposed to management that the company agree a diversification strategy. The trade unions then took on a ground-breaking role of verifying the progress made by the company on the agreement. As a consequence, Aermacchi began working with the German aerospace firm Dornier to co-produce a civilian aircraft. By 1995 a third of the company's business was in civilian aerospace, although they still suffered significant job losses. In 1991, BPD Difesa e Spazio, a Fiat subsidiary producing ammunition, rockets and propellants for rocket engines, converted a plant near Rome to produce exploding caps to inflate car air-bags. The company then established a joint venture with two major US major air-bag producers, successfully identifying a market and customer base for its new products. They made the most of their partners' commercial experience to promote the new product range. BPD workers were also able to work with local government and take advantage of European Union funds through the regional adjustment and diversification KONVER programme to access retraining programmes.⁶³ These are European programmes for economic conversion and diversification in areas weakened by the cuts in the defence industry and military bases.⁶⁴

Enabling factors

Many of these examples are about consortiums, collaboration, learning from others and operating within a specific geographic area. Regional responses generally deal better with assisting not only major companies, but also small

firms. Smaller companies supplying components rather than end products, are more likely to be more able to convert their business quickly to new kinds of work than large firms. The Nuclear Education Trust (NET) report suggested that Small and Medium Enterprises (SMEs) can often convert their business to other purposes more easily as their technology and business model is rarely as specialised as large businesses – and is therefore more adaptable.⁶⁵ It will be interesting to see what we might learn from the coronavirus emergency by way of collaboration at the local level – there is a strong tendency for government to prefer tenders from large firms and yet many smaller firms have responded flexibly en masse, for example in response to food procurement – with local caterers turning to delivery overnight.

In Germany, the threat of post-Cold War defence cuts resulted in a Bremen Disarmament and Conversion report in 1990. This came as the result of a lengthy social process including hearings involving a huge range of stakeholders, plus company managers, company employees' representatives, and business and employees' chambers and associations. It was formally adopted in 1992 with support guidelines for companies, containing a regional economic approach for supporting structural change. Over 50 company conversion projects and around 5 conversion-related infrastructure projects were supported. The venture was considered a remarkable success and was recommended as a model by the European Commission. Despite one major company – Bremen Vulkan corporation – not participating and going bankrupt in 1996, 50% of the decrease in defence employment in the region was reclaimed



Photo: © Taubin via Flickr

and 11% of the Bremen arms company employment changed from military to civil work by 1997.⁶⁶

The Bremen experience showed that incentives and state support in the medium-term helped overcome companies' institutional resistance to diversification, while the regional approach coordinated behaviour that would benefit the wider region for the common good. This prevented companies from following a purely individualistic, competitive path of trying to grab as much of the budget for themselves as possible.⁶⁷ Industry can be blamed in times of national or international cooperation for still retaining elements of competitive behaviour, but wholesale change is difficult if firms are operating within a capitalist system not designed explicitly

to reward openness, collaboration and transparency per se. Companies that do, alone, can place themselves and the people they employ at risk. Systemic change, involving a much greater role for social enterprises, mutuals and cooperatives, is required to strike a better balance.

Key facts

- In the US, Ford Motor Company is working with 3M and GE Healthcare to manufacture respirators, ventilators, and face shields. General Motors has meanwhile teamed up with Ventec Life Systems in an initiative led by [StopTheSpread.org](https://www.stopthespread.org/), an organization that is uniting the business community and the public sector.
- In India, the Integral Coach Factory (ICF) in Chennai, makers of India's first electric semi-high speed train, is attempting to manufacture ventilators, while the Rail Coach Factory (RCF) in Kapurthala is converting unused train carriages into isolation wards for those with COVID-19.
- A 2018 report by the Nuclear Education Trust, "Defence Diversification: International learning for Trident jobs" pointed out that the best ideas and innovations nearly always come from the workers and affected communities – but that a broad partnership is needed to successfully tackle the issues.
- The UK's 1970s Lucas Plan was a ground-breaking union-led proposal to protect jobs threatened by redundancy at Lucas Aerospace. Among the 150 proposed alternative products that Lucas could produce were several that have now become mainstream; wind turbines; hybrid car engines; cheap heating systems and medical products such as dialysis machines.
- The US has a number of long running, government funded projects to mitigate the impact of base closures and to assist diversification known as the Defence Industry Adjustment programme (DIA). It is currently working with 44 communities across the country.
- In 1991, BPD Difesa e Spazio, a Fiat subsidiary producing ammunition, rockets and propellants for rocket engines, converted a plant near Rome to produce exploding caps to inflate car air-bags.
- The Bremen disarmament and conversion programme resulted in 50% of the decrease in defence employment in the region being reclaimed and 11% of the Bremen arms company employment changing from military to civil work in five years.⁶⁸
- When the world's first multi-role combat aircraft, the De Havilland Mosquito, entered service in 1941, it was nicknamed 'The Wooden Wonder'. It was made from wood, fast to produce, and used existing skills easily found in furniture factories, cabinetmakers, luxury car builders and piano makers.⁶⁹
- The Mosquito went on to become one of Britain's most successful war planes, with 6,710 built during WWII and production continuing until 1950. It was a great example of shifting production and matching it to the needs and capabilities of the times.⁷⁰
- A consortium of Formula One designers McLaren, Rolls Royce, Airbus, Ford, Siemens and GKN aim to start production soon of an existing ventilator design on multiple sites across the UK.



Inspirational crisis-leadership by whole communities – more than heroic individuals – reveals a potential for rapid transitions

Key lessons

- **In times of uncertainty, change and crisis, a focus on individual, charismatic leadership can distract from the innovative leadership that communities demonstrate through collective action.** Communities have enormous abilities to improvise when required.
- **Communities are often the 'first responders' in times of crisis, upheaval and sudden change,** and can have a clearer idea than national agencies of which of its vulnerable members are most in need of support. The success with which communities respond is conditioned by the degree to which their capacities, resilience and social fabric have been nurtured or undermined by the prior and current policy and economic choices, and cultural context in which they act.
- **How marginalised groups respond to crises can teach us a lot about minimising the impact of disasters,** recovering from them and managing rapid change. They can also provide lessons about not rebuilding risk afterwards. More resilient communities have developed greater networks of relationships locally on which they can draw when needed, and often more cooperative local economic structures.

What happened

Often overlooked is the degree to which communities as a whole, rather than individuals demonstrate leadership in times of change and crisis. Charismatic individuals come to light in all areas of

life and the struggle to overcome the climate emergency is no different, from young campaigners like Greta Thunberg to veteran broadcasters like David Attenborough. Some people can shift a whole agenda by what they say and do, and the idea that leaders, elected or otherwise, might save us can be

appealing. But putting too much faith in what one person can do has downsides too. It's a lot of pressure for an individual when the fate of an issue becomes connected to them, and it also distracts from the fact that whole communities can demonstrate inspirational collective leadership and illustrate how societies as a whole might quickly respond and take a different path in the face of the climate emergency. Several have shown exactly that capacity for rapid change and carry lessons for others.

What can be learned for rapid transition from communities' leadership in tackling their own issues or responding to new challenges?

Around the world, communities respond in collective and creative ways, with generosity, trust and bravery in the face of disasters and other challenges. In the midst of the novel coronavirus, COVID-19, outbreak, supportive altruism broke out too, with examples of mutual aid support groups appearing from [Seattle](#) in the US to [various places in the UK](#). Instead of reacting defensively, with selfishness, or by turning inwards simply to look after their own families, people frequently choose to cooperate on a community level, often with and for strangers. One community response to a sudden challenge even inspired a musical.

On September 11 2001, as the twin towers of the world trade centre blazed, the US closed its airspace to incoming flights for fear of further attacks. Canada accepted more than 200 planes forced to reroute and, of these, 38 commercial planes and four military aircraft landed

at the tiny Gander International Airport in Newfoundland. This small town of just 10,000 people and its surrounding communities opened their arms and their homes to more than 6,500 passengers from nearly 100 countries, providing them with shelter, provisions and care. Gander residents took passengers sightseeing, moose hunting, berry picking and barbecuing. They entertained with music, brought strangers into their homes for showers or as guests for a few nights, and they refused to accept money. The effect of this human kindness on the recipients was enormous and did much to turn the trauma of the experience into a feeling of being supported and comforted. One couple even married after meeting during the emergency in Gander. It was one example of [humanitarian hospitality seen even more broadly in the rise of the migrant welcome movement](#).

In April 2010 [air traffic across Europe and North America](#) was brought to a halt by a massive eruption from the Icelandic ice-capped volcano Eyjafjallajökull. A vast plume of hot volcanic ash and gas, reaching a height of about 24 000 feet (7.3 km), caused the cancellation of 20,000 flights a day in Europe and thousands of people were trapped across the two continents. Again, countless stories of assistance and kindness from local people emerged.⁷¹ Passengers self organised using social media hashtags to get up to date information, they sofa-surfed and car shared, many hotels offered discounts to those stranded and local tourist attractions gave free entry to those trapped away from home with mounting costs. People collaborated, innovated and found solutions.

After Hurricane Katrina flooded and devastated parts of New Orleans in 2005, an armada of boats that comprised the volunteer-run “Cajun Navy” descended on waterlogged neighbourhoods to rescue stranded survivors. When the levees were breached and flood walls protecting the city gave way, 80% of the city flooded and half its population left.⁷² An estimated 1,200 people died as a direct result of the storm, which also cost an estimated \$108 billion in property damage, making it the costliest storm on record.⁷³ Katrina’s victims tended to be low income and African American in disproportionate numbers, and many of those who lost their homes faced years of hardship. The government response was thought to be lacklustre, with thousands of people left to fend for themselves in sports halls and other civic spaces, where facilities were shockingly inadequate for a global superpower. But contrary to some early media reports of a community also turning on itself, the American writer and chronicler of life in New Orleans, Rebecca Solnit, reported how local people exposed inadequate state action with their own altruism, writing in [A Paradise Built in Hell](#), how ‘Katrina was, like most disasters, also full of altruism: of young men who took it upon themselves to supply water, food, diapers, and protection to the strangers stranded with them, to people who sheltered neighbors, to the uncounted hundreds or thousands who set out in boats—armed, often, but also armed with compassion—to find those who were stranded in the stagnant waters and bring them to safety, to the two hundred thousand or more who volunteered to house complete strangers, mostly in their own homes, via the Internet site hurricanehousing.org in the weeks after, more persuaded by the pictures of

suffering than the rumors of monstrosity, to the uncounted tens of thousands of volunteers who came to the Gulf Coast to rebuild and restore.’

In the aftermath of the 2018 Fuego Volcano eruption in Guatemala, ordinary people came together to take care of each other’s needs in the face of a government response that failed to do so. An official total of 110 people died and 197 remain missing – many think actual figures may have been in the thousands – when some 60 square miles of mountainous central Guatemala were covered in deadly 400-degree ash. Families having Sunday lunch in the communities of San Miguel Los Lotes and el Rodeo were buried under 10 feet of ash and volcanic rock. But, despite the poverty of the region, neighbouring communities came to the rescue with materials, food and clothes, and other necessities. Local volunteer firefighters and emergency workers entered the disaster zone to rescue victims from the hot ash and shuttle survivors to shelter, and civil society organizations coordinated local aid activities – unloading trucks and shipping provisions to those in need.

When a firestorm blazed through the northern Californian city of Santa Rosa in October 2017, the community came together to form a fund designed specifically for the undocumented community. [Undocufund](#), as it became known, stood in direct opposition to the divide-and-conquer rhetoric that had been a staple of the political climate. They raised \$6 million from ordinary people who sympathized with those who might otherwise be forgotten.⁷⁴

Sometimes grassroots disaster relief can lead to larger, more long term initiatives. In Puerto Rico, Hurricane Maria devastated the region in 2017 with the loss of nearly 3,000 lives. A volunteer-run community kitchen in the town of Caguas soon transformed into an island-wide network of community centers, known as Mutual Aid Centers. Today, these centers provide more than just meals – they offer all sorts of services related to art, education, and therapy. All services are provided for free.

In the aftermath of the 2007–2008 financial crisis the Greek economy experienced a dramatic downturn, all but collapsing. In order to allow communities and local economies to still function, at the local level people came together with [innovative barter schemes and local currencies](#).

in order to keep going and ensure people could eat. [Similar community ingenuity](#) during a time of crisis supported many people in the wake of Argentina’s financial crisis of 2001–2002.

Wider relevance

These examples show that people are astoundingly resilient, collaborative and generous in times of upheaval. Of course, such leadership by communities, sometimes referred to as ‘[disaster collectivism](#)’ is most effective when it occurs in conjunction with government support, at the local, state, and national levels – for the small and large-scale interventions that are essential in relief and reconstruction. There is what has been termed an optimal [ecology of disaster recovery](#).

But, too often the resources available to communities seem to be provided in line with their social and financial status, which leaves poor communities disproportionately at the mercy of natural disasters. Yet hope lies in the way that communities take care of each other and often form new solidarities. Recovery hubs emerge spontaneously. Religious institutions step in to help. Improvised kitchens emerge, preparing not just meals, but a new vision of public life that is necessary if we are to make the rapid transitions required.

Emergencies illustrate how – even for busy people with no room in their lives normally – volunteers perform miraculous tasks in short time-frames with little or no financial support. In Gander, Newfoundland, volunteers readied makeshift shelters in any space that might fit a planeload of people – every school, gym, community center, church and camp was utilised.

Bus drivers in the middle of a strike laid down picket signs (they restarted once the emergency was over), and donations of toiletries, clothes, toys, towels, toothbrushes, pillows, blankets and bedding piled up and the local hockey rink transformed into the world’s largest refrigerator.

Beyond the basics of food and water, some passengers on board needed medicine. Many left prescriptions in checked, inaccessible luggage and so pharmacists in town worked around the clock, calling dozens of countries to fill prescriptions.

Such responses to disasters reveal an alternative vision of how society might

be organised: with ordinary people banding together to help rescue each other and rebuild their communities. Social connections are more than a pleasant experience; they can be life-saving. When disasters strike, people with greater numbers of formal and informal connections fare better than those who are more isolated. This is true – and perhaps unsurprising – on an individual and familial level; people who can rely on friends and relatives for shelter and support will recover faster and more completely. But it is also true for communities. The American sociologist Eric Klinenberg, [writing about a heat wave in 1995](#), showed that old and isolated residents of a Chicago neighborhood with bustling streets, shops, and restaurants survived at a greater rate than similarly aged and isolated residents of an adjacent neighborhood whose streets were empty and looked ‘bombed out.’ Although the individuals were equally isolated, the social connections and institutions within their neighborhoods protected them. This is something identified in Robert Putnam’s classic work, [Bowling Alone](#). Disasters serve as reminders that everyone is dependent on their friends and neighbours, and that those relationships need not be mediated by the state. While they can be allowed or enabled, they are often better left unstructured by the state.⁷⁵

Government policy remains important, because it makes the rules and creates the framework and infrastructure within which communities can flourish. Daniel Aldrich, a US political scientist, showed that in a [series of Asian disasters](#), villages with stronger and more participatory local government rebuilt themselves faster and

more effectively. Building infrastructure for tighter and more successful communities can be pursued through policies ranging from zoning to education, from labour relations to transportation. Governments could consider building strong [communities that foster and encourage connection](#) and solidarity specifically in order to be prepared for climate change. There is much talk of climate resilience, but more attention is paid to equipment or activities than to strengthening our social bonds.

Context and background

Disaster can strike anywhere and affect people from all cultures and socio economic backgrounds. Those best placed to respond are those with the strongest ties and sense of shared community. In Gander, the city was – and still is – a place where people do not fear one another. Many Ganderites do not lock the doors to their homes or cars, everyone says hello to everyone and people generally know their neighbors. This welcome extends beyond locals to those visiting and to those coming from “outside”. It is worth noting that the crossing in front of Gander’s town hall is painted in rainbow colours and churches raised thousands of Canadian dollars to welcome four Syrian refugee families into the community, with a fifth scheduled to arrive next year.

In many of the other examples, communities are already interdependent, often through poverty. This is not a rose-tinted view of poor communities; it’s

simply the case that poorer people are more accustomed to sharing resources, frequently live in larger families and are used to “making do”. Puerto Rico is a self-governing organized island territory of the United States of America. This means that Puerto Ricans are US citizens although 45% of them live below the poverty line. The population is approximately 3.3 million people live on the island but emigration is high. Puerto Ricans have a higher risk of cancer, diabetes, alcohol consumption and asthma, and higher infant mortality rates.⁷⁶ Unemployment is over 10%, infrastructure is poor, and the economy struggles under a crippling amount of debt. However, family is important and relatives are expected to support each other materially and emotionally. Elders are respected and kinship is bilateral, with people commonly using both their father’s and mother’s family name as surnames.

Guatemala is a diverse nation, once home to the great Mayan culture, but today poverty is widespread and the country’s indigenous population is disproportionately affected. The gap between rich and poor is among the highest in Latin America. Guatemala also suffers from high malnutrition and infant mortality rates, plus⁷⁷ one of the highest crime rates in Latin America. Surrounded by two oceans and prone to earthquakes, droughts, hurricanes, landslides, and floods, Guatemala is one of the top ten countries most affected by weather extremes, according to the Global Climate Risk Index. However, the flora and fauna are some of the most varied on our planet and communities there have a history of gathering together to preserve their environment from pollution and indiscriminate mining.

Enabling factors

Although few people had heard of Gander before 9/11, the city’s strategic location on the east coast of Canada marks the closest point between Europe and the U.S. and is a preferred emergency landing spot for medical and other emergencies.⁷⁸ Its airport played a key role during World War II, when more than 20,000 Allied fighter planes and bombers took off from its runway, destined for battles across the Atlantic. By the 1950s, Gander was operating one of the busiest international airports in the world, though few passengers ventured beyond the terminal. The airport was basically a refuelling station for flights heading across the Atlantic ocean. Locals would hitchhike up to the airport to buy ice cream and search for famous faces waiting to reboard, such as Elvis Presley; Frank Sinatra and Johnny Cash. Gander airport’s international terminal, which opened in 1959, is home to the province’s first escalator, paneled in wood.⁷⁹

One of the main industries is still aviation, although the advent of long-haul jets put an end to Gander’s golden aviation age. A few planes continued to arrive – mainly from communist countries – and some left with empty seats, when defectors claimed political asylum in Canada. Concorde also used the airport to test its supersonic technology. As a thank you, the company famously treated the airport staff to lunch in England; they arrived back in Gander half an hour before their departure time in London. Perhaps the city is particularly welcoming to people arriving by plane and misses its glory days when Gander was pivotal on a more international stage.



Photo: istockphoto.com

Social media played a role in several of these events, particularly in recent years, helping to get information through to stranded people and to keep them in touch with their own family and community networks. Research has shown that social media is increasingly used to warn of impending disaster, to coordinate relief efforts, to link up people with loved ones, to identify survivors and coordinate volunteers, to raise donations, and to monitor recovery.⁸⁰ Hurricane Katrina was just prior to Twitter and in Facebook's infancy and warnings were too little, too late; Superstorm Sandy in 2012 showed how quickly things had changed in a relatively short time. According to analytics firm Topsy, over 3.2 million Tweets with the hashtag #sandy were sent in 24 hours. During the week of Sandy, 11 million Tweets were sent, spreading news, warnings and information.

The internet did play a significant role in assisting with the relief efforts after Katrina. The craigslist.org housing section was one of the first sites that people flocked to in order to offer free housing to displaced victims of the hurricane, and the site promptly created a general resource section for the affected and those wishing to volunteer. Others orchestrated meetup points to distribute aid in person. Katrina Help Wiki, a collaborative, open source website, was designed to serve as a centralized repository of all aid information related to the hurricane relief efforts. The "Katrina Aftermath" blog served as a clearinghouse for Katrina-related writing, photographs, video and podcasts. Users were able to email and phone-in their contributions, many using a system of Flickr photo tags to share their images with the world.⁸¹

Key facts

- Canada accepted more than 200 planes forced to reroute and, of these, 38 commercial planes and four military aircraft landed at the tiny Gander International Airport in Newfoundland.
- This small town of just 10,000 people and its surrounding communities opened their arms and their homes to more than 6,500 passengers from nearly 100 countries.
- One couple even married after meeting during the emergency in Gander.
- A vast plume of hot volcanic ash and gas, reaching a height of about 24 000 feet (7.3 km), caused the cancellation of 20,000 flights a day in Europe and thousands of people were trapped across the two continents.
- After Hurricane Katrina flooded and devastated parts of New Orleans in 2005, an armada of boats that comprised the volunteer-run “Cajun Navy” descended upon waterlogged neighborhoods to rescue stranded survivors.
- Contrary to tales of a community turning on itself, local people provided water, food, and other necessities to those in need, and a reported over two hundred thousand volunteered to house complete strangers.
- After the 2018 Fuego Volcano eruption in Guatemala, an official total of 110 people died and 197 remain missing – many think actual figures may be in the thousands – when some 60 square miles of mountainous central Guatemala were blanketed in deadly 400-degree ash.
- Local volunteer firefighters and emergency workers entered the disaster zone to rescue victims from the hot ash and shuttle survivors to shelter, and civil society organizations coordinated local aid activities – unloading trucks and shipping provisions to those in need.
- When a firestorm blazed through the northern Californian city of Santa Rosa in October 2017, the community came together to form a fund designed specifically for the undocumented community and raised \$6 million.
- In Puerto Rico, Hurricane Maria devastated the region in 2017 with the loss of nearly 3,000 lives. A volunteer-run community kitchen in the town of Caguas soon transformed into an island-wide network of community centers, known as Mutual Aid Centers.
- Today, these centers provide more than just meals – they offer all sorts of services related to art, education, and therapy. All services are provided for free.



Unnecessary travel? The return of breathable air and rethinking transport in a crisis

Photo: 'Empty city' by Marie de Gouville (CC BY 2.0)

Key lessons

- **Restrictions on the use of polluting forms of transport can provide massive gains in health** and lower pollution in very short spaces of time.
- Although the COVID-19 crisis is a human tragedy and sudden economic shock, it has also revealed that **many journeys, often using expensive and polluting forms of transport, are not ultimately necessary.**
- **There is an opportunity to re-think transport** with a greater shift towards accessible, affordable, public and low carbon electric alternatives.

What happened

Bowing, perhaps to inevitability, the group of scientists responsible for assessing ways to cut the pollution that causes global heating, working group three of the Intergovernmental Panel on Climate Change, announced in the middle of the COVID-19 pandemic, that for the first time it will hold one of its major meetings 'virtually', avoiding the need for polluting travel. Over 270 experts from 65 countries would instead gather online. At a stroke they had been compelled to find a way that would set an example by cutting their own emissions. In doing so they revealed that this had, in fact, been an

option all along as the technology to do so already existed.

One of the first things people in cities noticed as the coronavirus lockdowns started to be implemented and travel quickly reduced was the change in pollution levels. The sky was clear and contrail-free, and the air was cleaner. In some Indian cities, where air pollution is among the world's worst and a major cause of death and disease, "people are reporting seeing the Himalayas for the first time from where they live," said Lauri Myllyvirta, lead analyst at the Helsinki-based Centre for Research on Energy and Clean Air.⁸²

India's hastily imposed shutdowns have been devastating, leaving hundreds of thousands of migrant workers without homes or jobs. But in Delhi, where air is normally choking, levels of both PM2.5 (small particulates) and the harmful gas nitrogen dioxide fell more than 70%.⁸³ In China, the drops in pollution resulting from coronavirus shutdowns likely saved between 53,000 and 77,000 lives – many times more than the direct toll of the virus – according to [calculations](#) done by Marshall Burke, an Earth system scientist at Stanford University. Air pollution accounts for more than [1.2 million annual deaths](#) in [China](#).⁸⁴

Mass transit systems are less crowded – even with reduced timetables – and most roads are eerily empty as the majority of people who do not need to travel for work stay at home. Greece's Transport Minister Kostas Karamanlis reported that the use of public transport had plunged by 90% since March 16, with the number of daily ticket validations dropping from 900,000 to 100,000 for all means of transport: buses, trolleys, trains and the tram.⁸⁵ Many transport companies have also put in extra measures, from disinfecting their rolling stock more often, protecting their drivers with the appropriate equipment, indicating where people should sit or not sit to keep the social distancing minimums while seated, and even removing fare payment or front door boarding altogether to protect drivers. These measures aren't free and will have deep impacts on already strained budgets. But it is a reminder about the purpose and role of public transit as an [essential public service](#) underpinning the wider economy and society, rather than a money-making enterprise in its own right.

Such a fast and complete change in the way we move about in our daily lives is having a positive effect on our environment, but it could also help us to design a new future for transport. By experiencing what our environment can be like without transport pollution we may be reluctant to reverse the process fully. With so many cars off the roads, travel times have been reduced for deliveries and the movement of goods. In California, stay-at-home rules have reduced vehicle collisions by roughly half and migrating wildlife are better able to move about without the former high risks of death.⁸⁶ Post crisis, it may be that very few may want to go back to the highway commute grind if they don't have to.

The social distancing rules have revealed that many city paths are too narrow and some cities – like Bogota, Colombia, New York City and others – are using this opportunity to create emergency lanes by re-appropriating empty roads and making space so that walking and cycling are the preferred way to get around.⁸⁷

And by realising that many of the journeys we make are superfluous, we may become accustomed to [working more from home](#) and making fewer trips. In India, the Mumbai city administration intends to learn from this crisis and use data from lockdown transport patterns to imagine a possible future and “enhance city action plans.”⁸⁸ And businesses around the world struggling to keep going with an uncertain future are undoubtedly thinking differently about online working. “Tools that can reduce business travel have long been available. The coronavirus is forcing us to use them, and the climate could benefit,” says Simon Webber, lead

portfolio manager at Global Equities, Schroders.⁸⁹ Car share companies have offered free vehicle use to key workers and healthcare staff, which may be the first time some people outside niche urban green groups have heard of – let alone used – a car share. [Communauto YEG](#) in Edmonton, Canada’s spokesperson Adrianna Rangeloff explained: “The bus system is great – but it doesn’t always run at specific needed times. And our hospitals are not all super close.”⁹⁰ Car sharing schemes might help plug some of these gaps without relying on individual car ownership.

There are, and will be, losers of course. The International Air Transport Association reports that the 2020 revenue loss for industries relying on long-distant travel could be between \$63 billion and \$113 billion – and that working patterns established during the COVID-19 outbreak might affect future business models.⁹¹ Public opinion has not been as supportive of airlines as the industry might have expected: when billionaire Sir Richard Branson indicated Virgin Atlantic intended to ask for a government bailout worth hundreds of millions of pounds the public reaction was not favourable. Road haulage firms, although providing a vital distribution service for essentials, have also taken a huge hit as supply chains from China ground to a halt, and high streets and leisure outlets closed. In Brazil, in just one month from February to March 2020, road transport of manufactured goods such as household appliances declined by 38%.⁹² Although home deliveries mean that shopping online continues, it will be interesting to see if levels of consumption lower once the opportunity to influence people ‘in-

store’, face to face, is reduced. Shops invest large amounts in the psychology of maximising in-store purchasing, where they can physically control your encounter with produce for sale, and ‘over-purchasing’ is common with an estimated one third of fresh food produce wasted.

Across the world, millions of small businesses and low-paid workers have been affected by the impact on transport, from drivers and engineers to packers, distributors and delivery services. Many of these people – even in wealthy countries – are on unstable pay and working conditions that leave them economically vulnerable, and unable to save for lean times. In countries such as Kenya, for example, over 70,000 matatus (privately owned minibuses) are seeing their earnings dropping by between 70-80 per cent as a direct result of COVID-19.⁹³

Wider relevance

Policymakers and strategic planners in corporations are likely to review long-term investment options in transport. For example, this might shift away from roads to ensuring everyone has access to sufficient broadband to work from home. We are already seeing a range of policy responses being suggested in this new environment. In Kenya, leaders are presenting the crisis as an opportunity to reduce dependence on other countries by becoming less dependent on oil imports. [Renewable energy](#) is already growing [in the country](#) and this hiatus could offer a chance to shift energy sources more radically.⁹⁴ The Australian Road Research Board describes the COVID-19 shutdown as “a critical opportunity for Victoria to

understand and deal with its transport issues before life eventually returns to normal,” according to chief executive, Michael Caltabiano. To avoid a scenario where Victorians will get back into their cars and spend hours on congested roads, Mr Caltabiano suggested implementing work from home on one or two days a week.⁹⁵

In the UK, traffic chiefs and experts are predicting a decline in traffic volume and train usage in the wake of the coronavirus outbreak. Automobile Association (AA) President, Edmund King, believes that demand for travel, whether on the road or by rail, will be reduced now that companies have seen it is possible to work from home, employees have become used to home working, and the technology is increasingly accessible. The UK chancellor, Rishi Sunak, currently plans to spend £27bn on road building and £100bn on the contentious high-speed north-south rail link, HS2. But if demand falls as predicted, the spending plan could be fundamentally changed. In a surprise comment from a pro-car organisation like the AA, Mr King has suggested the government might be better putting more money into broadband instead of bolstering infrastructure funds.⁹⁶

According to Professor Greg Marsden from the UK's Leeds University's Transport Studies Unit, the number of peak-hour commuter journeys was already declining before the crisis, as more people chose to work one or two days at home or started work later in the day. He told the BBC that instead of investing in expensive road expansion programmes, the government should 'focus instead on rebuilding public transport and switching more vehicles

to zero emissions.' The UK government will be in a position, and perhaps be compelled to review its expensive, over-budget HS2 scheme – even though work for which has controversially been continuing throughout the crisis, capitalising on the absence of protesters to delay their efforts.

The same government quietly published an ambitious plan to revolutionise the country's transport to reduce greenhouse gas emissions and combat the climate crisis. [The report](#) comes in the midst of the coronavirus pandemic and has appeared on the Department for Transport website without any fanfare.

Its key points are:

- Public transport (notwithstanding a period of recovery of confidence following the pandemic) and active travel will be the natural first choice for our daily activities. We will use our cars less and be able to rely on a convenient, cost-effective and coherent public transport network.
- From motorcycles to HGVs, all road vehicles will be zero emission. Technological advances, including new modes of transport and mobility innovation, will change the way vehicles are used.
- Our goods will be delivered through an integrated, efficient and sustainable delivery system.

In his introduction to the report, transport minister Grant Shapps, said: “Public transport and active travel will be the natural first choice for our daily activities. We will use our cars less and be able

to rely on a convenient, cost-effective and coherent public transport network.” Mr Shapps calls for the changes to be implemented rapidly. “We can improve people’s health, create better places to live and travel in, and drive clean economic growth” he said.⁹⁷ This is not just about [electric vehicles](#) – the government intends to “support fewer car trips through a coherent, convenient and cost-effective public network, and explore how we might use cars differently in future.”

Transport systems around the world have mostly grown in a fairly unplanned way, with the horse giving way to motorised transport, and the car, sometimes through hostile substitution, taking a large share of the mobility market away from buses and trains. In countries where mass transit infrastructure has not been invested in the car has been the promoted norm. Without careful planning, mass transit systems often have not necessarily joined-up well, or functioned effectively outside cities. Inside cities, traffic jams remain the norm and people spend hours commuting in polluted, cramped environments. And in many countries, small diesel vehicles such as mini trucks and motorbikes make up the gaps between, emitting particularly dangerous small particulates. Road transport is estimated to be responsible for up to 30% of particulate emissions (PM) in European cities and up to 50% of PM emissions in OECD countries – mostly due to diesel traffic.⁹⁸

Mostly diesel commercial trucks ply our highways 24 hours a day and busy shipping lanes funnel vessels into increasingly huge container ports. It’s a dream for fossil fuel suppliers but is not a system designed for sustainability. On

top of this multilayered web of transport sits flying, once the arena of the extremely wealthy and still a relative minority. In 2019, some 4.4 billion passengers took flights, but this represents a small proportion of the world’s population as many flyers travel regularly.⁹⁹ In Britain for example, 70% of all flights are taken by just 15% of the population. Some estimates suggest that 80% of the world’s population has [never taken](#) a flight. Efforts to tackle carbon emissions from transport need to emerge fast. and plans for transformation to date have been mostly piecemeal rather than systemic.

Meanwhile, an estimated 4.2 million premature deaths are currently attributed to ambient (outdoor) air pollution, based on WHO data from 2012.¹⁰⁰ And levels of air pollution have already been linked to the coronavirus. Researchers from Harvard University’s T.H. Chan School of Public Health found that counties averaging just one microgram per cubic meter more PM2.5 in the air had a COVID-19 death rate that was 15% higher. This is because fine particles penetrate deep into the body, promoting hypertension, heart disease, breathing trouble, and diabetes, all of which increase complications in coronavirus patients. The particles also weaken the immune system and fuel inflammation in the lungs and respiratory tract, adding to the risk both of getting COVID-19 and of having severe symptoms.¹⁰¹ This data backs up findings from earlier outbreaks. A 2003 [study](#) of the outbreak of SARS, the closest relative of the new coronavirus, found that death rates in China’s most polluted areas were twice as high as in the least polluted ones.¹⁰²

Context and background

Transport systems around the world have mostly grown in a fairly unplanned way, with the horse giving way to motorised transport, and the car, sometimes through hostile substitution, taking a large share of the mobility market away from buses and trains. In countries where mass transit infrastructure has not been invested in the car has been the promoted norm. Without careful planning, mass transit systems often have not necessarily joined-up well, or functioned effectively outside cities. Inside cities, traffic jams remain the norm and people spend hours commuting in polluted, cramped environments. And in many countries, small diesel vehicles such as mini trucks and motorbikes make up the gaps between, emitting particularly dangerous small particulates. Road transport is estimated to be responsible for up to 30% of particulate emissions (PM) in European cities and up to 50% of PM emissions in OECD countries – mostly due to diesel traffic.¹⁰³

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Enabling factors

This shock to the transport system has come as a result of a global pandemic, despite consistent and increasingly urgent calls for change in the face of climate change. It took a more immediate public health threat to give governments the

power to declare national emergencies and to restrict movement and other individual freedoms. Although this has been particularly fast and wide-reaching, other global crises have enabled rapid transition in the past. The [oil shocks of the 1970s](#) required that consumers and manufacturers rethink the size and use of cars – particularly in the US, where cars were huge “gas guzzlers.” A push for vehicle efficiency for economic reasons went alongside the drive for cleaner fuels once the [dangers of lead](#) were clear. However, this was within industries rather than a systemic change that affected how people used their vehicles.

Once the oil started to fall in price again, most countries reverted to the status quo, but the Netherlands used the opportunity to redesign road policies to focus on people rather than cars. They prioritized the cheapest, quickest and easiest way to get around their cities and towns, which meant [bicycle](#) linked with local and regional public transit. Since then, the Dutch have become arguably the greenest and healthiest commuters on the planet while their economy continued to thrive.¹⁰⁸

It is important, then, to be aware that there is always a huge pull towards the status quo. It is so much easier to return to what we know. Once the coronavirus crisis has passed, and despite the possibility that another pandemic could strike at any time, many governments will be tempted to kick start struggling economies in the fastest way possible. This may not be sustainable or even maintainable, but it may happen anyway. There may be a drive to invest in failing industries or existing infrastructure – although the longer the crisis continues, the more likely

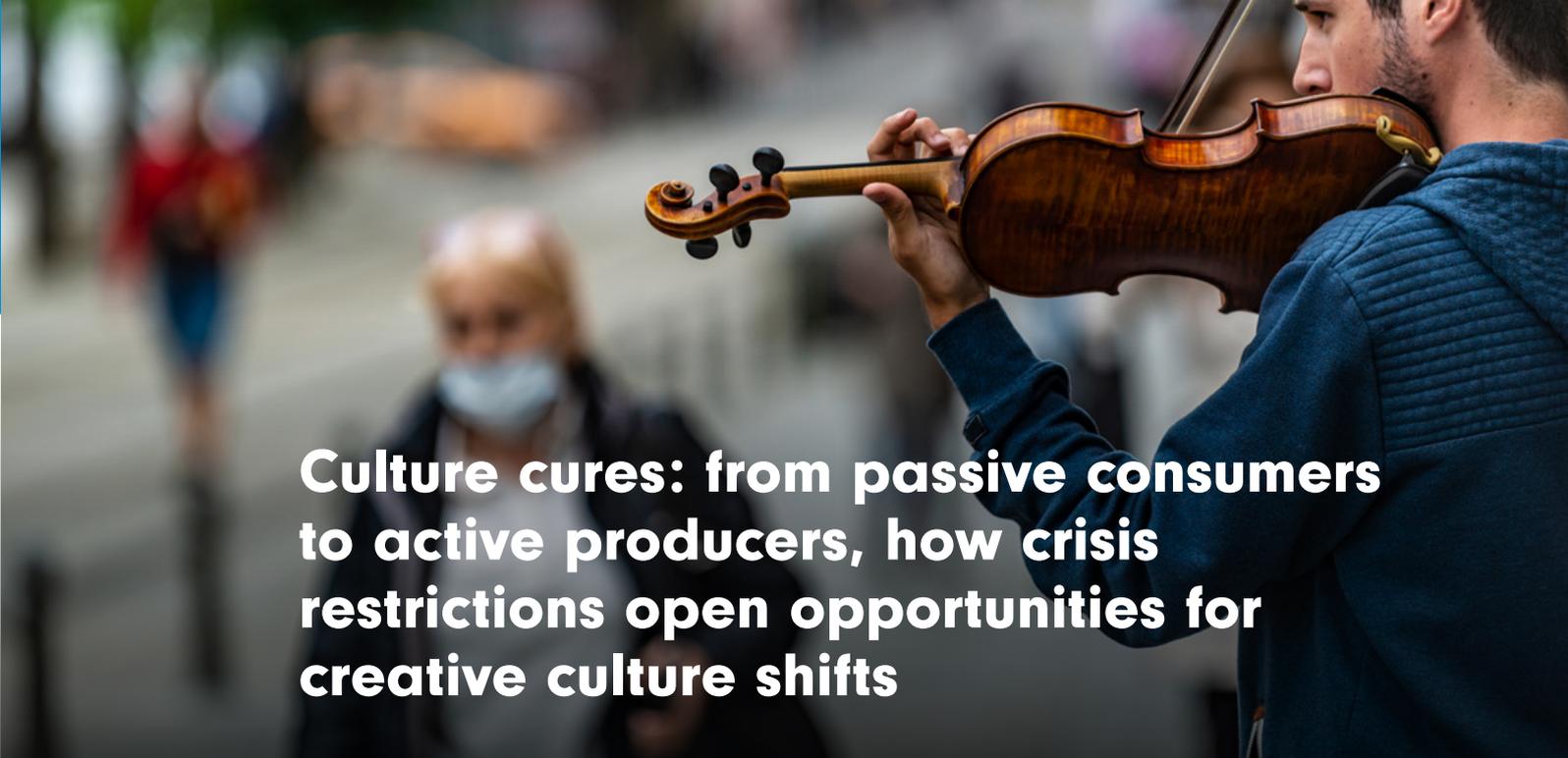
it is that irreparable damage will be done and making structural changes will be easier to bear.

It is worth noting that even the highly conservative, populist Fox News, not known for its interest in sustainability, reported recently that US infrastructure needed major investment and suggested using a national bond mechanism to raise funds for wide-ranging projects. This followed the American Society of Civil Engineers, giving [America’s infrastructure](#) an unimpressive D-plus grade after taking into account tens of thousands of roads, bridges, tunnels – but not the nation’s “old and decaying electric grid or our airports and train systems”.¹⁰⁹ Infrastructure creates a kind of behavioural path dependency, and at least a growing consensus about the need for new or upgraded transport infrastructure means a junction in the policy road, and creates an opportunity for low-carbon transition.

The particular conditions surrounding COVID-19 also have one particular disadvantage for a rapid move toward increased mass transit use: discomfort has been generated about getting too close to other people, particularly strangers. People may be frightened of public transport contamination for some time to come, which may make them reluctant to return to sharing travel space unless they have to. It is worth imagining what might happen if governments put as much effort into encouraging people out of their cars as they did to try and keep them at home.

Key facts

- In Delhi, where air is normally choking, levels of both PM2.5 (small particulates) and the harmful gas nitrogen dioxide fell more than 70%.¹¹⁰
- In China, the drops in pollution resulting from coronavirus shutdowns likely saved between 53,000 and 77,000 lives—many times more than the direct toll of the virus—according to [calculations](#) done by Marshall Burke, an Earth system scientist at Stanford University. Air pollution normally causes more than [1.2 million annual deaths](#) in China.¹¹¹
- Greece’s Transport Minister Kostas Karamanlis reported that the use of public transportation had plunged by 90% since March 16, with daily ticket validations number dropping from 900,000 to 100,000 for all means of transport: buses, trolleys, trains and the tram.¹¹²
- In California, stay-at-home rules have reduced vehicle collisions by roughly half and migrating wildlife are better able to move about without dicing with death.¹¹³
- Some cities – like Bogota, Colombia, New York City and others – are using this opportunity to create emergency lanes by re-appropriating empty roads and making space so that walking and cycling are the preferred way to get around.¹¹⁴
- The International Air Transport Association reports that the 2020 revenue loss for industries relying on long-distant travel could be between \$63 billion and \$113 billion.
- In Britain 70% of all flights are taken by just 15% of the population. Some estimates suggest that 80% of the world’s population has [never taken](#) a flight.
- In Brazil, in just one month from February to March 2020, road transport of manufactured goods such as household appliances declined by 38%.¹¹⁵
- In countries such as Kenya, for example, over 70,000 matatus (privately owned minibuses) are seeing their earnings dropping by between 70-80 per cent as a direct result of COVID-19.¹¹⁶
- The Australian Road Research Board describes the COVID-19 shutdown as “a critical opportunity for Victoria to understand and deal with its transport issues before life eventually returns to normal,”
- The UK government quietly published an ambitious plan to revolutionise the country’s transport to reduce greenhouse gas emissions and combat the climate crisis.
- Road transport is estimated to be responsible for up to 30% of particulate emissions (PM) in European cities and up to 50% of PM emissions in OECD countries – mostly due to diesel traffic.¹¹⁷
- An estimated 4.2 million premature deaths are currently attributed to ambient (outdoor) air pollution, based on WHO data from 2012.¹¹⁸
- A 2003 [study](#) of the outbreak of SARS, the closest relative of the new coronavirus, found that death rates in China’s most polluted areas were twice as high as in the least polluted ones.¹¹⁹



Culture cures: from passive consumers to active producers, how crisis restrictions open opportunities for creative culture shifts

Photo: istockphoto.com

Key lessons

- **Civic participation can meet some of the emotional needs that consumerism seeks to fill.** People can have fun together, even virtually and where social-distancing is involved, without shopping, spending a lot of money or consuming lots of stuff.
- **When restrictions are placed on normal consumer activity, it can open up new views on the world, encouraging innovative, creative action and new ways of organising** to meet needs. People's behaviours can adapt surprisingly rapidly.
- **By removing other choices, the COVID-19 outbreak has amplified the trend for more active 'do-it-yourself' entertainment making at home** to replace other forms of more passive consumerism, leading to an outpouring of free art classes, singalongs and free concerts, craft activities, shared storytelling and baking together.

What happened

As the global pandemic continues to reshape whole economies and the lives of populations, normal consumer behaviour has been suddenly altered. The focus has been on maintaining provision of just essential goods and services to reduce infection rates, burdens on health services and to save lives. With even

online shopping affected by workplace restrictions normal consumer culture has hit pause. In doing so, it presents huge economic challenges, but has also spurred many people to seek satisfaction in other ways, often seeing a shift from passive consumerism towards being more active cultural producers. What are the implications for rapid transition in a post-pandemic world?

The search for human happiness is part of the human condition and famously forms a basis of constitutions, not only in the US, but in nations as diverse as Japan, Korea, Bhutan and France.¹²⁰ Throughout history and across cultures, once the basic needs of food and shelter have been taken care of, people have sought enjoyment, satisfaction and connection through a range of activities we call culture. Traditionally these were music, dance, art, singing, craftwork and playing games. More recently, they have included consuming a huge amount of products made outside our homes and for which we must work ever longer hours in order to pay for. Constant shopping has become a passtime – resulting in what psychologist Olive James calls “The Affluenza Virus”¹²¹ – an activity that feeds anxiety and creates dissatisfaction. Our modern industrial society has successfully placed the acquisition of possessions at the top of the pyramid, driving consumption up and generating what the authors of *Do Good Lives Have to Cost the Earth* call “the deeply unsatisfying hedonic treadmill”.¹²²

Governments have actively encouraged this. Indeed, in the wake of financial crises of 2007–8, one of the first responses is to drive a new wave of consumer spending, driving up personal indebtedness. Likewise, corporations encourage it through **advertising** to create new ‘needs’ and desires and generate demand for new products.

This has left us in an unsustainable position, where rich countries have reached “peak stuff” and are struggling to remove the mountains of waste they cannot recycle, while poorer nations

wishing to emulate this wealth are now being discouraged – unfairly but understandably – from wanting the same. **Disposable fashion** is one of the largest industries in the world with annual revenues of around 1.5 trillion dollars, creating carbon emissions of 1.2 billion tonnes a year, which is more than the total for aviation.¹²³ Its **environmental impacts go further**, including over 92 million tonnes of annual waste and the use of 1.5 trillion litres of water, plus chemical pollution. And many people are so far beyond food as a basic need, that one third of all food produced gets wasted. **Food waste** is now responsible for an estimated 8% of annual greenhouse gas emissions globally, equal to the amount from tourism.¹²⁴ This heady consumption has failed to stem unhappiness, discontent and mental illness such as depression. In fact, quite the contrary. Inequality seems to be increasing in many societies, creating a feedback loop that erodes trust, increases anxiety and encourages more superfluous consumption.¹²⁵

To transition rapidly to a low carbon future, shifting away from consumption at today’s levels will be hard to avoid. With many economies repurposed during the coronavirus crisis to focus on the delivery of only what are considered ‘essential goods and services’, volumes of road haulage **dropped dramatically** giving a glimpse of a world with changed consumption patterns but leaving businesses in need of bail outs. Long term reductions would need to be planned around converting industries and protecting the livelihoods of workforces.

However, this does not necessarily mean a retrogressive step; instead it could mean

taking the best from our interconnected world and using this to enhance our daily lives. There is much to learn from existing examples that might help us shift from being consumers of stuff to producers of culture; from passive consumption to an engaged creativity that is far more accessible to all. Early examples of how this is already happening range from the return of craftwork (now called crafting which has several manifestations, some explicitly about being more sustainable, others hard to distinguish from other forms of consumerism), to a process of 'reskilling' highly visible in learning from others via Youtube (although internet access is not available to all), the increase in local food and culture festivals (literature, music and art) and community choirs.

Recently, the way in which coronavirus has forced people to literally turn inwards and look for entertainment at home has amplified this trend, leading to an outpouring of free art classes, singalongs and free concerts, craft activities, shared storytelling and baking together.

In Nigeria, international footballer Desire Oparanozie has developed an entire workout using just four pairs of shoes in a hallway.¹²⁶ Around the world, street artists made the most of the silent streets to make art commenting on our isolation and supporting the public health messages to aid communication.¹²⁷ In Senegal, a collective of graffiti artists have offered up their spray cans to the cause of public health. Black and yellow block letters on city walls spell out the message "Together against COVID-19," and "A big thank you to the caregivers," is drawn out next to the government's health hotline on a high school wall.¹²⁸ Lists of how to keep sane in

isolation appeared online, with everything from practical ideas such as making your own washable toilet paper and servicing your pushbike, to writing poetry or hand-carving an avocado stone.¹²⁹

The Marsh family of six in the UK set their own coronavirus words to a song from the stage show, *Les Miserables*, receiving 7.5 million hits on Facebook and bringing joy to many. The family received some 62,000 comments, with many from front-line health workers and even people in hospitals who say it helped cheer them up.¹³⁰ A UK community choir moved online, using the mute button on meeting software to enable everyone to sing along in their own homes, despite the slight delay caused by the technology.¹³¹ This enabled them to maintain social contact – one of the most important benefits of joining a choir.¹³²

People are once again generating cultural activities together in a way that was normal until perhaps the mid 20th Century and is still the norm in many cultures around the world. The internet is allowing people to share ideas and experiences about how to spend time together at home – and many of these do not involve spending money. This opens the opportunity for us to change the emphasis of how we spend our time from once-in-a-lifetime experiences that usually involve polluting travel overseas, to making an experience from what's to hand. People are re-learning from this crisis how powerful and joyful it can be to make low-budget fun with friends and family, or will we slide back into bad old ways once the restrictions are lifted and the full force of marketing and merchandising returns?

Perhaps the biggest threat to our future landscape is the way the crisis has consolidated the dominance of large delivery wholesalers and retailers like Amazon and the supermarkets during this current crisis. Amazon has taken on an additional 100,000 staff in the US alone¹³³ to fulfil the additional orders it is receiving, presumably from people who would usually purchase these items in person at shops. If this trend continues after the crisis is over, towns and cities across the world will be hollowed out as high street retail struggles to return. There have been many calls – amid the constant TV monitoring and lauding of supermarkets – to remember your small, local firms who may still be producing and even delivering.¹³⁴ Many firms who have not previously delivered to customers may decide to continue, developing a new local delivery service that used to be normal until the rise of supermarkets in the 1980s.

Wider relevance

This example of culture as something participated in by a broad swathe of the general public in an active and largely uncoordinated way, using music and mass participation, is not a new idea. According to historian Barbara Ehrenreich,¹³⁵ the human race has for at least 10,000 years, abandoned the hard diurnal grind of work at regular and officially sanctioned intervals, and taken to the streets. Accompanied by drums and pipes, people donned masks and costumes, and sang and danced, even whirling faster and faster in circles, until a climactic state of shared bliss was attained. Much invigorated, they would return to work and their everyday life. In the West, his

habit persisted until around the 13th and 14th Centuries; it was finally stamped out by the 17th Century, largely by the church as it turned toward more puritan beliefs at the same time that wider economic changes saw the beginning of the rise of capital and industry and the relegation of more household and smallholder production. Ehrenreich goes so far as to describe Christianity as originally a “danced religion” until church officials drove these chaotic and sensual festivities into the streets. Protestants criminalized carnival, Wahhabist Muslims battled ecstatic Sufism, and European colonizers wiped out native dance rites.¹³⁶ Ehrenreich claims that melancholy (depression) grew fourfold at least partly as a result. Western Christian missionaries enacted this same process on conquered peoples across the globe, suppressing the tribal song and dance practices that effectively maintained psychic and social balance. The very phrase used by the South African Namaqua tribe for “one who converts to Christianity” was “one who has given up dancing”.¹³⁷

Ehrenreich posits that the elites were fearful such gatherings would undermine social hierarchies – and that perhaps this was justified: she suggests the festive tradition inspired French revolutionary crowds and uprisings from the Caribbean to the American plains. The state’s fear of group revelry persists, from responses to the 1960s rock-and-roll rebellion, the criminalisation of rave culture in the 1990s and the recent on-street celebrations of [Extinction Rebellion](#). Many of these movements have quickly been co-opted; capitalism is good at spotting what people love and making them pay for it, so free festivals have become very

pricey festivals and dancing in the street has become paid entrance to an exclusive and expensive club. But global movements such as [Transition Towns](#), local food festivals and the [Slow Food movement](#) have continued to demonstrate the joy in simple, shared – and often free or low cost – activities.

The coronavirus stay-at-home regime has taken things much further by forcing people to look to their own resources in a radical shift. This is the kind of social experiment that could never happen in normal circumstances because who would be willing to live under such constraints for such long periods? For many, structured work has gone overnight (along with formal school), and although some people are frustrated and bored, it is possible that they are also becoming more creative and imaginative. After all, there has been much research linking boredom – provided you are not constantly flicking through your phone looking for stimulation – to increased creativity.¹³⁸

It will be interesting to see if the effects of this profound social change will be lasting or whether we will revert quickly to the norms of pre-coronavirus times as soon as the restrictions are lifted. According to a 2009 study published in the *European Journal of Social Psychology*,¹³⁹ it takes 18 to 254 days for a person to form a new habit. The study also concluded that, on average, it takes 66 days for a new behavior to become automatic. Depending on how long people stay in “lockdown” could have some bearing on whether new habits form. For example, shopping only for essentials rather than constantly browsing, mending something rather than simply buying a new one,

or going out for food and drink and entertainment rather than seeing friends and family at home. The restriction on going out for exercise could result in people exercising more or more regularly than normal too.

Context and background

We have long known that happiness and health are connected, and that material consumption is not the answer. The ancient Greek philosopher Aristotle, wrote about the importance of a “life well lived” – a concept hard to define but one that many people feel they understand instinctively. It speaks to more than comfort and desirable possessions, and includes a sense of greater purpose outside of oneself. In 1943, Abraham Maslow described in detail his “hierarchy of needs”, in which physiological needs are met first and the pinnacle is “self-actualisation”, including such indescribables as creativity and spontaneity – not commodities that can be bought off the shelf.

However, modern capitalism worked hard to convince us first that happiness will come as a result of acquiring commodities. And then, as we began to realise how quickly the sense of satisfaction from acquisition fades, marketers focused on convincing us that we can buy attributes – either through training and educating ourselves (this is usually the result of an exclusive and expensive course) or by experiencing something incredible. An endless shopping list is now available for those

Photo: '2020_03_090103 - Covid-19'
by Gwydion M. Williams (CC BY 2.0)

who already have everything they need; swimming with dolphins, going on a luxurious retreat, altering your own body with plastic surgery, or flying through the mountains strapped to a jetpack – even going into space is now an experience that can be bought. Moving from the consumption of products to experiences is not necessarily a lower carbon result if the novel, extraordinary nature of the experiences involves long-haul travel, invading isolated places, endangering species, driving high-octane fossil fuel vehicles and consuming rare materials.

Enabling factors

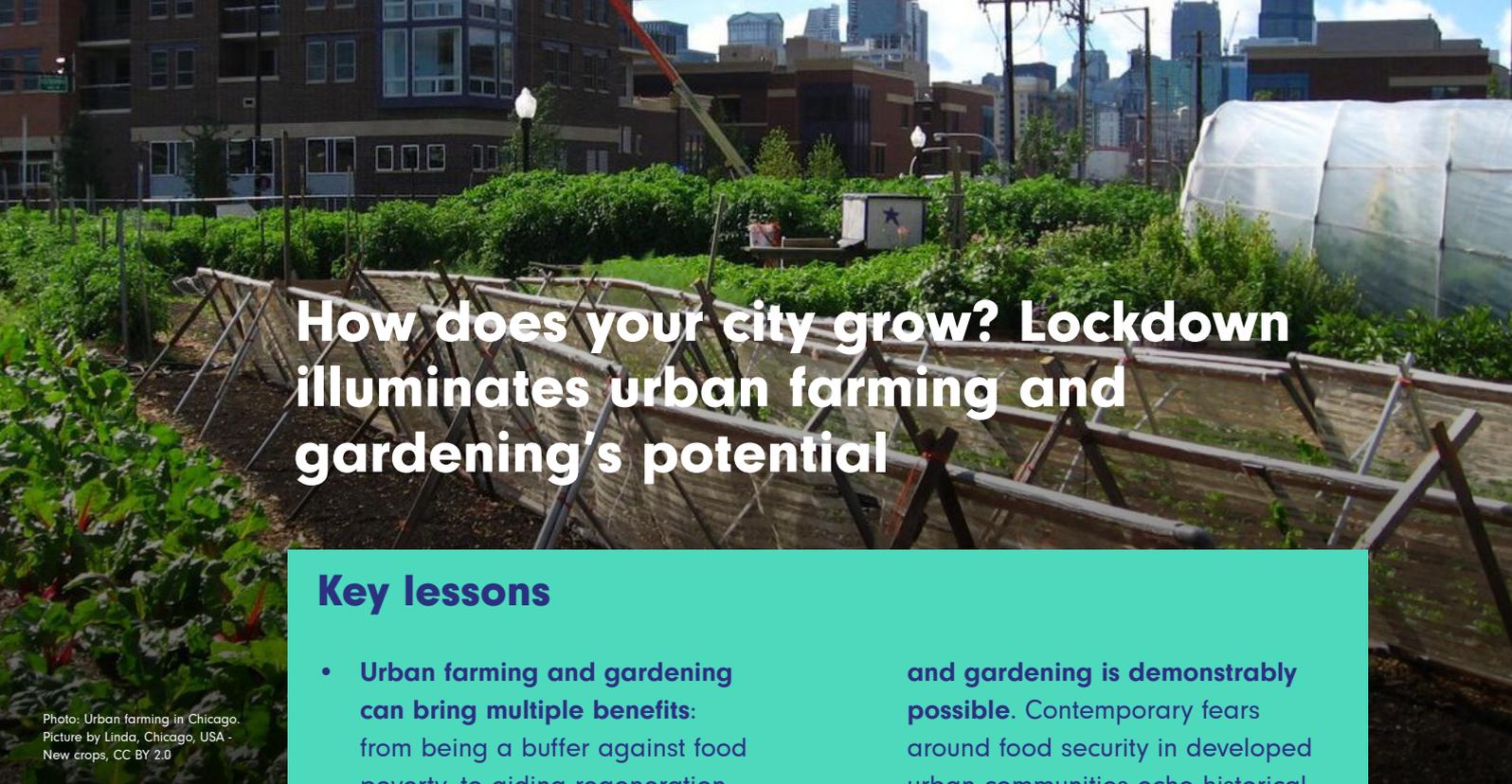
The arrival of coronavirus has created extraordinary conditions in which people in many countries are in 'lockdown' – unable to leave their homes or meet anyone from outside their household without standing at least 2 metres away from them, and going out only to shop for food or to take exercise. The presence of the internet has allowed us to see a great deal of what normally happens behind closed doors, with people from heads of state downwards working from home and relying on virtual meeting platforms such as Zoom and Skype to work and carry out social activities with those outside their household. Where it was once a novelty

to see inside someone's home office – such as the time, much shared on social media, when an expert, Robert Kelly, was interviewed by the BBC at his home office in Busan, Korea, and being interrupted by his children¹⁴⁰ – this would be completely unremarkable today. Presenters regularly now work from their own dining rooms and famous footballers do workouts on their kitchen floors.

Of course, cameras can mislead, and many people are suffering as a result of the current circumstances, but it will be surprising if there is no legacy from such seismic shifts in our collective ways of operating, with even key lobbyists for the car industry predicting long term shifts with travelling for work much reduced. During the Second World War, patterns of consumption changed enormously as a result of rationing and blockades of imports. People changed their behaviour in line with the broader aims of society and to share resources more fairly. Although they were delighted and relieved after the war to enjoy foods and other luxuries again after such a long drought, that generation retained a pattern of making do and mending, not being wasteful, being grateful for small things and sharing for the communal good. These behaviours were normal and they could become so again.

Key facts

- The search for human happiness is part of the human condition and famously forms a constitutional theme not only in the US, but in nations as diverse as Japan, Korea, Bhutan and France.¹⁴¹
- If we are to transition rapidly to a low carbon future, it is likely that we will need to shift away from consumption at today's levels. We could shift from being consumers of stuff to producers of culture; from passive consumption to an engaged creativity that is far more accessible to all.
- Constant shopping has become a passtime – resulting in what Olive James calls “The Affluenza Virus”¹⁴² – an activity that feeds anxiety and creates dissatisfaction.
- Our modern industrial society has successfully placed the acquisition of possessions at the top of the pyramid, driving consumption up and generating what the authors of “Do Good Lives Have to Cost the Earth” call “the deeply unsatisfying hedonic treadmill”.¹⁴³
- Recently, the way in which coronavirus has forced people to literally turn inwards and look for entertainment at home has amplified this trend, leading to an outpouring of free art classes, singalongs, craft activities, shared storytelling and baking together.
- In Nigeria, international footballer Desire Oparanozie has developed an entire workout using just four pairs of shoes in a hallway.¹⁴⁴
- Around the world, street artists made the most of the silent streets to make art commenting on our isolation and supporting the public health messages to aid communication.¹⁴⁵
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- Christianity was originally a “danced religion” until church officials drove these chaotic and sensual festivities into the streets.
- Protestants criminalized carnival, Wahhabist Muslims battled ecstatic Sufism, and European colonizers wiped out native dance rites.¹⁴⁹
- Western Christian missionaries enacted this same process on conquered peoples across the globe. The very phrase used by the South African Namaqua tribe for “one who converts to Christianity” was “one who has given up dancing”.¹⁵⁰



How does your city grow? Lockdown illuminates urban farming and gardening's potential

Key lessons

- **Urban farming and gardening can bring multiple benefits:** from being a buffer against food poverty, to aiding regeneration, improving public health and well-being, making urban areas more convivial places to live, while bringing environmental benefits and building community cohesion in neighbourhoods.
- Although farming is less susceptible to rapid change than other forms of production, being governed by seasons and things like soil ecology, **given sufficient motivation and commitment from institutions at all levels, the rapid uptake of urban farming and gardening is demonstrably possible.** Contemporary fears around food security in developed urban communities echo historical occasions which led to rapid expansion.
- **Solutions to deliver rapid transitions can be a win-win:** greener urban areas are more resilient to global heating and reduce pressure on their hinterlands, they also see reduced stress and incidence of poor physical and mental health, lowering social care and medical costs and improving quality of life. They also stimulate innovation and enterprise and can create worthwhile employment.

Photo: Urban farming in Chicago.
Picture by Linda, Chicago, USA -
New crops, CC BY 2.0

What happened

The lockdown and threat of a global pandemic turned a lot of people previously reliant on supermarkets and shops for their food into gardeners and would-be farmers overnight. As the global pandemic, lockdown and ensuing shortages triggered a basic need to ensure food supplies closer to home, gardens and allotments became not only places of escape for

space and exercise, but vital for the future supplies of nutritious food.

For people in urban areas, there are many challenges to growing food at home, as gardens may be small or non-existent, and public spaces are rarely available for food production. Urban populations are now in the majority globally. In 2018, 82% of North Americans lived in urban areas, 81% of people in

Latin America and the Caribbean, 74% in Europe 74% and 68% in Oceania. Asia is catching up fast, at around 50% and Africa at 43%, but these figures include many megacities.¹⁵¹ So are there ways we could be growing more of our food closer to where people live and need to consume it?

In the most densely populated city in the United States, New York, [a study by Columbia University](#) found an astonishing 5,000 acres of land suitable for urban farming. A further 1,000 acres were identified in housing projects and on under-used land. Researchers at the Institute for Sustainable Food at Britain's University of Sheffield [in a recent study](#) found that domestic gardens, allotments and suitable public green spaces could together open up 98m² per person in the city of Sheffield for growing food – and that this was typical across UK urban areas. This is more than four times the 23m² per person currently used for commercial horticulture across the UK. If 100% of this space was used for growing food, it could feed approximately 709,000 people per year their 'five a day', or 122% of the population of Sheffield. But even converting a more realistic 10% of domestic gardens and 10% of available green space, as well as maintaining current allotment land, could provide 15% of the local population – 87,375 people – with sufficient fruit and veg. With just 16% of fruit and 53% of vegetables sold in the UK grown domestically, this change could significantly improve the nation's food security.¹⁵²

Singapore, one of the wealthiest nations in Asia, that imports more than 90% of

its food, sees urban farming – including vertical and rooftop farms – as an increasingly popular solution to food security. The city-state aims to produce 30% of its nutritional needs by 2030, by increasing the local supply of fruits, vegetables and protein from meat and fish.¹⁵³

Repurposing urban spaces for food production is nothing new. During World War One, US President Woodrow Wilson asked Americans to plant "Victory Gardens" to prevent food shortages. In the UK, during the Second World War, a "[Dig for Victory](#)" campaign successfully brought production into the heart of cities, digging up flower beds and filling in fountains to plant vegetables. In the space of four years, UK reliance on food imports halved to 14.65 million tonnes and it was estimated that around 55% of households were growing fruit and vegetables. And in [Post Cold War Cuba](#), the US blockade and rising oil prices forced home production in cities to new heights, resulting in 25,000 allotments being farmed by 1995.

What is perhaps different today is that technology can help us farm in different ways and in places other than parks and gardens. There are proposals for example to combine a shift to a shorter working week with measures to increase growing spaces dubbed [National Gardening Leave](#). A pioneering project in Paris aims to cover the city's roofs and walls with 100 hectares of vegetation, with a third of this is to be dedicated to urban farms and food production. Paris is an unusually densely populated city with only 9.5% of green space (ranking 32/37 of the major world cities).

'Parisculteurs' was launched in 2016 by the city's mayor Anne Hidalgo and the city has already approved 75 projects which, together with those in this third stage of an ongoing project, are estimated to produce more than 1,240 tonnes of fruit, vegetables, mushrooms, and herbs, as well as fish, honey, and hops.¹⁵⁴ Currently under construction in the south-west of the city, one urban oasis will span approximately 14,000m² - making it the largest urban farm in Europe, tended by around 20 gardeners using entirely organic methods.¹⁵⁵ Located on top of a major exhibition complex, the farm will also have its own on-site restaurant and bar, offering panoramic views over the capital and a menu featuring seasonal produce grown on the site. This is part of the [Green Hand Charter](#) (Charte Main Verte), an initiative allowing Parisians to establish community gardens on public land in collaboration with the city. About 130 community gardens have already sprouted around the city.

Even before the COVID-19 crisis sped up the thinking in this area, urban farming was on the rise globally, with projects ranging from community gardens, to vertical farms; from mushrooms grown on coffee waste in Rotterdam to subterranean herb growing in the air raid shelters of Clapham in London. The 8,500 square foot Food Roof in St Louis, Missouri epitomizes the multiple benefits of such projects in transforming an industrial rooftop into a vibrant community hub. In addition to currently growing over 200 varieties of edible plants, the collaboration of architects, horticulturalists, structural engineers, and agronomists has led to a system proven to capture up to 17,000 gallons of runoff water per storm event, mitigating flooding for downtown St. Louis.¹⁵⁶

Wider relevance

Urban farming has the potential to help address food security worldwide. The first global estimate found that, if fully implemented in cities around the world, urban farms could produce as much as much as 180 million tonnes of food a year - perhaps 10% of the global output of legumes, roots and tubers, and vegetable crops.¹⁵⁷ It is forecast that by 2050 60% of the world's population will live in cities, and the speed of this shift demands rapid solutions to providing for these urban populations.¹⁵⁸ The challenges go beyond food production, including job creation, community building and waste processing. Urban farming can make a positive impact in all of these areas, thereby also contributing to the UN Sustainable Development Goals 01, 02, 12 and 15.

Food security issues are not confined to developing countries. In 2017 11.8% of US households (15 million in number) were food insecure at some time.¹⁵⁹ Lack of access to fresh food has a direct effect on health. According to a 2011 study by the Food Research and Action Center, low-income families are 30% more likely to be overweight or obese due to lack of access to quality fruits and vegetables.¹⁶⁰

Urban farming has been criticized for providing niche foods to an urban elite, but has also been shown to be a tool for aiding [neighbourhood regeneration](#) in local economies hit by industrial decline, and for addressing food distribution inequality. The US city of Austin's Sustainable Food Centre implemented a programme that doubles the dollar amount of food vouchers, enabling less affluent families to get more fruit and

vegetables at farmers' markets. **Community gardens** help build social cohesion where the natural setting helps break down social boundaries and unite communities under a common goal. Increasing accessible greenspace in cities further provides recreational and educational opportunities.

Growing food where people live also directly reduces the environmental cost of food production, particularly transport. A Life Cycle Assessment of Urban Food Growing in London found that urban farms could potentially reduce food related emissions, such as carbon dioxide by 34 tonnes per hectare.¹⁶¹ Integrating productive green spaces into urban ecological systems has the further beneficial effects of increasing resilience to climate change in cities by reducing runoff, keeping floodplains free from construction, reducing urban temperatures, capturing dust and CO₂.

Context and background

Urban farming is not new; one study estimates that more than 800 million people worldwide practice urban agriculture, the majority of them being the urban poor in developing countries. It accounts for a staggering 10-15% of global food production.¹⁶² Those with access to land turn it to productive use, growing vegetables and raising animals – much as everyone did before the arrival of refrigeration and global food supply chains. While the majority of this is consumed within the household, surpluses are traded, and micro-enterprises develop where processing food raises its value. Urban farming in this context increases the food security of low-income groups, contributes to local economic development

and the social inclusion of the urban poor, and women in particular.

Before the industrial revolution, cities were far more likely to grow food inside or very close by. In the late 17th century, Paris was nearly agriculturally **self-sufficient**, and urban farmers known as *maraîchers* (market farmers) pioneered **intensive urban farming techniques** that are still used today. After the occupation of Paris in World War II, agriculture was pushed out of the city into a surrounding 30km wide “green belt”. The city still relies on this local produce as its primary source of fresh food. But some are moving back in; for example, the delicate *champignon de Paris*, a variety of white button mushrooms, was grown in the catacombs of Paris from 1670 until the early 1960s, when producers could no longer compete with cheaper industrial production imported from the Netherlands. A farmer based just a short metro ride from the city's financial centre is bringing back this tradition by reviving the business of his grandfather, one of the original mushroom growers.¹⁶³

Today, the global economic system favours large producers and the production of cheap food. Food prices vary significantly across different countries, even within Europe. In the UK, where supermarkets have become increasingly dominant in the last few decades, households spend an average of 8% of their total household expenditure on food – 8% less than the EU average, and less than half of what families would spend 60 years ago.¹⁶⁴ The UK has become reliant on cheap food, though this may be about to change again with Brexit as the nation relies on 30% of its food imports from the EU.

Renewed interest in food has grown steadily throughout the last few decades, with the growth of the Farmers Markets movement (starting in the US in the early 1980s in California and New York City) and the Slow Food Movement (founded by Carlo Petrini in Italy in 1986 as a protest against a McDonalds opening on the Spanish Steps in Rome and now a global phenomenon). The Organic Movement, based originally on the Indian Vedic techniques of sustainable agriculture, has mutated in the western world from being considered innovative in the 1930s to alternative in the 1970s, then trendy in the 1990s and mainstream today. This transition has been helped by the fact that “health and wellbeing” has risen up the political agenda in countries where the diseases that are now the big killers – obesity, diabetes, cancer and stress – are caused or affected by what we consume.

Technology has played its part, enabling small producers to take payments cheaply and conveniently, and to market locally direct to consumers online. Farmers’ market traders often accept card payments now – a far cry from an old-school market where people bartered, traded or paid in cash. Smartphones have had an inarguable [environmental impact](#) that a sustainable farmer may not want to be associated with. But they have become an integral part of business practices, especially in [micro and small businesses in developing countries](#). They increase the economic viability of small sole traders and the self-employed, enabling the vendor to cast a [wider net for commerce](#).

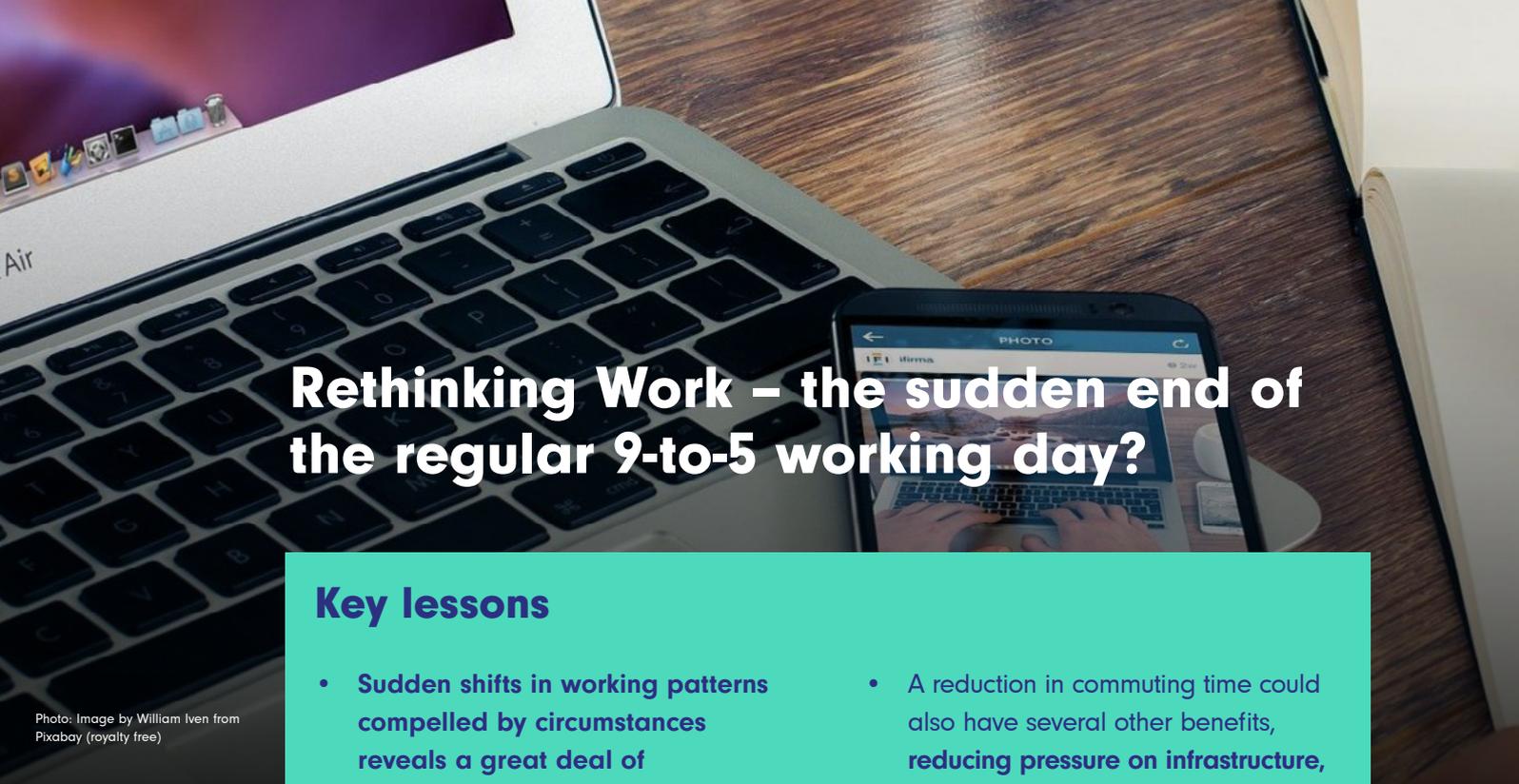
The [Dig for Victory](#) and similar crisis campaigns were fuelled by the fear of loss of imported food. The key to its

success was the unity of the campaign across society with people of all walks of life ‘doing their bit’ driven by a sense of national emergency. Seeing the Royal family give over their rose beds for growing onions motivated the millions, and the real change was made by empowering ordinary people to act in such large numbers.

The increase of serious weather events caused by climatic upheaval and global heating have also brought some benefits to local producers who are less at the mercy of a long supply chain and its potential disruptions. Following large storms such as Hurricane Sandy and winter blizzards, growers such as New York City-based [Gotham Greens](#) (which produces more than 300 tonnes of herbs and microgreens per year in two rooftop hydroponic operations and has another farm planned for Chicago), were able to thrive. According to co-founder Viraj Puri, “our produce was the only produce on the shelf at many supermarkets across the city.”¹⁶⁵ Despite their relatively small size, urban farms often have surprisingly high yields; they often have less insect pressure than rural farms and they don’t have to deal with hungry deer or other animals eating crops. City farmers can also plant more densely because they hand cultivate, nourish their soil more frequently and micromanage applications of water and fertilizer. In New York, GreenThumb, a division of NYC Parks Department and the largest community gardening program in the nation, estimates that 87,000lbs of food is produced in the 553 community gardens it oversees.¹⁶⁶

Key facts

- Urban populations are now the majority of our world – in 2018, 82% of North Americans lived in urban areas, 81% of people in Latin America and the Caribbean, 74% in Europe 74% and 68% in Oceania. Asia is catching up fast, at around half and Africa at 43%.¹⁶⁷
- Urban farms could produce as much as much as 180 million tonnes of food a year – perhaps 10% of the global output of legumes, roots and tubers, and vegetable crops.¹⁶⁸
- According to a 2011 study by the Food Research and Action Center, low-income families are 30% more likely to be overweight or obese due to lack of access to quality fruits and vegetables.¹⁶⁹
- A Life Cycle Assessment of Urban Food Growing in London found that urban farms could potentially reduce food related emissions, such as CO2 by 34 tonnes per hectare.¹⁷⁰
- Researchers in Sheffield, UK, found that just 10% of domestic gardens and 10% of available green space, as well as maintaining current allotment land, could provide 15% of the local population – 87,375 people – with sufficient fruit and veg.¹⁷¹
- In New York, GreenThumb, a division of NYC Parks Department and the largest community gardening program in the nation, estimates that 87,000lbs of food is produced in the 553 community gardens it oversees.¹⁷²
- Singapore aims to produce 30% of its nutritional needs by 2030, by increasing the local supply of fruits, vegetables and protein from meat and fish.¹⁷³
- Paris is building a huge range of urban growing sites, including one urban oasis that will span approximately 14,000 sq metres – making it the largest urban farm in Europe, tended by around 20 gardeners using entirely organic methods.¹⁷⁴
- In the UK, during the Second World War, a “Dig for Victory” campaign successfully brought production into the heart of cities, digging up flower beds and filling in fountains to plant vegetables. In the space of 4 years, the UK reliance on food imports had halved to 14.65 million tonnes and it was estimated that around 55% of households were growing fruit and vegetables.
- The 8,500 square foot Food Roof in St Louis, Missouri will also capture up to 17,000 gallons of runoff water per storm event, mitigating flooding for downtown St. Louis.¹⁷⁵



Rethinking Work – the sudden end of the regular 9-to-5 working day?

Key lessons

- **Sudden shifts in working patterns compelled by circumstances reveals a great deal of adaptability in sectors where remote working is practical.** If issues that arise are well managed, other unexpected economic and environmental benefits can emerge, alongside health and well-being gains. Trusting people to make their own decisions about where to work can benefit everyone.
- **Reducing long-distance commuting and unnecessary travel is key to low carbon transition.**
- **A reduction in commuting time could also have several other benefits, reducing pressure on infrastructure, helping income inequality for those currently commuting long distances to office jobs, and lead to a more equal gender distribution of household work.** Elsewhere shortfalls in workers for essential tasks such as food harvests, could lead to a positive reassessment of the value of physical labour.

What happened

Today's challenging environment is particularly interesting because it is enabling some radical trials to be carried out quickly and with a high level of self-enforcement. On the whole, people are following the rules and making sweeping changes that would have been unthinkable a few weeks ago. Like a huge demonstration of 'action learning', this reveals examples of how rapid transition might work on the ground, in real time as

a living experiment. It also shows, simply and usefully that systemic changes at the societal level are possible within very short time frames.

There are several precedents for sudden shifts in working patterns, often in response to economic shocks like the financial crisis of 2007 – 2008. These too have [revealed sometimes surprising benefits](#). Working from home figures are hard to quantify globally, but 2018 figures for the US show that 5 million

employees (3.6% of the workforce) work at home half-time or more;¹⁷⁶ and that regular working at home has grown in scale 173% since 2005, and at a rate 11% faster than the rest of the workforce (which grew 15%).¹⁷⁷ These figures show how enormous the current shift is in taking a majority of workers out of the workplace.. This may generate additional benefits. A reduction in commuting time could help income inequality for those currently commuting long distances to office jobs. Generally speaking, people on lower incomes have longer commutes into cities, because higher rent and house prices keep them outside prime centre areas. This is amplified at the country level – nearly 91% of people in high-income countries live within one hour of a city, compared to almost 51% of people in low-income countries.¹⁷⁸ Of course, many low-paid jobs are manual and cannot be done remotely. These people will suffer a much more immediate loss of income and status. In wealthy countries, their pay may be replaced or topped up, but in poorer states they may be left to fend for themselves. Ironically, some caring roles, which have historically been low paid and low status, are now being treated as key worker roles – such as social care for elderly and vulnerable people.

In the Stanford research, it showed what happened after the study ended. The CEO rolled-out to the whole company the option to work from home, and people made their own decisions according to: their need to concentrate, their need to interact and their home circumstances. More than half the volunteer group changed their minds about working from home 100% of the time – they felt too isolated.¹⁷⁹ But by trusting people

to make their own choices, performance went up by 24% – those who chose to work from home really flourished in the right environment.¹⁸⁰ Trust has been an issue that slowed the uptake of home working; people tending not to believe that those at home work as hard – despite the fact that it is hard to see if someone is actually working even when they are in the office – unless a manager looks over their shoulder continually. Research also reveals that employees in workplaces around the world are not actually at their desks 50% to 60% of the time.¹⁸¹ Managers who have worked at home themselves are more likely to endorse it for others, because their worries about lost productivity become less.¹⁸² This current extended period of home working as the new norm could increase levels of trust at work, decreasing stress for many at the same time.

Home working will also make savings for many employers that might enable them to keep businesses open until the crisis ends. A US analysis estimates that a typical employer can save about \$11,000/year for every person who works remotely half of the time and that employees can save between \$2,500 and \$4,000 a year (working remotely half the time) – primarily due to reduced costs for travel, parking, and food. This could increase if they are able to move to a less expensive area and work remotely full time. The research goes further to estimate that the annual environmental impact of half-time remote work (for those who both want to work remotely and have a compatible job) would be the greenhouse gas equivalent of taking the entire NY State workforce off the road.¹⁸³

Context and background

In the early 1800s, just under 10% of the developed world lived in cities and only 3% of the world's total population. The industrial revolution changed all that for many countries, as factory owners required large numbers of workers on site each day to run machinery and make products at scale. This established the tradition of people working away from their homes during the day; before that, excepting some types of seasonal agricultural labour, most work was done near or in the home, with only itinerant trades travelling to ply their wares. Daily hours gradually reduced as workers' rights improved, leaving us with today's "nine-to-five, five days a week" description of a normal day. Of course, this is still far from normal for many workers who do shift work, multiple jobs, work part time or work for free (volunteers and many carers).

Urbanisation has changed things rapidly, however. By 1900, 14% of the world's population lived in urban areas, and twelve cities had populations exceeding one million. Just fifty years later, in 1950, the world's urban population had doubled to 30% and the number of cities over 1 million numbered eighty-three. Today, more than half the world's population lives in urban areas, and the number of cities with populations over one million tops four hundred. By 2030, almost two-thirds of the world's population is projected to be urban. The number of megacities – cities with populations over ten million – rose from three in 1975 to sixteen in 2000, and is expected to reach twenty-seven by 2025 (Population Reference Bureau, 2012).¹⁸⁴

And big cities means more commuting: according to analysis of EU statistics, the inhabitants of capital cities often had the longest journeys to and from work (in terms of the average time taken). Those living in and around the EU's biggest cities can spend a considerable amount of their lives commuting between home and work. For example, commuters in Paris spent an average of 39 minutes for their journey time to work (2010 data).¹⁸⁵ Over 3.6 million Americans commuted more than 90 mins each day in 2014, which amounted to 31.3 days per year spent commuting.¹⁸⁶ Multiply that by 3.6 million workers, and you reach 1.8 billion hours of potential productivity – the time-equivalent of 900,000 full-time jobs.

Some analysts are predicting that we may see 25–30% of the workforce working at home on a multiple-days-a-week basis within the next two years once the current crisis has ended.¹⁸⁷ Based on the figures above, this could mean huge savings in resources, reductions in pollution and increases in wellbeing. There is also a small but impactful group of super-commuters, who have in recent years been commuting much longer distances – usually by air – to take advantage of cheaper real estate. Experts estimate there could be hundreds of thousands of super-commuters worldwide, made possible in large part because of technological advances and the proliferation of low-cost airlines – until recently. These people will have been forced largely to stay at home during this crisis and it will be interesting to see if this trend withers away.¹⁸⁸



Photo: istockphoto.com

Enabling factors

The current transition to home working has been abrupt but largely accepted because of the sense of emergency in the face of a global health pandemic, with governments, the media and key workers asking others to stay away in order to keep them safe and enable them to carry on with their work. This powerful argument has created strong social cohesion and pressure to conform. The move has obviously been easier for those in secure, full-time, well paid office work, where their employers can continue to pay them and where they can function sufficiently well to continue their role from home. Even in a superpower, the picture is mixed: nearly **29% US workers** said they could work from home in 2017-2018, according to Bureau of Labor Statistics figures. Half of workers in management, business and financial operations said they did at least some work at home, and 38% of workers in “professional related” jobs

could do so. But only 5% of workers in the service sector and 7.4% in maintenance and repair said they could work at home.¹⁸⁹ Repairing a car, replacing a bandage or making a cup of tea cannot yet be done remotely.

The rollout of technology, high speed internet and smartphones has also made this possible in a way that would have been unthinkable just a few years ago. Virtual meeting systems are free and easy to use, and likely to be used by today’s 3.5 billion smartphone users in the world – 45.12% of the world’s population.¹⁹⁰ 5.17 billion people have a mobile device of some kind – that’s 66.77% of the world’s population. And by 2025, 72% of all internet users will solely use smartphones to access the web. This still leaves a huge number of people struggling to access what others take for granted.

Key facts

- 2018 figures for the US show that 5 million employees (3.6% of the workforce) work at home half-time or more.
- Regular working at home has grown 173% since 2005, 11% faster than the rest of the workforce (which grew 15%) and nearly 47x faster than the self-employed population (which grew by 4%).¹⁹¹
- Some analysts are predicting that we may see 25-30% of the workforce working at home on a multiple-days-a-week basis within the next two years once the current crisis has ended.¹⁹²
- A 2017 Stanford University study by professor Nicholas Bloom came up with data that surprised him about the benefits of working from home. The study focused on China's largest travel agency, Ctrip, which had 16,000 employees and a very expensive HQ office block in Shanghai.
- There was a 13% improvement in overall performance (equivalent to more than half an extra working day per week) and the "quit rate" dropped by 50%.
- But by trusting people to make their own choices, performance went up by 24% – those who chose to work from home really flourished in the right environment.¹⁹³
- A US analysis estimates that a typical employer can save about \$11,000/year for every person who works remotely half of the time and that employees can save between \$2,500 and \$4,000 a year (working remotely half the time) – primarily due to reduced costs for travel, parking, and food.
- A reduction in commuting time could help income inequality for those currently commuting long distances to office jobs. Generally speaking, people on lower incomes have longer commutes into cities, because higher rent and house prices keep them outside prime centre areas. This is amplified at the country level – nearly 91% of people in high-income countries live within one hour of a city, compared to almost 51% of people in low-income countries.¹⁹⁴
- But this period of enforced thinking of work could have longer term implications – it may also help with the current uneven mental burden on women of holding home life together. Recent research in the US confirmed anecdotal evidence that women still do far more planning, organising and thinking for the whole household than men. Mothers with jobs that provide their family's major source of income are also two and three times more likely to be managing the household and children's schedules than breadwinning fathers, and more than 30% more likely than other working mothers to be taking care of everything from family finances to organizing family vacations.¹⁹⁵
- Today, more than half the world's population lives in urban areas, and the number of cities over 1 million tops four hundred. By 2030, almost two-thirds of the world's population is projected to be urban.

Conclusion: Reset and building back better

History suggests that moments of crisis and disruption, while bringing huge human suffering in their wake, also afford opportunities to reset values and ways of organising the economy and society. Wars and financial crises have provided that backdrop in the far and recent past. Should we choose to act this way, the COVID-19 pandemic provides an opportunity to build a socially-just Green recovery from the devastation that the virus has left in its wake.

We have learned that governments can act quickly and decisively and in the public interest. They are able to rapidly re-organise whole sectors of the economy through industrial conversation and re-purposing and set up new infrastructures of provision (such as treatment centres and personal protective equipment). They are also willing and able to mobilise vast financial resources to guarantee the economic security of the majority of their citizens. In so doing, they give lie to the neo-liberal myth that 'free' markets offer the best route to wellbeing and economic security.

We have seen that dramatic behaviour change over a very short period of time is possible when an emergency requires it for all our sakes. Governments are also able to lock-in positive behaviour changes-putting in new cycle lines, encouraging employers to let people work from home and pedestrianising city centres. Positive responses to bold measures for the

collective good have been supported and well-received. These are lessons here for more ambitious climate action. Governments have both a mandate for change and a duty to enact it.

Businesses have also learned that resilience often means shortening supply chains. Just in time production along complex and sprawling global supply chains crumbles in the face of environmental, financial and now health shocks. Building resilient food, energy and water systems means investing locally and strengthening the role of local businesses that have a commitment to the long-term welfare of the communities where they are based. During the pandemic, we have seen how such businesses have been actively supported as people want to ensure their local economy thrives. Reciprocal ties between businesses and communities improve our chances of bouncing back from crises.

Many businesses have adapted to the crisis, repurposing what they do and their mode of operation to accommodate the new normal: sourcing locally, providing home delivery and using lower carbon transport options. Lessons learned will enhance their ability to adapt to climate change and environmental disruptions going forward.

But positive responses to the crisis are not inevitable. They have to be fought for. There are many powerful vested interests wanting

to rush back to business as usual when the old normal was the problem. Many have secured huge amounts of additional state support to bail out airline industries and oil companies, for example. This is a wasted opportunity and makes the job of deepening and accelerating the transition away from fossil fuels even harder.

The future is in our hands. Amid the economic devastation and toll of human suffering, we have caught glimpses of a slower way of living, of a society where the care economy is valued, where natural systems are given the chance to recover and where we become time richer: spending more time with family and less commuting to work. These are just some of the lessons from lockdown.

Additional resources

A range of additional resources on lessons from lockdown, including briefings, infographics and short films are available from the Rapid Transition Alliance at: [Lessons from lockdown](#)

These include resources themed around:

- **Looking after each other better**
- **More space for people and nature**
- **Living with less 'stuff'**

This report has been compiled from stories of change written by the Rapid Transition Alliance and its team including Nicky Saunter, Andrew Simms and Peter Newell. We are also grateful to the independent environmental researcher, Star Molteno, for her work on the urban farming story of change.

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The climate is changing faster than we are – how do we speed up? The Rapid Transition Alliance is a global initiative learning from where, when and how good things happen quickly. We're gathering and sharing evidence-based hope, to remove excuses for inaction.

For more information you can contact us at:

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