

Brave New World: The Way Forward after Covid-19

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Once the Covid-19 crisis passes, unless the food system is redesigned, this pandemic will not be the last.

Recovery, resilience and 'building back better' will take the audacious collective belief that a regenerative food system can deliver environmental, social and economic healing - and leave no one behind.

'There has been so much response to Covid-19 but much of it has treated it as a medical challenge or an economic shock,' said Professor Delia Grace, the lead author of the report by the United Nations Environment Programme (UNEP) and the International Livestock Research Institute (ILRI).

'But its origins are in the environment, food systems and animal health. This is a lot like having somebody sick and treating only the symptoms and not treating the underlying cause, and there are many other zoonotic diseases with pandemic potential': <https://www.theguardian.com/world/2020/jul/06/coronavirus-world-treating-symptoms-not-cause-pandemics-un-report>.

The way in which live animals and their bodies have been entrapped, abused and processed is beyond the safe boundaries of human health.

Industrial processes have served to institutionalise blind spots for human and animal rights atrocities on a grotesque scale and until now, governments have been reluctant to intervene.

'If you want to create catastrophic pandemics, then build factory farms' says Dr Michael Greger, an infectious diseases expert who fears that the current coronavirus could be followed by something much more deadly.

'If you crowd tens of thousands of chronically stressed animals into cramped, football field-sized sheds to lie beak to beak, or snout to snout, on top of their own waste, it's a breeding ground for disease'.

On the outskirts of a town in an industrial region of Germany is the modern equivalent of a leper colony. Amid a local coronavirus spike, police have sealed off an entire housing estate and put up 8ft-high metal barriers to stop residents leaving -regardless of whether they have the disease or not.

'What all the residents have in common is that they work at, or live near, a giant meat processing plant at the centre of the outbreak... It would be good to think the spike in this part of Germany... is just a one off. But the fact is that in many countries, including Britain, meat factories have become breeding grounds for Covid-19': <https://www.dailymail.co.uk/debate/article-8490351/More-giant-factory-farms-inevitably-means-create-deadly-pandemics.html>.

There is a worrying pattern of concerted Covid-19 outbreaks within UK factory farm and meat processing facilities typified by the closure of sites belonging to industrial chicken processor Two Sisters (BBC, 23 June 2020, 'Coronavirus: 200 cases at Two Sisters meat plant outbreak in Llangefni': <https://www.bbc.co.uk/news/uk-wales-politics-53152362>).

A report by the European Federation of Food, Agriculture and Tourism Trade Unions (EFFAT) has condemned the 'appalling' conditions of meat processing plants, citing 'exploitative' working practices and instances of the maltreatment of both animals and workers - in particular migrant and ethnic minority employees (EFFAT, 2020, 'EFFAT meat sector report: poor conditions to blame for spread of Covid-19'): <https://effat.org/in-the-spotlight/effat-meat-sector-report-poor-conditions-to-blame-for-spread-of-covid-19/>.

More recent incriminating evidence is the discovery of viral infection in an industrial pig factory in China with future pandemic potential: <https://news.sky.com/story/new-swine-flu-found-in-pigs-in-china-with-human-pandemic-potential-12017782>.

It is now incumbent upon the UK Government to confront its own culpability in encouraging exploitative, reckless practice - combined with a failure to observe the highest standards of accountability in the use of public money.

Recently, the Bureau of Investigative Journalism and 'The Guardian' unveiled the UK as a major funder of development banks which promote environmental damage, low-welfare feed lots, abattoirs and industrial scale 'mega farms' in developing world countries to include Niger, Ethiopia and Uganda (The Guardian, 2 July 2020, 'Revealed: development banks funding industrial livestock farms around the world'): https://www.theguardian.com/environment/2020/jul/02/revealed-development-banks-funding-industrial-livestock-farms-around-the-world?CMP=share_btn_tw.

The practices (supposedly 'benefitting' local farmers and 'satisfying' increased demand) simply shift the burden of environmental pollution, antibiotic overuse and poor working conditions onto the world's poorest communities; directly fostering increased consumption through supply chains whose total 'bill for damage' dwarfs any small efficiencies in energy and carbon for animal products.

The winners are the globalised multinational organisations (with a stranglehold on agricultural supply chains via their harmful intensive agriculture practices) rather than population health and social mobility.

If it is once again to lead the world on food standards by championing farms, not factories, the UK must act to end factory enslavement by outlawing such practices (Evening Standard, 2020, 'The Reader: Britain can be a beacon on food standards'): <https://www.standard.co.uk/comment/letters/the-reader-britain-can-be-a-beacon-on-food-standards-a4465021.html>.

Dietary diversity

Diversity in food systems is the key to future resilience.

Making low-cost ingredients the Holy Grail has concentrated food and power in the hands of a small number of large farms, intensive monocultures and integrated supply chains. The myth that hunger is vanquished by producing more calories (with no focus on what is being grown) is pedalled to justify the growth of monocultures.

The outcome has been a failure to conquer hunger combined with sparking an obesity pandemic and the system has robbed soils, farms and eco systems of complexity and diversity whilst taking a terrible toll on the environment.

However, Covid-19 has given new impetus to a transition to a healthy and vibrant food and agriculture system based on a diverse range of crops and livestock that works with nature and supports rural communities.

Switching to more varied diets based on agricultural diversity will build increased resilience to future shocks and give farmers more additional income streams.

Agrobiodiversity boosts agricultural productivity and ecosystems (including wild biodiversity) and enhances nutrition in diets (Bioversity International, 2017, 'Mainstreaming Agrobiodiversity in Sustainable Food Systems: Scientific Foundation for an Agrobiodiversity Index', Bioversity International, Rome, Italy).

Forgotten Crops (also known as underutilised or orphan crops) comprise the multitude of species that are currently neglected by major research, funding bodies and global food manufacturers/retailers. They include cereals, grains, legumes, seeds, nuts, fruits, vegetables and roots and interest is growing in their potential to contribute to food and nutritional security and more favourable livelihood options for the subsistence of farmers.

Edible plant, animal and fish biodiversity can support nutrition through the availability and consumption of a wide variety of nutrient-rich foods (Lutaladio N, Burlingame B, Crew J, 2010, 'Horticulture, biodiversity and nutrition', *Journal of Food Composition and Analysis* 23(6):481-185) and diversity has been recognised as a fundamental principle in several national and regional dietary guidelines, including the Mediterranean Diet Pyramid (Bach-Faig A., *et al.* 2011, 'Mediterranean diet pyramid today. Science and cultural updates', *Public Health Nutrition*, 14 (12A):2274-84) and more recent Nordic and Brazilian guides.

However, we grow insufficient fruit and vegetables to meet current dietary guidelines whilst piling up large calorie surpluses from other foods.

Growing more fruit and vegetables to feed the world by 2050 would consume an additional 171 million hectares; offset by a huge reduction in the amount of land used to farm grain; a saving of 150 million hectares. Producing less fat, oil and sugar would save 135 hectares and a shift to healthier diets would save 51 million hectares for arable land which could be dedicated to biodiversity conservation.

Horticulture and the meat-free sector will require more funding in order for them to compete fairly.

A future healthy food system must address protein diversity by moving away from the consumption of large amounts of industrially-produced meat and dairy to eating more beans and pulses in line with dietary guidance.

Protein

The protein sector is already diversifying.

The Canadian Government's recent decision to invest over 100 million dollars into plant-based protein industries and the 'East Beyond Global' investment fund is a model for radical, national fiscal policy shifts which are essential levers to support behavioural and systemic change (including new job creation) at the scale required to protect human and planetary health and sustainable development.

However, not all 'plant-based' proteins are necessarily healthier or more sustainable in the long term. There have been important innovations in cell-based agriculture; in particular, the imminent arrival of cellular based meats. They can be engineered to be healthy, are better for the planet and will enable people to continue eating meat; potentially superseding factory farms altogether.

Cellular meats will provide new opportunities for producers and make the UK less reliant on imports to feed crops which are subject to price volatility, currency fluctuation, environmental impact and trade deals. They may also provide new sources of income to rural communities, reduce air and water pollution and gift the UK food industry an opportunity to develop in a new direction.

Meanwhile, fungi-derived 'mycoprotein' is a distinct, and (currently) under-represented category on the shelves or in dietary guidelines. However, innovation in this sector is on the rise globally, as are evidence bases for its health and environmental credentials. The World Economic Forum estimated that swapping beef for mycoprotein could reduce mortality risk to the same or greater extent as swap-

ping beef for beans and pulses, with most of these benefits attributed to its high fibre content (WEF, 2019): <https://www.weforum.org/whitepapers/meat-the-future-series-alternative-proteins>.

Research by Exeter University (Monteyne, A. J., Coelho, M. O., Porter, C., Abdelrahman, D. R., Jameson, T. S., Jackman, S. R., ... and Wall, B. T. (2020)). Mycoprotein ingestion stimulates protein synthesis rates to a greater extent than milk protein in rested and exercised skeletal muscle of healthy young men: a randomized controlled trial. *The American Journal of Clinical Nutrition*) shows that the protein in mycoprotein is highly bioavailable to the body across the lifespan and can build skeletal muscle at twice the rate of milk-derived whey protein: <https://www.dailymail.co.uk/health/article-7208785/Protein-fungi-used-Quorn-builds-muscle-twice-fast-whey.html>. Furthermore, a 2020 review of the published evidence concluded that the wider benefits of mycoprotein in terms of reducing dietary cholesterol levels, blood glucose levels and appetite, alongside the inherent efficiency of producing protein by fermentation, make this an appealing protein source to be included within healthy and sustainable diets and dietary recommendations to support metabolic health (Coelho, M. O., Monteyne, A. J., Dunlop, M. V., Harris, H. C., Morrison, D. J., Stephens, F. B., & Wall, B. T. (2020). Mycoprotein as a possible alternative source of dietary protein to support muscle and metabolic health. *Nutrition Reviews*, 78(6), 486-497).

The advantage of mycoprotein's accessibility and inclusivity is also important in comparison to cellular meat and novel plant-based proteins, as it is widely available in halal and kosher certified Quorn branded vegetarian and vegan products which are well known, affordable and easily implemented into any dietary style.

The meat-like texture which naturally forms during the growth of mycoprotein is important to support consumer dietary change, demonstrated by the success of the mycoprotein-based Greggs vegan sausage roll and vegan steak bake, <https://www.theguardian.com/business/2020/jan/02/greggs-launches-meatless-steak-bake-beef-up-vegan-range>, and vegan KFC burger. The need for additional processing steps required in creating convincing plant-based meat alternatives, which can reduce their nutritional quality and increase their energy intensity during production, is unnecessary as the whole mycoprotein and its nutritional composition can be preserved due to its natural texture.

As this little-known protein category grows, its inclusion within dietary recommendations and in nutritional advice given by health professionals will enable more informed choices by consumers.

New business models

Covid-19 has forced companies to operate in new ways (virtual meetings, online training, working from home) and focus on the well-being of their employees as well as question the necessity of their products in a time of crisis.

The most agile businesses have been those that are tech-savvy with higher worker engagement and a strong sense of purpose behind their brand or product. To prepare for future climate health-related shocks to our food system the businesses which most readily adapt their models will have the resilience to survive - and thrive.

Business impact networks such as B-Corp (certifying companies based on social and environmental governance and impact) or the United Nations Global Compact (demanding that businesses report transparently across ten principles and act to further the Sustainable Development Goals) may be attractive to companies wanting to appear investable and increase their appeal to greenwashing-savvy generations who favour brands in alignment with their values.

Investment in the new ways of working in and within the business community is likely to shift food manufacturing across the value chain and the agricultural industry, even more rapidly towards plant-based and new food innovations which offer health and environmental co-benefits (with increasing scrutiny on greenwash).

Re-opened restaurants and foodservice operators may be considering menu changes and looking to shift customer dining choices.

However, in the interests of equity, there must also be complementary investment in funding and policy reforms and a cross-sector green recovery strategy with social mobility projects at its core.

New business models and green investment strategies will further impact supply chains as product manufacturers, retailers and food-service outlets seek greater transparency around the ingredients in their food and menus and in the ways in which they were grown, processed and transported.

In January 2020, Quorn Foods announced that it was the first major brand in the UK to include carbon labelling on its packaging and website, despite this not being a legal requirement. Other brands adding certified carbon footprint labelling to food packaging include Swedish dairy-free Oatley and most recently, Unilever committed to labelling over 70,000 of its products by 2039 (Bloomberg, 14 June 2020, 'Unilever's New Climate Plan puts Carbon Labels on 70,000 Products'): <https://www.bloomberg.com/news/articles/2020-06-14/unilever-to-cut-emissions-to-zero-by-2039-adopt-carbon-labeling>.

An industry gold standard labelling/recommended daily allowance style metric on the sustainability of a food item would enable shoppers (and retailers and foodservice operators) to track the impact of their baskets.

The mass drive to online shopping consequent on Covid-19 offers unique virtual environments to 'nudge' individuals towards these behaviours using such information.

However, the required collaboration between progressive food businesses, specialists in health and environmental modelling and regulatory bodies must happen quickly to take advantage of, and better communicate, progress and transparency within the private sector and build trust and knowledge amongst the general public.

Existing labelling standards which have key animal welfare considerations, such as the RSPCA Freedom Food Scheme, should also be subject to thorough scrutiny and review in light of the circumstances surrounding Covid-19 and should explicitly address planetary health, social justice and the ongoing climate crisis.

A new vision of healthcare

The NHS has arguably become the nation's 'biggest brand' during the Covid-19 pandemic, and a renewed appreciation of our health service must be best used to bolster interests in long-term health resilience and wellness behaviours, inclusive of dietary quality.

The Prime Minister's new acknowledgment (15 May 2020) of the Government's responsibility in addressing the UK's high rate of overweight and obesity through diet was widely welcomed - as are forthcoming legislative suggestions - but obesity is a complex disease.

Health inequalities, poverty, the food system and the obesogenic environment are factors that must be addressed in order to reduce obesity levels and improve health outcomes. This is not a matter circumscribed by individual responsibility and must be addressed in a sustainable way with ongoing support and a conducive environment led by the Government.

The British Dietetic Association's (BDA) survey recorded attitudes to the nation's food habits in terms of the psychology of food. The findings suggest that the type of wide-scale collective thinking that will facilitate a new relationship between food and public health cannot be guaranteed: <https://www.bda.uk.com>.

Comments made seem to prioritise food as a comfort:

'I'm eating more chocolate'.

'More alcohol consumed than usual'.

'I feel I have put on about half a stone just by feeling sorry for myself and rewarding myself constantly with cakes and biscuits'.

It was the calorie-dense foods categorised in the 'Eat Less and Often and in Small Amounts' section of the Public Health England Eat Well Guide that provided this comfort: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/528193/Eatwell_guide_colour.pdf.

The mentality harks back to outdated and unhelpful attitudes to foods and advertising slogans such as 'naughty but nice' as used for marketing cream cakes in the 1980s. This trait has also been evident in some of the branded food boxes on sale from some companies in response to the pandemic, who emphasise in their advertising/descriptive literature how 'we all need a treat too'.

Policies around advertising food should be shifted to help people to understand what is meant by 'eating well' in a holistic sense and campaigns focusing on 'guilt-free treats' or 'sin taxes' should adapt their language to suit this thinking.

The BDA survey does show that for some families, the pandemic offered a chance to reflect on their food and eating habits: 'We have enjoyed eating more as a family as the kids are at home for every meal. They have picked up some more cooking and food prep skills as have wanted to get involved in cooking and food prep'.

However, we should all be aware that post-pandemic, encouraging someone who is reliant on convenience foods to cook more will not be easy.

Government action

Arguments favouring governments taking a proactive approach to food policy have been countered by those militating against the 'nanny state'. However, creating a healthier food system will require the Government to take a lead and set the framework. The government is already involved in most aspects of food policy from trade to tax to subsidies to procurement to healthy eating guidelines: it is already a nanny. It should update its existing policies to ensure they are joined up and create a healthier food system and become a world leader.

A starting point would be a cross-governmental policy on food systems. A multi-level approach, 'from the national to the local', is an essential feature of the planning and reconstruction of agri-food systems for the future and would include support given to farming.

Farmers can be paid for ecological outcomes. Rather than subsidising production (whether wheat, sheep or sugar) government should consider how to best support demand for nutritious local fruit, vegetables, dairy and eggs, the skills to cook them and creating a market to which farmers, fishers and manufacturers can respond.

This in turn will enhance and diversify their incomes without the need for production support. A key outcome would be to reduce inequality and enhance household food security.

Public procurement should drive change and supply healthy food for schools, care homes and hospitals. Additional funds could be set aside to provide better, local foods. The Government should institute a National Household Food Insecurity Plan, covering adequate wages and social security benefits, through holiday hunger and enrichment programmes for children from disadvantaged backgrounds.

It would encompass a welfare payment made in addition to current credits; only available to spend on local products and left to the discretion of the individual as to whether the money is spent.

The Royal Society (Royal Society for the Encouragement of Arts, Manufactures and Commerce) has started to outline how this might work with its 'beetroot bond' (RSA Food, Farming and Countryside Commission 2019: 'Our Future in the Land'): <https://www.thersa.org/globalassets/reports/rsa-ffcc-our-future-in-the-land.pdf>.

The Government must conduct a full review of the National Food Strategy to date, aligning it explicitly to the Sustainable Development Goals; meeting the challenge to diversify our food, relocalise food chains and reconnect people to their food heritage by developing a National Food Plan.

Within the next 18 months, the UK has an opportunity to take a lead in demonstrating to the world how a sustainable, fair and healthy food system can be achieved via the forthcoming Global Nutrition Summit, the Convention on Biological Diversity and the Food Systems Summit; all of which will address aspects of food, farming and fishing.

The UK can show true global leadership at the Climate COP in Glasgow in 2021 by talking about food and climate action and showcasing a UK 'green pathway' to reboot the economy in a post-Covid world.

The European Union has pledged a 750 billion Euro green Covid recovery fund called 'Next Generation EU' (Forbes, 27 May 2020, 'EU Will Fight COVID Recession With Green Investment'): <https://www.forbes.com/sites/davekeating/2020/05/27/eu-will-fight-covid-recession-with-green-investment/> and Commission President, Ursula von Leyen has claimed a 'new generational pact for tomorrow,' promising that 'Europe's next generation will harvest the benefits.' However, NGO Friends of the Earth have critiqued the lack of conditions attached to the fund. Without such conditions, the money may be used to exploit loopholes and continue polluting activities and civil society oppression practices - under a guise of 'improving green technologies'.

The funds themselves are a welcome, but should a newly independent Britain choose to follow suit, it must show more considered leadership in ring-fencing some of these funding schemes for 'at risk' communities and highest impact projects which will truly enable human and humane recovery and resilience.

Technologies will not solve all the problems; we must also invest in social ingenuity and togetherness to change values and behaviours; respecting cultural norms to achieve non-negotiable outcomes based on the best available science, rather than the most readily wielded power and money.

A post Covid-19 green, healthy recovery that can ensure that children will have a fit and healthy future could adopt as its loadstone, the prescription of the World Health Organisation:

1. Protect and preserve the source of human health: Nature.
2. Invest in essential services, from water and sanitation to clean energy in healthcare facilities.
3. Ensure a quick, healthy energy transition.
4. Promote healthy, sustainable food systems.
5. Build healthy, liveable cities: <https://www.who.int/news-room/feature-stories/detail/who-manifesto-for-a-healthy-recovery-from-covid-19>.

To deliver a healthy future for the next generation, we must reduce inequality and poverty, secure access to healthy food for all, enhance nature and ensure that producers are able to provide what we need.

After all, food, farming and fishing are forces for change. They should always be forces for good.

Recommendations

1. Embed the Sustainable Development Goals through the lens of nutrition into cross-functional policy and practice, namely the food industry, the education sector and into primary health care; aligning them to achieve sustainable diets within a 2030 framework and tackle silos.
2. The UK to commit to the aim of ending funding for, and the prevention of, further factory farming by 2040 at home and abroad, to reduce the likelihood of future pandemics and to remove cheap, low welfare, poor quality and environmentally destructive animal products from the supply chain and the plates of the most vulnerable.
3. The UK to commit to a funding plan for the redistribution of funding streams to regenerative local farming including growing skills, improving access to nature for all and to improve the scale and quality of meat and dairy alternatives.
4. Statutory overarching targets to provide longevity and clear direction for policy change such as halving household food insecurity by 2030 (to align with the Sustainable Development Goals) and halving childhood obesity by 2030.
5. 'A New Deal for Horticulture'; including a grant mechanism to drive up the number of market gardeners and fruit growers to meet local demand. Shorter supply chains should be encouraged to improve grower livelihoods and increase access to fresh and affordable fruit and vegetables. Fruit and vegetable producers should be eligible for special payments to support 'on farm' employment.
6. A 'Citizen Agency' taking the opportunity to reconnect UK citizens with food whilst restoring traditions, cultures and a sense of place from birth onwards. Reconnecting citizens and reframing the language from 'consumers who demand, choose or buy food' to 'citizens who can participate in, create and shape food systems' is a desirable goal': <https://www.foodethicscouncil.org/programme/food-citizenship/>.
7. Collaboration between the food industry, dietetics, medical practitioners, dentists and the wider health and social care systems to ensure that consistent messages are delivered in an effective manner to achieve maximum health benefits for the population. Ensuring that healthy food choices are made and supporting the food industry to produce good quality fresh food produce will in turn have a positive impact on general health and oral health and long-term, reduce the burden of care needed which will more than likely be managing the fall-out from Covid-19 for quite some time to come.
8. Co-ordinate for future resilience via a Cross Government Committee to coordinate food policy actions and responses to the pandemic. Health issues should be factored into the Agriculture Bill.
9. Establish a 'Right to Food Framework' including a legally binding universal right to food alongside a broader incorporation of socio-economic rights. Abolish a 'no recourse to public funds' condition in order to safeguard migrant communities from destitution: https://www.sustainweb.org/publications/covid_19_right_to_food_nrpf.
10. Address short, medium and long-term food insecurity via a National Plan; overseen and coordinated by a Minister for Food Security.

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