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Geographies of the Future

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Could the UK's economic power be used to help solve humanity's biggest challenges?

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Why not use the intellectual capital that is growing so rapidly in ‘geography’ to implement win-win solutions in the UK, to show we can tackle poverty and inequality at the same time as dealing with climate change and security issues?

Humanity faces huge challenges in the remaining eight decades of the 21st century. The most important are: economic inequality, environmental degradation, and global security. Included within these is climate change, which is insidious as it could so easily make all the other problems worse. Our overarching challenge is to build win-win solutions that tackle these issues. These solutions are relatively easy to conceptualise and design but much harder to implement given all the vested interests created by our warped global economy, politics and society.

I (Mark) would like to expand upon some of the points I made in a **previous column for Geographical** by investigating the state of our planet starting with the environment. Scientists are now suggesting that the impact of humans on the globe is so large in terms of the effect we collectively have, that humanity should now be seen as a geological superpower, on the same scale as plate tectonics or a massive meteorite impact. This is because human activity has clearly significantly altered the land surface, oceans and atmosphere, and re-ordered life on Earth.

For example, humans have increased atmospheric CO₂ by 40 per cent, up to a level not seen for at least the last million years, increasing the acidity of the ocean at a faster rate than is estimated to have occurred at anytime in the last 50 million years. The increased levels of greenhouse gases have elevated global temperatures by over 0.85°C and raised the worldwide average sea-level by over 20cm. Far worse is expected by the end of the century.

In the early 20th century, the invention of the Haber-Bosch process – allowing the conversion of atmospheric nitrogen to ammonia for use as fertiliser – altered the global nitrogen cycle so radically that the nearest suggested comparison occurred over two billion years ago. Humans now use over 25 per cent of the global land surface to produce food, fuel, fibre and fodder – as well as for hunting. This has resulted in species extinctions up to 1,000 times higher than background rates and probably constitutes the beginning of the sixth mass extinction in Earth’s history. When considered together, all these factors suggest that Earth has entered a new human-dominated geological epoch, called the Anthropocene.

“Imagine if UK politics could offer a more equal distribution of wealth, resources, and opportunities, and collective global action on climate change, environmental degradation, and global security”

Last year, Simon Lewis and myself (Mark) **wrote a review paper** in *Nature* on defining the Anthropocene epoch. The radical suggestion was that it began in 1610, after the irreversible exchange of species between the New and Old Worlds following the 1492 arrival of Europeans in the Americas. The resulting global networks of trade led to a rapid, repeated, cross-ocean exchange of species, which is without precedent in Earth's history.

The 1610 date provides an unambiguous event after which the impacts of human activity became global and set Earth on a new environmental and evolutionary trajectory. There is a clear drop in CO₂, centred on that year, due to the arrival and actions of Europeans in the Americas after merely a dozen decades. The arrival of people from the old world into the new led to the deaths of 50 million indigenous people, most within a few decades of the start of the 16th century due to smallpox and other foreign diseases. The resulting near-cessation of farming across the continent and the re-growth of Latin American forests removed enough carbon dioxide from the atmosphere to produce a pronounced dip in CO₂ and this is now clearly seen in Antarctic ice core records.

The 1610 potential start date also resonates with the replacement of feudalism with capitalism. In fact geographers have coined the term 'the Capitalocene' to reflect this political shift, which coincides with the acceleration of environmental degradation. Earlier than this, Karl Marx identified Columbus' rediscovery of the Americas in 1492 as a key event in the establishment of our current capitalistic world order.

In a new textbook, *Geography*, by Carl Lee and this opinion piece's co-author, Danny Dorling, 1492 is depicted as the key date after which both the physical, ecological and human geographies of the planet began to fundamentally change and transform into something new – all due initially to just one new geographical connection. In hindsight, it was as if we had discovered another planet. For those living in what we christened the Americas, it was as if very violent, disease-ridden and ignorant aliens from outer space had landed.

So has the environmental damage driven by the resource demands of capitalism at least translated into improved human health? In some ways it has. Globally, human life expectancy has risen from 59 years in 1974 to 71 years today. Healthy life expectancy has not risen as quickly, as shown every year by the millions of children that still die needlessly due to preventable disease and starvation. At least 700 million people go to bed every night feeling hungry and around one billion still do not have access to clean drinking water. This is despite the fact that we have enough food and water for all 7.3 billion people alive today. Unfortunately our political-economic system means that many people simply cannot afford to access them.

Every year there is a drop in the total number of people living in ‘extreme poverty’. But the challenge is exacerbated by the fact that by 2050 there could be at least an extra two billion people on the planet, most of those in the very poorest countries. However, the overall rise in human population to come is mostly due to the ageing we expect to see in the future as life expectancy continues to improve in most areas. Almost everywhere in the world fertility levels continue to fall as people have fewer and fewer babies.



Lower levels of economic inequality in Japan coincide with lower health care costs and increased longevity (Image: Sean Pavone)

As I (Mark) argued back in January 2015, given humanity's extraordinary impact on the planet, any sort of efforts directed at fairly distributing the Earth's resources might seem to be a sensible aim. But standing in the way is what I described as 'the dominant geopolitical and economic philosophy of the West, namely neoliberalism'.

Neoliberalism core tenets revolve around so-called 'free' markets; keeping state intervention as small as possible; boosting private rights for those of able to afford property (supported by state intervention); low taxation; and individualism being celebrated (for instance through the cult of celebrity).

Neoliberalism offers the seductive view that it provides market-based solutions to all our ills and enables everyone to become wealthier. This is supposed to be due to a 'trickle down' effect and it's this that has been the central mantra of neoliberals for the last 35 years. However, the effect has been a long time coming and still today, according to Oxfam, the 65 richest people in the world currently own more wealth than the 3.5 billion poorest combined. Eradicating extreme poverty and bringing the very poorest people in the world up to just \$1.25 per day, at current rates of 'trickle down' economics, would require global GDP to increase by over 15 times and take at least 100 years to achieve. Under the current economic system this would require huge increases in consumption levels. This all requires cheap energy – which will mainly come from fossil fuels thus accelerating climate change – and from more land being used for agricultural products, driving deforestation and environmental degradation and making those poorest of people even more vulnerable to extreme weather events. It would be madness.

Nothing has changed in the past year and a half to indicate that the key economic theories that have dominated global economics for the last 35 years are at all fit for purpose. But this isn't a rant against capitalism. Capitalism is the change we have been going through since around 1610 and that change has many different modes. The extreme form called neoliberalism is just its current incarnation, and it is this particular form that we need to rant against.

“Why can we not have a more equal, fair and sustainable society to protect the Earth’s environment and resources for future generations?”

What is now required is proactive and aggressive redistribution of wealth both within and between countries. This could be via provisioning of free, essential services such as access to clean water, health care and education at all levels. Progressive taxation is essential to rebalance inequalities. Such redistribution would actually help to reduce costs as it has been shown in countries such as Japan that the smaller the levels of economic inequality within a country, the lower the health care costs and the higher the longevity.

Just imagine if UK politics could really offer an alternative, with more equal distribution of wealth, resources and opportunities and collective global action on climate change, environmental degradation and global security. Remember, the UK is the fifth largest economy in the world, with an estimated nominal GDP in 2015 of £1.94 trillion. So why are the bottom 99 per cent of people living here continually squeezed economically in recent years?

It is now clear that humanity is the dominant geological force on the planet. So ask yourself one question: if this is true why can we not have a more equal, fair and sustainable society to protect the Earth’s environment and resources for future generations?

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