The Anthropocene: Policy Responses to Living on a Human-Dominated Planet

The impacts of human actions on our home planet are now so large that many scientists are declaring a new phase of Earth's history. The old forces of nature that transformed Earth many millions of years ago, including meteorites and mega-volcanoes are joined by another: us. We have entered a new human-dominated epoch of geological time called the Anthropocene.

While the Anthropocene means many things to many people, at its core this combination of the Greek words for 'humans' and 'recent time', means that the scale of human affairs is increasing dictating the future of the only place in the Universe known to harbour life.

The scale of human impacts on Earth's workings is immense. Globally, human activities move more soil, rock and sediment each year than is transported by all other natural processes combined. Factories and farming remove as much nitrogen from the atmosphere as all Earth's natural processes, and the climate is warming fast globally following carbon dioxide emissions from fossil fuel use. These planetary-scale changes rival those in Earth's geological history.

Added to this, enough concrete has been produced to cover the entire surface of the Earth in a layer two millimetres thick. Enough plastic has been manufactured to Clingfilm it as well. We produce 4.8 billion tonnes of our top five crops, plus 4.8 billion head of livestock, annually. There are 1.2 billion motor vehicles, 2 billion personal computers, and more mobile phones than the 7.5 billion people on Earth.

Populations of fish, amphibians, reptiles, birds and mammals have declined by an average of 58 per cent over the last forty years. Extinctions are commonplace, running at 1,000 times the typical rate seen before humans walked the Earth. And if you weighed all the land mammals on Earth, 30% of that weight is us humans, 67% would be the farm animals that feed us, and just 3% are mammals living in the wild. A sixth mass extinction in Earth's history looms.

This new Anthropocene epoch is more dangerous than most people acknowledge. It ends the unusually stable planetary conditions over the past 10,000 years that allowed farming and complex civilisations to emerge. Today's globally interconnected network of cultures

developed within these stabile conditions, but rapid climate change means this is over. So what is to be done?

In our new book, The Human Planet, we use the tools of modern science to re-analyse human history to better understand the future. Such a reassessment is obviously complex, but one role of scientists is to pick away at difficult problems to understand them in more fundamental ways. Our analysis shows that just five successive type of human society have spread worldwide: hunter-gatherer, agriculturalist, mercantile capitalist, industrial capitalist - and following the Second World War - today's consumer capitalist society.

Each subsequent stage relies on greater energy use and greater generation and flows of information and knowledge. These result in a much larger population, rising per capita productivity and greater collective agency. Seen in this light a new sixth type of society, of whatever type, will require both greater energy provision and improved systems to communicate knowledge and manage information.

These insights mean the role of renewable energy for all takes on an importance beyond stopping climate breakdown. Renewables, including new ownerships models that can be replicated across the world, are essential in curbing climate change, but are also at the core of any radically different future society. Likewise free education, a free internet and everyone having access to it has a much deeper significance than accessing social media. While the revolutionary role of the invention of writing and the printing press is well recognised, the same now applies to digital communication.

However, more energy and information flows alone could increase our environmental problems, as in the past. To usher in a new way of living the core dynamic of ever-greater production and consumption of goods and resources must be broken, coupled with a societal focus on repairing the environmental damage of the past. Two increasingly discussed ideas do just this.

Universal Basic Income (UBI) is a policy whereby a financial payment is made to every citizen, unconditionally, without any obligation to work, at a level above their subsistence needs. Small-scale trials of UBI shows that educational attainment is higher, entrepreneurship levels go up, people are healthier and self-reported happiness increases. However, UBI does more than this: it could break the link between work and consumption.

The requirement for most of us to sell our labour and be ever more productive is compensated for by enabling us to increase our consumption. Given this dynamic, it makes little sense to forgo environmentally damaging behaviour when we know we have to work harder in the future regardless of our choices. Consumption is the pay-back for being ever-more productive at work. We often tell ourselves that we deserve that lunch of foodstuffs sourced from thousands of miles away, the latest high-tech gizmo, or long-haul holiday. We say: I'm working hard, I've earned it.

By breaking this link between work and consumption UBI can, if carefully managed over time, dramatically lessen environmental impacts. We could work less and consume less, and still meet our needs. Fear for the future would recede, meaning we would not have to work ever-harder for fear of having no work in the future.

As a systemic change UBI eliminates extreme poverty and reduces dependency, giving people the agency to say 'no' to undesirable work, and 'yes' to opportunities that often lie out of reach. Nobody would be under any obligation to do environmentally damaging types of work – those in the fossil fuel industries would have the security of income to retrain. And desirable jobs that usually remain out of reach due, for example, because of the need work in unpaid internships to enter a profession, would be open to all.

UBI also helps manage the fallout from the automation of ever-larger swathes of the economy. The demand for ever-higher productivity means that the human mind and body is increasingly unable to cope with such demands. Intelligent machines have no such problems. UBI means we all have a place in society even when more productive machines take over many aspects of wage labour. And if UBI is designed and implemented wisely a route to a post-growth post-capitalist mode of living that leans heavily on technology appears possible.

Overall, with UBI people would be able to plan for the future and would be able to 'afford the luxury' of taking action now to avoid negative environmental impacts on future generations. With UBI we could all think long-term, well beyond the next payday. We could care for ourselves, others, and the wider world, as living in the Anthropocene demands.

Environmental repair could come from the simple but profound idea that we allocate half the Earth's surface primarily for the benefit of other species. Half-Earth is less utopian than it first appears, as we have become an urban species. Mass-scale forest restoration is already underway, with commitments across 43 countries to restore 292 million hectares of degraded land to forest, ten times the area of the UK. What are called 'natural climate solutions', using ecosystems to mitigate climate change shows another route to repair in the Anthropocene.

And at a deeper level, our views on nature are forged by the society we live in. The idea of pristine nature in separate National Parks emerged in opposition to the pollution of the Industrial Revolution. Acknowledging the Anthropocene re-establishes that humans are part of nature, and so rewilding projects, where large areas are managed to allow natural processes to run, are increasingly popular. Slowly, a new nature aesthetic is being born.

But can we really escape booming production and consumption? The fate of species encountering vast new resources is exponential growth and then collapse, epitomised by the rapid expansion and eventual death of bacteria growing in a Petri dish. While rarely recognised, we humans have recently become the exception to this rule: birth rates on all continents are declining or have already stabilised. The global population will not double in size again, and will probably stop growing altogether by mid-century.

The swift reduction in family size is all because of more information, in the form of girl's education which then leads to their onward empowerment, which is a key determinant of family size. Humans are probably unique in four billion years of life on Earth by being able to stablize our own population. In this case progressive goals and planetary stewardship go hand-in-hand.

Build on this, UBI would give people the right to choose when it comes to fulfilling their own basic needs and rewilding Earth does the same of other species' needs. With carefully designed policies that unleash dynamics to push society towards a new mode of living for a new epoch, we can do what is necessary: to reduce human suffering, enable people to flourish and not destroy the life-supporting infrastructure of Earth in the process.

The Human Planet: How We Created The Anthropocene is published by Penguin.

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