The Many Risks of Climate Change

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It's become widely accepted that climate change – caused by pollution of our planet – is one of the biggest environmental challenges of the 21st century. We're growing tired of all the discussions in the media, at conferences and public events, but mere exhaustion won't drive the issues away, much less solve them.

In a rapidly-evolving world, we've grown accustomed to problems that quickly appear and then vanish by the magical virtue of science and technology. Why doesn't the same happen with climate change, so we can move on?

For around 50 years, since 1970, fossil fuels – coal, oil, natural gas – have provided 80% of our energy, and energy is essential to the civilisation we now enjoy. Carbon dioxide (CO_2)[1] emissions, stemming from the use of fossil fuels and varied industrial activity (such as cement production), account for around 65% of the emissions responsible for climate change.

CO_2 emissions from changes in soil use, namely deforestation, produce 11% and the remaining greenhouse gases from pollutants, such as methane and nitrous oxide, represent 24%. If we're unable to reduce our global reliance on fossil fuels, we'll continue to hear about climate change for years, decades, maybe even centuries, with equal persistence.

But the matter goes beyond audience exhaustion; climate change creates several kinds of risk. One of the main features is global warming – the rise of average atmospheric temperatures at the surface – which has climbed 1° C since the industrial revolution. The Paris Agreement recommends the global temperature increase should remain below 2° C.

Another feature of climate change is the increased intensity and frequency of extreme weather events such as heat waves, drought, high rainfall in short periods of time, tropical storms and cyclones with extreme winds, and intense rainfall. In short, a more violent climate.

The third harmful aspect of climate change is the rise in global sea levels due to the thermal dilation of upper ocean layers, mountain glacier melting and the fusion of ice fields in the Arctic and Antarctica. Every socio-economic sector suffers progressive harm from climate change; it not only creates a growing risk to human life/population health and less access to water and food in more vulnerable regions, but impacts agriculture, forests, low-lying coastal areas, cities and the insurance industry etc. This poses a risk to the global human community. Similarly, it affects companies and the banks/financial institutions they do business with, who consider these impacts to be a physical risk.

There are, essentially, two types of response to climate change: mitigation and adaptation. Mitigation is about human intervention to reduce pollution sources and use greenhouse gas reservoirs. Adaptation is a process to adjust to current/future climates and their related effects. The main goal for adaptation is to minimise the adverse effects of climate impact and maximise the potential opportunities.

Mitigation primarily comprises a transition from fossil fuels to renewable energies, supported by increased energy efficiency. This transition, however also carries risk for companies, financiers and the economy as it entails a major change in the productive system, particularly the energy sector.

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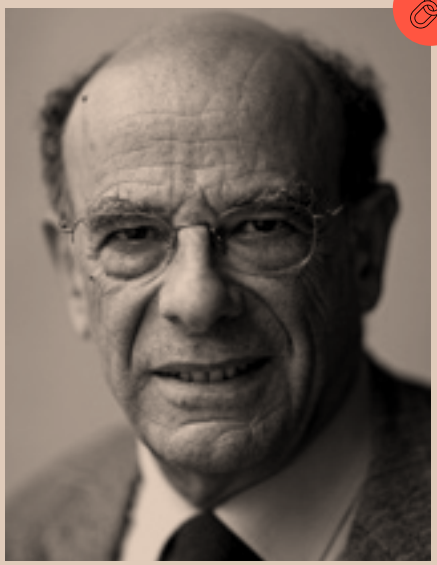
So companies have to manage their physical and transition risks. To best understand the latter, consider the large oil and gas companies that recently made substantial investments to explore new sources of fuel. If energy transition is to create a carbon--neutral world this century, in keeping with the Paris Agreement, these companies must reduce their oil and gas exploration by 35% by 2040. This means their assets will be stranded and may even generate a carbon bubble.

It’s estimated the macroeconomic impact of stranded fossil fuel assets may reach US$1-4 billion. Meanwhile, fossil fuel companies, as well as governments with jurisdiction over such resources, are betting no energy transition will happen. Companies still benefit from grants and subsidies and banks still offer huge sums of credit for fossil fuel exploration and exploitation.

In contrast, changes in energy use are prompted by price drops in solar and wind energy, alongside increased competitive drives and a growing awareness of the human risk inherent in climate change. The outcome of our current global dysfunction is unpredictable. Only energy transition can ultimately avert the growing human risk posed by climate change in the short, medium and long term. ●

1 CO2 is a greenhouse gas, which means it absorbs and emits infrared radiation.



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