



# CLIMATE CHANGE AND ASIA

## AN EXISTENTIAL QUESTION?

**While throughout the history of mankind, climate has played a significant role in the rise and fall of civilisations, the acceleration of climate issues in the 21st century is creating a puzzle that will be challenging to resolve given its global nature and large financial implications. It will have broad implications for investors. Governments too will be hard pressed to confront the significant economic implications of a changing climate.**

A stable and predictable climate facilitates complex civilisation to form and culture to be developed. Archaeological excavations show that in arid geographies, ancient cities with ample water sources had thrived as dessert outposts. The ancient city of Ubar was one such example - it eventually disappeared when water levels dipped, and a sink hole formed. Likewise, droughts have been linked to the fall of the Maya civilisation and the demise of the city of Angkor.

Today, the threat from climate change remains real and needs to be addressed.

Research shows that it is extremely likely that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the increase in greenhouse gases arising from human activity<sup>1</sup>.

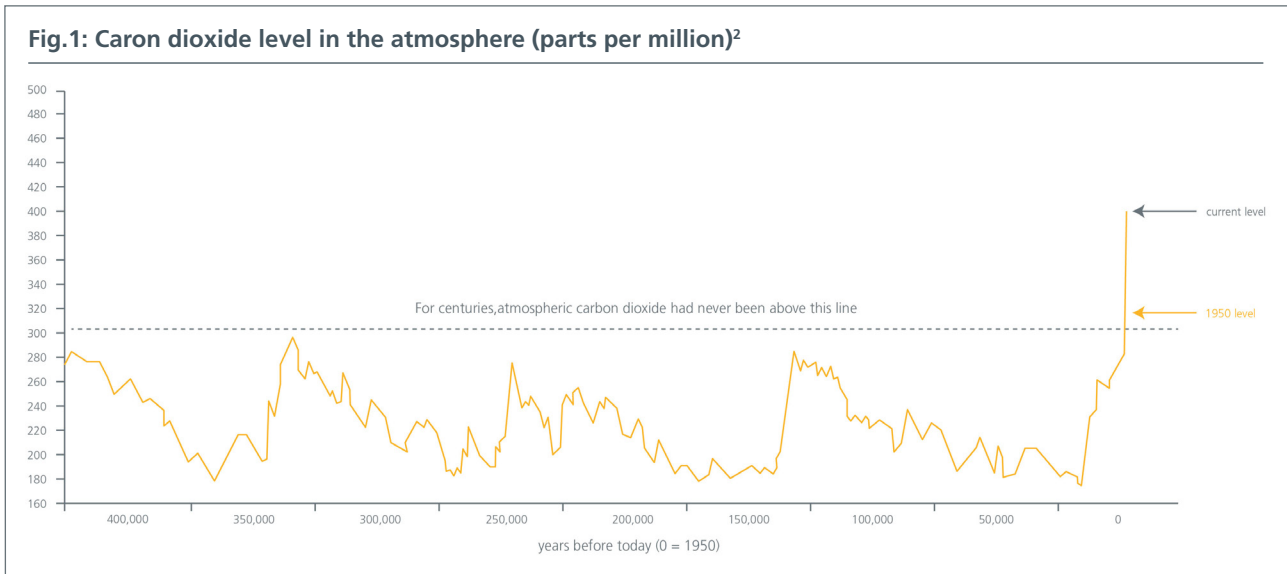


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It is not so much the absolute change in temperature that is concerning but the pace of change. According to scientists, the level of atmospheric CO<sub>2</sub> rose from 180 parts per million (ppm) after the last Ice Age to about 280 ppm at pre-industrialisation. Since then, the level has risen to over 400 ppm and is increasing by 2 ppm every year. (See Fig.1).

This rapid change is likely to be beyond the adaptive capacity we possess and will significantly disrupt the global economy and population. According to the Intergovernmental Panel on Climate Change (IPCC), a 1.5°C average rise in temperature may put 20-30% of species at risk. If temperature rises by more than 3°C, most ecosystems will struggle.

As a result of global warming, Greenland has already lost an average of 281 billion tons of ice annually between 1993 and 2016 while Antarctica has lost around 119 billion tons over the same period<sup>3</sup>. In just over the last two decades, global



sea levels have risen by 3.2 mm annually - twice the rate of rise experienced over the last century. The Asian Development Bank warns that continued inaction towards climate change issues will cause Sea Level Rise (SLR) to reach 1.4m by the end of 2100. Global flood losses are estimated to amount to USD52 billion by 2050.

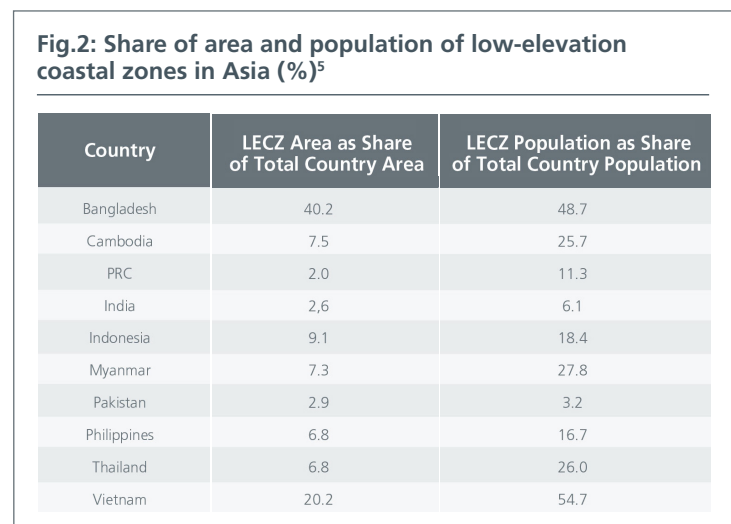
Because of the lag between greenhouse emissions and the resulting impact on the climate, much of the global warming arising from the current level of greenhouse emissions has already been committed. Research suggests that current emissions reduction pledges by Parties to the United Nations Framework Convention on Climate Change (UNFCCC) would most likely result in a global mean temperature increase of approximately 2.7°C above pre-industrial levels by 2100. This would indicate that we are on a path to around 3°C of warming by the end of the century, even assuming substantial emissions reductions in the future<sup>4</sup>.

## WHAT ABOUT ASIA?

The stakes with regards to climate change are particularly high for Asia. Research has established links between climate change and the observed frequency, intensity and duration of extreme weather events. Higher temperatures, for example,

will intensify the water cycle and lead to more droughts and floods.

A disproportionately large share of Asia’s population and urban economy is located close to the coastline. Low lying coastal zones, for example, account for only 2% of China’s land mass but house 26% of the country’s population. (See Fig.2). Not only are coastal populations in many countries large, they are also growing at a faster rate than the national average. As such, by 2025, 401 million urban dwellers in Asia could be at risk from coastal flooding. Studies of 136 largest



coastal cities in the world show that out of the top 20 cities with the largest increase in annual losses due to flooding between 2005 and 2050, 13 are in Asia. Guangzhou is the most impacted with an estimated USD13.2 billion in average annual losses<sup>6</sup>.

Asia is also expected to experience stronger warming and heat extremes. With unabated climate change, mean summer temperatures are expected to increase by more than 6°C above preindustrial levels by the end of the 21st century over some parts of Asia, with temperature increases rising as high as 8°C in the higher latitudes<sup>7</sup>.

Climate change will also impact the monsoon system which is critical for the water supply over large parts of Asia. Asia could shift from a state of strong rainfall to a weak precipitation state. With 80% of India's total annual rainfall taking place during the summer monsoon season, this could have significant impact on agricultural productivity and threaten food security. The Asian Development Bank estimates that for every 10% rise in food prices, 64 million Asians would be pushed into poverty.

Clearly a scenario of growing population and rising threat to food security leads to health risks. By 2030, an additional 3 billion consumers are expected to join Asia's middle class and increase food demand by 70%. Without significant increases in food production, child malnutrition is expected to increase by about 20%.

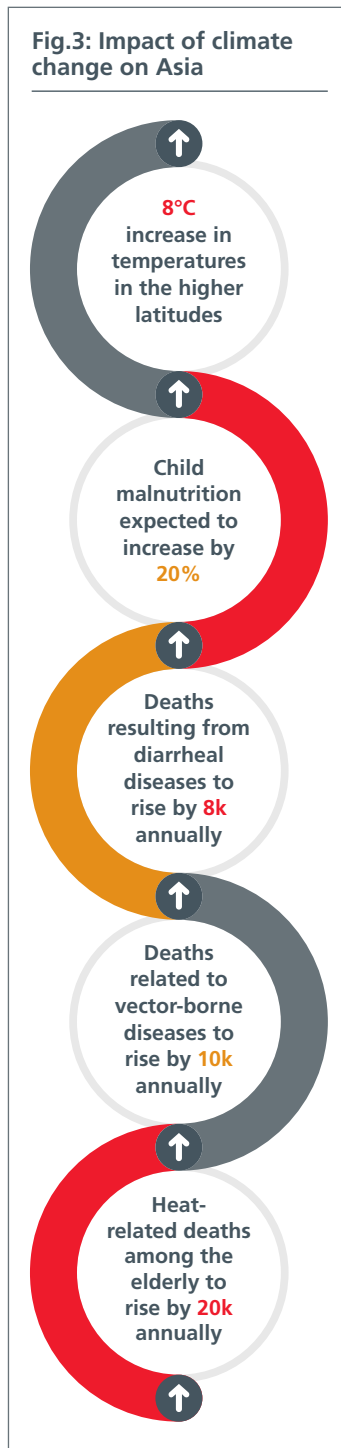
Besides malnutrition, heat-related deaths among the elderly are expected to increase by 20,000 cases annually by 2030 and deaths resulting from diarrheal diseases due to climate change are forecast to rise by

8000 cases annually. The risk of diarrheal diseases rises between 3 to 11% for every 1°C increase in temperature<sup>8</sup>. Attributable mortality related to vector-borne diseases (malaria and dengue) are estimated to be on the order of 10,000 annual deaths by 2050. (See Fig. 3).

### ADAPTATION VERSUS MITIGATION

Mitigation and adaptation are the two principal ways to deal with the effect of climate change. Mitigation involves trying to reduce and stabilise the level of greenhouse gas emissions in the atmosphere. This includes reducing sources of these gases by burning less fossil fuels or enhancing the "sinks" (e.g. oceans, forests and soil) that accumulate and store these gases. The Indonesian government, for example, has imposed a three-year freeze on new palm oil concession permits.

Adaptation on the other hand, seeks to adapt to life in a changing climate. The goal is to reduce society's vulnerability to the harmful effects of climate change. This includes water conservation, flood defence, development of drought resilient crops. The average cost of adaptation in Asia Pacific's health sector for the treatment and prevention of diarrhoea and



malaria is estimated around USD0.65 billion to USD0.8 billion between 2030 and 2050. Adaptation also includes making the most of any potential beneficial opportunities associated with climate change (for example, longer growing seasons or increased yields in some regions).

Research suggests that mitigation alone in the absence of adaptive measures would still result in great vulnerability. At the same time, much of the world will likely suffer extreme vulnerability to climate change in the absence of any mitigation efforts, regardless of what adaptive measures are taken<sup>9</sup>.

A combination of adaptation and mitigation could reduce vulnerability to modest levels for most of the world.

## INVESTORS ACT ON CLIMATE CHANGE

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Investors and asset owners are increasing their impact on climate change and their efforts are gathering momentum. For example, in August 2018, 90 institutional investors with a total of USD6.7 trillion of assets under management, called on the Roundtable for Sustainable Palm Oil to ban deforestation. Norway's Government Pension Fund Global has since divested from 33 palm oil companies over deforestation risks and is currently asking banks in Indonesia and Malaysia to adopt a no deforestation criteria when extending loans.

In a recent survey of long-term investors conducted by the IIF Council for Asset and Investment Management<sup>10</sup>, over 75% of participants reported that environmental, social and governance (ESG) principles are becoming an increasingly important factor in long-term asset allocation decisions, a notable increase from 60% a year ago.

Another poll conducted by the UK Sustainable Investment and Finance Association (UKSIF) and the Climate Change Collaboration found that only 18% of the fund managers surveyed believed that oil companies would be good investments if their businesses were still focused on fossil fuels in five years' time. Nearly a quarter of respondents, however, did not see oil companies as good investments in any timeframe.

The wider adoption of ESG integration will eventually result in changes in broad benchmarks, favouring lower weights for climate-forcing companies and sectors. Already, a number of large asset owners have adopted ESG indices for their investments. In 2017, SwissRe implemented ESG-based benchmarks across its entire USD130 billion investment portfolio. This followed the move by the Japan Government Pension Investment Fund (GPIF) to track three ESG indices for around ¥1 trillion of Japanese equity investments.

In the US, the total US-domiciled assets under management using socially responsible investing (SRI) strategies grew 38% over two years to USD12 trillion in 2018. This represents about a quarter of total assets under management<sup>11</sup>.

As investors make investments into the low carbon transition across a range of asset classes, and increasingly incorporate climate change scenarios and climate risk management strategies into their investment processes, having a generally agreed set of definitions, standards and methodologies will help build on the momentum. As such, improving climate-related financial reporting standards by publicly supporting and implementing the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) is critical. Ultimately elements of natural resources capital and sustainability will become the "new normal" in company analysis, portfolio and risk management.

## GOVERNMENTS IN THE SPOTLIGHT

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On 15 March this year, tens of thousands of children across 100 countries participated in the Global Climate Strike for the Future, demanding that adults and governments take responsibility and stop climate change. In the UK, Extinction Rebellion, a group which uses non-violence resistance to protest against climate breakdown, biodiversity loss, and ecological collapse, occupied four prominent sites in central London. These social movements should not be dismissed and are likely to grow in the future.

A 2018 Pew study showed that 81% of millennials

believe that the earth is warming and 65% of those millennials attribute it mainly to human activity. That is about 10% higher than the general public. According to the study, millennials also factor climate change into their decisions at the poll. With millennials accounting for 50% of the global workforce and controlling about USD24 trillion of the world's private wealth by 2050<sup>12</sup>, climate change will be a key topic for politicians, alongside economic growth, jobs, wages and inflation.

This is already seen in the US where the "Green New Deal", which requires significant public investment and government regulations to decarbonise the American economy appears to have exceptional bi-partisan support. As of December 2018, 89 representatives and 11 senators have co-sponsored the resolution, including at least five declared presidential candidates<sup>13</sup>. In France, following the emergence of the Gilets Jaunes movement, the government is engaging in national conversation on climate change and inequality.

## A CLIMATE OF CHANGE

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Climate challenges will enable change, but given the multi-faceted issues, a concerted effort by governments, companies, investors and society is needed. Fund managers who fail to align their processes to integrate new risk factors and the sustainability of capital on a holistic basis, including natural resources capital, might lose their competitive edge over the long run. Managers also need to continue to develop effective engagement strategies to change the behaviours of climate-forcing companies. At the same time, the tone of the climate battle has shifted in recent months, where the public, especially millennials and the young, are increasingly demanding that governments take greater initiative in addressing the climate threat. An effective transition to a lower carbon and more sustainable economy will need important changes and specifically collaboration from various stakeholders in a way we have not seen before.

Sources <sup>1</sup>Intergovernmental Panel on Climate Change. <sup>2</sup><https://climate.nasa.gov/> <sup>3</sup><https://climate.nasa.gov/evidence/> <sup>4</sup>Gutschow et al. 2015. Pledges are to mitigate emissions of greenhouses gases. As of 2017, 185 countries have submitted pledges. These countries represent approximately 97% of global greenhouse gas emissions. <sup>5</sup>LECZ: Low elevation coastal zone, PRC = People's Republic of China. Adapted from B. Neumann et. Al. 2015. Future Coastal Population Growth and Exposure to Sea-Level Rise and Coastal Flooding – A Global Assessment. <sup>6</sup>Hallegatte et. al. 2013. <sup>7</sup>A region at risk. The human dimensions of climate change in Asia and the Pacific. <sup>8</sup>World Health Organisation. 2014. Quantitative Risk Assessment of the Effects of Climate Change on Selected Causes of Death. <sup>9</sup><https://www.e-education.psu.edu/meteo469/node/175>. <sup>10</sup>IIIF Council for Asset and Investment Management. Survey of Long-Term Investors – 1H 2019. <sup>11</sup>US SIF Foundation 2018 Report. <sup>12</sup>UBS Report "Millennials: The Global Guardians of Capital". <sup>13</sup><https://climatecommunication.yale.edu/publications/the-green-new-deal-has-strong-bipartisan-support/>

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