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THE 'CARBON COST'
OF ECONOMIC
GROWTH: A GLOBAL
SOLUTION REQUIRES
INVESTMENT IN ASIA

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- Global recession brings environmental gains
- Challenge is to deliver an economic recovery which does not reverse these gains
- Asian economic growth has a very high 'carbon cost'
- Reducing CO₂ emissions in Asia is an urgent priority for the global environment

The COVID recession of 2020

The COVID-19 pandemic produced a deep global recession from which many countries are only just emerging. From late March 2020, severe restrictions on the movement of people and the activities of manufacturing and service industry led to the biggest falls in Gross Domestic Product (GDP) ever witnessed in peacetime. No country was unaffected by the pandemic, though it hit some much harder than others. The International Monetary Fund now estimates global GDP to have fallen -3.5% in 2020, with a -4.9% drop in 'Advanced Economies' and a -2.4% decline in 'Emerging Market and Developing Economies'.

There are sharp variations within these groupings. So whilst the United States' economy contracted by -3.4% and Germany -5.4%, the United Kingdom fell by -10.0% and Spain by -11.1%. Emerging and Developing Europe contracted by -2.8%, Latin America by -7.4% and Sub-Saharan Africa by -2.6%. The overall -1.1% decline in Emerging and Developing Asia – cushioned by a 2.2% increase in China's GDP – masks an -8.3% annual drop in the Philippines and a -10.3% contraction in India.¹

The economic cost is measurable, but the human cost is only partially captured by the available data and may endure for much longer. We do know that more than 120 million COVID cases have been recorded and that 2.65 million people have died as a direct consequence of the pandemic. We do not yet know how many others will have died from the non-availability of urgent or emergency healthcare, nor how life expectancy and mental health has been impacted.

Impact of the recession on the environment

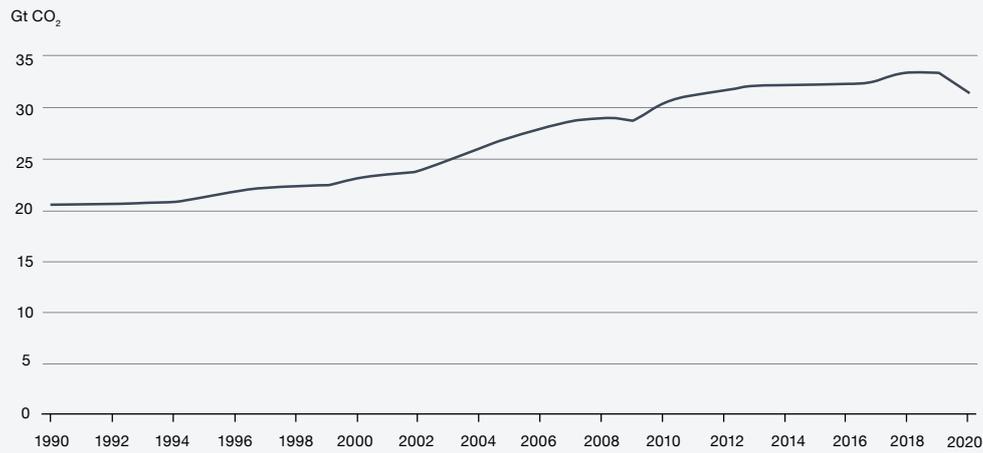
One of the very few positives to emerge from the pandemic, however, has been the environmental impact of lower levels of economic activity, factory shutdowns, drastically reduced air transport and restrictions on personal mobility. According to recently published research², global CO₂ emissions fell around 7% in 2020, whilst the International Energy Association puts the drop in energy-related CO₂ emissions at -5.8%³. The decrease in emissions appears more pronounced in the USA, EU27, and India, partly due to pre-existing trends, but much less evident in China where restriction measures associated with COVID-19 occurred early in the year and lockdown measures were more time-limited.

Whilst intuitively obvious, the clearly demonstrable link between economic activity and CO₂ emissions provides a useful context in which to examine what we call the 'carbon cost' of GDP. This analysis can then shed light where systemic changes are required to bring a durable balance between the requirements of economic growth, jobs and environmental protection.

¹ International Monetary Fund, World Economic Outlook 2020

² Global Carbon Budget 2020 <https://essd.copernicus.org/articles/12/3269/2020/>

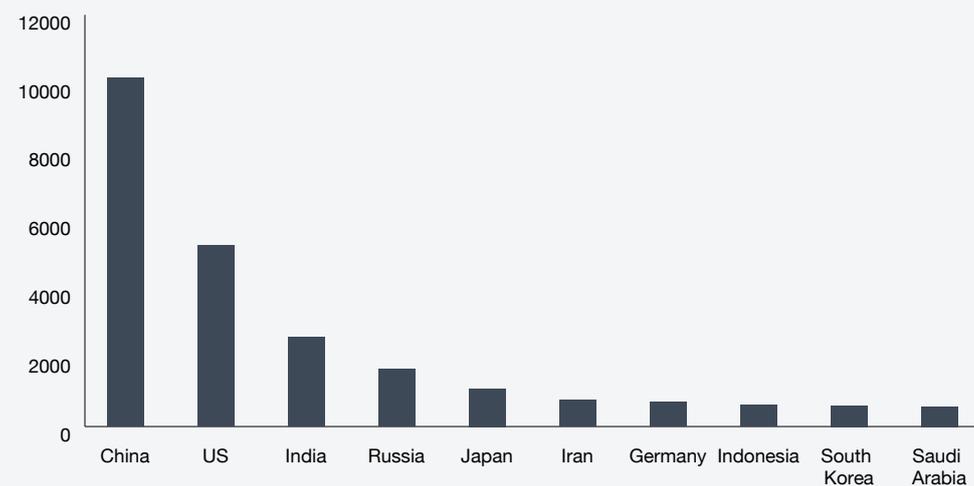
³ IEA (2021), Global Energy Review: CO₂ Emissions in 2020, IEA, Paris
<https://www.iea.org/articles/global-energy-review-co2-emissions-in-2020>

Global energy-related CO₂ emissions, 1990-2020

Source: IEA, Global energy-related CO₂ emissions, 1990-2020, IEA, Paris⁴

Who are the largest carbon emitters?

We look first at who are the largest emitters of CO₂. Using the latest available country data for 2019⁵, China is by far the biggest emitter of CO₂ with 10,175 million tons (Mt); almost twice the amount of the United States with 5,285 Mt, whilst India is in 3rd place with 2,616 Mt. It is no surprise that the world's biggest five economies ranked by GDP should be amongst the top emitters of CO₂, but it is not a perfect read-across and, as we show later, there is significant variation between the major economic powers. We should note also, that Russia and Iran who do not even make the list of top 10 economies, feature in the emissions table in 4th and 6th places respectively.

Top ten CO₂ emissions (million tons) by country 2019

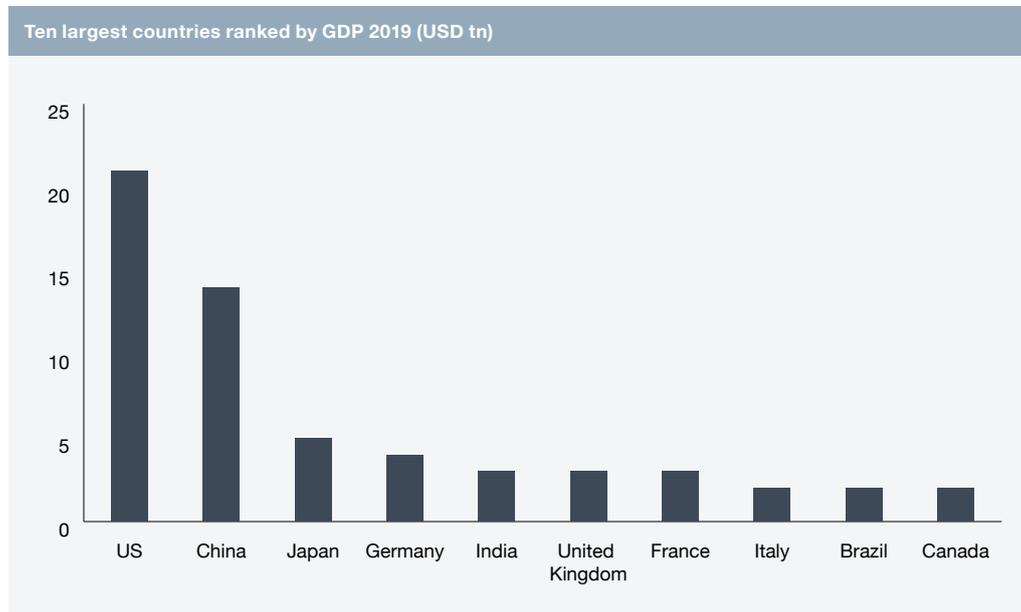
Source: Global Carbon Atlas

⁴ <https://www.iea.org/data-and-statistics/charts/global-energy-related-co2-emissions-1990-2020>

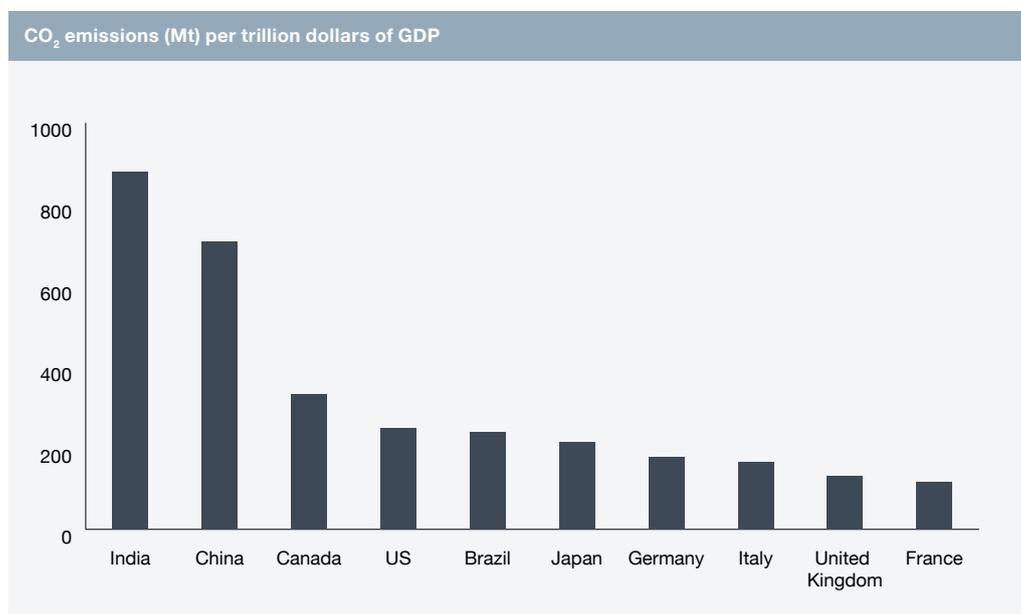
⁵ <http://www.globalcarbonatlas.org/en/CO2-emissions>

Measuring the 'carbon cost' of GDP

Our next step is to make explicit the 'carbon cost' of economic output across the world's major economies. We do this first by ranking the ten largest by GDP then calculating the amount of CO₂ emissions (Mt) per trillion dollars of GDP.



Source: International Monetary Fund

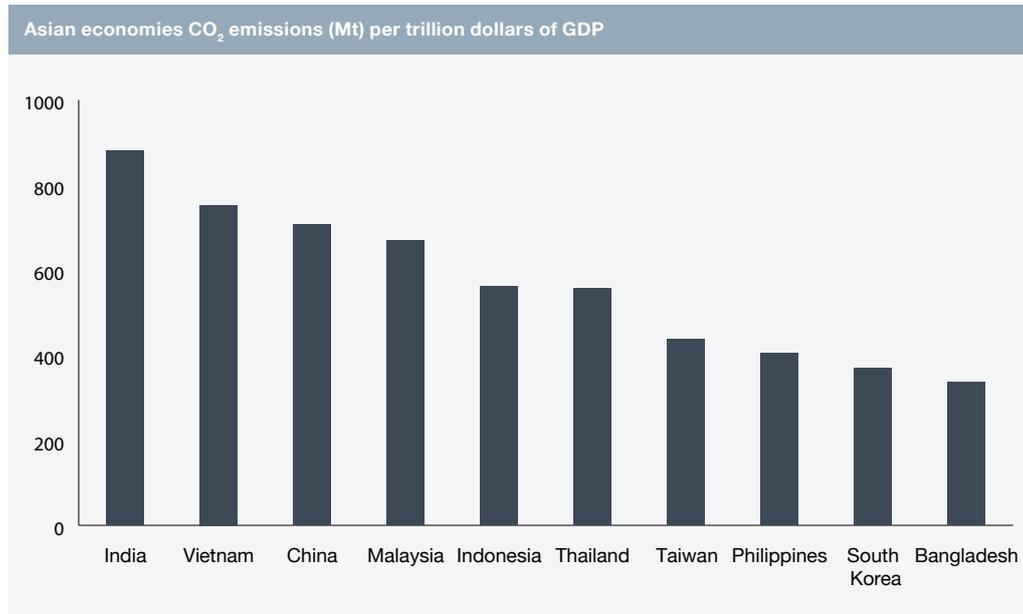


Source: IMF, Global Carbon Atlas, ThomasLloyd calculations

The results of this analysis are striking. Of the ten largest economies in the world, India has the highest 'carbon cost' per unit of Gross Domestic Product. Every one trillion dollars of GDP generates 880 million tons of CO₂ emissions, whilst China is the second highest with 707 Mt. The four largest European economies, meantime, take the bottom four positions in this table, with France emitting just 117 Mt of CO₂ per trillion dollars of GDP.

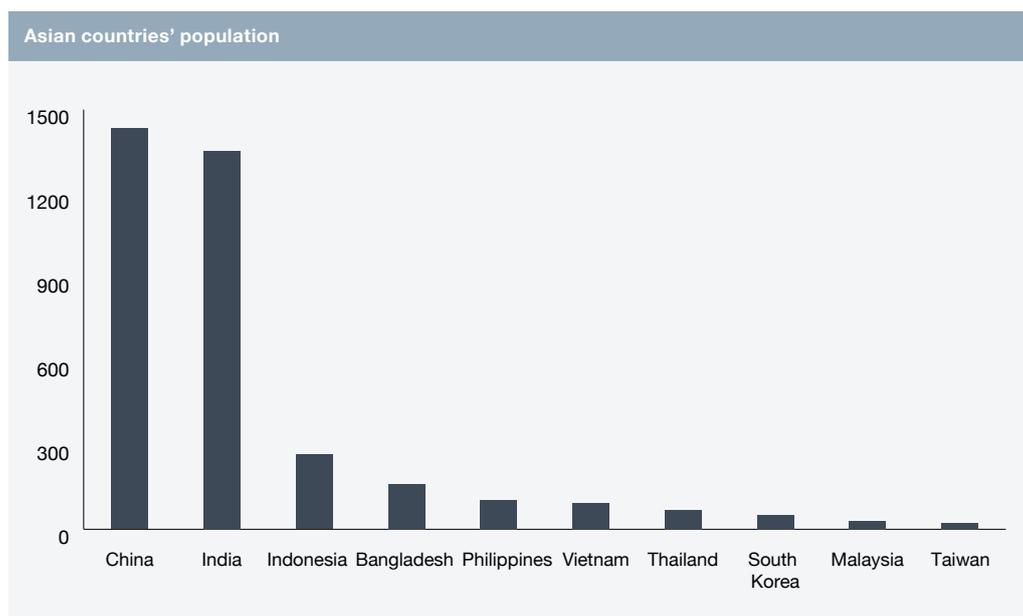
Asia's 'carbon cost'

We now repeat the exercise for ten of the largest economies in Asia, excluding Japan and the geographically small nations of Hong Kong and Singapore. This time, the results are even more striking. Every single one of these Asia economies has a 'carbon cost' per trillion dollars of GDP greater than any major country in Western Europe and nine of them have a carbon cost at least double that of the largest nation in Europe. At the worst end of the scale, India has a carbon cost of 880 Mt per trillion dollars of GDP, whilst for more than half of these countries the carbon cost is greater than 500 Mt.



Source: IMF, Global Carbon Atlas, ThomasLloyd calculations

This would arguably matter less if these were countries with small populations, where the results could be seen to be less relevant on a global scale. But they are not. Five of the countries each has a population greater than 100m – two of them have more than a billion – and all ten in aggregate have a total population of 3.59 billion; almost half the total of the entire planet.



Source: United Nations Population Division

CO₂ and climate change requires a global solution

The problems of CO₂ emissions and their impact on climate change and the environment have moved rapidly up the social and political agenda. Indeed, for many people, they are the most urgent problems facing the world today.

What is much less commonly understood is that the problem of CO₂ emissions is largely an Asia phenomenon and it is this – and the very high ‘cost’ of carbon per unit of GDP - which must be addressed. Of the world’s total of 36,441 Mt of CO₂ emissions in 2019, the 10 Asian countries analysed here account for 16,320 Mt; almost 50% of the global figure. With an average carbon ‘cost’ of GDP almost four times that of the average of the four largest countries in Europe, a solution to the global problem of CO₂ emissions must be Asia-focused.

Economic recovery with environmental protection

The figures presented here make a compelling case for investment in infrastructure and renewable energy in the APAC region. Demographic change and rapid urbanisation are driving the demand for electricity which must increasingly be met by technologies which help reduce and mitigate climate change. By virtue of their geography, countries with the highest increase in demand are also best placed for a supply response which harnesses their plentiful solar irradiation.

At ThomasLloyd, we are committed to helping deliver the energy transition in Asia. As a developer and financier of sustainable real infrastructure assets, we play a significant role in economic transformation; producing renewable energy to serve the needs of a rapidly growing population across the region. Creating jobs and tax revenues, and partnering with local experts, we understand that realising sustainable value requires a significant commitment of capital, energy and political will.

We are confident that our approach is the right one. The world needs economic growth to raise the living standards of all its’ people, especially those at the poorest end of the scale. It also needs careful stewardship to protect environmental quality and secure its’ future. A dash for economic growth, without due regard for the environment, cannot be the post-COVID model. The human cost of the pandemic has been enormous and the economic recovery now beginning must deliver jobs and security for those least able to provide for themselves. But there need be no trade-off between growth, employment and the environment if renewable energy is placed at the heart of the plan.

There is a sustainable way out of the global economic crisis triggered by the COVID pandemic, though of course, not every country can or will proceed at the same pace. As our analysis of the ‘carbon cost’ of growth clearly demonstrates, a solution to the global environmental challenge will require significant investment to shift the emissions dial in Asia. It is time for investors and pension funds to rise to the opportunity.

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