

Is Climate Change Real?

Sherman Tan

26 Nov 09

Non-commitments for Copenhagen

The recent 20th APEC meeting hosted by Singapore attracted over 10,000 international delegates to the country. While the majority of the delegates were happy with the general outcome and agreements achieved at the various meetings and had praises for the host country, it was a great disappointment for the topic on climate change. Despite the last minute attempt by Danish Prime Minister who has flown in to Singapore on 15 Nov 09 for an unscheduled meeting to garner support from APEC members for the Copenhagen talk, the final version of the APEC joint statement was "to work towards an ambitious outcome in Copenhagen" with no reference to mandatory emission cuts as referred to in earlier draft documents.

Despite the strong support from President Obama and PM Gordon Brown's efforts to broker a deal at Copenhagen, climate change talks have often been stalled due to disputes between developed and developing nations. On the one hand, developed countries want emission cuts to be applied across the globe, developing countries want financial aids and technology transfer from the developed nations to help them attain reductions in carbon emissions while pursuing their economic growths. The position adopted by developing nations was clearly articulated when Chinese President Hu Jintao remarked at the recent APEC forum that "Developed countries should proceed with taking on deep cuts; developing countries should cut greenhouse gases and fight climate change, in line with their individual circumstances and with the aid of funds and technology transfer from developed countries."

Adding some optimism, South Korea announced on 17 Nov 09 that it will cut carbon emissions by 4% below its 2005 levels by 2020. Reinforcing his commitment, President Obama during his historical first to China announced that the world's top two greenhouse gas emitters had agreed to take 'significant' action to mitigate their output of carbon dioxide. In the recent US visit by India Prime Minister Manmohan Singh, both countries have committed to work together in several areas including addressing climate change. Yesterday, a Whitehouse spokesperson was quoted as saying that "countries including the US will need to put specific targets on the table" during the coming Copenhagen talk but refused to discuss the details of the US targets.

In a rush to ensure that Australia is well prepared for the talk which is 11 days away, Prime Minister Kevin Rudd had on 23 Nov 09 unveiled to the press of the revised carbon-trade scheme after reaching a deal with opposition leaders. While all these point to potential successful outcome at Copenhagen, many industry observers are not optimistic that a fully binding international agreement on emission cuts will emerge. Moreover, environmental watchers are even more skeptical with some believing that the Copenhagen talk will be declared a "success" even though no specific agreement on targets could be reached so that some governments could account to their citizens that actions have been taken.

Global Warming is a Scam?

Despite the public availability of the Intergovernmental Panel on Climate Change (IPCC) Climate Change Synthesis Report 2007 ⁽¹⁾, there are still many critics or non-believers who have either flatly refuted the accuracies of the various report findings or have rejected global warming as the greatest scam of the 21st Century. If one were to type "Global Warming" or "Climate Change" in any popular search engines, one would be overwhelmed by the enormous number of postings over the internet. Using Google, the search found over 215 Million articles on these two topics. For every posting that

debunked the issue on global warming, there is another that supports the belief. There are also many books and periodicals with the authors taking position on opposite sides.

The hottest debate however is on whether human activities since the industrial revolution era are responsible for the state of climate change that we are in now or is climate change a natural phenomenon due to factors such as earth orbit, solar flares, ocean variation, plate tectonics and volcanism. Another debate that often leads to temper flaring in online forums is whether the earth is getting hotter or cooling off. In many of the discussions that I have read, many of them are contributed by scientists or environmentalists who have done researches on these topics for many years

So is Global Warming really happening and a result of past and current human activities?

Global Warming and Climate Change

One of the reasons debates on these topics is controversial arose from using the terms "Global Warming" and "Climate Change" interchangeably. Both are not the same and it is useful that we start off with a clear definition on what they mean.

According to Wikipedia, "Climate Change" refers to "a change in the statistical distribution of weather over periods of time that range from decades to millions of years. It can be a change in the average weather or a change in the distribution of weather events around an average. Climate change may be limited to a specific region, or may occur across the whole Earth. Simply stated, climate change refers to changes in our climate conditions from an average datum over a long period of time for a specific or a general locality. "Global Warming", however is defined as the increase in the average temperature of the Earth's near-surface air and oceans since the mid-20th century and its projected continuation.

According to the IPCC 2007 Report, our global surface temperature increased 0.74 ± 0.18 °C during the last century. Moreover, 11 of the last 12 years (1995 to 2006) ranked among the 12th warmest years according to instrumental records of our global surface temperature (since 1850). While critics have argued that many of the temperature records had been "corrected", this is unavoidable to take into consideration the changing conditions and measurement techniques. For instance, each land data station has to be examined to ensure that the surrounding conditions have not changed over time including growth of cities around the measurement sites which can lead to warmer temperatures caused by urban heat island effect. Likewise, corrections have to be made to sea-surface temperature measurements due to the collection method of sea water, height of the ship and speed of the ship affecting the evaporative cooling of the collection devices (wooden bucket, canvas bucket, etc).

If critics are doubting the IPCC reports and their findings on global temperature trends, they should check out the latest study by the British Antarctic Survey (BAS) ⁽²⁾ published by *Nature Geoscience* journal recently. Scientists at the BAS has warned that global temperatures are expected to rise by an average of 6 deg C by the end of the century due to carbon dioxide emissions increase and the declining natural's ability of the Earth to absorb these emissions. Other main findings from the report include:

- CO₂ emissions from the burning of fossil fuels increased by 2% from 2007 to 2008, by 29% between 2008 and 2000, and by 41% between 2008 and 1990 — the reference year of the Kyoto Protocol.
- CO₂ emissions from the burning of fossil fuels have increased at an average annual rate of 3.4% between 2000 and 2008, compared with 1% per year in the 1990s.
- The financial crisis had a small but discernable impact on emissions growth in 2008 — with a 2% increase compared with an average 3.6 % over the previous

seven years. On the basis of projected changes in GDP, emissions for 2009 are expected to fall to their 2007 levels, before increasing again in 2010.

- Emissions from emerging economies such as China and India have more than doubled since 1990 and developing countries now emit more greenhouse gases than developed countries.
- A quarter of the growth in CO₂ emissions in developing countries can be accounted for by an increase in international trade of goods and services.

Professor Corinne Le Quere of the University of East Anglia who led the study with scientists at the BAS urged more to be done to manage carbon emissions. "The Copenhagen conference is our last chance to stabilise climate at 2 deg C above pre-industrial levels in a smooth and organised way," said Ms Le Quere.

However, to add controversy to this debate, hackers had broken into one of the servers at the Climate Research Unit (CRU) ⁽³⁾, a research centre on climate change which is linked to the British's University of Anglia. In the leaked documents published on the internet recently are hundreds of email messages and documents with some purportedly casting doubts on whether some scientists have over-stated the impact on climate change arising from human activities?

While the University of East Anglia has responded that the information published had been selected deliberately to undermine a "strong consensus that human activity is affecting the world's climate" in potentially dangerous ways, damage has been done to some extent especially when the Copenhagen talk is only days away. Nonetheless, not all is lost as there are some quarters who scoffed at the parties behind this hacking incident. After all, regardless of how well the intention may be, using unethical means to obtain information is not something an upright individual or organization should resort to in the first place.

In support of the IPCC 2007 report findings, a study released on 24 Nov 09 entitled "The Copenhagen Diagnosis", scientists indicated that the earth could warm by 7 deg C this century, a figure which lies at the farthest range of the expert predictions made in 2007. In a sense, this group of scientists is saying that the IPCC 2007 report may have been conservative in their estimation of the projected temperature increase.

According to the BBC, 3 groups (Royal Society, Met Office and Natural Environment Research Council) in Britain studying climate change have also issued a statement saying that the science underpinning climate change is more alarming than ever. The statement indicated that there are evidence for "dangerous, long-term and potentially irreversible climate change" was growing, adding that recent heat waves, floods and droughts are consistent with emerging patterns. It concluded that cutting emissions could substantially limit the severity of climate change.

Is the world a better place?

Amid these debates and controversies, scientists from the University of Texas who have been studying the ice sheet in East Antarctic for the past 7 years have discovered that East Antarctic has been losing some 57 billion tones of ice since 2007. The study published in *Nature Geoscience* on 22 Nov 09 citing the surprises from the researchers whom have previously believed that the giant East Antarctic ice sheets are previously thought to be stable or in "balance".

If sea levels continue to rise from ice sheet melting, many countries with low coastal lines will be severely impacted. Just in Asia, coastal cities such as Bangkok, Jakarta, Manila and Shanghai will become increasingly vulnerable to this threat of increase sea level. In my last month's article, I highlighted that 2.2 Billion Asians who rely on the food sector will see their livelihood affected arising from floods, erratic rainfall, etc due to climate changes.

There are some who argued that humans are highly adaptable and this is demonstrated by our abilities to live in extreme cold conditions such as the arctic and sub-arctic and on the other extreme in hot and dry desert lands. While, humans are indeed adaptable, these environment are hostile and will hampered further progresses that the human race have made over the past thousands of years.

Yes, things in nature will always come to a steady state or a state of balance as elegantly portrayed by the Chinese Yin-Yang symbol but there will be a transition phase before the steady state is reached. Do we want to exposure our children and their generations to the risk of being drastically handicapped during the transition phase or to take action now so that the world can continue to be a habitable place for future generations? The choice is yours but it is an important one to make.

Notes:

⁽¹⁾ Intergovernmental Panel on Climate Change (IPCC) Climate Change Synthesis Report 2007 can be found at <http://www.ipcc.ch/>

⁽²⁾ British Antarctic Survey (BAS) report is published by Nature Geoscience and the full report is available for purchase at <http://www.nature.com/ngeo/journal/vaop/ncurrent/full/ngeo689.html>

⁽³⁾ The website of the Climate Research Unit at <http://www.cru.uea.ac.uk> is still being served by CRU emergency server @ 24 Nov 09 following the hacking incident

The writer is the Principal Consultant & Director at Innovar Pte Ltd (www.innovar.com.sg). He can be contacted at office@innovar.com.sg.