Ricky's Afterthought:

COP26 on climate change: the task ahead

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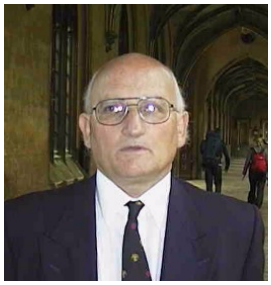


One hundred and ninety-seven countries participated in the UN COP26 held at Glasgow during early November 2021 chaired by UK's Alok Shama. It was a gathering of world leaders and their representatives which dwarfed any other inter-governmental meeting in recent memory. Heads of State, Prime Ministers and Presidents of many countries were present but alas it is with regret to state that the leaders of three of the main greenhouse gas polluters, China, Russia and India chose not to attend although their representatives were present to argue their case.

State of the art

If current usage of the energy mix continues mean temperature rises at the end of the century of +2.7°C are predicted, as shown in the below Climate Action Tracker (CAT*) diagram. Even if the most optimistic scenario is met the temperature rise will reach 1.8°C so much more effort has to be done in terms of pledges and targets to keep rises to the required 1.5°C. It is imperative to reach net zero by the middle of the century in order to ensure that catastrophic climate changes are avoided in countries like the Marshall Islands, the Maldives, Tuvaru, etc., the latter comprising of three reef islands and 6 atols. These are threatened by sea rises and look to the developed countries for financial assistance.

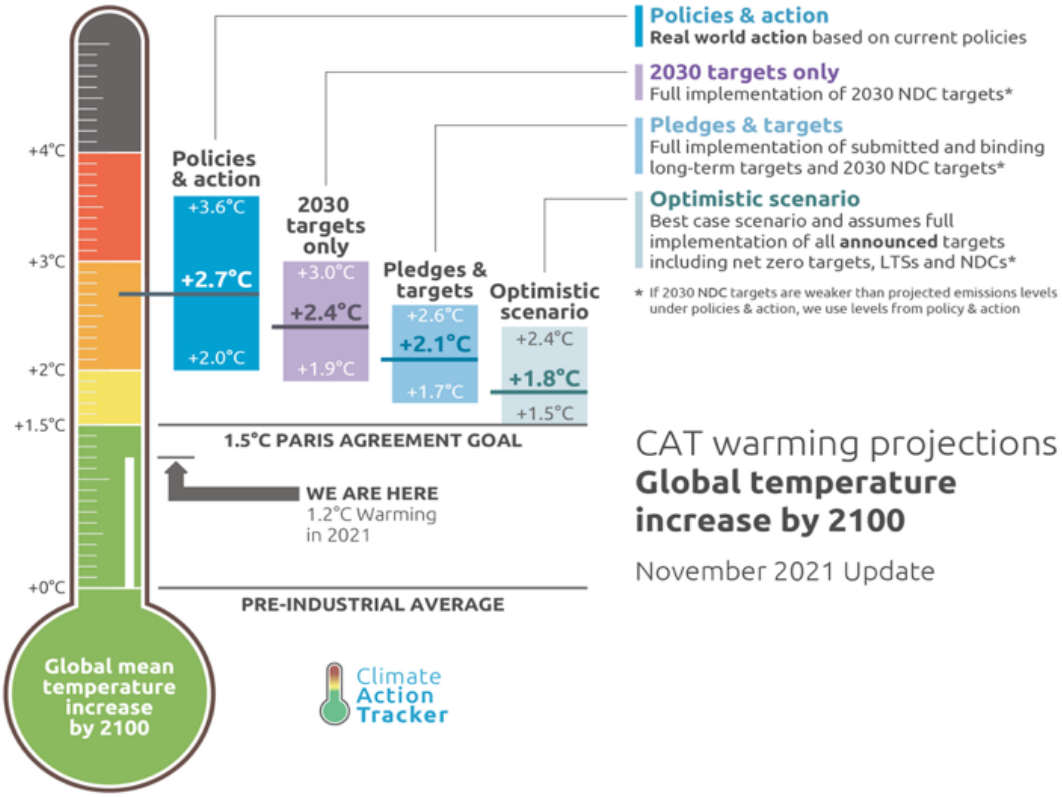
Scientists in the Intergovernmental Panel on Climate Change (IPCC) have met in Glasgow to thrash out and debate with government representatives the issues involved on what is needed in order to limit temperatures to around the 1.5°C limit. Promises and agreements signed is one thing but fulfilling these is questionable given past behaviour. Melting of ice caps will result in floods, while forest fires or even droughts would cause widespread disruption in other parts of the world. We even saw tornadoes in Europe a few months ago.

A report states that the difference between keeping to 1.5°C rather than letting the increase get to 2°C would have the following impact:

- 10 million fewer people lose their homes in rising seas
- 2 million square km of permafrost is saved over centuries
- 50% reduction of global population experiencing water scarcity
- 50% reduction of species losing half their geographic range.

These are scary predictions.

It was very apparent that the main pressure originated by younger groups, from teens to 25 somethings, personified by Greta Thunberg, the environmental activist with a massive following in social media, because they are the generation that will feel the main impact of climate change in the decades ahead. Many other pressure groups were in Glasgow to campaign for decisive action, such as Greenpeace, Extinction Rebellion, Civic Society Groups and BOGA (Beyond Oil and Gas Alliance) whose core members are Costa Rica, Denmark, France, Greenland, Ireland, Sweden, Wales, and the Canadian province of Quebec. Portugal, California, and New Zealand are associate members while Italy, the main polluter in the EU, is making friendly gestures. Alas no major polluter of greenhouse gases is a member of BOGA.



Climate Action Tracker projections for global temperature increase by 2100

Government subsidies

These include both direct subsidies to corporations, as well as other tax benefits to the fossil fuel industry. Rough estimates put U.S. direct subsidies to the fossil fuel industry at around $20 billion per year; with 20 percent currently allocated to coal and 80 percent to natural gas and crude oil. If we are committed to phasing out oil and gas why should these subsidies continue? Could it be that lobbyists on behalf of corporations and power utilities numbering in their hundreds, were busy at Glasgow making sure that these subsidies remain in place? In fact, the suggestion was made to switch these subsidies to greener technologies.

Renewable power generation

The main factors that must be adhered to are switching from fossil fuel power generation to renewables spearheaded by wind farms and solar arrays and in some countries geothermal and where available hydro-power generation.

This will be difficult to meet when countries like China and Russian have at present large reserves of coal or the USA vast amounts of oil shale which they are reluctant to abandon in the near future. Fracking may be abandoned despite promises of large quantities of fossil fuels ready to be extracted.

Help to developing regions

Further, in order to help underdeveloped countries from switching to other forms of power generation and thus cutting their greenhouse emissions, aid must be made available to the tune of many billions of Euros but although such sums were promised in the Paris summit on climate change in 2015 they never materialised.

It is suggested that the developed countries will offer 100 billion per annum starting in 2022 but who pays what proportion and how it is distributed to many claimants remains to be seen. Such funds will assist in adapting, accelerating and ultimately integrating renewable technologies so that they can be operated in a safe and sustainable way. “Loss and damage” crept in the discussions where smaller

countries argued that richer countries should by now have compensated them for the damage already inflicted on them due to climate change.

Other topics

Although the future of fossil fuels attracted most attention behind the scenes many other topics such as deforestation, methane, electric cars and fossil fuel financing were also discussed at length.

Deforestation was seen as a breakthrough where over 100 countries signed to halt and indeed reverse it by 2030. The pledge to cut methane emissions by 30% by the same date was also very welcomed.

(a) Government subsidies to homeowners

Governments are intending to offer subsidies and zero interest loans to homeowners to assist them in changing their gas boilers to air source heat pumps for central heating. Here I note that heat pumps for domestic and industrial usage were investigated by the research centre I used to work at which after many years has morphed itself to CTech Innovation. I daresay equivalent R&D centres such as "Les Renardieres" in France, "Laborelec" in Belgium and "EPRI" in the USA carried out a host of similar projects in many electrotechnologies spanning the electromagnetic spectrum from DC to UV. These centres were far ahead in their research portfolio of what was required at that time but many in the field were capable of anticipating the need to carry out research in these areas. Other areas where intense research was carried out were smart homes and sodium sulphur batteries towards electric vehicle propulsion. I daresay sodium sulphur is not a very friendly substance and researchers switched their attention to other forms of battery material.

(b) People power

However, what can the individual do to assist in this global goal of reducing emissions to net zero by the middle of this century? Many would simply say not much but I came across a report highlighted in the alumni magazine of Imperial College London by the Grantham Institute** which gave nine examples of what the individual or more precisely families can achieve if they put their minds to the task of helping the environment with respect to climate change. In their introduction the Grantham Institute states:

Nature is vital to our existence; it provides the air we breathe, the water we drink and the food we eat. Being out in nature also has important benefits for our mental health and well-being. Nature protects us but what can be done to protect nature?

The nine examples they list are as follows:

- Be a voice for nature
- Make your home a haven for wild-flowers and plants
- Respect and protect local habitats beyond your home
- Eat a sustainable diet, for example eat less meat, dairy products, and fish
- Remember the 3 R's, Reduce, Re-use and Recycle
- Buy less and shop sustainably
- Save water by taking shorter showers and avoid baths
- Be a nature-friendly tourist
- Learn more about protecting nature – knowledge is power.

I would argue that individuals and families are already doing some of these but in order to have a global impact this should be done "en masse" and not in ones or twos here and there.

USA-China road map on decarbonisation

With a stark pronouncement at COP26 by Barak Obama that "the world is not where it needs to be" a most promising statement was followed a few days later by John Kerry, the US climate envoy, days before the UN summit at COP26 was to end, that following numerous meeting between himself and China climate change envoy Xie Zhenhua and their aides, the US and China were about to sign a bilateral agreement to collaborate on climate change. He announced that "The US and China have agreed to raise climate ambition and work together to reduce greenhouse gas emissions over the next decade. The US and China have no shortage of differences, but on climate cooperation is the only way to get things done."

Protocols, in the form of regulatory frameworks, will be enacted for reducing emissions

thus "maximizing the societal benefits of the clean energy transition", and promoting decarbonisation and where possible to accelerate electrification. China promised to reduce coal consumption during 2026-2030 and "make best efforts to accelerate this work". Apparently, these statements were the result of many meetings between the representatives of the two countries and Kerry concluded that agreement was in essence a "map for our present and future collaboration on this issue". Being that these two countries are the main greenhouse polluters that statement was indeed very encouraging. What is needed is similar agreements between other major polluters such as Russia and India to feel more comfortable with reaching acceptable limits of temperature rise within the foreseeable future.

Phasing down instead of phasing out of coal

The worrying aspect of COP26 was the reluctance of the main polluters resulting from coal fired power stations, including China, India and Saudi Arabia, to include in the final draft the stopping of the use of coal and indeed also objected to including the "phasing out" of oil and gas.

It appears that coal usage, the world's main driver of climate change, remains but enhanced methods of carbon capture will be encouraged. Why, one is forced to ask, hasn't carbon capture methods been implemented thus far? Pressure by China and India literally minutes before closure of COP26 forced the compromise to change "phase out" of coal to "phase down" of coal, surely a diplomatic interjection otherwise these countries would not have signed the final draft.

Final session

Many of the island countries were openly disappointed with the final outcome but went along with the final draft because they did not wish to be seen the ones that would have resulted in failure of COP26. Alok Shama, in a highly emotional state and utterly exhausted, stated in his summary that, "…the summit kept 1.5ºC alive but its pulse was weak". Greepeace's CEO Jennipher Morgan added that "……the 1.5ºC goal is only just alive but the era of coal is ending. And that matters". Professor Emily Shuckburgh the Director of Cambridge Zero at the Cambridge University stated, "Glasgow has been an important gateway to a 1.5ºC world but we now need accelerated action to get there".

There is universal agreement that COP26 could have achieved much more, however, the summit's emphasis on the curtailment of fossil fuels is very significant and what was discussed in Paris has now been accepted by all. A road map has been established for curbing climate change but there is a mountain to climb and I only hope that every country focusses on concrete proposals so that at COP27 next year in Egypt the temperature of 1.5ºC is not just a target but a certainty. Wishful thinking perhaps but we can only hope otherwise we are condemning many communities to oblivion.

* The Climate Action Tracker (CAT) is an independent scientific analysis produced by two research organisations, New Climate and Climate Analytics, tracking climate action since 2009. It tracks progress towards the globally agreed aim of holding warming well below 2°C, and pursuing efforts to limit warming to 1.5°C. CAT quantifies and evaluates climate change mitigation commitments, and assesses, whether countries are on track to meeting those. It then aggregates country action to the global level, determining likely temperature increases during the 21st century using the MAGICC (Model for the Assessment of Greenhouse Gas Induced Climate Change) climate model.

** The Grantham Research Institute on Climate Change and the Environment was established by the London School of Economics and Political Science in 2008 to create a world-leading centre for policy-relevant research and training on climate change and the environment, bringing together international expertise on economics, finance, geography, the environment, international development and political economy.