**Reflections on COP 26 in Glasgow and the Future Challenges of Climate Change**

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The Intergovernmental Panel on Climate Change (IPCC) was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988.  The objective of the IPCC was to provide governments at all levels with scientific information that they could be use to develop climate policies. Any report drawn up by the IPCC scientists had also to be approved by the governments of the member countries which in 2021 numbers a hundred and ninety-five countries. When the first report of the IPCC was published in 1990, some politicians attempted to water down its findings.

The most successful Conference of the Parties (COP) meeting on climate change took place in Paris in December 2015. In a legally binding international treaty, the 109 countries present in Paris agreed to keep the average global temperature to 2 degrees or preferably 1.5 degree Celsius above preindustrial levels. In order to achieve this goal, countries had to cut global greenhouse gas emissions by 50 percent by 2030 and be carbon dioxide neutral by 2050.The Paris Agreement set in motion a five-year cycle of increasingly ambitious climate action. By 2020, all the countries that signed the agreement agreed to reduce their greenhouse gas emissions and report their current Nationally Determined
Contributions (NDCs).

The Paris Agreement also provided a framework for financial, technical and capacity supports for economically poor nations to help them reach their targets in reducing greenhouse gas emissions and to deal with the adverse changes that climate change is bringing.   In the past number of years, a lot of investment has been focused in reducing carbon dioxide in the area of transport and renewable energy. This has created jobs in the wind and solar energy sectors. **Many countries, regions, cities and companies have established carbon neutral goals.**

**Still, the report by the United Nations Environment Programme published in October 2021, estimates that the earth will warm by 2.7 degrees Celsius above pre-industrial levels. This would be disastrous in terms of flooding, heatwaves, droughts, warming seas and rising sea-levels. Many scientists believe that could lead to a dangerous tipping point.**

**In 1999 I wrote a book called *Greening the Christian Millennium,* In chapter 3 entitled, “Global Warming A Challenge to Christians,” I referred to a study done by the Economic Social Research Institute (ESRI) in 1997 which recommended that a European Union wide ‘greenhouse gas tax’ should be levied on all polluters in the industrial, agricultural and transport sectors. Professor John FitzGerald of the ESRI was very critical of the Irish government’s dilatory stance on carbon tax**[[1]](#footnote-1)**Unfortunately, not too much has changed since then.**

Sixth Assessment Report of the IPCC

On August 9th, 2021, the Sixth Assessment Report of the IPCC was published. The findings are based on 14,000 studies and the work of more than 200 scientists. To date it is the clearest and most comprehensive account of the science of climate change. Dr Tamsin Edwards from King’s College London, one of the main authors of the report, points out that climate science has improved significantly since the previous IPCC report in 2013. In that report, human influence on climate change was “clear” whereas in the new report it is “unequivocal.”

According to Antonino Guterres, the UN Secretary of the United Nations, the 2021 Report of the IPCC is a ‘code red for humanity’. The evidence of climate change is irrefutable. Greenhouse gas emissions from both burning fossil fuels, deforestation and agriculture are choking our planet and putting millions of lives of humans and other creatures at risk. He pointed out that more than 30 million people were displaced by climate change in 2020.[[2]](#footnote-2)

Since the beginning of the industrial revolution, the level of carbon dioxide in the atmosphere has increased from 280 parts per million to over 416 parts per million today. The reason is that humans, especially those in rich and industrialised countries are burning fossil fuels, such as coal, oil and gas to heat their homes, power their industrial and transport sectors and increase agricultural production considerably.[[3]](#footnote-3)

Those opposed to climate change action

In July 2021, the Royal Dutch Shell company published its annual environmental report. In that document it boasted that it was investing heavily in renewable energy by installing thousands of charging points for electric vehicles. On precisely the same day Shell also published another report in which it revealed that its largest donation last year was to the American Petroleum Institute (API) which lobby the US congress for favourable treatment for oil companies. Most other oil companies are doing the same, claiming that they are promoting renewable energy, while, at the same time weaking environmental legislation.[[4]](#footnote-4) Will the opponents of climate change, especially the fossil fuel companies continue to obstruct and cast doubt on the indisputable scientific consensus as a way of stopping the drastic actions which are needed to mitigate global warming? More than 500 lobbyists from fossil fuel companies – oil, gas and coal – were present at COP26 in Glasgow. This more than ever appeared at any previous COP. Many activists likened it to inviting the tobacco companies to an international conference on smoking and lung cancer.

In October 2021, House Democrats in the United States began questioning the executives of some of the world’s biggest oil and gas companies — Exxon Mobil, Chevron, BP and Shell — over allegations that for years the companies spread disinformation about the role played by fossil fuels in global warming in order to slow action on climate change.[[5]](#footnote-5)

Some media also spread disinformation about the relationship between burning fossil fuel and climate change. The journalist, John Gibbon makes the point that Rupert Murdoch and his media empire, especially Fox news in the United States, are climate denialists and do not often present the real, long-term damage which is being done by global warming. Some of his news outlets in Australia claimed that the recent fires there were caused by arsonists. [[6]](#footnote-6)

The science of climate change

The IPCC report makes it clear that the concentration of carbon dioxide is greater than at any time in the past two million years. One reason for this is that the wildfires globally have produced record levels of carbon dioxide. [[7]](#footnote-7) As a result, the average global temperature has increased by 1.1 degrees Celsius above pre-industrial levels. The warmer atmosphere, land and oceans has caused more severe droughts, floods and typhoons in recent years. In July 2021, heavy rains in Germany, Holland and Belgium caused riverbanks to burst, flooding entire towns and villages and destroying highways. More than 160 people lost their lives.

Impact of a warming world

2020 was the hottest year ever recorded, The Arctic and northern Siberia saw extreme average temperatures of more than 3 degree Celsius above the long-term average. In the wake of the heatwaves in the United States and Canada in June and July 2021, climate scientists such as Dr. Friederike from the University of Oxford and Geert Jan van Oldenborgh of the Royal Netherlands Meteorological Institute, now believe that rising temperatures are coming faster and hitting harder than they had previously projected.[[8]](#footnote-8) This will mean that more extreme heatwaves are becoming a nightmare for millions of people around the world. Living in many tropical areas of the world will be more difficult for human beings in the future. At present, almost 40 percent of the world population live in the tropics, though that figure will rise to 50 percent by 2050.[[9]](#footnote-9)

Severe weather

Massive wildfires which burned in Australia, Siberia, Greece, Turkey and California, bear the hallmark of climate change. In September 2021, Hurricane *Ida* began in the Gulf of Mexico before making landfall in Louisiana with winds of 240 kilometres per hour.[[10]](#footnote-10) As it barrelled into New York city, three inches of rain fell in a single hour shattering all previous records. Roads turned into rivers and at least, 13 people died, many of them downed in their own basements. The ferocity of this storm is a clear indicator that climate change is now in place. As the weather gets warmer more hurricanes and devastating flooding events will happen which will destabilize societies. In 2021, a study of 20 years data published in *the Lancet Planetary Health* found that extreme weather is responsible for at least 5 million deaths each year.[[11]](#footnote-11)

Climate change is affecting the Gulf Stream

Climate scientists have detected warning signs that climate change could lead to the collapse of the Gulf Stream. They have found that it is at its lowest point in 1,600 years and it could collapse completely.[[12]](#footnote-12) Global warming weakens the Gulf Stream by increasing the temperature of the ocean and decreasing the salinity of the ocean as fresh water from ice melting in Greenland and the Arctic enters the oceans. The collapse of the Gulf Stream would be disastrous, causing freezing winters in Northern Europe. Niklas Boers, from the Potsdam Institute for Climate impact Research in Germany, believes that the signs of destabilisations are already visible.[[13]](#footnote-13)

Sea-Level rise

The warmer atmosphere and oceans mean that the late summer Arctic Sea ice has decreased by 40 percent in a mere 30 years. In this warmer world massive icebergs and glaciers are melting in Greenland, the Arctic and the Himalayas leading to a significant rise in sea-levels. The situation is even more unpredictable in Antarctica where the collapse of two glaciers in the West Antarctic Ice Sheet could over centuries raise ocean levels by 3 metres.[[14]](#footnote-14) It is also true that a significant part of the Greenland ice sheet is also on the brink of collapse. The ice cap there is 3 kilometres deep, and it contains enough ice to raise sea-levels a few metres.[[15]](#footnote-15) If this happens countries like Bangladesh will lose land and many coastal cities like Manila will be flooded. Some island nations such as Tuvalu in the Pacific Ocean may disappear in the next 50 years.

Droughts

 Most of the carbon dioxide released into the atmosphere over the past 200 years has come from rich, industrialized counties, yet the worst impact is often felt in poor countries such as Mozambique where a prolonged drought is currently causing a famine. Many people feel that drought will become the next pandemic since 1.5 billion people have been directly affected by drought during the past 20 years. The economic cost is estimated to be $124 billion. Mami Mizutori, the UN secretary general’s special representative for disaster risk reduction said: “Drought is on the verge of becoming the next pandemic and there is no vaccine to cure it. Most of the world will be living in water stressed areas in the next few years.”[[16]](#footnote-16) As far back as 2009, Ismail Serageldin, at that time vice-president of the World Bank said that “the wars of the twenty-first century will be about water, unless we change the way we manage water.”[[17]](#footnote-17) This is even more true today, since the supply of fresh water is being depleted by climate change. The UN World Meteorological Organisation has warned that more than five billion people across the global could have inadequate access to water by 2050. Northern Africa, Central Asia and Southern Asia will be badly affected.[[18]](#footnote-18)

Ending the fossil fuel era

Given the extreme weather, which was experienced in 2020 and 2021, a report published in *Nature* in September 2021 concluded that 60 percent of the planet’s remaining oil and natural gas and 90 percent of its coal reserves should remain in the ground by 2050 in order to limit global warming to 1.5 degrees Celsius above pre-industrial levels.[[19]](#footnote-19)

IPCC Report 2021

The IPCC report had been published three months before world leaders met at COP 26 in Glasgow (October 31st to November 12th2021) to discuss climate change. Almost 100 world leaders attended, It is crucial that countries make drastic cuts in their emissions of greenhouse gases. Recent research has shown that the demand for new coal fired plants has collapsed since the Paris agreement in 2015. There are now 44 countries which have agreed not to build any further coal-fired plants.[[20]](#footnote-20)

Request from poor people to postpone COP26

Early in September 2021, a global coalition of more than 1,500 green groups called for the U.N. COP26 climate talks to be postponed due to fears that delegates from the world’s most vulnerable countries face exclusion.[[21]](#footnote-21) Because of the Covid-19 pandemic, many people, including Mohamed Adow, the director of the climate and energy thinktank “Power Shifts Africa,” has called for COP26 to be postponed until the spring of 2022. The reason is that only 1.4% of the global south have been vaccinated because the G7 countries have failed to waive patents on vaccines and these countries gave priority to vaccinating their own citizens. Unvaccinated people, like himself are afraid to attend COP26 in Glasgow because of a spike in Covid-19 numbers in Scotland.

The British government is aware of this and has offered to give vaccines to delegates who have been unvaccinated and to pay for their quarantining in hotels. Mohamed Adow is clear that the world does not need a climate conference where the voice of the poor, who are most affected by climate change are not heard. [[22]](#footnote-22)

Action we can take

While the IPCC report is certain that major climate changes are inevitable and irreversible, there is much that humans can do to stop global warming from intensifying in the coming decades. The most important action is to cut emissions by 50 percent by 2030 and to eliminate them completely 2050.

Irish Situation

In terms of the science of climate change, Dr. John Sweeney of Maynooth University points out that the 19th century Irish scientist, John Tyndall, (1820 to 1893) who was born in Leighlinbridge in Carlow was one of the first scientists to prove by experimentation, the role greenhouse gases played in warming the earth.[[23]](#footnote-23)

In the run-up to COP26, Ireland’s record is poor at reducing greenhouse gases such as carbon dioxide and methane. These arise from promoting animal agriculture, especially dairy farming, data centres to facilitate multinational firms such as Intel, Google, Facebook and Twitter and plans to bring a liquified natural gas plant to the Shannon Estuary.

Changing will not be easy as 35 percent of greenhouse gases in Ireland come from agriculture. The Irish government’s Food Vision 2030 plans to increase agricultural exports, mainly dairy and livestock by 50 percent in the next decade. Little thought is given to lowering our methane emissions by reducing our dairy herd which has doubled in the past 10 years. In the new two five-year carbon budget which the Irish government is committed to implementing, it will be necessary to reduce greenhouse gas emissions by 7 percent each year. The latest projections show that Ireland is well behind on achieving this reduction. In fact, figures published by the EPA indicate that there will be an increase of 1.6 percent in emissions in 2021.[[24]](#footnote-24)

Climate scientist, John Sweeney criticised the amendments attached to the 2021 Climate bill because “they have taken the guts out of the Climate Change Bill and destroyed the principles under which it was established.”[[25]](#footnote-25) Similarly, there is little talk of moving to more plant-based agriculture which would lower Ireland’s greenhouse gas emissions significantly.

 In fact, in 2021 Ireland was the chair of the UN Security Council. In September 2021, an Taoiseach, Micheal Martin proposed adding climate change to the agenda of the UN Security Council even though he had criticised An Taisce for requesting that the High Court should rule on whether we needed to build a new cheese factory in Belview County Kilkenny.[[26]](#footnote-26)

In October 2021, the dairy industry published a report which stated that to comply with Ireland’s cut in greenhouse gas emissions, Ireland would need to cut 4.9 billion litres of milk which is more than half of the 8.3 billion litres Ireland currently produces annually.[[27]](#footnote-27) The report claims that this could cost the Irish economy 7.8 billion euro per annum. It states that the dairy industry is worth 13.1 billion euro to the economy and supports 17,000 families and 56,400 jobs in both farming and processing according to a study commissioned by the *Irish Farmers Journal* and carried out by KPMG.[[28]](#footnote-28) Given this political background, the chance of lowering Ireland’s dairy herd seems small indeed.

The environmental writer, John Gibbons asked whether Irish agriculture focused on exporting much of its dairy and beef production plays an important role in feeding hungry people, This was claimed by the minister for agriculture, Charlie McConalogue, in a prime time programme on RTE in October 2021. According to him “Ireland contributes significantly to feeding people around the world. Tonight, 700 million people will go to bed hungry.”[[29]](#footnote-29) In fact, Gibbons claims that Irish beef and dairy products. may have the opposite effect. Locally produced milk costs 1 dollar in Senegal whereas milk imported from Europe, including Irish milk, costs only half that price because of subsidies given to European farmers. The net result is that the European agriculture policy promotes food insecurity in Africa, not food security, as claimed..

Countries such as Saudi Arabia and China are using Irish powdered milk to feed their babies. This market is worth over 1 billion euro. This product directly replaces breest feeding and can hardly be considered as contributing to global food security.

Gibbons points to the facts that according to the Central Statistics Office (CSO) Ireland imports about a quarter of a million tons of potatoes, onions, tomatoes, lettuce and apples each year. Given our temperate climate all these foods could be grown in Ireland. According to Gibbons the United Nations Food and Agriculture Organisation (UNFAO) claims that Ireland is an net importer of food. This narrative about Irish agriculture is very different from that proclaimed by minister McConalogue and farm organisations and it needs to be heard during this crucial period where Ireland is attempting to lower greenhouse gas emissions across every section of the economy.

Research by scientists in the United States and Australia have demonstrated remarkable methane reduction of up to 80 percent when small amounts of seaweed called *asparagopsis* is added to the ruminant’s diet Because that form of seaweed does not grow well in north-west Europe, scientists from the Irish state agriculture body Teagasc are researching the ability of local seaweed to reduce methane emissions in ruminants. Maria Hayes of SeaSolutions has achieved between 11 percent and 30 percent reduction using local seaweed.[[30]](#footnote-30) These trials could be very successful in lower methane emissions.

New technologies are also being developed in other countries. One of these technologies aims to make cow’s milk from fungi and other microorganisms. Producing milk in this way could transform diary agriculture and reduce substantially methane emissions. An Israeli company called Imagindairy is using such technology and is promising to have cows ’milk without cows in the shops by 2023. Carlotte Lucas from Good Food Institute (GFI) believes that this technology might be “gamechanger in terms of significantly reducing methane emissions from the dairy sector.”[[31]](#footnote-31) Tom Dunne, vice-president of European Dairy Farmers, is not convinced. According to him, It will always be missing something. “Cows are a one-million-year-old natural system for producing milk. Do you want to feed something from a lab to your kids and then only find out later it might not be quite right? It’s Frankenstein stuff.”[[32]](#footnote-32)

Data Centre

In the autumn of 2021, EirGrid plc the state-owned electric power transmission in Ireland, published its annual Generation Capacity Statement (GCS). The content of their report was explosive. It revealed that there might be power outages during the winter of 2021-2022 and the following few years because there will be a shortfall between supply and demand. The main reason for this situation is that data centres will demand more and more electricity. In Eirgrid’s own projections in a medium demand scenario, data centres will account for 25 per cent of all electricity by the year 2030. Without additional connections, demand from this sector could reach 40 percent by 2030.[[33]](#footnote-33). Amazon has pledged that 100 percent of its infrastructure, including data centres will be powered by renewable energy by 2025.[[34]](#footnote-34) In autumn 2021, Amazon employs 4,000 people in Ireland and is actively recruiting another 1,000.

Google, Facebook, Amazon, TikTok and Microsoft are opposed to any moratorium on data centres. The Irish government is considering introducing regulations which would designate data centres as ‘strategic structures ‘according to *The Business Post* because of their importance for big-tech industries. However, most people believe that this will make it impossible to meet Ireland’s legal targets to reduce our emissions of green-house gases by 51 percent by 2030. [[35]](#footnote-35) It is almost certain that we will have to delay the closing of the Tarbert oil-fired power station in Kerry and the coal burning plant in Moneypoint in Clare and buy in extra capacity which will cost Ireland millions of euro. In a poll conducted by Red C in September 2021, 59 percent wanted data centre development to be controlled to reduce the risk of electricity rolling blackouts.[[36]](#footnote-36)

 Despite these figures in terms of lowering Ireland’s greenhouse gas emissions the Taoiseach, Micheal Martin still insists that “we can’t allow this (energy) crisis to derail the medium and long-term imperative of meeting our climate change targets.”[[37]](#footnote-37)

Cost of retrofitting homes

Retrofitting homes will be quite expensive. In Ireland it is estimated that retrofitting a house will cost between 25,000 and 50,000 euro. The cost for retrofitting 1.5 million houses which includes the insulation of walls, roofs, floors, window upgrades and proper ventilation will come to between 10 to 15 billion euro. The grants available run to 25 percent or 30 percent of the costs. Still, few enough people have access to this kind of money. The Irish governments plan is to group house together as they work on retrofitting. This means that there is a role for local government. Parishes right across the country are very well positioned to support this national retrofitting programme. Since most churches are heated with oil, parishes will have to spend significant resources retrofitting their churches over the next 10 years. Similar kinds of cost will arise in changing our transport sector from fossil fuels to electricity.

As COP26 is located in Glasgow Is Britain leading the way on climate change initiatives?

Two months before COP26 in Glasgow, new analysis by the Climate Action Tracker was found that every one of the leading economies in the world has falling far short of the commitments they made in Paris in 2015. Unless this changes radically the world is on track for at least a 3 Degrees Celsius rise in global temperature which would be disastrous.

In October 2021, the annual World Energy Outlook has calculated that the current pledges of the various governments to cut carbon dioxide emissions by the year 2050 will fall short by 60 percent.[[38]](#footnote-38) Furthermore, Fatih Birol, the current executive director of the International Energy Agency (IEA) told *The* *Guardian* that major economies recovering from Covid 19 were missing opportunities to invest in clean energy, [[39]](#footnote-39) He called on rich countries to make tougher commitments to reducing carbon dioxide emissions.

Britain and Climate Change

People are asking whether Britain is leading by example in tackling climate change? In September 2021, Boris Johnston admitted that “as recently as 2015 global leaders were driven by a primitive fear that the present ambient warm weather is somehow caused by humanity; and that fear – as far as I understand the science – is without foundation.”[[40]](#footnote-40) According to Johnston, “the facts change, and people change their minds.”[[41]](#footnote-41)

Unfortunately, this excuse by the Prime Minister is untrue because in 2015 the IPCC was clear that human activity, especially the burning of fossil fuel was the main cause of climate change. One of the first requirements of those who wish to talk about climate change is to tell the truth about what is happening which is something that Boris Johnston finds exceedingly difficult. If Johnston had taken the time to listen to Margaret Thatcher’s speech to the United Nations in 1989 where she outlined the dangers which greenhouse gases pose for planet earth, he would have known that climate change is real.[[42]](#footnote-42) *The Guardian* believes that Boris Johnston’s newfound interest in climate change is partly due to the influence of his wife Carrie Johnston. [[43]](#footnote-43)

Helping financially poor countries tackle climate change

The G7 is an inter-governmental political forum consisting of seven of the richest countries in the world. At the G7 summit in Cornwall in June 2021, Boris Johnson promised to protect the natural world and seriously tackle climate change. Unfortunately, he has not committed any new funds to promoting these issues. The other G7 leaders repeated their intention of keeping the rise in global temperature to no more than 1.5 degrees Celsius above pre-industrial levels. Neither did the G7 come forward with any cash commitment to help poorer countries deal with climate change. Nor is sufficient money being made available to poor countries to address climate change. In fact, the United Kingdom’s decision to reduce overseas aid from 0.7% to 0.5% is a clear indication that they are not willing to help developing countries in this time of crisis.

Rich countries such as the UK should be willing to help poor countries to avoid opting for petrochemical era fuels such as coal, gas or oil and move instead to a global green industrial revolution that could transform all our lives for the better. In September 2021, the Foreign Office revealed that there would be cuts of more than 40 percent to the foreign aid budget because of money spent dealing with Covid.[[44]](#footnote-44) The foreign aid budget in East Africa, once seen as a priority for British aid has shrunk from £240 million in 2020-2021 to a mere £107.5 million in 2022, even though there is a serious famine in Yemen.[[45]](#footnote-45)

In 2009, at the COP in Copenhagen, rich countries pledged £100 billion a year in climate finance by 2020. Unfortunately, that target has never been met. Asking poor countries at the Glasgow summit to undertake serious climate action while giving them less money to pursue clean energy strategies does not make sense. John Sauver, executive director of Greenpeace UK has been quite critical of the UK’s position. “Despite the green soundbites, Johnson has simply reheated old promises and peppered his plan with hypocrisy, rather than taking real action to tackle the climate and nature emergency.” [[46]](#footnote-46)

COP26 will be successful only if it faces the financial gaps needed to keep global warming to 1.5 degrees Celsius above pre-industrial levels. For example, It cannot tackle how to collect and spend the $100 billion needed by poor countries to address climate change without tackling the post-2025 finance good. It must discuss how the Green Climate Fund, the Adaptation Fund and the least Developed Countries funds will be used to till financial gaps and deliver clean energy.

Glasgow must be clear what ‘clean’ technology means, so the public can assess whether real progress on climate is being achieved in developing clean non fossil fuel energy systems. In September 2021, a report from Clean Air Fund (CAF) said that governments around the world gave 20 percent more in overseas aid funding fossil fuel projects in 2019 and 2020 than to programmes designed to cut the air pollution they cause.[[47]](#footnote-47) Air pollution caused by burning fossil fuel is one of the biggest health problems in the world and is responsible for, at least, 4 million deaths each year.[[48]](#footnote-48)

Britain’s leadership at the Glasgow summit will also be undermined by the fact that it will be telling countries such as China and India that they will need to reduce their dependence on coal while the British government is hoping to get permission to open a new £160 million Woodhouse Colliery project in Cumbria which is estimated to provide 532 jobs directly in an area which has high levels of unemployment.[[49]](#footnote-49)

The International Energy Agency (IEA) has stated clearly that the exploitation and development of new oil and gas fields must stop this year and no new coal-fired power stations can be built, if the world is to stay within the safe limits of global heating and meet the goal of net zero emissions by 2050.[[50]](#footnote-50)

The British government is also interested in exploiting the new Cambo oil field situated 125 km to the west of the Shetland Islands. This is a large field containing over 170 million barrels of oil and opening it up would deepen the climate crisis for decades[[51]](#footnote-51). The government says that the original “licensing approval” for the site goes back to 2001[[52]](#footnote-52) The reality is that every country needs to transition from fossil fuel to renewable energy as quickly as possible. The government should lead the way in developing renewable energy in areas such as offshore wind farms and wave power.

During the pandemic, 35,000 workers normally associated with the oil industry around Aberdeen lost their jobs. All of those will need jobs in renewable energy in the next few years.[[53]](#footnote-53)

In September 2021, despite serious concerns about climate change, the barrier to the expansion of Heathrow airport was cleared by the British government. It is estimated that the new runway will boost Heathrow’s capacity by 50 percent, allowing it to fly 280,000 extra flights a year.

China

China, with a population of 1.3 billion people is the largest carbon emitting country in the world.[[54]](#footnote-54) China’s Nationally Determined Contribution submitted on October 28th, 2021, commits the country to four main approaches. It would peak its emissions of carbon dioxide by 2030. The country would also lower the carbon emissions intensity of its economy by 65 percent compared with 2005 levels and, finally, it would ensure that renewable energy sources make up a fourth of its energy mix; and it would increase its forest cover.[[55]](#footnote-55)

China has also pledged not to build coal-fired plants in other countries and to reach net zero carbon emissions by 2060. However, currently as demand grows for more electricity, Chinese factories and industries are experiencing a serious shortage of electricity and are even suffering from blackouts. In response, Chinese political leaders are encouraging their industries to mine and burn coal, despite their commitments to lower their carbon dioxide emissions because of climate change.[[56]](#footnote-56) Currently, tax incentives are being drafted to promote the building of coal-fired power plants. Regulators have encouraged Chinese banks to lend money to the coal sector of the economy even when they breach greenhouse gas levels which were introduced in response to climate change concerns. In October 2021, the Chinese premier, Li Keqiang emphasized the importance of a regular supply of electricity after various areas in China have been plunged into darkness.[[57]](#footnote-57) In the context of the climate change debate, Beijing’s renewed embrace of coal on the eve of COP26 is causing alarm because the latest scientific research insists that greenhouse emissions must be cut by 50 percent to avoid the worst consequences of climate change.

China is also facing its own financial issues because of the massive debts run-up by China’s real-developer Evergrade and other property companies. As a result the entire Chinese economy is slowing down under the weight of debt which has accumulated since the financial crisis in 2008. Many believe that it will follow the same pattern as the collapse of the property bubble in Japan in the 1980s which crippled the Japanese economy.[[58]](#footnote-58) If these pressures continue, the Chinese economy and the political system could come under enormous pressures during the next decade as the population ages.

Chinese leader, Xi Jinping did not attend the COP26. As this is was a UN meeting this was regrettable as China is the world’s top emitters of carbon as a country. However, China’s per capital emissions are far below that of the United States and Europe. The United States per capital greenhouse gas emissions is 15.5 tons as against 6.5 tons for China.

US

Tin 2021 the United States has experienced severe weather events in many areas of the country. June 2021 was the hottest month ever recorded in areas of the United States. The Pacific Northwest experienced an extraordinary heatwave with temperatures reaching 100-degrees Fahrenheit.

In 2021, drought in the Western United States set a 122-year record. Farmers, ranchers and indigenous people all suffered extensively from the drought. These tinder dry conditions can lead to wildfires. The wildfires in California were the worst ever, destroying vast areas of forest and many properties. Hurricane *Ida* devastated many areas in the country from Louisiana to New York.

In response to these events, President Joe Biden has vowed to increase the United States ability to respond to extreme weather by lowing carbon emissions significantly. In October 2021, he had two bills pending on Capitol Hill which included money for infrastructural work such as repairing roads and bridges, social programmes that will care for the elderly and will bring down kindergarten costs for middle class people. The bills include large amounts of money to tackle climate change by investing heavily in renewable form of energy. One of the bills has been passed, the second has still not been voted upon.

One of people blocking the legislation from going through the Senate is Joe Manchin. For over thirty years, Manchin has made a lot of money from Enersystems Inc., a coal brokerage company which he founded in 1988. It is now run by his son. In Congress, Manchin has publicly objected to the clean energy provisions in the $3.5 tn bill and supports building gas-fired power plants.

One can understand the frustration of someone like Joseph Aldy who helped craft the climate change bill during the presidency of Barack Obama. He finds it extraordinary that US energy policy is being drafted by a representative of the fossil fuel industry, rather than being based on the science of climate change.[[59]](#footnote-59) Manchin does support some climate control methods as long at the policies allow for the continued burning of coal, oil and gas. In 2010, Manchin opposed Obama’s bill because it was bad for West Virginia, a coal-producing state. In 2021, Manchin plans to amend President Biden’s Clean Energy Performance Programme worth almost $159 billion which is designed to replace most of the US’s gas and coal-fired power plants with wind, solar and nuclear power over the next decade.

Writing in the *New York Times*, Christopher Flavelle makes the point that while Manchin is blocking President Biden’s bill, his state of West Virginia is very exposed to severe weather and serious flooding. He claims “new data shows that the people of West Virginia stand to suffer disproportionately as climate change intensifies. Unlike those in other flood-exposed states, most residents in mountainous West Virginia have little room to relocate from the waterways that increasingly threatens their safety.”[[60]](#footnote-60) It is important to emphasise that not dealing with global warming will be much more costly than dealing with it now.

Climate change and the Churches

The Catholic Church gave poor leadership on the dangers of climate change during the 1980’, 1990s and 2000s. I attended many COP meetings on climate change during the 1900s and the 2,000s and found very little, if any, participation by the official Catholic Church at these important events. One of the first places where climate change was discussed by Pope John Paul II was in Peace *with God the Creator, Peace with All Creation,* which was published on January 1st, 1990. Unfortunately,Pope John Paul II mixed up climate change with the l depletion of the ozone layer when he claimed that “the gradual depletion of the ozone layer and the related greenhouse effect has now reached crisis proportions as a consequence of industrial growth, massive urban concentrations and vastly increased energy needs.” (Number 5).

In May 2007, the Pontifical Council for Justice and Peace organised a two-day seminar on climate change which I attended with more than eighty people. While there were many excellent presentations from credible scientists, whose writings had been peer reviewed, the organizers also gave a platform to at least four participants who were either in denial about climate change or believe it is a good thing. One of these was Professor Craig Idso, adjunct professor and chairman of the Office of Climatology at Arizona State University. He is chairman of the Center for the Study of Carbon Dioxide and Global Change, an institute whose stated mission is to separate reality from rhetoric in the emotionally charged debate that swirls around the subject of carbon dioxide and global change. Many of us wondered why the Pontifical Council for Justice and Peace invited these climate sceptics to this meeting, given the scientific position which was taken by the Intergovernmental Panel on Climate Change at this time.

In 2009, Pope Benedict XVI, published a social encyclical called *Caritas et Veritate*. There was no mention of climate change in that document though it was published four months before the UN Climate Change conference in November/December 2009 in Copenhagen. Now, just over a decade later, climate change is seen by the Catholic Church as one of the greatest challenges to both humans and the planet.

The document *Fate of Mountain Glaciers in the Anthropocene* published on May 11th,2011 by the Pontifical Academy of the Sciences, marks a huge breakthrough in the Vatican’s approach to climate change. It states that the warming of the Earth is unequivocal. The working party which produced the report included glaciologists, climate scientists, meteorologists, hydrologists, physicists, chemists, mountaineers and lawyers. The document appealed to all nations to develop and implement, without delay, effective and fair policies to reduce the causes and impact of climate change on communities and ecosystems including mountain glaciers and their watersheds, aware that we all live in the same home. Everyone on the planet has some responsibility to deal with climate change, but those who caused the problem in the first place, particularly people in the developed world must act first and help developing countries to cope with climate change.

The *Compendium of the Social Doctrine of the Church* was published in 2004. Chapter 10 is devoted to safeguarding the environment. It is one of the slimmest chapters in the book running to a mere 15 pages. Chapter 6 on human work has 27 pages. The document does not include an important talk given by Pope John Paul II where he calls for an ‘ecological’ conversion. In that book there is only one paragraph on climate change and one on the destruction of biodiversity.

Cardinal Pell a Climate Denier

In his articles in *The Sunday Telegraph* and the *Catholic Weekly*, Cardinal Pell, at that time the Archbishop of Sydney, had dismissed climate change. In a public lecture delivered in the US in February 2006, he said that: “Some of the hysterical and extreme claims about global warming are also a symptom of pagan emptiness, of Western fear when confronted by the immense and basically uncontrollable forces of nature. Belief in a benign God who is master of the universe has a steadying psychological effect, although it is no guarantee of Utopia, no guarantee that the continuing climate and geographic changes will be benign. In the past, animals and even humans were sacrificed in vain attempts to placate capricious and cruel gods. Today they demand a reduction in carbon dioxide emissions.”

In early 2011, Dr Greg Ayers, head of the Bureau of Meteorology in Australia, painstakingly examined the scientific claims which Cardinal Pell made in a letter written and tabled at a Senate hearing in Australia. Critics of Cardinal Pell point out that his climate scepticism is based on the work of a geologist called Ian Plimer. But Plimer’s data has been thoroughly debunked by Professor Ian Enting who is a mathematician at the University of Melbourne.

After the publication of the encyclical *Laudato Si’: On Care For Our Common Home*, Cardinal George Pell publicly criticised Pope Francis' decision to place climate change at the top of the Catholic Church's agenda. He told the *Financial Times* that the church has “no particular expertise in science.” This is an extraordinary statement given the damage that climate change is causing in terms of extreme weather and rising sea-levels. If the average global temperature reaches three degrees Celsius above pre-industrial levels the damage to humanity and the rest of creation will be enormous and long-lasting

The World Council of Churches (WCC)

In 1983, the WCC Assembly in Vancouver adopted a process focused on “Justice, Peace and Integrity of Creation” (JPIC) through which churches were encouraged to work together on these inter-related themes. Many churches became increasingly focused on environmental concerns during this period, adopting policy statements and initiating education and advocacy activities on specific issues. The JPIC process culminated in a World Convocation on Justice, Peace and Integrity of Creation in Seoul Korea in 1990 which I attended. The conference came up with ten theological affirmations and specific covenants for action linking economic inequity, militarism, ecological destruction, and racial injustice and the theological, ethical and spiritual basis for affirming and sustaining life in its fullness

The World Council of Churches (WCC) has given courageous leadership on climate change and other ecological issues through its teaching in *Sign of Peril, Test of Faith; Accelerated Climate Change* which was published in 1994. In that document it presented theological and ethical reflections on climate change and made it very clear that dealing with climate change would require profound changes in every aspect of human life – transport, accommodation, industry and agriculture.

In Solidarity *with Victims of Climate Change,* which was published in 2002, the WCC argued that the ecological, economic and political aspects of climate change ought to be assessed from a justice perspective, especially in the light of the growing gap between the rich and poor globally,

In March 1996, the then President of the Pontifical Council for Justice and Peace, Cardinal Roger Echegaray wrote to the Presidents of the Episcopal Conferences in the industrialized countries, and he acknowledged that the World Council of Churches had taken a leading role in drawing the attention of its member Churches to the relationship between climate change and human activity. He encouraged local Catholic leaders to examine ways in which they could co-operate with any WCC inspired initiatives in their countries. Unfortunately, very little happened. Until the Paris conference on climate change in 2015, the Catholic Church played a very minimal role in the various COPs which took place each year.

*Laudato Si’*

In paragraph 23 of the encyclical, *Laudato Si’* *On Care for Our Common Home* it is clear that “there is a very solid scientific consensus indicating that presently witnessing a disturbing warming of the climate system.” In the same paragraph Pope Francis makes it clear that human beings need to change their lifestyle as well as their production and consumption patterns in order to combat climate change. In paragraph 25 he points out that the poor who did little to cause climate change will be most affected by it. He writes “Many of the poor live in areas particularly affected by phenomena related to warming and their means of subsistence are largely dependent on natural reserves and ecosystemic services such as agriculture fishing and forestry. They have no other financial activities or resources which can enable them to adapt to climate changes or to face natural disaster and their access to social services and protection is very limited.”

In 2019, Pope Francis endorsed the 1.5 Celsius temperature rise above pre-industrial levels recommended by the Paris COP in 2015. That same year he declared a ‘climate emergency,’ because he believed that “future generations stand to inherit a greatly spoiled world. Our children and grandchildren should not have to pay the cost of our generation’s irresponsibility.”[[61]](#footnote-61)

Given the seriousness of the crisis, every parish needs to set up a climate change committee and work with other Christian Churches and other religions to address this critical issue of our time. Such a context of support, at local and national level, will make it possible for people to implement the radical changes in our lifestyle which are demanded by this new IPPC report. And the time to achieve this is very short.

In September 2021 a report from the United Nations warned us that fossil fuel emissions have reached their pre-pandemic levels. The report also drew attention to the fact that the use of power and electricity being used by industry was similar to what was being used in January 2019, before Covid-19 appeared. Viewing these figures the UN secretary general, Antonio Guterres “this is an alarming appraisal of just how far off course we are.”[[62]](#footnote-62)

In this short paper on the perils of climate change I outline the enormous damage which climate change is causing to our planet, in terms of extreme weather, including droughts and floods and the rise in the level of our oceans. I go on to assess the efforts which various countries are putting in place to reduce their greenhouse gas.

Some very important leaders were not there, including, Vladimir Putin, the President of Russia and Xi Jinping, the secretary general of the Chinese communist party. The US President, Joe Biden, came to Glasgow, but without having nailed down a bill in Congress which would underpin the development of clean energy in that country.

Britain, in partnership with Italy led leading COP26, but as I outlined earlier, its unwillingness to raise overseas development aid, means that it is unwilling to help poorer countries adapt to climate change.

The Glasgow welcomed the finding of the August 2021 IPCC report which seemed to suggest that the parties were there to do business. The first draft of the final document called on the parties to accelerate and phase out coal power and the removal of subsidies for fossil fuels. Many counties – India, China, Australia and Saudi Araba - refused to accept this text. The draft document that was produced on Saturday, November 13rd 2021 did not speak of phasing out coal. Instead, it included the words including escalating efforts to phase down unabated coal power, and phase out inefficient fossil fuel subsidies.” “Escalating efforts”, “phase down” (as opposed to phase out)-

But Glasgow failed to reach the crucial objective of ‘keeping 1.5 alive.’

The Climate Action Tracker (CAT) – an independent, non-profit scientific body was in Germany – stated that governmental pledges to curb greenhouse gas emissions by 2030 were totally inadequate. Current pledges will lead to a 2.4 degrees rise above pre-industrial times which will be very challenging.

Mary Robinson agreed that some progress was made at Glasgow, “but nowhere near enough to avoid climate disaster. While millions around the world are already in crisis, not enough leaders were in crisis mode. People will see this as a historically shameful dereliction of duty.”[[63]](#footnote-63) She want on to point out that anyone under 60 is likely to live in a world that is less liveable and face terrible fires, floods, drought and that millions of people will have to leave their homes. The situation will be worst still for those under 30.

Shauna Aminath, the environment minister of the Maldives, an archipelago of low-lying islands in the Indian Ocean that could be inundated within three generations because of rising seas expressed their frustration with what happened at Glasgow26 was enormous. “What looks balanced and pragmatic to other parties will not help the Maldives adapt in time,” . she said. “It will be too late for the Maldives.”

The UN Secretary-General [Antonio Guterres](https://www.business-standard.com/topic/antonio-guterres)was not as dismissive. He said that "he approved texts are a compromise. They took important step, but unfortunately, the collective political will was not enough to overcome some deep contradictions [[64]](#footnote-64) A lot will depend on how thoroughly the world prepares for COP27 in Egypt next year.

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