



SAMI Consulting

robust decisions in uncertain times

WORKING PAPER 2022/02



COP26 GOALS FROM A FUTURES PERSPECTIVE

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COP26: GOAL ONE – TOO LITTLE, TOO SLOWLY

The UK will host the 26th UN Climate Change Conference of the Parties (COP26) in Glasgow on 31 October – 12 November 2021. The COP26 summit will bring parties together to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change. The Glasgow conference has four goals:

1. **Secure global net zero by mid-century and keep 1.5 degrees within reach**
2. **Adapt to protect communities and natural habitats**
3. **Mobilise finance**
4. **Work together to deliver**

In this Working Paper, which first appeared on our website as a series of blogs, we will look at each of these goals in turn. We're looking at them from a futures perspective – based on what our horizon scanning is telling us, are these goals realistic? Are they appropriate? Can they be achieved – and what happens if they are not?

This section looks at the first goal, which is divided into four subgoals:

- accelerate the phase-out of coal
- curtail deforestation
- speed up the switch to electric vehicles
- encourage investment in renewables.

Is there any more to be said here? The [UK is phasing out electric and diesel vehicles by 2035](#) and aiming to be [entirely dependent on renewable energy for electricity generation](#) by the same time. China [will stop building coal-fired power stations outside of its borders](#). John Kerry, the US Special Envoy for climate, says COP26 will be a “big leap forward on climate crisis” where [“we will have the largest, most significant increase in ambition \[on cutting emissions\] by more countries than everyone ever imagined possible.”](#)

So we're there, right? The world has finally woken up and is now taking action.

Not according to the International Energy Agency. The 2021 World Energy Outlook, just released, is clear. [“Current plans to cut global carbon emissions will fall 60% short of their 2050 net zero target”](#). Whilst “a new energy economy is emerging” simply – as they put it – [“keeping the door open to 1.5 degrees”](#) requires \$4tn every year between now and 2050.

SAMI Consulting, as a company, decided to build in climate change to every scenario project we undertook, regardless of subject, about four years ago. Our work showed us that climate change was not just about the weather but was going to impact every part of every life on the planet, starting very



soon. In the last year, we have seen that impact getting close to home, in floods (China, Europe, US, UK, Philippines), and wildfires (Siberia, California and swathes of Europe).

As time has passed, we have collectively become more concerned. First-order effects (excess heat, ice pack melt and so on), second-order effects (fire, Gulf Stream changes, flooding) and third-order effects (migration, crop failure &c) are increasing. When it used to be possible to say “by 2050” when contemplating climate effects, one now has to say “today”.

A useful futures tool is the cone of plausibility – which states that the further away from the origin point one goes, the more possibilities are enshrined in the future. Whilst the most likely future travels through the middle of the cone, as it expands away from the origin, the cone widens as the range of possible futures grows.

The range of possible futures as far as temperature increase is concerned is generally taken to be from +1.5 degrees to +4.5 degrees – though these figures themselves are somewhat arbitrary.

The simple increase in temperature, though, does not consider the second and third-order effects – and it is clear from the experience of the last twelve months that these impacts are considerable, even at the sub-1.5 degree level.

So we agree with the IEA. Simply put, **too little is being done, in too few parts of the world, too slowly.**

Let’s look at the COP26 first goal again and break it down into what it says – and what it means.

“Secure global net zero by 2050”. Ambitious, probably impossible, unless China, India, Africa and Latin America can be engaged, supported and funded. And in itself, not enough. As long as large parts of the world continue to use cars, boats and planes, provide electricity through coal-fired power stations and diesel generators, burn wood for fuel, and prioritise economic growth over climate, it matters not a whit what the UK does.

“Keep 1.5 degrees within reach”. A miss is as good as a mile, and the phrasing “within reach” implies a miss is being planned in.

The subgoals are as bad. “Accelerate the phase-out of coal”, “curtail deforestation”, “speed up the switch to electric vehicles”, and “encourage investment in renewables”. Understanding that these phrases have been argued about in vape-filled rooms for the last few years, they are vague, target-free and narrow. Where is the investment in hydrogen? In carbon capture and storage? In their understanding of the global level of change that needs to occur?

Developing future scenarios is fascinating, and often joyful, work. The range of possible futures for the world is enormously wide ranging – humanity has an endless capacity for innovation, an almost deranged ambition, and both the materials and education to think way beyond its current state into near-paradisical futures. The flip side is that futures can often be intimidating, and nerve-wracking. The



same ambition that will take us to Mars can be turned to developing weapons of war and systems of oppression. Self-interest and clannishness slows progress and limits unified action.

And so it is with COP26 Goal 1. The cone of plausibility does not seem to include “swift, effective action” except on the edge of the cone. Based on Goal 1, our “anticipated future” looks a lot worse than it did only ten years ago. Which means our outlying “possible futures” look nerve-wracking indeed.

We next address Goals 2-4. Maybe there will be something in them which lifts the spirits a little. Maybe.

COP26: GOAL TWO – AMBITION MEETS POLITICS

The previous article looked at COP26 Goal 1, which we concluded was too little, delivered too slowly. The news from the [UN Environment Programme](#) reinforces our view: “Fossil fuel production planned by the world’s governments “vastly exceeds” the limit needed to keep the rise in global heating to 1.5°C and avoid the worst impacts of the climate crisis”. Notably, the report makes clear the gap between production and target “has remained unchanged since 2019”.

Goal 2 is even more gloriously vague than Goal 1:

Adapt to protect communities and natural habitats

The climate is already changing and it will continue to change even as we reduce emissions, with devastating effects.

At COP26 we need to work together to enable and encourage countries affected by climate change to:

- protect and restore ecosystems
- build defences, warning systems and resilient infrastructure and agriculture to avoid loss of homes, livelihoods and even lives.

This is, frankly, an ambition, not a goal, and not a particularly well-articulated one at that. [“COP26 Explained”](#), the glossy publication produced to accompany the conference, provides a little more detail. Absent the rhetoric, there are two central policies, which can be summarised as “make a plan” and “talk to each other”:

“All countries should produce an ‘Adaptation Communication’ ...

The UK has co-developed the Adaptation Action Coalition... The coalition is bringing countries together to find solutions to some of the most challenging impacts of climate change, and we are inviting all countries to join us.”



Undoubtedly, a comprehensive, rich substratum of reports, meetings, best-practice analysis, science, and planning underlies these seemingly obvious recommendations. These apparently trivial recommendations are the result of much delicate balancing to find common ground. Achieving consensus amongst a wide variety of political regimes, economic ambitions and capability, social attitudes, and preparedness to listen to science, is the art of the diplomat.

But when HMG's own Environment Agency is publishing comments such as "[Adapt or Die](#)", that common ground seems quite shaky. The Agency's "[Third Adaptation Report](#)" is one of the types of documents that have been fed into the COP26 process – detailed, thoughtful, well researched and dense with actions. SAMI has contributed to this thinking through our work on flood and coastal erosion risk management. The [EU Council's position for COP26](#) is equally hard-hitting, at least in its stress on urgency.

Anyone who has worked in or with a large organisation will be aware of the problem. Detailed, thoughtful work is produced. It goes up one level, is amended, sent down, rewritten, approved, goes up another level, and the process repeats. In the end, what comes out of the process is the detailed work masked by the acceptable statement. (Both the European Council and the Environment Agency are to be commended for allowing some of the detail to show through in the final publications).

The acceptable statement then runs up against political reality. As Craig Mackinlay MP said on LBC on 19 October, "[I don't actually feel this is a very Conservative policy when you're asking my constituents to be colder and poorer.](#)" Now, whilst Mr Mackinlay is slightly *parti pris* here, chairing as he does the "Net Zero Scrutiny Group", which itself takes its campaigning positions from the climate-change-sceptic [Global Warming Policy Foundation](#), he makes an important political point. A lot of what needs to be done, and fast, is politically highly challenging. And when such bland ambitions inform the debate as Goal 2 on the one side, it is much easier for the other to develop emotional, compelling political arguments against them.

The House of Commons Foreign Affairs Committee's report "[A climate for ambition](#)" shares some of our concerns. Even the [government's response](#) acknowledges that "**COP26 must now translate these words into actions**". As HM the Queen is reported as saying, "[It's really irritating when they talk, but they don't do.](#)"

Spending our lives in many possible futures, SAMI team members have thought about and delivered work on climate change and routes to mitigation. Like many, we fear that goals will be missed and that risks will increase. (It's worth mentioning the range of opportunities provided by climate change mitigation efforts. We fear those will not fully come to pass either). The [Paris Agreement on Climate Change](#) was a significant moment when the future was potentially recreated in a way that worked. Goal 2, as it currently stands, is a different future than that of Paris – and takes us into possibilities that seem, at this stage, far scarier.



COP26: GOAL THREE – EYE-WATERINGLY EXPENSIVE BUT ACHIEVABLE

In our previous articles, we examined the first two goals for COP26. We concluded that Goal 1 (the climate goal proper) was [too little, delivered too slowly](#). Goal 2, we said, was victim to what happens when [ambition meets politics](#). Goal Three is the finance goal.

An all-important problem with the transition to a green economy is not necessarily what we do. We know what we have to do – we have to stop producing carbon and greenhouse gases, transfer to renewal energy (and nuclear, which is a vital component of the energy mix for the foreseeable future). We have to capture and isolate as much of the existing atmospheric carbon as we can. The problem is how we do it fast.

This is not going to be cheap. As [The Economist](#) says, “achieving net-zero carbon emissions will be eye-wateringly expensive.”

Goal Three is:

3. Mobilise finance

To deliver on our first two goals, developed countries must make good on their promise to mobilise at least \$100bn in climate finance per year by 2020.

International financial institutions must play their part and we need work towards unleashing the trillions in private and public sector finance required to secure global net zero.

Since it has already been broken, let’s examine the broader question of financing the energy transition.

THE COSTS OF THE ENERGY TRANSITION...

Ignore, for a moment, the fact that we are in 2021 and that, therefore, one hopes that the date in the goal is a typo caused by the delay of COP26 due to the pandemic. \$100bn in climate finance per year does not seem very much. As we have said before, these statements are politically acceptable, and presumably, this is the minimum figure. However, we are now in 2021. Assume that we meet this goal, and between now and 2050, the aim is to raise \$2.9 trillion between now and 2050. (\$2.9 trillion at today’s value. This figure will go up the further away from today we are).

We know this goal is [not going to be reached this year](#). Which means it’s now going to be two years late. And, as Mohamed Adow, the director of the [Power Shift Africa](#) thinktank in Nairobi, points out, it is less than the UK intends to spend on HS2.

Climate finance is a highly complex topic. Writing this article embedded us in figures, none of which agree; policies, none of which are complementary; and aspirations, few of which are funded. A splendid



piece from Irina Slav in one of the leading [oil and energy](#) newsletters, Oil Price, looks at the [true cost of the energy transition](#). Slav's analysis is as comprehensive as one can be at her time of writing (November 2020) and remains useful:

- \$15 trillion in new power capacity, of which 80% will go into renewables
- \$14 trillion into investment in energy grids
- \$1 trillion in investments in several vital metals (for instance, demand for silver going from 24k tons a year to up to 700k tons).
- Massive growth in energy storage (100GW in 2015 to 500GW by 2050)
- And so on.

And on top of that, Tuesday's report from the [United Nations Environment Programme](#) makes clear that on our current plans, we're heading for a 2.7C increase: almost double the Paris aspiration of 1.5C. The [subhead of the report](#), "A world of climate promises not yet delivered", could easily be the title of this series.

So whatever we have projected is wrong and insufficient.

...AND HOW TO PAY FOR THEM

There is, though, a "however".

The [International Energy Agency's World Outlook 2021](#) shows that (a) renewables are the future and (b) investment in renewables will pay itself back. (There is an excellent dismantling of the old fossil fuel arguments using the IEA's report at [Carbon Commentary](#), for those who want to win the next "oil is here to stay" argument).

Hertz is spending [\\$4.2 trillion to buy 100,000 Tesla cars](#) to move a significant portion of their fleet to electric within 14 months.

Organisations like BP are talking about ["greening at scale"](#).

At a recent conference I chaired, [the Natural Resources Forum's ESG Week](#), participants showed the sweeping change in the extractives industry. They know they need the social licence to operate that climate-friendly business delivers. This change is [demanded by their investors](#), [mandated by their regulators](#), and wanted by their customers.

And it is here that we are finally, in this series, able to deliver a positive. Climate finance will happen, not because governments are going to deliver it, but because business is. The OECD has a [helpful guide](#). As far as governments are concerned, the problems are too large, too far away, and too expensive.



Governments need to spend their money as climate change mitigators of last resort – places where businesses, companies and investors cannot find a return sufficient for them to engage.

But where governments have a role is in [setting the legal and regulatory environments within which companies can operate](#). Because it is the companies that have the money, the access to funding, and the motivation to make a real difference, and they are only just starting to do so.

As one of the participants at ESG Week said, “we need government to set the regulatory environment and then get out of the way. We can do the rest”.

It’s not ideal. It doesn’t meet another broken COP26 goal. But it provides a hope that the vast amount of money needed for the climate transition is available. It just isn’t available from governments.

COP26 – GOAL FOUR: AVERTING DISASTER?

We examined the first three goals for COP26 in previous articles. We concluded that Goal 1 (the climate goal proper) was [too little, delivered too slowly](#). Goal 2, we said, was victim to what happens when [ambition meets politics](#). Goal Three, the finance goal, was [achievable](#) if the private sector could be adequately engaged.

Goal Four seeks to achieve what was laid out in the previous three goals. “Working together to deliver” aims to bring together government, business and civil society to meet the climate crisis in the context of finalising the Paris Rulebook.

From experience, we’re expecting fine words and less fine actions. Fraser Nelson [puts it well](#): “Glasgow has ended up with the classic climate-change summit problem: plenty of protests, but most leaders in no position to make promises – their power limited by parliaments and public consent”.

For example, the UK Chancellor of the Exchequer (the finance minister) delivered a budget on 27 October – a few days before COP26 starts. As [Carbon Briefing](#) points out, “In a budget speech that failed to use the word “climate” even once, Sunak said he would cut the rate of ‘air passenger duty’ on domestic flights and freeze fuel duty for a twelfth consecutive year.” The [Financial Times](#) pointed out, “Sunak offered no major new green spending promises. Instead, he re-announced an array of previous commitments.”

“By their deeds shall ye know them,” indeed.

Goal Four reads like this.



Work together to deliver

We can only rise to the challenges of the climate crisis by working together.

At COP26 we must:

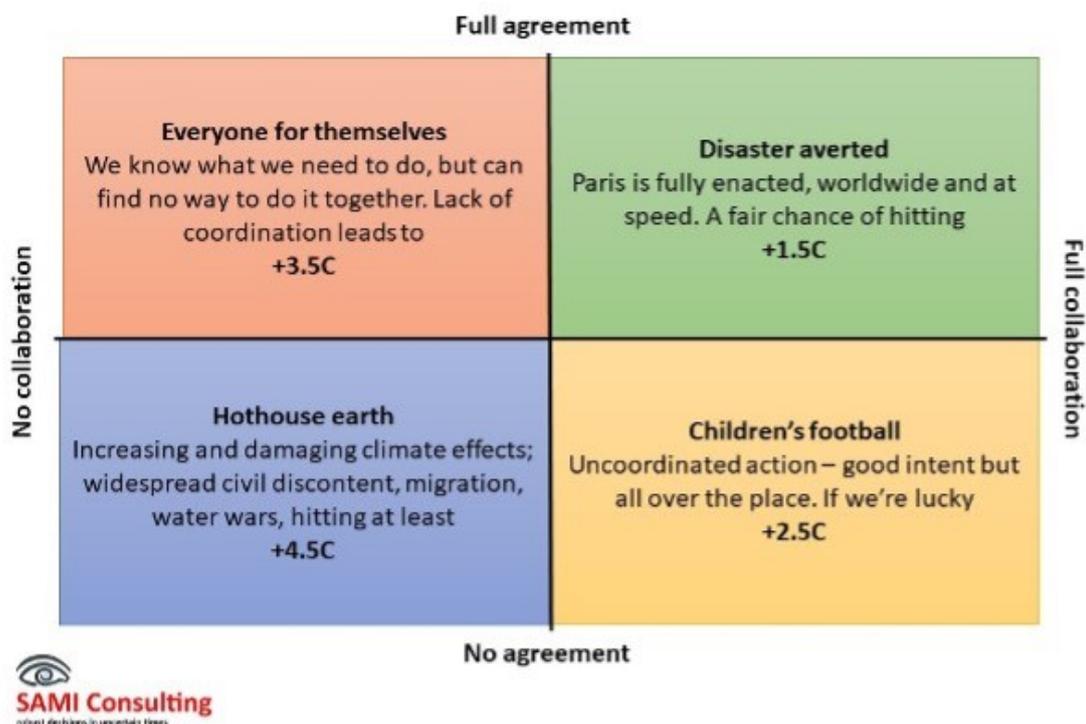
- finalise the Paris Rulebook (the detailed rules that make the Paris Agreement operational) accelerate action to tackle the climate crisis through collaboration between governments, businesses and civil society.

BUILDING A SCENARIO SET FOR GOAL FOUR

This goal has two priorities, and we can do some “traditional” scenario work here. The two axes here allow us to develop a scenario cross.

Scenario crosses are the basic foresight model. Indeed, it is where SAMI starts. Our initials stand for St Andrews Management Institute, a [joint venture](#) by St Andrews University and Royal Dutch Shell some thirty years ago, at the point when scenario planning was moving into the business world.

Two axes give four quadrants, describing four possible futures. Our first axis is the finalisation of the Paris Rulebook. Let us take the extremes as being from “no agreement” to “full agreement”. The second axis is “collaboration”; here, we can go from “no collaboration” to “full collaboration”. Plotting them onto our four-quadrant cross gives us four scenarios.





UNDERSTANDING THE QUADRANTS

Bottom left is where no agreement and no collaboration meet. The Paris Rulebook is not put in place. Action is not accelerated. Governments cannot agree, let alone establish a framework to connect with business and civil society. The consequences are dire: as we move towards +4.5C, climate impacts start rendering parts of the globe both uninhabitable and unfarmable. Millions begin to move in search of food and security. Sea level rise is inexorable.

The top left is where we agree on what we must do, but Goal 4 fails. We cannot collaborate internationally (because of Nelson's "power limited by parliaments and public consent"). Whilst each individual country does act, it is patchy and uncoordinated. All we need is for two or three large emitters to fail to move at the same speed as the others, and the goals are missed. We project this is the second worst option. Everyone's signed up to Paris, but it means nothing if they do not do it together.

The bottom right is almost the same, but for different reasons. We've all seen a children's football game – everyone chases the ball, but there is no plan, so all you get is a lot of running around but no goals. The same holds true here. There is no agreement for enforcing the Paris Agreement, but everyone is trying to do something. Potentially, the benefit in this scenario over "Everyone for themselves" is that the collaboration and good intent gives rise to technological solutions which could be game-changers.

Equally, this scenario – which implies collaboration and therefore goodwill – also opens the door to Paris being finally agreed, but very late. It is this hope which makes us project this scenario at +2.5C – awful but not catastrophic.

Top right is "Disaster averted". Both of Goal Four's objectives are met, in full. There is complete agreement on the Paris Rulebook, so the ground rules are clear. Governments work together, establishing the targets and regulatory frameworks that business needs. Citizens are fully engaged and press both governments and industry to play their part. +1.5C is met. Most severely affected by climate change, developing nations are supported, while the G20 swings firmly behind renewables.

WHICH SCENARIO SEEMS MOST LIKELY – AND WHY?

The signs showing which scenario develops are, at best, contradictory. Three signals serve to illustrate the confusing nature of the future:

- The US infrastructure bill includes some [\\$550bn in climate change programmes](#). This would contribute to President Biden's pledge to [cut emissions to 50% of 2005 levels](#).
- But China goes to COP26 with no new promises, promising only to [peak emissions before 2030](#), with carbon neutrality by 2060.
- And India has [refused to set a net-zero target at all](#), despite being the third-largest emitter of greenhouse gases. (Since initial publication, India has committed to carbon neutrality by 2070)



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Our scenario cross shows that if we can only have one of the Goal Four subgoals, it should be collaboration. Unfortunately, it is in collaboration where politics sits.

Ironically, the most significant goal of COP26 is a subsidiary objective of Goal Four. But there is, in truth, little debate about what needs to be done. Where the genuine hurdle lies is in how to achieve the consensus to do it. And that is a political problem, finely balancing what countries need to do with what their governments believe in and achieve.

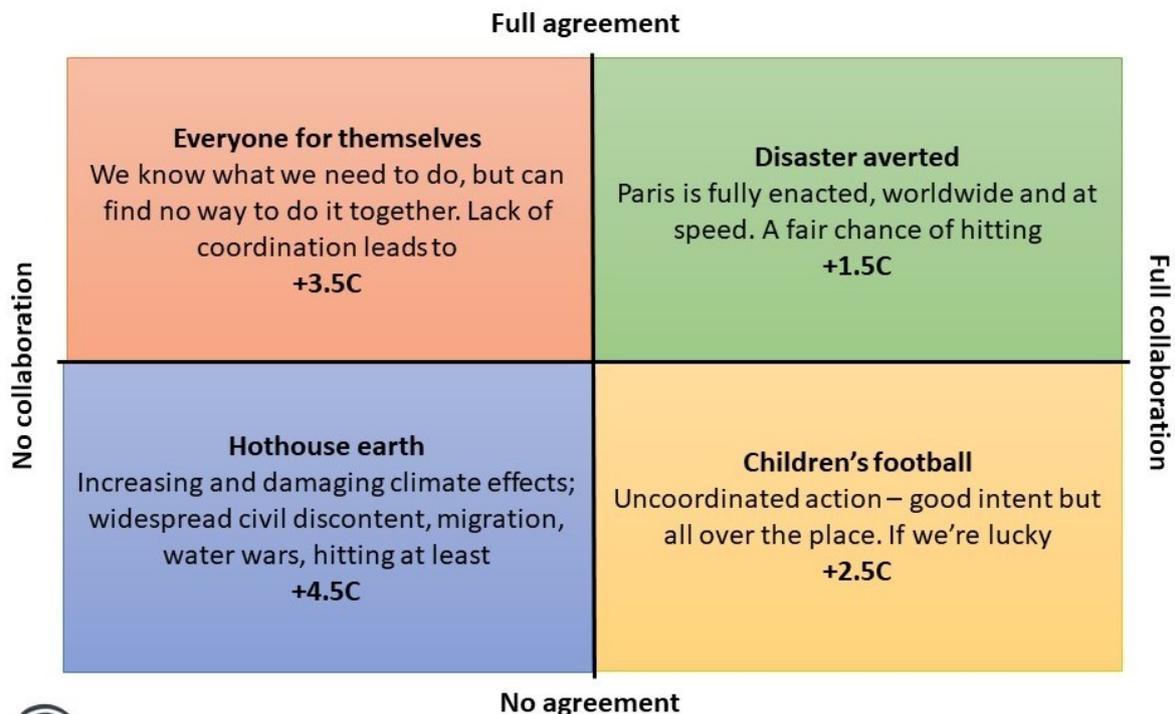
Readers of this short series will know that we understand the complexity of achieving that delicate balance and our suspicion that it may not be possible. Instead of “Disaster averted”, we suspect the future looks like “Children’s football” or “Everyone for themselves”. The consequences of either scenario, in lives, economies, peace and war, and what world we leave our children, are grave.



EVERYONE FOR THEMSELVES – THE WORLD AFTER COP26

COP26 concluded on [12 November](#). Since then, we have seen quick takes, considered reviews, [relief](#) and [anger](#). [Too little has been done](#); [too much has been done](#). The [ground has been laid for 1.5 degrees](#), or we are [heading to 2.7 degrees](#) or more.

In our [final article before COP26](#), we introduced a scenario set, which encompassed the various possible outcomes of the conference – and what they would mean. The scenario set looks like this.



“The advantage of having low expectations,” my mother used to say, “is that you can be reasonably sure they will be met.” We certainly went in with low expectations. We said: “Instead of “Disaster averted”, we suspect the future looks like “Children’s football” or “Everyone for themselves”. The consequences of either scenario, in lives, economies, peace and war, and what world we leave our children, are grave.”

There are many takes on the conference outcomes, and this is not the place to rehearse them again. Carbon Brief has produced a superb, extended, [detailed analysis](#), which we recommend.

[Alok Sharma’s tears](#), though, which came at the last minute as India insisted on an amendment giving coal yet more breathing room, set the scene for our analysis.

There are [many good things](#) to have come out of the conference, which include:



- The ending of deforestation by 2030
- Expanding the Galapagos reserve
- Pledges to move to net-zero
- Big promises from Brazil
- India pledging to get to net-zero by 2070
- The US pledge to help developing nations financially
- An agreement on methane
- An unexpected (not least by the British organisers) agreement between the US and China
- Seventy-seven countries agreed to phase out coal by 2040.

As [António Guterres](#), the UN secretary general said, Cop26 “is an important step but is not enough.” He said that what was achieved at the conference was “**some building blocks for progress.**”.

After the conference, we have three questions:

- Is it enough?
- How does it map against our expectations?
- How does it map against our scenarios?

It is not enough. The victorious [tweet](#) from the organisers cannot disguise this one vital fact: “The Glasgow Climate Pact has been agreed. It has kept 1.5 degrees alive. But, it will only survive if promises are kept, and commitments translate into rapid action.” Alive, then, but on life support, and the overwhelming consensus is that we are heading for at least 2.7 degrees of warming.

Does it map against our expectations? Unfortunately, yes. Readers of this series will know that our only significant hope was that government sets the correct regulations, which industry – after all, the prime emitter – will follow, and finance.

Further, and it seems absurd it has taken this long, in the final declaration, fossil fuels were acknowledged as the leading contributor to climate change. The [recognition of climate science](#) is another crucial building block in developing international cooperation.

And there are concrete actions. President Biden’s declaration that the US Government will be [carbon neutral by 2050](#) is a sign of hope. The federal government is the largest energy consumer, landowner and employer in the USA – when it commits like this, things will have to change. Portugal is the fourth EU country to [quit coal](#) (Belgium 2016, Austria and Sweden 2020); Germany aims to [stop using coal by 2030](#) (but Nord Stream 2 may still be an issue). And China will plant [36000 km2 of trees every year](#) to 2025.

This is just a tiny sample. There is much happening, and much of it is positive.

Mapping these points against our scenarios gives us an idea of where we are going. The relevant issues, looking at our quadrants:



Do we have an agreement? Yes, we do. It's [not enough](#) to limit us to 1.5 degrees, but there is an agreement in place, and it focuses on actions, not just ambitions.

Do we have collaboration? Some. The Glasgow Climate Change Pact is important, but perhaps more so is the agreement between the US and China – two of the world's largest emitters making their own agreement which in many respects is superior to the Glasgow outcomes. But net-zero dates are all over the place. Brazil, one of the most important nations in climate mitigation, made [promises of little value](#). Alok Sharma was reduced to tears.

The good news, then, is we seem to be above the midline on our scenario set. "Hothouse earth" and "Children's football" seem to be avoided. We are not in the full agreement/full cooperation quadrant, though – the agreement is weak, and cooperation is limited.

In our view, the world after COP26 is in the quadrant we called "Everyone for themselves". We know what we need to do, but nations will do it mainly by themselves, in the hope that the combined effect of all their actions is enough. Or at least, enough for them.

There's a precedent here, in the rise of the Omicron variant. Omicron is believed to have developed – and is at the time of writing doubling every two days in the UK – because of the inequity of [vaccine availability in the developing world](#). The developed nations are now at the booster stage, having moved beyond vaccination. Developing countries are only just getting going.

As with vaccines, so with climate change. Action begins at home – so the developed world will move relatively swiftly to net zero, with the rest of the world, forced to use their own resources in the context of expanding populations and poverty, will trail behind. And just as in vaccines, the failure to bring everyone up simultaneously will mean that climate change effects are felt worldwide, no matter how much the UK, for instance, becomes carbon neutral.

Every year that passes now only increases the risk of our projection of 3.5 degrees, absent rapid, radical change. COP26 did not lay the groundwork for that change. COP26 had many positive elements. It was not enough. Our future seems to be, on this brief survey, the scenario we have called "Everyone for themselves".

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