

Chapter 3 Why climate change agreements are not working

*“Good things of day begin to droop and drowse;
While night’s black agents to their preys do rouse.
Thou marvell’st at my words: but hold thee still;
Things bad begun make strong themselves by ill.”*

The UN Climate Change Conference (Conference of the Parties, COP) met in November 2012 for its eighteenth round of talks. Christiana Figueres, UN executive secretary, proudly summed up progress with the statement¹, *“the current pledges under the [second commitment period of the] Kyoto protocol are clearly not enough to guarantee that the temperature will stay below 2 deg C and there is an ever increasing gap between the action of countries and what the science tells us.”* With these words, she told a world sitting on the edge of the climate change abyss that the conference was a total failure. No event in human history has been as important. Her words should have sent a bigger panic and chill down spines of the world’s population than Neville Chamberlain’s declaration of war did to the British in 1939. The destruction to be unleashed is many orders of magnitude greater. Yet no warning was given that this would meltdown the planet. There was no apology for inaction; no plan to go back to the drawing board and try again; no great screaming of panic and impending doom from the world’s press. In comparison with the scale of failure, nothing. In its place was self-congratulation that the world’s governments had been persuaded to agree to the flawed and inadequate process of the second Kyoto agreement and that they would reconvene next year.

It is time to ask fundamental questions about the whole process. Why do all the participants agree to mutual suicide by ignoring the clear evidence from the science of climate change especially when evidence on the ground is now so unmistakable? If the climate talks have failed eighteen times, does this indicate there is a structural failure in the process and should we conclude that it will continue failing irrespective of how many best wishes and hours of toil are expended in the future? Should we give up on the current process and try something completely new in the short time still left to us?

The situation is deadly serious and the current mode of operation which allows failures to continue cannot be tolerated. The world is struggling with these failures against a ticking clock and time has run out. It is a situation quite unlike the cold war stand-off where it appeared that both sides could effectively stay stuck in an indefinite stalemate. Unfortunately, nothing in any of the discussions or agreements that have emerged from previous conferences gives even the slightest glimmer of hope that substantial greenhouse gas emission cuts can be made in time. In fact, the opposite is the case.

The Durban Platform² agreement demonstrates this. It was drafted at the

¹Doha closing briefing by Christiana Figueres
http://www.youtube.com/watch?v=XB_lYP3SM_U

²Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action

end of the seventeenth round of climate change talks to much fanfare in the world's press. The pinnacle of its achievement was the statement "*The Ad Hoc Working Group on the Durban Platform for Enhanced Action shall complete its work as early as possible but no later than 2015 in order to adopt this protocol, legal instrument or agreed outcome with legal force at the twenty-first session of the Conference of the Parties and for it to come into effect and be implemented from 2020.*" This is an unbelievable statement; by 2020 it will be too late. The exponential growth curve that the world's economy followed over the last 10 years has led to the same damage being inflicted on the ecosystem as that inflicted for the past one hundred years. If left unchecked the damage we will inflict between now and 2020 will be so extreme there will be no chance of any recovery. The agreement gives only reassuring words and no hard targets the world should be collectively working to. There is no discussion as to how the law will be enforced, who will hold the monopoly of violence that law ultimately depends upon and how use of this force will be arbitrated. This is the ultimate document that mankind's future is to depend upon, yet it offers so little. It is a desperately cynical attempt to maintain business as usual to the bitter end.

To understand why these talks continue to fail, we must consider them in the wider context of a world split into nation-states. These must all compete with each other for their individual survival. That competition is economic and military and there is a symbiotic relationship between the two. A strong economy can develop a strong military, which in turn can be used to secure mineral, energy resources and markets to allow continued economic growth and food for its population. In a world where access to increasingly scarce resources is increasingly critical to the economic and military survival of individual nations, then it is imperative that individual nations remain highly competitive both economically and militarily. If a nation decides not to be militarily competitive, then it must seek an alliance from someone else, it ultimately amounts to the same thing. However, maintaining the ability to compete requires more critical resources and so a downward spiral quickly ensues. It engulfs all players whether they want to engage in the competition or not as they are all forced to compete for the same scarce resources. They can only do this with strong and expanding economies which paradoxically requires more scarce resources, amplifying the competitive tension.

It is instructive to look at recent conflicts through this perspective.

The most traumatic conflict of modern times with the most far reaching impacts has been the second Iraqi war. This was an event that totally traumatised the Iraqi population as well as demonstrating to much of the US population that their highly principled founding ideals of democracy and liberty had been smashed apart. It led to the destruction of the critical infrastructure of an entire country and plunged an entire region into permanent civil war. The ultimate cause was to ensure that critical oil supplies would be delivered to the biggest consumers from a trusted supplier. In 2001 the US was at the height of its super power status but it faced the destabilising prospect of rising oil prices.

http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_durbanplatform.pdf

This would cause two simultaneous effects; it would weaken the economic power of the US and its allies while strengthening rogue competitors such as Saddam Hussein.

In the calculus of George Bush and Tony Blair they knew that delaying the war was not possible. A delayed war would mean at the commencement of hostilities their economies would be too weakened by rising oil prices and Saddam Hussein's would be too strengthened for that war to be waged successfully. So they struck when they still had the strength to do so using a concocted story about weapons of mass destruction for justification. Tony Blair acknowledged this in the Chilcott enquiry when he said, "*It is at least surely arguable that he [Saddam Hussein] would have not changed, been there with a lot of money and the same intent.*" From a war fighting perspective, this proved to be the right decision. Oil prices started their anticipated rise in 2004 immediately after the conflict, rising from about \$30 a barrel at the time of the war to \$120 in 2008. The stranglehold this caused to the world economy led directly to the banking collapse of 2008. It is absolutely inconceivable the US would have felt strong enough to wage the war against this background of financial collapse. Despite the destruction caused and the overwhelming view in world opinion that the war was a disaster, an interesting question to raise is what would have happened if the war had not be fought. An emboldened Saddam Hussein in receipt of billions of oil revenues in a world where weapons of mass destruction are cheaply and quickly available and high technology conventional forces are available to he who has the most resources could eventually become another deadly challenger to a weakened Western alliance at the same time as other challengers emerge around the world. The US and West would also have faced punitive costs encircling Iraq and their permanent presence in the Saudi Arabia would further have inflamed Islamic extremist opposition.

Though short, the intensity of this war was on a scale that had never been seen before. It is estimated by the American Petroleum Institute that in the first three weeks of hostilities, the same amount of fuel was used as by all the allies in the entire First World War. A logistics bridge was built across the world that surpassed the Atlantic convoys. New weapons systems based on depleted uranium only available to nations with nuclear industries led to the total destruction of the enemy and his environment. The total cost to the US will probably never be known, but estimates now put this at up to \$6 trillion³. Ultimately this war will cost the US even more than the Second World War. More seriously unlike most of America's previous conflicts, the Iraq and Afghanistan conflicts have been financed almost entirely by borrowed money that sooner or later must be repaid⁴. This can only be repaid through economic growth which requires more scarce fossil fuels which were the cause of the war in the first place. These accumulating debt commitments of the US due to its war fighting exploits make contracting its economy to the zero carbon model needed

³<http://www.reuters.com/article/2013/03/14/us-iraq-war-anniversary-idUSBRE92D0PG20130314>

⁴<http://www.independent.co.uk/news/world/americas/war-on-terror-set-to-surpass-cost-of-second-world-war-2304497.html>

for survival impossible. They are driving the US exploitation and development of unconventional oil sources such as tar sands, shale gas and shale oil.

In a consumerist economy the past, present and future costs for the military can only be paid for by expanding discretionary expenditure across the whole economy. This applies to the US and every other market based economy on the planet. Put simply, if everyone opted for a zero carbon life style and consumed just enough for their daily survival by growing their own food, producing their own energy and walking to work there would be zero taxes raised and existing debts would never be paid, in particular government debts would not be paid. It is to avoid this apocalyptic financial collapse that we are encouraged to spend and borrow to excess. It means that the UK needs people flying from new airports on holidays that they don't need, buying cars to go to place they don't need to go, etc. It is this unnecessary excess consumption that prevents the economy from collapsing. Each one of these acts adds its own environment cost through additional carbon emissions to the atmosphere and damage to the planet through the extraction of fuel and resources along with associated human rights abuses. This unsustainable environmental cost is what we must pay to keep financial system intact. It is easy and fashionable to blame bankers for the crisis that we are in and they are certainly worthy of considerable blame. However, the stupefying cost and implications of the Iraq war which was started when the US was already in debt indicates a much more systemic failure driving the problem. This is the need to remain competitive in a declining world.

This problem is about to get a whole lot worse. The UK and US are both about to commence the replacement of their at sea deterrent, the Trident missile system, along with all the other P-5 nations and India. The UK government claims that like for like renewal will be in the order of £20billion. The anti Trident campaign groups have taken Greenpeace's cost estimate of £100billion which includes ongoing operational costs and the costs of other military assets which must be dedicated to defending Trident such as antisubmarine warfare ships and planes. However what neither have acknowledged is the additional excess consumption that the economy must maintain to raise the taxes to pay for Trident over and above that needed for the basic survival associated with a zero carbon economy. With UK tax rates, approximately £500 billion unnecessary economic activity is needed. This excess consumption needs energy from fossil fuels that are increasingly scarce and already being fought over on a destabilising global scale. The paradox is that if this dangerous discretionary spend is not maintained at an exponentially increasing level, then the competition costs of the military cannot be funded. Maintaining this is the antithesis of what is needed tackle climate change. It means that once the decision is made to proceed with Trident it becomes even more impossible to achieve climate change agreements.

It is against this environment of life and death competition where nations are caught between increasing competition costs and crippling penalties such as invasion or loss of access to critical markets and resources if they fail to compete effectively that they must paradoxically co-operate to tackle the mutual threat of climate change. This puts all nations in the horns of an equivalent

dilemma. They can either co-operate with other nations in cutting greenhouse gas emissions to tackle the mutual threat of climate change, or they can decide to continue building competitive advantage against other nations to maximise their own prospects of survival in an increasingly dangerous environment.

The fundamental problem is that making large cuts in greenhouse gas emissions requires large cuts in fossil fuel consumption which weakens the economy. Despite all the best hype, no nation has been able to transition from a fossil fuel based economy to a renewable and zero carbon economy. This is not because of lack of will power, it is because it is impossible to make the transition and the numbers simply do not add up. David McKay's book *Without Hot Air*⁵ amply demonstrates that although the energy potential of renewables is high, it is not as high as the total energy demands of an industrialised and growing economy. To make matters more complicated a nation using entirely renewable resources would be unable to compete against other nations either militarily or economically. Though it is true that much of electricity consumption can come from renewable sources, that is not the totality of energy demands. Large sources of energy are still needed for manufacturing processes, fertiliser production, domestic heating, transport and the manufacture and operation of the military. Without these energy sources being delivered reliably a nation will be impoverished economically as it loses markets, the ability to purchase food on the international market and control of vital overseas resources through military failure.

As no examples exist where a major industrial nation or trading block has made a successful transition from fossil fuels to renewable power, it is sensible to look at examples made in reverse that do exist and where the world went from renewable wind power to steam power.

In the 1870s the UK stole a lead on the rest of the world with the development of its steam powered Navy giving it an instant and massive advantage over competing nations. Steam power not only provided enough power to make a large ship faster than anything else on the water, but most critically it gave reliable power and that allowed the ship to carry better armour than any other ship on the planet. Any nation that decided to compete with the Royal Navy or similar ships using wind powered battle ships would see their navy devastated in combat. There was no way that a nation could argue that its security would be enhanced by avoiding reliance on polluting and dangerous coal supplies and staying with wooden wind powered sailing ships, which is often the argument used today about why we should transition to renewables. There was also no great global research programme initiated to develop wind power to compete with steam. Instead, every nation that was potentially at the receiving end of the British Navy started developing their own steam-powered equivalents and an arms race ensued, initially between Britain and France but then joined by every other major industrialising nation.

China found out at its cost what happened when it did not compete effec-

⁵Without Hot Air
<http://www.withouthotair.com/>

tively. Its wooden navy was used to try and curtail Britain's position as the world's first drug baron when it shipped opium from its Indian protectorates to China's population. China's navy was blasted out the water for punishment. Britain then continued profiteering from selling drugs to the massive population of China, sued China for war damages, seized Hong Kong, suppressed the population and allied itself with Japan against Chinese interests. Britain's pre-eminence in the use of fossil fuels gave it a massive strategic advantage over China which it exploited ruthlessly.

As we face today's necessary transition to renewable power, then if a nation decides unilaterally to continue fossil fuel consumption they will achieve competitive advantage by securing markets, food supplies and maintaining an effective military whilst the effects of their greenhouse gas emissions will further weaken any nation that has already made sacrifices by cutting greenhouse gases.

This scenario is being played out almost perfectly today. The European Union has made some effort to reduce emissions, though still far below the size of cuts necessary to tackle climate change. As a consequence of legislation imposed to reduce CO₂ emissions various coal fired power stations are either not being built or are soon to be taken out of service leaving countries such as the UK with potential energy short falls in the future and rising energy costs. This places the economy in a dangerous position in an internationally competitive environment. Even if demand today can be met with reduced energy production through efficiency savings, it almost certainly means that the economy cannot grow in any significant way. This is disastrous for a debt based financial system which relies on the prospect of future growth to pay off accumulated debts. Meanwhile Chinese and Indian emissions continue to rise dramatically as they refuse to sign binding cuts in CO₂ emissions allowing their economies to continue growing and transferring wealth from European to China and India. Thus despite the best intentions of the European Union, emissions of greenhouse gases are still continuing to rise exponentially as other trading blocks continue to develop their economies. The EU is still exposed to climate change impacts through rising sea levels and global food shortages and now lacks the economic strength to cope. Land grabs in Africa for food production and mining are being lead by China, Middle Eastern states and India whose economies are being expanded through fossil fuel consumption against the evidence of climate change. The result is that in Europe, national bankruptcies are sweeping through the continent as nations struggle to maintain domestic spending in the face of rising food and energy costs, with the more inefficient or corrupt nations going down first and reverting to nationalism.

This dilemma that nations find themselves trapped in can be analysed by game theory and in particular the famous prisoners dilemma. In this scenario two prisoners have been arrested at the scene of crime and are being held by the police in two separate cells. They each have the same choice. If they both confesses to the police, they will both get 8 years in jail. If one confesses to the police and the other stays silent, the confessor will get only 1 year as an encouragement, whereas the other prisoner will get 10 years. If they both manage to stay silent, then they will get only 2 years each as there will be

insufficient evidence to gain a full conviction.

We can represent the situation with the following pay-off matrix, where the first entry in each cell is the prison term for the column player and the second entry is the payoff for the row player.

$$M_1 = \begin{array}{cc} & \begin{array}{cc} \textit{confess} & \textit{Silent} \end{array} \\ \begin{array}{c} \textit{Confess} \\ \textit{Silent} \end{array} & \left[\begin{array}{cc} (8, 8) & (10, 1) \\ (1, 10) & (2, 2) \end{array} \right] \end{array}$$

The values of cells in the matrix represent the cost to each player, in this case the time in prison. The first value in each bracket is the cost for the column player and the second value is for the row player; thus (10, 1) tells us that the column player will suffer 10 years in prison and the row player 1 year.

We can now split the pay-off matrix into two separate matrices, one for the column player and one for the row player. Taking the pay-off matrix for the column players, the logical thing for him to do is to try and minimise his maximum loss. If the row player decides to confess forcing the column player to select choices from the top row his best decision is to confess. If instead the row player decides to stay silent forcing the column player to choose from the bottom row, again the best decision is to confess. Irrespective of what the row player does, the column player best strategy is to confess.

$$M_2 = \begin{array}{cc} & \begin{array}{cc} \textit{confess} & \textit{Silent} \end{array} \\ \begin{array}{c} \textit{Confess} \\ \textit{Silent} \end{array} & \left[\begin{array}{cc} 8 & 10 \\ 1 & 2 \end{array} \right] \end{array}$$

col max = 8 *col max* = 10
minmax = 8
so decide to confess

Likewise a similar analysis can be carried out for the row player and he will also decide to confess. Thus both players follow what is the sub-optimal and paradoxical strategy of confessing and both getting 8 years each in jail, where as if they choose to silent they would get only 2 years each.

The combined strategy of confess-confess is the stable saddle point of the game and is the actions that we would expect two rational players to adopt, even though it appears to give an irrational outcome.

The ideal outcome for both would be for both to stay silent, and both to receive only a 2 year jail sentence. However, if one player has slightest doubt that the other payer will not abide by the agreement he will confess. This is termed the unstable saddle point. It can be done in the same way as a pencil can be balanced on its point, but the slightest disturbance will cause it to fall.

The ultimate way to think about the stable saddle point is that this what happens when there is no law in place and the players are free act in their own

interests, by inference if the unstable saddle point is desired, then a law needs to be imposed force the players to both stay silent.

If no law is imposed the decision taken, be it confess or stay silent depends of the relationship between the values in the cells of the pay-off matrix. Players acting rationally will not change their strategy unless the loss for jointly confessing is higher than the loss for staying silent when the other player confesses. In matrix this means that the column players would have to face a maximum penalty greater 10 for confessing, so the top left entry changes from 8 to something like 11.

The Prisoner's dilemma model is a perfect analysis for climate change negotiations. The only thing that now needs to be done is to change the titles on the pay-off matrix to represent the respective strategies that nations must take towards climate change, Instead of confessing we having continuing to burn fossil fuels and instead of staying silent we have cutting CO2 emissions. In all other respects the matrix can kept exactly the same.

$$\begin{array}{rcc}
 & \textit{Burn Fuel} & \textit{Cut Fuel} \\
 M_3 = & \begin{array}{l} \textit{Burn Fuel} \\ \textit{Cut Fuel} \end{array} & \begin{bmatrix} 8 & 10 \\ 1 & 2 \end{bmatrix} \\
 & \textit{col min} = 8 & \textit{col min} = 10 \\
 & \textit{maxmin} = 8 & \\
 & \textit{so decide to burn fuel} &
 \end{array}$$

It can be considered thus: If two countries both cut emissions together they will be both incur a cost of £2billion or what ever other units are used. This could be as a result of developing renewable infrastructure, loss of economic opportunity, etc. If one country decided to cut and the other does not, the country that makes the cuts will not only suffer the costs of transforming the economy to a low energy economy, but will also still also suffer additional costs from the other country's pollution that does not cut. Finally if they both continue to burn fossil fuel they will both suffer equal economic loss of £8 billion due to pollution damage. The dynamics of the prisoner's dilemma results in both countries taking the paradoxical position of continuing to burn fuel together to their maximum capability. It makes no sense for them to do otherwise. This is the simple maths that has stalled the COP talk to an eighteen year standstill. There is in effect no law that defines nations behaviour and it is a free for all, the result is that fossil fuel burning continues at unsustainable levels and in totality across the globe is set to increase at an exponential rate.

It does not actually matter what numbers are chosen in the matrix. All that counts in the relative size in relation to each other and it is impossible to envisage any reasonably sustainable scenario that can alter the relative size between the cells. The only thing that truly differentiates the prisoners dilemma from the climate change talks is that in the prisoners dilemma prisoners will be released from jail after their 8 year sentence. In the climate change dilemma, the

worst case £8billion cost is replaced with the death penalty. Remarkably, even this does not guarantee a change in decision making, as now both columns in the pay-off matrix simply have the same column minimum and if the optimistic view prevails in all parties that the death penalty will not apply they will fall back on their previous decision making processes.

There are only two ways that the destructive saddle point can be avoided. Either the game must be abandoned or a law must be enacted to ensure that both parties move to the unstable position of agreeing to cut fuel and stay there. But for law to be effective, it must be backed up by some source of force and the legal institution that implements the law must ultimately have the monopoly of legitimate violence. Either of these solutions challenges the whole concept of nation states and the things that define us as nations. The thing that ultimately defines nation states is the ability to out compete others both economically and militarily. At the apex of the economic competition is the ability to create wealth using access to critical resources such as food and energy. At the apex of the military competition is the ability to destroy an enemy using nuclear weapons. One supports the other. Unless security and access to critical resources are shared in a secure environment, nations will always compete militarily and economically for survival.

This brings us into a new paradigm. Splitting the world into nation states was a suitable model for developing the world economy since the start of the industrial revolution. In the event of war, nations or blocks of nations with the most powerful economies achieved decisive victories. Historically, the free world has had best access to resources and energy enabling it to prevail in economic and military conflict. The very freedoms it was based upon allowed resources to be exploited to the maximum advantage. However, in a declining global economy facing the mutual threat of climate change, the nation-state model is wholly inappropriate as all nations are ultimately forced to fight with each other using the last scarce resources on the planet to secure the last scarce resources needed for economic sustainability. In this environment, ideals of democracies are no defence against the tyrannies of dictatorships; it is the dynamics of the prisoners dilemma that is the ultimate arbitrator of decisions as America and the UK demonstrated with the second Gulf War.

With the benefit of hindsight, the structure of nation states, which was laid down in the 1814 Treaty of Vienna set the planet on the road to destruction. The idea of nation states is ultimately predicated on the idea of each nation being able to grow indefinitely through industrialisation by ignoring the warnings that have been handed down repeatedly through history from Malthus to the Club of Rome Limits to Growth warning. The idea that we can agree massive and voluntary cuts to our greenhouse gas emissions within this structure which by necessity cuts any economic and competitive advantage is folly.

Worthwhile climate change agreements can only be made by challenging the structure of the nation-state and the competitive advantage that all nations are forced to seek within this. This is the elephant in the climate change room that no one talks about. While this is avoided, there will be no climate change agreements. The very things that determine national status are the first things

that must be traded in negotiations on climate change, these are military and economic advantage.

The full ramifications of this needs to be considered by all - from Presidents and prime ministers, to the negotiators at climate change talks, to the people in the street. We explore the implications of this in the following chapters by pursuing these arguments to their logical conclusions and considering the mechanisms by which the solutions that flow from these must be implemented.

The nation state concept was bad begun, and has made itself strong by ill. Most significantly, the longer it continues the more embedded it becomes and the less the chance for agreeing the urgent cut backs in fossil fuel consumption needed for survival.