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For more coverage of this year's UN climate change summit in Durban, go to www.FT.com. A special review of the meeting will be published with the FT on December 13

Damage control

Despite the need for a deal, signs for Durban are not promising. By *Pilita Clark*

THE WORLD IS FULL OF disagreeable jobs, from salt miner to sewer cleaner. But in the political realm, few are as tricky as the one held by Christina Figueres, as we will see in Durban, South Africa, where the latest round of annual global climate talks start on Monday. Ms Figueres, a forthright Costa Rican who has been immersed in environmental policy for nearly 20 years, is often described as one of the world's top climate officials. Her precise title is a mouthful: executive secretary of the United Nations Framework Convention on Climate Change (UNFCCC). It means that, when the Durban summit starts, she will be trying to help thousands of negotiators from nearly 200 countries achieve a global climate deal that has eluded them for the past seven years.

Passing through London a few weeks ago, after one of the many preparatory meetings held in the lead-up to the end-of-year climate summits, Ms Figueres was typically bullish about the Durban meeting's prospects. Negotiations are "more on track than I had expected", she told a conference at Chatham House, the think-tank. Progress was being made.

Perhaps. Other officials close to the talks say they have been rancorous and "confrontational". And almost everyone agrees with John Ashton, the UK foreign secretary's special representative for climate change, that "Durban is not going to be a breakthrough moment, but what we have to avoid is a breakdown".

To understand why, one needs to go back to Ms Figueres' job title. The UNFCCC treaty was the world's first big collective stab at tackling climate change. Adopted at the 1992 Rio Earth Summit, and approved by more than 190 countries, it is a voluntary deal aimed at warding off what its text describes as "dangerous" human interference with the climate system. We do not hear so much about it now because, in 1997, it spawned the Kyoto Protocol, a far more stringent, legally binding agreement forged in the Japanese city of the same name. The new treaty obliged wealthy countries to cut their emissions of carbon dioxide, the main "greenhouse gas" blamed for heating the planet to potentially dangerous levels.

Poorer countries, which never enjoyed the benefits of the industrialisation that caused the carbon pollution problem, did not have to make any cuts. And even the wealthier countries only agreed to do so over a five-year period that runs out at the end of next year.

The idea was that, well before that expiry date, the world would have come up with a new binding deal committing countries to a second compliance phase after 2012. But ever since the Kyoto Protocol came into force in February 2005, successive UN climate summits have failed to produce that second phase, most notoriously at Copenhagen in 2009, despite high expectations of a deal.

Meanwhile, global carbon emissions hit record levels last year, prompting the International Energy Agency (IEA), the energy watchdog, to warn earlier this month that the world was heading for "irreversible and potentially catastrophic climate change".

Yet still, on the eve of the Durban summit, no significant progress on the Kyoto deal is in sight. The reason, says Sir David King, the former UK chief scientific adviser who has long been a prominent voice in the global climate debate, is that "Kyoto is frozen in time".

In 1997, the year the protocol was agreed, the world was indeed a different place. For one thing, Bill Clinton, then US president, had the luxury of having just won a second four-year term in office.

Cold comfort: the International Energy Agency has warned of "irreversible and potentially catastrophic climate change"



China will produce as much CO₂ between 2010 and 2035 as the US, the EU and Japan combined

For another, his vice-president was Al Gore, a passionate proponent of the need to tackle climate change.

THIS YEAR, THERE IS ANOTHER Democrat in the White House – Barack Obama. But he faces an election in less than 12 months that has been notable for the number of Republican hopefuls who have described climate change as a hoax or “a secular carbon cult”. More significantly, in 1997 the US was by far the world's largest carbon polluter, accounting for 24 per cent of global CO₂ emissions, according to data from the World Resources Institute, a Washington-based environmental research group.

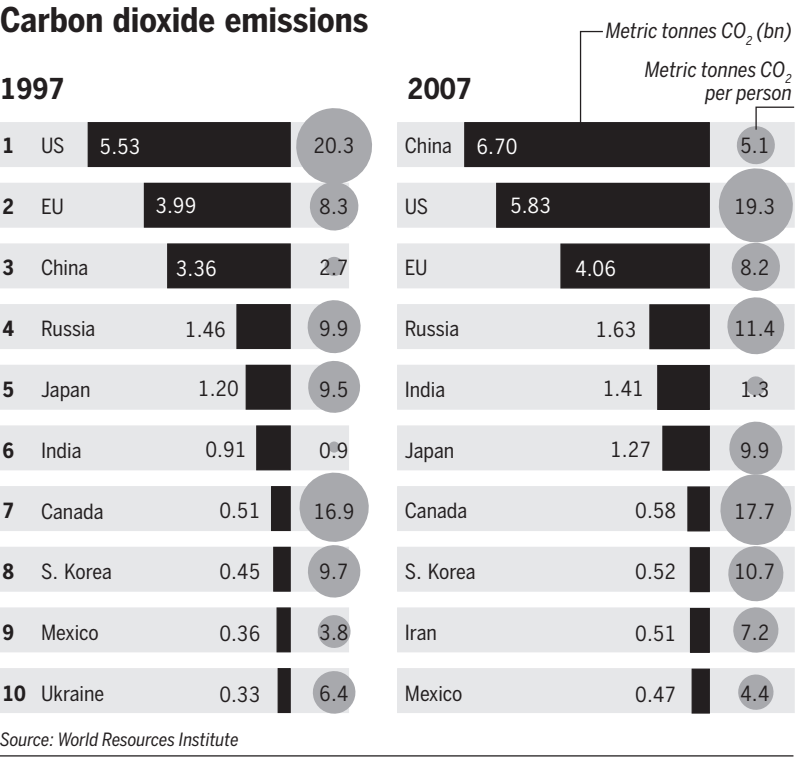
PHOTO: GETTY; COVER: ED ROBINSON/ONEREDYE

Ranked at number two were the 27 members of the European Union with 17 per cent, and at number three was China with less than 15 per cent. Even then, however, many in the US Congress were worried about how fast China was catching up. They loathed the idea of the US agreeing to a treaty that limited the carbon emissions on which the country's economic growth had depended, but not those of its emerging rivals. In the end, Washington failed to ratify the Kyoto treaty. By 2007, China's extraordinary pace of industrialisation saw it overtake the US to become the world's carbon emitter-in-chief, casting the US into second place. China's per capita emissions were still about a quarter of those of each American, but nearly double what they were in 1997. New forecasts from the IEA suggest they will be higher than those of the EU before 2020. And so neither of the two countries producing the most carbon emissions has been obliged to cut them under what remains the world's only legally binding climate treaty. Worse, as the emissions of China and other fast-growing emerging countries have risen, the proportion produced by the countries that did

commit to cuts under the first phase of Kyoto – such as the EU, Japan, Russia and Canada – has shrunk to less than 30 per cent. In other words, the countries that agreed to do 100 per cent of the heavy lifting now cause less than a third of the problem. And that uncomfortable mathematical fact is inflamed by suggestions that the emissions of big developing countries will rise sharply in coming years. China alone will produce as much CO₂ between 2010 and 2035 as the US, the EU and Japan combined, according to forecasts published earlier this month by the IEA. This is why successive UN summits have been mired in a fight in which the US and some other wealthy countries insist they cannot contemplate binding carbon reduction cuts until China and others do more, while China and poorer countries insist there must be a second phase of Kyoto that does not force them into such cuts. Last year, Japan stunned delegates at the UN climate summit in Cancún by announcing that, despite being the place where the Kyoto pact was adopted, it would not agree to a second compliance period. Since then, Russia and Canada have

Some officials close to the climate talks say they have been rancorous and ‘confrontational’

suggested they will not either. That leaves the EU almost alone in saying it will consider a second phase of the treaty. But even Europe is not going to Durban with anything like the wholesome fervour for a second phase that some in the bloc once embraced. That might have been more acceptable in good economic times, but not in a region that has just come through one downturn and now appears to be on the brink of another that some fear could be even worse. This time, says Connie Hedegaard, the EU's climate commissioner, negotiators cannot keep dividing the world according to “traditional 20th-century thinking” of a rich north that has to commit to binding emissions cuts, and a poorer south that only faces voluntary emissions targets. “That makes no sense in the 21st century,” she says, explaining that the EU would only agree to a second phase if all countries said they would eventually sign up to do their bit as well, even if developed ones did more than developing nations. The EU wants a new “roadmap” to emerge from Durban, leading to a comprehensive global deal by 2015. But so far, large emerging countries seem to be sticking to their position and the signs are far from promising. Earlier this month, China and other developing countries met to discuss their position ahead of the summit. In a joint statement issued afterwards, they called on the conference to “clearly establish the second commitment period under the Kyoto Protocol where the developed country parties to the Kyoto Protocol shall undertake quantified emission reduction commitments”, while developing countries “implement enhanced mitigation actions in the context of sustainable development”. In other words, situation normal. If the summit's fractious delegates can find a way around that, the world will be astonished. And though she would be unlikely to say so, so will the UN's Ms Figueres. ■



Uncertain science

The earth is expected to heat up but the precise impact is hard to predict. By *Clive Cookson*



Clouded future: one uncertainty is how much more CO₂ will be pumped into the atmosphere through the burning of fossil fuels

WHILE THE POLITICAL debate over climate change rumbles on, the vast majority of climate scientists are more convinced than ever that the world is growing warmer, that human activity is responsible and that urgent action is needed to cut emissions of carbon dioxide – the most important “greenhouse gas”.

The climate science argument rests on two fundamental facts. One is that the earth is getting warmer. Its average temperature has risen by about 0.8C over the past century – a point confirmed by another review last month, which dismissed the possibility that the warming could be explained at least partly by an “urban heat-island effect” as weather stations were engulfed by growing cities.

The second point is that CO₂ levels in the atmosphere have risen from about 280 parts per million at the beginning of the industrial age to 389ppm now. CO₂ and other greenhouse gases such as methane trap some of the infrared energy – heat

– that reaches the earth from the sun and would otherwise be radiated back into space. Scientific models of the atmosphere show that the increase in greenhouse gas concentrations already experienced would cause significant warming.

Looking beyond these facts into the future, we enter a world of uncertainties – though climate scientists insist that these should not obscure the basic truth of man-made global warming.

One uncertainty is how much more CO₂ mankind will pump into the atmosphere over the decades ahead by burning fossil fuels such as coal, oil and gas. This depends on a vast range of political, economic and social factors. Over the past two years, governments’ resolve to decarbonise the global economy by taxing carbon and supporting alternatives has slackened.

Doubling CO₂ to twice its pre-industrial level is likely to raise global temperatures by 2C

The second key uncertainty is scientific. We do not know how much more the world will warm as the CO₂ concentration increases. Scientists estimate this “climate sensitivity” both through computer models and through examining the historical interplay between climate and natural fluctuations in CO₂ levels – for which there is now an excellent geological record going back tens of millions of years.

Such calculations suggest that doubling CO₂ to twice its pre-industrial level – which seems hard to avoid – is likely to raise average global temperatures by at least 2C and possibly by much more. How much heating takes place will depend on feedbacks, both positive and negative.

For example, will global warming increase the cloudiness of the atmosphere, which has a general cooling effect? Will warming release huge amounts of greenhouse gases – mainly methane – that are currently locked away in Arctic permafrost, peat bogs and methane hydrate deposits beneath the ocean?

IF THE BROAD-BRUSH FUTURE OF THE global climate is uncertain, the questions multiply enormously when scientists try to assess regional changes, both in temperature and in rainfall. Average global warming of 2C will lead to some places heating up by much more than that, and others by less; some will become drier and some wetter.

What happens in the British Isles, for example, will depend critically on whether the Gulf Stream and related Atlantic currents continue to bring warm water from the south-west to the shores of north-west Europe. If this circulation becomes significantly weaker, then British winters might become colder, even in the context of general global warming.

Models suggest that, in general, warming will be fastest towards the poles, particularly in and around the Arctic. A redistribution of rainfall is likely, with more in the tropics and at high latitudes, and less in the mid-latitudes that are already prone to drought.

Many meteorologists expect a worldwide tendency towards more extreme fluctuations in weather, between hot and cold, drought and flood. Rainfall events in particular are likely to become more intense, because the moisture-holding capacity of the atmosphere increases surprisingly fast with temperature: for example, a cubic metre of air can hold up to 30 grammes of water vapour at 30C and just 17g at 20C.

Whether or not ferocious wind storms such as hurricanes and typhoons will become more common is a question to which climate models have given no clear answer. Hotter water at the surface of tropical oceans will encourage their formation, but they can be stunted by windshear higher in the atmosphere, which may also increase.

Looking at mid-latitude storms, one factor that may – or may not – tend to calm things down is the poles warming more quickly than the tropics. This will reduce the temperature differences between lower and higher latitudes, which contribute to winter storms in particular.

Rising sea level is another consequence of global warming that arouses much fear. Two factors mean that some increase in sea level this century is almost certain: water expands as it warms, and melting ice on land – mainly Antarctica and Greenland – will feed more water into the oceans.

The speed and extent of the rise depends on how fast the ice melts. Some models predict that the Antarctic ice sheet may even thicken in the decade ahead, as climate change increases snowfall in the southern polar regions. But many experts would not be surprised by a one metre rise in average sea level by 2100 – which could be disastrous for hundreds of millions of people living in low-lying coastal regions. ■

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Counting the cost

Amid a European debt crisis, a big challenge is finding cash for action. By *Pilita Clark*

AMONG THE THOUSANDS of delegates heading to Durban for this year's United Nations climate summit, there will be hundreds of European officials fresh from a sovereign debt crisis that some fear could engulf the global economy. If it does, this will be the second time in less than three years that the world has faced economic and financial disaster.

Yet one of the main items on the agenda in Durban is a promise wealthy countries made two summits ago to provide poorer nations with \$100bn a year by 2020 to help them deal with climate change, and \$30bn in "fast-start" money over the three years until the end of 2012.

To an outsider this sounds ambitious. How can countries be expected to find so much money when some in Europe have had to be bailed out?

As it happens, the \$100bn annual goal may not be quite as far-fetched as it appears. At least \$97bn a year is already being provided for climate-related development projects, according to a new study by the Climate Policy Initiative, a research group funded by George Soros, the US financier.

And just as surprisingly, the private sector is providing nearly three times as much as public budgets, the report says.

That does not mean countries can relax about their \$100bn annual UN commitment, says Barbara Buchner, the lead author, explaining that this is supposed to be "new and additional" money, and "some of the \$97bn was promised years ago".

Still, it does suggest the \$100bn figure was chosen "without too much understanding of what is already out there", says Nick Robins, head of the climate change group at HSBC, the bank.

Either way, as European leaders fall and financial markets remain volatile, there is little sign that officials from wealthy countries will be going to Durban with a large cheque in their suitcases. And this is only one part of the financial dilemmas confronting the summit.

Another large one is the fate of the green climate fund, a new body agreed to at last year's summit. Campaigners hope it will be a one-stop shop, replacing the complicated jumble of funds and initiatives that clutter the climate landscape.

The fund could also play a big role in channeling the annual \$100bn that is supposed to have been mobilised by 2020. But first, it has to get past first base – something that is not guaranteed.

The green climate fund was first suggested two years ago, at the December 2009 UN summit in Copenhagen. It took another year of talks to get it formally agreed at Cancun, where it was decided a "transitional committee" should work on its design and operation.

That committee, co-chaired by Trevor Manuel, the former South African finance minister, met in Cape Town in October to finalise its report to the Durban summit.

And that is where efforts hit a snag, with the US and Saudi Arabia opposing adoption of the report, leaving Mr Manuel to describe the meeting's outcome as "sub-optimal", according to an account by observers for the International Institute for Sustainable Development, a non-profit group.

Saudi Arabia wanted more in the report about one of its favourite issues, so-called "response measures", or compensation for oil-producing countries for revenues lost as a result of measures to tackle climate change, the observers said.

The US wanted more work done on the relationship between the fund and the UN, private sector involvement and which countries would contribute to it.

One representative from Germany said the committee's failure to agree "will likely result in not having the green climate fund this year or

Changes in the pipeline: Saudi Arabia is concerned about compensation for oil-producing countries



PHOTOS: REZA/NATIONAL GEOGRAPHIC/GETTY-ALLSTAR

Many developing countries favour public money, arguing it is more reliable and easier to direct

the next", says Mike Shanahan, press officer of the International Institute for Environment and Development, a UK-based research group.

Others are more hopeful.

Laurence Graff, a senior European Commission climate official, told reporters in Brussels earlier this month that it is not clear whether the US and Saudi Arabia have "serious concerns", or just "wish to add to recommendations".

Some people close to the talks think both countries will end up using their dissent as a negotiating ploy to get more of what they want on other issues in the gargantuan negotiations.

What this episode does show, however, is that, as is so often the case at the UN climate talks, progress has been waylaid by the rancorous divide between rich and poor countries that has long kept the negotiations deadlocked.

One of the most troublesome issues surrounding the green climate fund has been how much control developing countries will have over it.

"There is a perception that the US wants it to be run by the World Bank," says Tim Gore, international policy adviser on climate change for Oxfam, the charity.

Some developing countries fear this would mean more of the bureaucratic delays the climate fund is supposed to overcome, and less on-the-ground control for them over the sorts of projects that really need funding. They would prefer the UN had more say because that is where their voices are strongest.

But the involvement of a body such as the World Bank, whose president is generally an American, would give more control to a group with extensive financing experience, which many western observers say is crucial.

"Some developing countries want a very significant wealth transfer from fiscally constrained developed countries so they can spend it as they want, which would seem fanciful even if we weren't in a massive fiscal crisis," says Ben Caldecott, head of European policy at Climate Change Capital, an investment and advisory group in London.

The climate fund transitional committee's report in Cape Town recommends the fund should have a board of 24 members, half from developed countries and half from developing nations, with the World Bank acting as a trustee that will

Greg Barker Clarity and action are needed to unlock investment



MOVING THE WORLD TO A LOW-carbon economy requires decisive action, clarity and commitment from every nation. Clarity and action are needed to unlock billions of pounds of investment to make the low-carbon economy a reality.

But as we approach the 17th annual international climate change meeting, it is clear that the conditions to get the finance flowing have not yet been met. The political and diplomatic discussions around climate change mask the significant financial input that is required globally in moving to a low-carbon economy, especially during such difficult economic times.

In the UK, current estimates suggest that we need £110bn (\$173bn) over the next decade to make progress on decarbonising our electricity supplies. The International Energy Agency estimates that the internationally recognised goal of limiting the rise in global temperatures to the 2C goal will require additional investment of \$15,200bn in the energy sector up to 2035, above and beyond current ambition.

So there are three key priorities that we must address if we are to unlock the finance and make the transition: delivering confidence that an international climate change agreement will follow; encouraging governments globally to create the right environment for investment through policy clarity and financial support; and demonstrating that a low-carbon development pathway can be done sustainably and affordably.

First, we must put ourselves on the track to a legally binding international climate change agreement. Such an outcome will help businesses and countries plan for the massive transition and investment that is needed.

Next week, I will travel to Durban where the UK will continue to push for a legally binding international agreement. The test for success is not purely about whether we get a comprehensive deal, but that we make progress across the breadth of issues that these negotiations cover.

At Durban, we want a clear commitment to this final deal from the big economies, alongside progress on the building blocks of the international regime – delivering international public finance, monitoring and reporting of global emissions and development of rules for accounting for countries' emissions. All of this helps provide the transparency, longevity and certainty needed for businesses and governments to make sound investments in low-carbon technologies.

Second, there is now no excuse for governments to hold back from taking action in their own countries. Making the shift now will be cheaper in the long run, and UK business has a fantastic opportunity to capitalise on opportunities not only here but internationally.

Governments are vital in helping to tackle dangerous climate change. Without the right policy signals and financial backing we have no hope of making that shift to a low-carbon economy. Many

countries are making significant progress already in terms of implementing their international pledges to tackle their emissions, but we need to encourage greater levels of ambition.

The UK is determined to show that a low-carbon economic strategy is not only affordable but can drive growth, support advanced manufacturing and reinforce the competitiveness of industry. This requires a new focus on costs, returns on investment and greater accountability to taxpayers and consumers alike.

By legislating for targets up to 2027 as part of the fourth carbon budget we are doing more than any other country in providing long-term certainty to those investing in the low-carbon economy.

We are also undertaking radical reforms designed to create new markets and attract greater amounts of private investment into the UK. For example, we have legislated for the Green Deal, the first scheme of its kind in the world, which will cut carbon and bills in millions of homes and businesses across the UK. And we are embarking on the biggest reform of the electricity market since privatisation to secure billions in investment for low-carbon electricity.

BUT AS WELL AS THE LONG-TERM vision, there has to be the financial discipline to get us there. Government has a crucial role to play in providing the right kind of support to lower risks in new technologies and to leverage the sort of multibillion pound investment that is needed.

Despite the massive deficit that the UK coalition government inherited, we are putting our money where our mouth is: slashing Whitehall's own emissions by 13.8 per cent in our first year in government; investing £3bn of public money to create the world's first dedicated Green Investment Bank; £860m for the Renewable Heat Incentive; and £1bn to the development of carbon capture and storage.

Third, our domestic action helps make the international case for low-carbon development, showing that such a path is feasible, affordable and desirable. Helping developing countries in that shift benefits the UK. For example, improving energy efficiency and moving away from a dependence on fossil fuels helps to reduce global energy prices and volatility.

This is why we are providing £2.9bn of funding to international climate mitigation and adaptation measures over the next four years through the International Climate Fund. It is financing that we are determined will be effective, make a real difference and catalyse billions more in essential private sector financing, creating new opportunities for British exporters.

But we are also working to break down the barriers to financial investment in developing countries, which is why we set up the Capital Markets Climate Initiative, making the best use of the expertise of the City of London.

These three priorities will be crucial in the battle against dangerous climate change and in embedding a global low-carbon economy. The UK has built an enviable reputation for leadership on climate change. Our policies must show that they can adapt to a volatile world but our commitment to an ambitious global deal is unwavering.

The writer is the UK's minister for climate change

The UK's domestic action helps make the international case for low-carbon development

Voices for change

Pilita Clark looks at some of the key figures at the Durban talks



CHRISTIANA FIGUERES
Executive secretary of the United Nations Framework Convention on Climate Change
The awful truth about the vast annual United Nations climate summits is that it is almost impossible to know exactly what is going on. One person with a better chance than most is Christiana Figueres (above), the UN's top climate official.

Ms Figueres heads the 470 officials in the UN secretariat in Bonn, Germany, who support the summits and the endless rounds of negotiations leading up to them. So it is her job to shepherd the thousands of delegates from nearly 200 countries who attend these events towards some sort of meaningful progress.

She has the right pedigree for the task. Now 55, she belongs to one of the most formidable political families in her native Costa Rica. Her father, José Figueres Ferrer, was elected president three times, and her older brother, José Figueres Olsen, once. Her mother, Karen Olsen Beck, was a diplomat and national legislator.

Ms Figueres was still in her 20s when she went into the family business and joined the Costa Rican embassy in Bonn, presumably never realising she would one day return.

She went home to a series of senior government jobs, and by 1989 she and her husband, whom she met when studying at the London School of Economics, were in Washington, DC, where she began a lengthy immersion in climate policy that led to her current appointment in May last year.

People say there are not many jokes about climate change, especially at a time when climate scepticism is rife in countries such as the US. But Ms Figueres tries. In a speech in London, she started to talk about the science of climate change, stopped herself and said: "And yes, despite the fact that I lived 20 years in the US and I speak with a US accent, I do still believe in science."

CONNIE HEDEGAARD
European commissioner for climate action

The delegation from the European Union, ground zero for some of the world's greenest policies, will be critical in Durban.

The past year has seen several large countries declare they will not sign up for a second phase of the 1997 Kyoto Protocol, the world's only binding climate treaty, when the first one runs out at the end of next year. That includes Japan, where the protocol was born. The EU's 27 members are among the few left who say they will proceed, under certain conditions. And as Brussels' top climate official, that puts Connie Hedegaard (right) in the spotlight.

The 51-year-old Dane played a prominent role at the infamous 2009 Copenhagen climate summit as Denmark's climate minister. The meeting was attended by leaders from Barack Obama,

US president, down, amid huge expectations that a binding global deal would finally be struck. In the end "Hopenhagen", as campaigners dubbed it, became more of a "Nopenhagen", after leaders failed to agree on such a pact.

But as Ms Hedegaard's curriculum vitae makes clear, she is not the type to be daunted.

In 1984, at the age of 23, she became the then youngest person to make it into the Danish parliament when she was elected as a member for the Conservative People's party. Six years later, she started a career as a journalist, first in newspapers, then television, where she hosted current affairs programme *Deadline*, in between giving lectures, writing columns and penning a book, 2008's *Da klimaet blev hot* ("When the climate got hot").

She is Europe's first commissioner for climate action, a job that was created only last year. And for much of this year, she has found herself warding off attacks from countries over a plan to extend the EU's flagship climate policy, its six-year-old emissions trading scheme, to any airline entering the bloc. The Durban summit, no matter how difficult, may seem like a restful break in comparison.



XIE ZHENHUA
Vice-chairman of the national development and reform commission of China

China's most senior climate official is one of the most significant and mysterious figures at the annual UN summits. A bespectacled engineering graduate, Xie Zhenhua (above) has held a range of environmental protection positions during his long career, before advancing to his current position in China's top economic planning agency.

Mr Xie represents a country that is the world's biggest carbon emitter and second biggest economy. At the UN climate talks, China has the added heft of being the unofficial leader of numerically dominant developing countries, plus the smaller group of large emerging economies with the unpoetic title of "Basic": Brazil, South Africa, India and China. That makes Mr Xie central to the endless wrangling that has always marred these summits, regarding how the burden of cutting carbon emissions should be shared between rich and less-rich countries.

Developing countries have always insisted it would be unfair to force them to cut emissions and crimp their nascent growth, especially when the US, the world's wealthiest country, never ratified the Kyoto Protocol, the only global treaty obliging countries to cut their carbon pollution. But the US says it will not act unless fast-growing emerging rivals such as China do something too.

At the Copenhagen climate summit in 2009, Mr Xie stuck to the position that it would not be "reasonable and scientifically sound to make such demands of China". On the eve of the Durban summit, he has made what some have interpreted as more conciliatory comments, saying he hopes the talks will not be deadlocked, and suggesting that Europe and China could work together to push things forward. "Let's join hands to push the US to take action," the BBC reported him saying.

Some officials close to the talks say China sometimes appears to have moved its position slightly, but not enough to satisfy countries demanding it agree to meaningful targets.



TODD STERN
US special envoy for climate change

The chief US climate negotiator will be one of the most experienced hands in Durban. Todd Stern (above) was the senior White House negotiator at the talks that produced the 1997 Kyoto Protocol, which remains the world's only global treaty obliging countries to cut their greenhouse gas emissions.

Like President Obama, Mr Stern is a Chicago lawyer, and has an extensive background in politics. He worked on the presidential campaigns

PHOTOS: WRITER PICTURES; GETTY; BLOOMBERG

of both Bill and Hillary Clinton; held senior positions in Bill Clinton's White House, and then the Treasury Department; and moved to the State Department with Hillary Clinton when she became US secretary of state in January 2009.

Mr Stern has also been an adjunct lecturer at Harvard University's Kennedy School of Government, and a resident fellow at the German Marshall Fund.

His appointment as special envoy for climate change was hailed as a sign that the Obama administration took the issue seriously. Mr Stern bolstered the view, saying at a news conference: "The time for denial, delay and dispute is over."

He may not have changed, but the US sometimes seems to have. The race for next year's presidential election has been notable for the number of Republican contenders who have derided the notion of global warming. Rick Perry, governor of Texas, has said "the science is not settled", while Michele Bachmann, a Minnesota representative, has said global warming is "manufactured science" and a hoax.

The US always goes to the global climate talks with the weight of having signed up to the Kyoto Protocol under Bill Clinton, only to fail to ratify it under George W. Bush. And this year, the fact that it is heading into an election year in an uncertain economic climate means Mr Stern's room to negotiate at Durban is limited.

JAYANTHI NATARAJAN

Minister for environment and forests, India
The 57-year-old lawyer, who will be India's top official in Durban, has a tricky act to follow. Jayanthi Natarajan (right) replaces the debonair, US-educated Jairam Ramesh, who was regarded as the reasonable face of developing countries in the fraught climate negotiations. "We loved Ramesh" is a phrase often heard among environmental campaigners and western officials.

Ms Natarajan has had a less rapturous reception since her appointment in July, though she may be more popular in some quarters at home, where she has been a well-regarded spokeswoman for her Congress party.

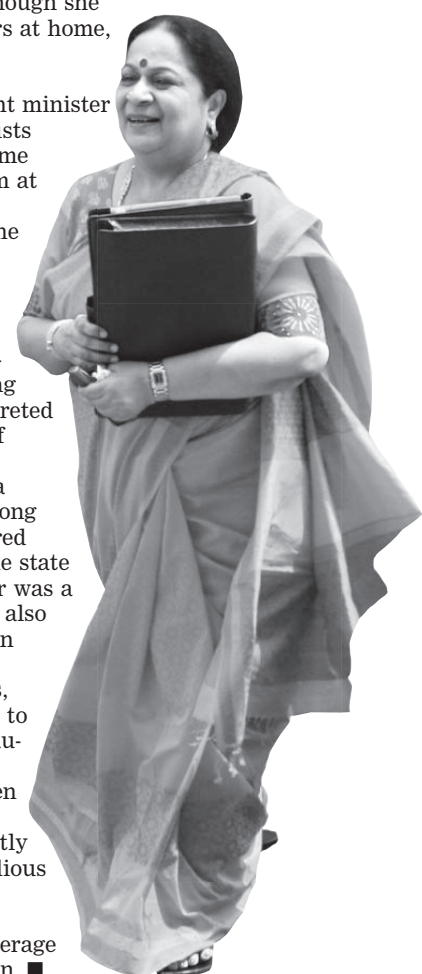
Mr Ramesh's period as environment minister won the backing of many green activists because of his rigorous scrutiny of some industrial projects. But it also put him at the centre of controversy.

In a meeting of officials ahead of the Durban summit, Ms Natarajan was reported to have emphasised the importance of equality in the climate negotiations, demanding rich countries address their historical responsibilities before asking more of emerging economies such as India. Some interpreted this as a sign that Mr Ramesh's era of flexibility had ended.

Ms Natarajan has a reputation as a persuasive media performer and a strong defender of women's rights. She entered politics in the 1980s and represents the state of Tamil Nadu, where her grandfather was a prominent Congress politician. She is also a writer whose views have appeared in several national daily newspapers.

In a column for the Indian Express, written just before she was appointed to her new job, she took on senior bureaucrats appearing before parliamentary committees, declaring that "more often than not, the information provided is obfuscatory and dense in nature, mostly tending to be a defensive and supercilious presentation on the topic at hand".

What she will make of the arcane, acronym-drenched language of the average UN climate summit remains to be seen. ■



Bjørn Lomborg Global warming needs a more innovative solution



FOR A CONSIDERABLE TIME, IT HAS been claimed that we must fix climate change immediately or all will be lost. As long ago as 1989, the director of the United Nations environment programme stated: "We shall win – or lose – the climate struggle in the first years of the 1990s. The issue is as urgent as that." In his 2006 film, *An Inconvenient Truth*, Al Gore, the former US vice-president, stated: "We have just 10 years to avert a major catastrophe."

The UK's Prince Charles claimed in 2008 that we had just "18 months to stop climate change disaster", while at the disastrous Copenhagen climate conference in 2009, Gordon Brown, then UK prime minister, declared: "We have fewer than 50 days" to save the planet from catastrophe.

Since those deadlines have come and gone, the financial crisis has shunted global warming off the agenda of the media and politicians.

That is a shame. Climate change is real, man-made and important. By the end of the century, economic models show that the negative impact globally will run to 1-5 per cent of gross domestic product (depending on how much we can adapt), with the negative cumulative impact across the century in the order of 0.5 per cent of GDP.

However, we need to be careful not to do more harm with our "solution". Global warming is a century-long problem. Most of the impact will have significant, negative effects only in 50-100 years, despite much of the media coverage suggesting dire consequences today. As Richard Tol, a climate economist, has shown, global warming now is beneficial for the world. Only in 2075 will it become a problem.

When people point out that we will have a world with more heat-related deaths, they are right. But there will be considerably fewer cold-related deaths. The only peer-reviewed article attempting to count all of both increased-heat deaths and decreased-cold deaths showed 400,000 more heat deaths, but 1.8m fewer cold deaths by mid-century. Overall, global warming impacts will end up negative. But this does not mean that we should ignore the reality that it will include both negative and positive consequences.

Likewise, we are often told that global warming makes everything more extreme. Actually, some indicators will get more extreme but others will get less so. We are likely to get more rain and more severe rain, but models expect temperature swings to become less extreme (night time temperatures will increase more than daytime, winter more than summer).

Perhaps most importantly, we need to realise that our policy response will take 50-100 years to have an effect. The standard climate models show that even if we manage to cut emissions to 50 per cent below 1990 levels by 2050 – an unrealistically optimistic assumption – we will not be able to see the difference in temperature by 2050. So what

‘We need to be careful not to do more harm than will be caused by the problem itself’

matters is not hurrying through costly and globally inefficient emission cuts now, but making sure over the coming decades that the entire world will be able to cut emissions dramatically.

This requires a cool head. Yet in the climate debate there has been a tendency towards scare tactics. Hence Mr Gore's claim of a 6m sea-level rise when the UN expects less than 60cm.

And the truth is that creating scare stories does not set us on a long-term trajectory to fix the climate. Rather, it makes for hasty political decisions that sound good, cost a lot and do little, while the policies that really can make a difference are left behind.

WHEN THE FEVER ABOUT climate change was at its peak, the public was scared by the idea of increasingly destructive hurricanes. Hurricane Katrina was the poster child of Mr Gore's film. But with global accumulated cyclone energy – a measure of cyclone activity – close to an all-time low, and few damaging hurricanes, such tactics risk undermining belief in climate science itself.

Ultimately, the solutions of the past decades – those enshrined in the Kyoto Protocol – are expensive ways to do little. The most ambitious climate legislation, under which the European Union seeks to cut emissions to 20 per cent below 1990 levels by 2020, will cost \$250bn a year for 80 years, yet shave only 0.05C off the temperature rise at century's end. The truth is drastic: immediate carbon cuts cost considerably more than they achieve. To put it starkly, they are likely to do a lot more damage than climate change to our quality of life – and, if enforced in the developing world, will be especially damaging.

Despite all of the optimistic talk about wind, solar, geothermal and other sustainable, non-carbon-emitting energy sources, no alternative is remotely ready to shoulder the energy burden currently borne by fossil fuels. That is why policymakers should significantly boost the amount of money invested in research and development of green energy alternatives.

Devoting just 0.2 per cent of GDP – roughly \$100bn a year – to green energy R&D would have a much higher likelihood than our current approach of creating the framework for the kind of game-changing breakthroughs needed to fuel a carbon-free future. If we could find alternatives such as solar panels that are cheaper than fossil fuels over the next two to four decades, everyone would switch and global warming would be fixed. Not only would such a solution be less expensive than trying to cut carbon emissions, it would reduce global warming more quickly. And, unlike carbon cuts, this is a solution that developing countries could embrace.

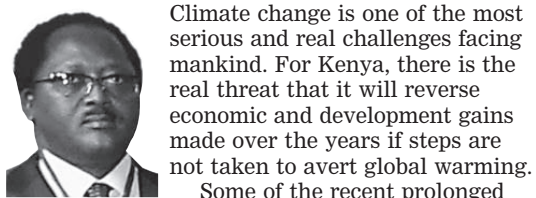
Global warming needs a sustainable, long-term solution. We have tried a shortcut around this cycle with scare tactics and suggestions of imminent deadlines, but we have little but expensive and ineffective policies to show for it. We need to do better.

The writer is author of The Sceptical Environmentalist and Cool It, organiser of the Copenhagen Consensus Center and adjunct professor at Copenhagen Business School

Stronger voice from the developing countries

Two nations put the case of what people living in many vulnerable geographies can teach the rest of the world

JULIUS RECHA MURGOR



Climate change is one of the most serious and real challenges facing mankind. For Kenya, there is the real threat that it will reverse economic and development gains made over the years if steps are not taken to avert global warming.

Some of the recent prolonged droughts have hit Kenya's hydro-power generation as the dam levels become too low to sustain production, affecting the economy through power rationing. The 1999-2000 *La Niña*-induced drought, for instance, caused extended power cuts across the country, reducing industrial productivity.

During such drought periods, the country switches to thermal generation. But such energy is not "clean" and is expensive, increasing the burden on communities already undergoing untold suffering associated with climate change.

To address this problem, Kenya is increasingly investing in geothermal power generation, which is clean and does not depend on seasonal factors. Other national efforts are directed towards wind, solar and bio-gas as alternative energy sources.

However, Kenya's agriculture – the country's economic backbone – has also been badly affected by climate change. Recent years have seen repeated crop failures in several parts of the country, including areas that were traditionally considered safe from drought. Lack of access to water for domestic use also results in families trekking long distances daily in search of water.

As a result of these challenges, the Kenyan government is spearheading efforts to develop a comprehensive action plan to help the implementation of the points laid out in the national climate change response strategy. An important aspect of the action plan is that it is highly interactive and consultative, involving stakeholder groups such as government, private sector and the civil society.

Yet the adverse effects of climate change have not been confined to Kenya, and any attempt to tackle climate change needs to cover the whole Horn of Africa region. Early warning systems and seasonal forecasts, whose accuracy and reliability have increased over the years, are important tools in climate change-related disaster preparedness. But the recurrence of drought emergencies may indicate something is wrong with the way drought is being managed.

Perennial drought and other climate-induced crises have displaced large numbers of people throughout the Horn of Africa as they lose their traditional livelihoods, such as farming or fishing. This has led to "climate refugees" and conflicts between communities within and across borders.

Over the years, large numbers of refugees have crossed into Kenya from neighbouring countries, seeking to free themselves from the ravages of hunger and climate-driven conflicts. The influx of refugees has also greatly undermined the livelihoods of local residents, which lose pasture to refugees who often bring their own livestock.

A lasting solution to these climate-induced crises requires a cross-border approach. It must include short-term humanitarian assistance aimed at alleviating the suffering of refugees; security assistance to restore peace and stability in Somalia; development assistance to increase drought resilience; and climate change assistance to finance efforts to adapt to the changing environment.

Any meaningful assistance will also demand strong country-led institutional mechanisms and financing arrangements so as to enable effective, timely and well-coordinated planning and response to the new reality of climate vulnerability at both the international and national levels.

The writer is Kenya's assistant minister for environment and mineral resources



City afloat: Malé, the capital of the Maldives and its most populous city

MOHAMED NASHEED



As Europe and the US remain distracted by economic turmoil, an unlikely band of nations is taking up the climate cause: the small, the poor and the vulnerable.

The Climate Vulnerable Forum is a group of the world's poorer countries that are acutely sensitive to climate change, but are nonetheless doing the most to tackle the problem.

At the inaugural CVF meeting in the Maldives in 2009, all 11 countries agreed to ditch dirty development in favour of green growth. Some CVF countries have gone further: Costa Rica, Ethiopia, Samoa and the Maldives have announced plans to become carbon neutral.

There are many reasons why poorer countries adopt tough greenhouse gas mitigation targets. My country, the Maldives, announced its 2020 carbon neutral target in part to cajole industrial behemoths to clean up their act. If a small

nation with modest means can enact a radical plan for carbon-free energy, what excuse do larger, wealthier nations have for dragging their feet?

Environmentalism, though, is only half the story. For many developing nations, particularly far-flung, small-island states, the rush to renewables stems as much from energy security and economic considerations as from climate.

Many developing countries are among the world's most energy insecure. Their economies run on imported oil and they are held hostage to an oil price over which they have no control. Fossil fuel addiction puts a brake on economic development.

The Maldives spends 14 per cent of gross domestic product on diesel imports – more than on education and healthcare combined. If we continue "business-as-usual" growth, our oil dependency will double by 2020. The Marshall Islands declared a state of economic emergency in 2008, when oil prices soared and the government ran out of foreign exchange. Since then, the Pacific archipelago has moved aggressively into solar power.

As the oil price climbs, the cost of renewable energy such as solar is falling rapidly. Thanks in part to large increases in Chinese productive capacity, solar photovoltaic modules are about half the price they were in 2008. Daytime solar power in the Maldives is now a third cheaper

PHOTOS: COSMOS/EVEMINE CORBIS

Ban Ki-moon Why disaster risk management must be given top priority



IN A WORLD WHERE CHANGE IS A given, including changes to our climate, the adage to "listen to the voice of experience" may seem old fashioned. But there is nothing quaint about advice when it is a matter of surviving – and thriving – on a warming planet.

I listened to the voices of experience while in Bangladesh recently for the Climate Vulnerable Forum. I heard from leaders whose countries are on the front lines of climate impacts. I came away convinced that some of the countries hardest hit by human-induced climate change have much to teach the rest of us. They know from experience about reducing risks and forging a safer, cleaner, greener path to prosperity.

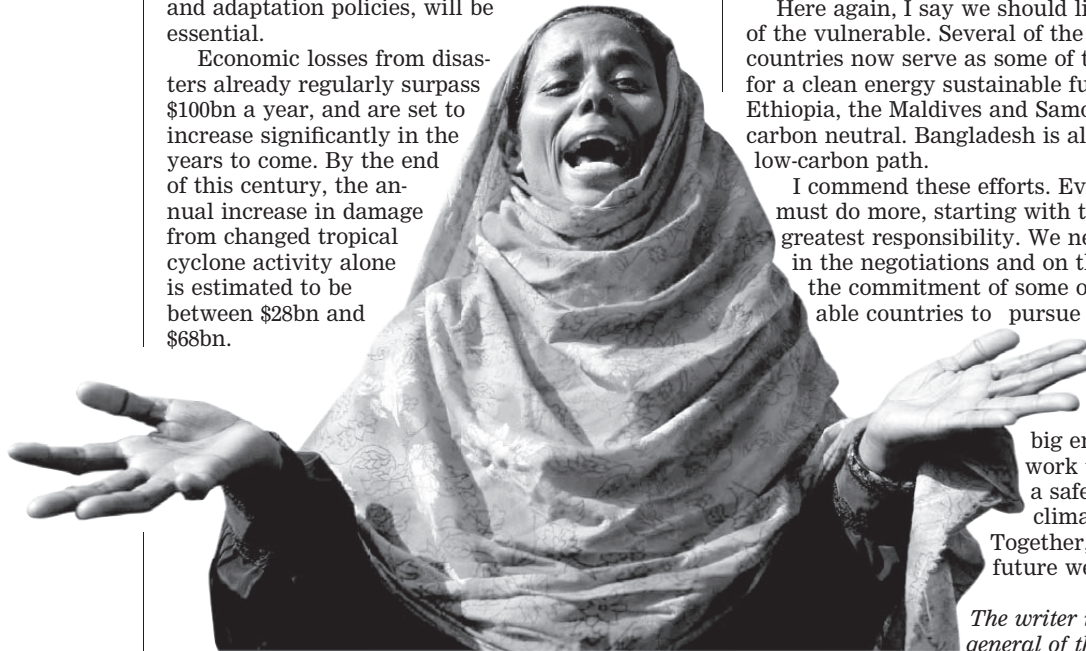
Consider Bangladesh, the host of this year's forum. Through painful experience, the country has now become a world leader in disaster preparedness. In 1991, a cyclone in Bangladesh killed more than 140,000 people. In 2007, when Cyclone Sidr struck, some 40,000 volunteers with bullhorns and bicycles helped move more than 3m people out of harm's way. Tens of thousands of lives were saved.

Thanks to strong adaptation and preparedness measures, the death toll from comparable disasters today is much lower in Bangladesh than it was 20 years ago. The lesson is clear: natural hazards need not cause a human catastrophe. There are numerous, cost-effective measures that communities and countries can take today to reduce the impact of the increasingly extreme weather events we anticipate in the future.

This is one of the key messages of a special report by the Intergovernmental Panel on Climate Change. *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* provides expert guidance for governments to strengthen their climate resilience.

According to the IPCC, since 1970, 95 per cent of lives lost from natural disasters – both climate-related and other events such as earthquakes – have been in developing countries. As climate impacts unfold in the coming decades, preventive measures, including strong disaster risk reduction and adaptation policies, will be essential.

Economic losses from disasters already regularly surpass \$100bn a year, and are set to increase significantly in the years to come. By the end of this century, the annual increase in damage from changed tropical cyclone activity alone is estimated to be between \$28bn and \$68bn.



priority for the entire world. Climate impacts will be with us for decades to come as a result of emissions released today. Developing countries need significantly scaled-up resources and technology to adapt. This is a smart investment in a safer, more stable, prosperous world.

But our capacity to adapt is limited, and is only viable in the context of effective mitigation. At the climate negotiations in Durban, I expect governments to use common sense and compromise to find a way forward for the Kyoto Protocol so we can make a comprehensive, global climate change agreement possible in the future.

We have no time to spare. The IPCC has called for global greenhouse gas emissions to peak within this decade. Yet carbon emissions in 2010 were the highest in history. The International Energy Agency says we are close to a point of no return for staying under a 2C temperature rise. Anything beyond will condemn future generations to dangerous climate change.

Here again, I say we should listen to the voices of the vulnerable. Several of the most vulnerable countries now serve as some of the best models for a clean energy sustainable future. Costa Rica, Ethiopia, the Maldives and Samoa plan to go carbon neutral. Bangladesh is also pursuing a low-carbon path.

I commend these efforts. Every country must do more, starting with those that bear greatest responsibility. We need progress both in the negotiations and on the ground. Let the commitment of some of the most vulnerable countries to pursue a green pathway be an inspiration to more developed countries – the big emitters. We must work together to build a safer, healthier, more climate-resilient world. Together, we can build the future we want.

The writer is secretary-general of the United Nations



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