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Retreating glaciers in the Himalayas and Alps, islands sinking under rising sea levels, and icebergs floating adrift in the Arctic and Antarctic are common images of global warming. Most are remote from most peoples' daily lives and concerns. But WWF has been documenting the impacts of climate change through 'Climate Witnesses', people who are already experiencing its impacts. Whether German foresters, Nepalese sherpas, Fijian fishermen, or indigenous communities in the Arctic, they are testifying about change occurring under their noses, not fifty year projections about what might happen some day – and their witness stories have all been scientifically verified.

So humanity now stands at the doorstep of an historic moment. For the first time it is in the process of fundamentally changing the planet. The consensus of thousands of scientists around the world is that most of the warming since the middle of the last century is due to human activities. Over the last 200 years, the amount of carbon dioxide in the atmosphere – the major gas that causes climate change – has increased by 30 per cent, mainly due to burning fossil fuels.

These are not small matters. The question now is how society reacts. How fast can we change the way the world uses energy so as to prevent the worst impacts?

Political will

We know from scientists that a global average increase of 2° Celsius above pre-industrial temperatures forms a threshold beyond which the impacts become irreversible for ecosystems and many communities around the world. It is a big, but not impossible, challenge to stay beneath it, but it offers new opportunities for innovation, efficiency and business. It means that global emissions must peak and drop dramatically in the next ten to fifteen years.

Delaying action for only 5 to 10 years would mean that much more effort would be needed later to reach the same environmental goal. Achieving a medium probability of staying below 2° Celsius, after implementation of the Kyoto Protocol, would require global emissions to decrease by 1 to 2 per cent per year over several decades. Delaying reductions until 2015 would increase this to 3 to 4 per cent per year. And putting off global action until 2020 would make it virtually impossible to hit this target. The challenge is to cut all greenhouse gas emissions, not just CO₂, by about 60 to 80 per cent globally by the middle of the century to keep open the possibility of avoiding the worst damage from climate change.

This is clearly a big challenge – but it is achievable, given the political will.

The first step was the entry into force of the Kyoto Protocol. This has placed an economic value ►

Keeping the Window Open

JENNIFER MORGAN says that the last opportunity for avoiding dangerous climate change will not last much longer, and calls for urgent action.

Climate change is here and now. It is a fact. Its impacts are almost everywhere. The use of fossil fuels such as coal, oil and gas are warming our atmosphere to the point that, if we don't change our ways, the planet will be dramatically altered forever. It is, indeed, the key challenge to the world.

on CO₂ by setting a binding target on industrialized countries' emissions. The target can be measured and monitored effectively, as can the individual quotas set for each country.

Countries must meet these Kyoto targets, but it was always understood that first commitment period of the Protocol was just that – the first of many. The first meeting of the parties to the Kyoto Protocol in Montreal 2005 launched the next round of negotiations to determine what will happen after this period runs out in 2012. Every country participating in that meeting, except my own – the United States – understood that more action is needed and that every nation will have to play its part in solving climate change. So there is a tremendous chance to shape the way the coming \$16 trillion of investments in energy sector investments (estimated by the International Energy Agency) will be made. A signal has now been sent to the carbon markets that the Kyoto Protocol is, and will remain, the basis for negotiations. But much more certainty needs to be provided so that that this vast sum will be channelled into energy systems that emit zero, or very little, carbon.

Ambitious policies

Several formal processes are under way and each must play its part. However, the formal negotiations under the Kyoto Protocol and the UN Framework Convention on Climate Change provide the foundation, and are the vehicle through which agreement can be found. By 2008 countries should have finalized the negotiations on the Protocol's second commitment period, and the agreement must be ambitious enough to ensure that the 2°C threshold is not crossed,

Each of the major emitting countries must decide to do more and do it together. The industrialized countries must take on deeper national mandatory targets, and continue with the Kyoto cap and trade system. Some developing countries must also contribute more – adopting, step-by-step, more ambitious policies and measures that reduce emissions and scale up low carbon investments. They would then enter into the global carbon market in a much more substantial manner than

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in the past: This would both give them the chance to use it to meet their deeper targets and provide big opportunities for technical and financial transfer. The international treaty must help developing countries meet their national development goals, and the carbon market could be one way to do so.

Countries need to take the plunge together in an equitable yet ambitious way. We need to be creative, tapping into unused reserves and debates that have not so far been considered in the context of climate change. We must 'climatize' such issues as disaster relief and the European budget debate, which could redirect billions of euros to fight today's challenge of climate change rather than still fighting yesterday's battle of achieving food security after the Second World War. Each will play a role in determining our future and each should be thinking about how to avoid the worst impacts of climate change.

The world will look to Germany in 2007 as it holds the G8 and EU presidencies. Chancellor Merkel – who as environment minister helped to negotiate the Kyoto Protocol – has a tremendous opportunity to build international trust, use Germany's tradition of innovation to chart a zero to low carbon future, and ensure that the EU continues its leadership role.

Our window of opportunity for action to avoid the worst impacts of climate change is closing rapidly. It is time for leadership with a capital L ■

Jennifer Morgan is Director of the Climate Change Programme, WWF International.



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