A CONVERSATION WITH DR R K PACHAURI

Dr Pachauri gives a talk to 450 people on *Global Climate Change* at the Royal Institute of British Architects © www.richardkeilphotography.com

Dr Rajendra Pachauri is the Chairman of the UN's Intergovernmental Panel on Climate Change (IPCC) – the joint winner (with Al Gore, former vice-president of the USA) of the 2007 Nobel Peace Prize. Dr Pachauri came to London on 3 October to give his lecture on behalf of the Academy entitled 'Global Climate Change – the Role of Science and Technology in Mitigation and Adaptation' at the Royal Institute of British Architects (RIBA). Just before speaking to the 450 guests, he spoke to Lord Browne of Madingley, President of The Royal Academy of Engineering, about where the climate change debate is heading. A podcast of this talk is available on the *Ingenia* website.

LORD BROWNE: Dr Pachauri, I want to thank you for coming to give this lecture on behalf of The Royal Academy of Engineering and want to spend some time talking about topics which I know are of interest to everybody.

The world's been worrying about climate change, how to mitigate it and about adaptation. This has been going on for a long time now. How do you view the progress so far?

DR R K PACHAURI: I think something quite dramatic and significant has happened in the last few months. I sense that for the first time, there is starting to be the conviction that the issues related to the science of climate change are settled. There is also a view that we need to do something about it, and most importantly that we need to do something about it rather soon. All of this I think is a very heartening development and if I may say, it's really driven by the fact that there's much better knowledge, much better awareness of the realities of climate change and the factors behind it, which is all to the good.

LB: Do you think that there really is acceptance that something needs to be done and people are aware of both the positives and negatives of taking action or not taking action?

RP: I think that they are certainly aware to an increased extent than was the case, say, even a year ago, and that I find a very positive development. But, yes, there are some sceptics, there are still some people who question what needs to be done and what would be viable in terms of action. I was very happy to see for instance, in the UN Secretary General's meeting in New York last week, that every head of state, every head of government that I listened to – with the exception of one – was totally unanimous in saying that we needed action.

LB: And what do you think the attitude of America is now?

RP: I see a distinct change. If you read the statements that have come out, even from the White House, they show a clear shift. They show a commitment to the multilateral process under which an agreement should be negotiated. There's also been a statement that the US, and this was a joint statement between the Australian prime minister and President Bush, that the two countries will engage constructively in the negotiations under the UN framework convention on climate change.

But even more important is the fact that in the US there are a lot of initiatives and actions that you see in evidence at state level and on the part of some corporations. In a democratic society this will certainly bubble-up and create the basis for some shifts in the federal position as well.

LB: Now I know that my colleagues as Fellows of The Royal Academy of Engineering and many of the 250,000 chartered engineers in the United Kingdom, are very keen to understand where policy is going. They're particularly keen, I think, to see policy result in action; action on the ground, things to be done and the Academy is trying to position itself to say engineering has a role here.

What do you think the role of engineers in the Academy should be?

RP: I think engineers and technologists have a huge responsibility and opportunity, and there are several things they could do.

If I first talk about mitigation actions there is a great deal engineers can help in ensuring more efficient use of energy across the entire cycle. They can certainly get involved in innovation whereby we develop technologies that are low in carbon intensity and processes that move towards much lower use of carbon. I think there's a whole range of challenges that engineers, and only engineers, can meet as far as mitigation of greenhouse gas emissions is concerned.

Even on the side of adaptation, there is a great deal that the engineering professions can do. If you look at the fact that the world is going to see many more extreme precipitation events, what does that imply in terms of the infrastructure that we set up for storage of water, supply of water and the drainage of water? I think on the civil engineering side there are huge challenges that need to be met.

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LB: Quite a lot of the solutions as they exist today are wildly uneconomic – unless people are thinking about the results if something is not done. Wildly uneconomic. Indeed many of the expected technologies don't actually exist – they still need a lot of development or even initial research. How do you assess the world's intentions to do something about this?

RP: Well I don't think it is in good enough shape. There are some countries that are ahead of others, no doubt, but I think two sets of initiatives are absolutely essential. Firstly, governments have to step up R&D and they need to do that firstly by providing more resources for R&D in certain areas and then secondly, by putting in place fiscal measures that would provide incentives, as well as disincentives, for some actions versus others.

One of the things we've assessed very clearly in the IPCC Fourth Assessment Report, and particularly working with the number Three Assessment, is the importance of setting a price on carbon.

Unless one is going to do that, one will not get the kind of response from industry that would move us towards a low carbon future. This is something that governments by-and-large have been shying away from. I hope that at the multilateral level and also at the national level in several countries, we start looking at this as the only effective means by which we can mobilise resources to create and disseminate the kinds of technologies that would make a difference.

LB: Now some would say that the price for carbon which people have been looking at the moment, which is around €20 a tonne, is completely wrong. That actually, some argue, the price needs to be more like US$80 a tonne, so that we can capture and sequester carbon. Others would argue that it has to be much lower and that if you spread the price around you'll change behaviour gently. Now these are a tough set of decisions which require really careful thinking about how a market is created.

RP: I think the most important consideration would be to decide at what level and at what stage in time we want to stabilise the concentration of greenhouse gasses in the atmosphere. In the Fourth Assessment Report, we have clearly looked at the price of carbon and its impact in terms of reducing emissions. If the world is ambitious and wants to reduce emissions by fairly stringent means, then we necessarily have to set a price which is high. That could be US$70 or US$80 or whatever.

On the other hand, if we want to take a soft approach and we allow emissions to increase, then clearly there would be support for a low price on carbon, I think we need to start by first determining where it is that the world wants to limit temperature increases and hence corresponding levels of concentration of greenhouse gases. That should really define the kind of price that we need to set and this should be part of the debate.

LB: It's a very clear philosophy, which is work out where you want to go, be very clear about the target and then make everything consistent with the target. The United States has been very resistant to anything which is a target and is, I think, perhaps advocating a more muddle-through approach: try a bit, see what happens, get some voluntary action and support. Do you think that will change to become a more target orientated approach?

RP: It's interesting that if you read President Bush's statement before the Heiligendamm summit, the G8 summit, he actually pointed at setting "long-term" (he didn't call it 'target') goals for climate change, so I think philosophically at least, he did articulate that point of view and I expect that if enough voices in American society and everywhere else start emphasising the importance of setting a goal or target or a benchmark, whatever one wants to call it, then I think the rationale for doing so, will become obvious to every one.

My feeling is that much of this will depend on the success of localised measures in the US and other parts of the world. Let's take California as being able to show the way and establish that it's able to cut down greenhouse gas emissions to a substantial extent and not lose jobs and not lose economic output. I think that the case has become very compelling and I expect some of this is going to happen soon, which will certainly bring about some shifts in positions at the national level as well.

Lord Browne and Dr Pachauri at the Academy's International Lecture, *Global Climate Change*, on 3 October at RIBA © www.richardkeilphotography.com

LB: I suppose there must be a way of linking the localised or national activities on a global scale or international scale?

RP: Absolutely, and I really think that while this is a global problem, it has to be determined – or the solutions need to be determined – by local action. There will be successes and failures and we will need to learn from each one of them. Where there is a success, I think it has to be replicated on a larger scale. Where there's a failure, I think we need to understand why something has failed – so that we can correct it all across the world.

LB: What about carbon – do you think it should it be priced globally or a set of local prices that perhaps interrelate one to another – a bit like exchange rates?

RP: That is an interesting issue and you know there is always the danger that if a few countries decide to take certain actions and set a price on carbon, then others would essentially become free riders and that would obviously impact on the competitive position of different nations. That's why I think it's very important that, as part of any global agreement, we arrive at a framework within which carbon prices have to be set. In some sense this has to be binding on all the governments that sign on.

LB: And this could be the content of a post-Kyoto agreement?

RP: I should hope so. To me it makes a great deal of sense.

There's no point in developing new technologies, there's absolutely no point in laying down targets, unless you allow the market to work. That market will only work provided you have the pricing system that moves you in a direction that's intended – which is a low carbon economy for the future.

LB: So today, we have a lot of intent, a lot of political leadership, but still we're awaiting the main event – we're awaiting the big actions that will perhaps make a

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difference to the world and the scale and size has yet to be determined. But you sound very hopeful.

It's a very different time from when there was a minority saying things had to be done or an NGO saying you must consider this; tackling climate change is now mainstream. Everyone's now anticipating what happens next.

RP: That's true. It is a moment which is pregnant with expectation and hope. All of that can be belied unless we can work this resolve into concrete action. That is why I believe it's extremely important, as far as my own limited involvement is concerned, that the findings of the IPCC reports should be disseminated on a large scale. It's not enough to produce good reports that contain the best science that's available to us. It's in some sense even more important to spread knowledge about what's contained in these reports. I hope in the next few months all of us who are involved in this business, are able to do so effectively, because I think that will make a difference and keep the momentum going .

LB: Do you think that this will be sufficient to really galvanise nations that might on the surface appear to lose, such as China, where the impact of climate change could be quite severe locally. If some of the scenarios that the IPCC have worked on come about, is that sense of concern sufficient to bring action on a global scale to China?

RP: I see signs of something happening over there. I'm a member of the China Council for International Cooperation on Environment and Development (CCICED) and I find that the top leadership of that country are very concerned about the impacts of climate change. Impacts of climate change on agriculture in China are already producing a decline in some parts of the country and they realise that there is a need to be concerned about food security for the whole country. Of course at the global level it translates into something more important.

China is now becoming very focused on reducing the carbon intensity of growth. That's clearly included in the recent policy statement that they have made on climate change. I took part in a seminar organised by the China Council in April, where we focused on a low carbon economy for China and how one can bring one about. Now all of this will take a while to get translated into action, but I see adequate evidence of a realisation that something needs to be done and I hope that it will lead to some action.

LB: So if we were sitting here in 10 years time saying what did we do – what did the world do to itself? What would you say the answer to that question is – in 10 years?

Lord Browne opens the questioning for the *Ingenia* interview © Dominic Joyeux

RP: I would say the answer would be, we should have got started earlier in taking the right steps, but thank God that we had visionary leaders of industry like Lord John Browne and that we had visionary leaders in politics, who saw the writing on the wall and decided to move, even before political or market pressures compelled them to move in that direction. You've got to listen to the voice of reason and you've got to act on the basis of knowledge and that clearly requires that you move before you run into catastrophe or danger.

LB: I think all change is frightening to people. I was President of the British Association for the Advancement of Science this year. I remember first going to a meeting of that august body in 1964 or 1965, I think in Cambridge, where the topic of discussion was Automation and how actually that would signal the end of the working person, that we'd all be driven out of jobs and that it was all very frightening but we had to do it – how wrong we could have been. It turns out every technology creates new unknown areas of growth and new and unknown exciting chances for human beings. I would very much hope that this is going to be one of those occasions.

RP: I think that is an excellent analogy and, you know, let's say we move into energy supply options that are low in carbon intensity and to greater use of renewable energy. I think much the same thing is likely to happen as a result and therefore I agree with you that people are resistant to change largely out of ignorance...

LB: …and the contingency plan if none of this happens, what do you think the contingency plan is – adaptation, despair?

RP: I think there is a limit to adaptation – adaptation is inevitable – and I think that that has to get primacy as early as possible. But to believe that we can adapt to all levels of climate change is simply wishful thinking, because that's not going to happen and the cost of impacts or the severity of impacts, as well as adaptation measures, will increase disproportionally with changes in climate, with changes in temperature, and with increases in extreme events.

And therefore, to believe that we can adapt our way out of this problem is only consigning the future of humanity to disaster and we need to ensure that we go with a strategy that involves both adaptation and mitigation, adequate mitigation.

LB: Pachi, thanks very much.

I think there is a limit to adaptation – adaptation is inevitable – and I think that that has to get primacy as early as possible. But to believe that we can adapt to all levels of climate change is simply wishful thinking, because that's not going to happen and the cost of impacts or the severity of impacts, as well as adaptation measures, will increase disproportionally with changes in climate, with changes in temperature, and with increases in extreme events.

Further reference

There was a podcast made of this interview, download it at **www.ingenia.org.uk**
See also the Intergovernmental Panel on Climate Change's website at **www.ipcc.ch**