DEBATE

Richard Cooper, Professor of International Economics at Harvard University

These two presentations have set the stage for a discussion. We got two sets of cautionary remarks, one, as I interpreted them, slightly on the optimistic side regarding our ability to reach an agreement, and the other, without being explicit about it, being rather pessimistic about reaching an agreement which will do the job we have said we want to do.

Donald Johnston, Chair of the McCall MacBain Foundation, Geneva, Switzerland

I have reviewed a lot of material that has been produced in advance of the December meeting, and I just finished the Environmental Defence Fund paper, the Blueprint 2020. I find in all these documents a great deal of focus on possibilities, but looking at the history of these negotiations, and you mentioned 1988 but you could go back to Stockholm in 1972, many of these same issues were raised. The details were not as precise, we did not have specifics like 450 parts per million of CO2 in the atmosphere will give a two-degree increase, but we passed 400 this year, and there is no indication from what I have seen, because there have been increases every year, that that will change.

The EDF paper is interesting, because the proposals they put forward, which are on the mitigation side, indicate that you can turn the corner by 2020, but they do not mention where we are by 2020, in other words what the increases will be up to that point. I have to say that I am cynical about the discussions which I have been engaged in myself over the years, and it is always this debate about mitigation versus adaptation. It is interesting that the adaptation issues are becoming more significant in the IPCC papers, because there is a general recognition that adaptation is necessary and we are not paying enough attention to it. The public is being lulled to some degree into a sense that they will come to grips with this and solve these issues, and adaptation will be extremely costly, especially if we talk about the coastal regions, such as in the Bloomberg plan in New York, which also goes far beyond that into agriculture and so on.

The question in my mind and that I put on the table is whether we are spending enough time talking about adaptation. When I put that on the agenda bill at the OECD, the reaction of a lot of countries was that talking about adaptation was throwing in the towel, that you were saying we were not going to reach these goals, and that is still a present concern. Therefore, the history of this is not good. I wish the best comes out of Paris, that it is not another Copenhagen, but nonetheless, I would like to see a lot more focus on issues of adaptation.

Another issue I would like to raise with you and which I find troubling is the focus on natural gas. There is a sense in which this convinces people it is an answer to CO2 emissions, which of course it is not. Natural gas emits up to as much as 50% of CO2, so it will delay the process, but it is not an answer, and that is not a long-term answer. Admittedly, if gas becomes the fuel of choice it will provide more time for adaptation and hopefully slow the catastrophic consequences that Laurent Fabius is speaking of.

I must say that all of this is based upon an acceptance of the IPCC conclusions. I do not know how the group here feels about that, but I accept their conclusions, and those of the IEA, which has studied beyond the IPCC, as the best scientific evidence available. 450 is not a magic number; David King once said it was 550 and then moved it down to 450, and you as economists will understand how these moving targets happen. Jim Hanson has put it at 350, and we are now over 400. Taking Hanson's position, the changes we would have to undergo are absolutely radical - it would be incredible to be able to reach those kinds of reductions.

Therefore, we will go on with this debate about mitigation on the one hand and adaptation on the other, and I would like to see much more accent placed on adaptation. There is no Plan B, as Fabius said, there is no Planet B; the only Plan B that we can have is adaptation, to ensure that we are able to survive the catastrophic consequences that are predicted by the IPCC and others.

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There is an alternative, but it is not yet called Plan B. It is called geoengineering, and we may want to touch on that.

Tatsuo Masuda, Professor, Nagoya University

I have one comment for Don. Natural gas seems a good option; it is not eternal, but we need natural gas to buy time to implement new technologies and to change the mind-set of policymakers. Therefore, natural gas definitely holds the key for at least two decades from now. I will make one comment about the two-degree target. It is treated like the Bible, untouchable, but many scientists, including myself, believe that it is not achievable at all. It is too late for us to achieve the two degree target, and pretending that it could be achieved is a deceptive option on the part of policymakers and others. Why not be more realistic and slightly shift the target to 2.5 to make it more possible to reach that target, rather than saying that two degrees is achievable and at the end of the day everybody failing? That is a real catastrophe. Therefore, we have to be realistic and do everything we can do, but do not tell people something we cannot achieve.

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Having followed the literature over the last couple of decades, I am struck by how much uncertainty is emphasised in the IPCC reports, particularly in the scientific reports, and how that is translated into hard numbers like two degrees centigrade or 450 parts per million. The scientists, as I understand it, have the same degree of uncertainty about the sensitivity of the climate to greenhouse gas emissions as they had 20 years ago, that is, a doubling of CO2 equivalent will produce temperature increases ranging from 1.5 to 4.5 degrees centigrade, but somehow the two degrees is translated into 450ppm. The people who write our senior politicians' speeches apparently do not like uncertainty and eliminate it in the speeches, and the speeches are adopted as at least declaratory policy, if not real policy. Am I right in thinking that this climate sensitivity is still very uncertain?

Lee Seung-Hoon, Professor emeritus, Seoul University

I pretend to be a scientist; I am a historian but a scientist by training. My feeling comes from many scientists working in this area. There is a politics among scientists, where they like to take certain positions, as otherwise their roles would not be justified, so sometimes they take the position of believer in two degrees while others do not respect it. However, the truth is somewhere in between, and we have to be very humble about the limitations of our knowledge to grasp these huge methodological effects. It may be better to take the safer course, but if the target is not achievable, why do we pretend to stick to that?

William Ramsay, Senior Advisor of the Center for Energy, Ifri

It is hard to convey that uncertainty. Reading the IPCC reports, they are very careful about degrees of uncertainty, and you heard me say in my presentation that, even if you stay inside that 2,000 gigatonne budget, you only a 50% chance

of reaching two degrees; we do not really know. We in the IEA have been a little reluctant to take the step of saying we can no longer reach this two-degree target because you provide politicians the opportunity to kick the can down the road. We will never make the hard decisions that have to be made now to get somewhere near these targets if we do not make them now, and if we start the public talking about adaptation in 2075 or 2090, that is great for politicians; they thank you, and then we just drop the issue.

Regarding the gas issue, gas happened because of USD15 a million BTU gas. It is just out there. It is not a question of whether we like it or not. It is probably a carbon fossil fuel bridge too far. The US thanks their luck for it and they get all kinds of benefits from it, and if the Chinese get into theirs, gas will go even further. We have to deal with that, because it has benefits, but we should not view that as providing more time, because we are not using the time we have.

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However, it is not the IEA's job to keep politicians' feet to the fire. It is the IEA's job to tell them a straight story. It can be an if-then story - if they are serious about wanting to reach two degrees, here are the things that have to be achieved, but it is not the IEA's job to keep politicians' feet to the fire. That is my own view. It is an analytical organisation.

William Ramsay, Senior Advisor of the Center for Energy, Ifri

It was not the IEA's intent, or its purpose or action, to do that, and it was not the IEA's business to get into adaptation. The IEA's business is to say, 'If you do not do something, you will never hit this target,' and that has not been done yet. That is an analytical observation.

Anil Razdan, Former Power Secretary of India

This debate on adaptation and mitigation which is surfacing now has in fact been pushed across by the least-developed countries and developing countries for most of a decade now, but somehow it has been swept under the carpet. The main question today is affordability, because, when you talk about the MDGs, it is about poverty alleviation, and energy growth is a key lever for that. Whether the developed world likes it or not, I feel the focus of the negotiations will go back to the Kyoto obligations, and I do not think the developing world is yet in a mood to get into the same bracket as the developed world.

A key question has been that, while we know what the low-carbon technologies are, who will foot the bill for them, and that is the second part of the important negotiations to which my colleague just referred. Here I think the fear, or the apprehension, in many developing countries is that, the new renewables - other than large hydro, which is not being done today because of severe environmental concerns about submergence of displacement of populations - are solar and wind and some hybrid systems, and most importantly, energy efficiency has been the most neutral intervention. The question is this. What about the IPRs? We need to fund the change in energy availability through a mechanism which is equitable, if we think climate change is a global concern, which it is. I do not think any developing country wants to proceed on a path of self-destruction, but they want to provide energy, and the fact remains that, if we do go for solar and wind, most of the IPRs are in the developed countries.

Manufacturing capability is shifting to China and this part of the world, but the cost of power today, ultimately, is twice as much as for coal or other forms of available power, and, most importantly, the capacity factors continue to be quite low. The land requirement is also quite high if we are going for large-scale solar, and land is, again, a very precious resources in developing countries and also in the least-developed countries. Added to that there is the role of water

ingress into a lot of coastal areas, meaning that land pressure will increase even further because this population will move upward, meaning less land for agriculture. Where will the land for so much solar installation come from?

Ultimately, I think we have to pay attention to adaptation immediately, as otherwise the poor of the world will get poorer. Secondly, on mitigation, we have to find the finances to fix it if we want today's energy installations to change from fossil fuel to non-fossil fuel sources. Regarding gas, in the past we have thought it was a clean fuel, but it continues to be a rich man's fuel, and one of the latest papers given by the ADB also gives a very high figure for methane emissions in gas production. It says that the Association of Oil and Gas Producers and the Society of Petroleum Engineers have calculated that the global average emission ratio for gas production is about 130 to 140 tonnes of CO2 equivalent for every 1,000 tonnes of production, which is more than for any other electricity fuel except oil and coal, so it is not all that clean, taking the lifetime calculation for this commodity.

Regarding nuclear, which India and some other countries have also been pursuing, when you take into account all the CO2 involved in the mining, the processing, decommissioning and other things, it is not a very clean source, as we deem it to be at the moment. We have to shift the focus on financing sooner than we think, because that is actually the crunch, and I feel that will be the point of disagreement in Lima and probably also in Paris.

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I will give my own pessimistic view about the COP process we are involved in. I do not see how 193 countries with a huge diversity of interests can reach a meaningful agreement - the word 'meaningful' is important - by a process of consensus. The UN processes of decision-making for a hard agreement, a meaningful agreement, are just impossible. My own sympathies, for what they are worth, actually lie with the developing countries, not on the financing part but on the proposition that we are not willing to compromise our development in the name of climate change. Therefore, if I were in Beijing, New Delhi or any other such capital, I think I would take a hard-nosed view, not so much on the financing, because I think to some extent that is a red herring. I have watched all sorts of negotiations over the years on many subjects, and financing is always the number one issue for developing countries, so I have become a little cynical about that.

A negotiation based on quantitative targets, which these negotiations have been, is a fundamental error, and if we want to have any chance of success, we have to shift the debate from targets to actions and get agreement on actions, which of course could vary from country to country if people keep the objective in mind. Developing countries could take a serious of actions which do not compromise their development and that would nevertheless help mitigate climate change.

Regarding the question of solar and wind, at the end of the day solar is the answer, but the end of the day is a long time into the future. The problem with solar and wind is that they are intermittent, and we need base load capacity to fill in or, what is loosely called batteries, we need storage. A lot of technical work is being done in my community on the storage issue, and I am enough of a technological optimist to believe that problem will be solved within the next couple of decades, but it will probably take a couple of decades to solve it on a commercially viable scale. However, in the meantime we need base load; we need nuclear, gas or coal to provide the base load capacity for the next several decades while we bring wind and solar, intermittent sources of energy, online, so a lot of patience is required.

Regarding the question of adaptation, my non-scientific observation is that with the exception, perhaps, of a few bacteria and a few insects, homo sapiens is the most adaptive of species. We have demonstrated a capacity to adapt ourselves to all kinds of environments in the general sense of the term, and I have no doubt we will be able to adapt provided changes come gradually rather than abruptly. That seems to be the case so far with climate change, so a lot of adaptation will take place. Adaptation is local, because the disturbances are largely local, leaving aside sea level rise, and there is still a question of how it is financed, but that can be handled in the normal aid and resource transfer process which we have developed over the last 40 or 50 years.

Diplomats have a way of snatching rhetorical victory from apparent defeat, and it may well be that the Paris conference is successful as a diplomatic enterprise, but I emphasise the word ‘meaningful’ - it is highly doubtful that a meaningful climate change agreement can come out of that process. The numbers, at least as I have looked at them, just do not work.