

Europe, Asia and the future of Energy Cooperation: The role of Youth
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- Don't know about you, but I am not a great fan of long speeches: mine will be around 20-30 minutes in two parts. But, there is no such thing as a free short speech – the price you will pay is that at the end of my talk you are expected to talk – to comment, critique, ask questions, challenge.
- I want to start by dissecting the title of my talk – a title I was given but have come to see as highly appropriate: “Europe, Asia and the future of Energy Cooperation: The role of Youth.” With the US, the titular leader of the West since the end of the second world war, in full retreat from the world stage, there is a huge global leadership vacuum – in this environment, an alliance between Europe and Asia makes a great deal of sense. Having spent most of the last thirty years in various parts of Asia (Indonesia, Vietnam, Central Asia, especially Kazakhstan, Afghanistan, and before that Pakistan), I am utterly convinced that this is Asia's time – led by China but including many other Asian countries. Given the need for global leadership, a coalition between Europe and Asia is for me a no-brainer. Not that it will be easy, there will be many different agendas on both sides of the table, but this coalition is essential to the future of our world. Respect on both sides of the table will be key. A coalition cannot be built on the notion that one partner has it right and the other needs to follow suit. Europe and China can and must learn from each other. Both have long and rich histories and cultures.
- Next aspect of the title: “Cooperation.” One of the consequences of a globalized world is that solutions to emerging problems, whether climate change or terrorism, require cooperation, another pitch for a Europe-Asia tie-up.
- Finally, The Role of Youth – since this will be the last part of my talk, you will have to wait until then to learn what I have to say on that topic.
- As I mentioned, my talk has two parts: I will first provide a summary of climate change issues as I see them and then show why climate change is one of the most difficult policy issues the world must deal with. The second part will explain why the people in this room are my hope for the future – not my future but my grandchildren's future.
- While I am sure that many people in this room know more about climate change than I do, I am after all an economist, I hope you will allow me to start with a review of some of the issues surrounding climate change:
 1. First, is climate changing, is the globe warming? It is my sense that even most climate change skeptics agree that the globe is warming, that each year we face more extreme weather. These are quantifiable facts – see my ex-WB colleague Vinod Thomas's recent book, Climate Change and Natural Disasters for a good fact-based analysis of the relation between climate change and increasing numbers and intensity of natural disasters.

¹ The views presented in this talk are the Author's alone and do not represent the views of any organization with which he is affiliated.

2. However, even those who agree that the planet is warming often do not agree on the pace of that warming or the likely future warming trends, two critical numbers for deciding how serious a problem climate change is.
3. This is in part because what continues to be debated is the degree to which human activity is causing of the climate to change.
4. This debate continues even though seven separate studies of climate change scientists show between 91 and 100 percent agreement on the hypothesis that human activity is causing climate change.
5. What those who support the hypothesis that human activity causes climate change have not done well is to set out a convincing case that the substantial costs associated with stopping greenhouse gas (GHG) emissions are less than the projected benefits – I will discuss a bit later why there is this disconnect.
6. Finally, there is the 64 trillion-dollar question – what to do? Do we attempt to slow climate change, and will that be enough, or do we trust that technology will bail us out? The answer in my view is: based on our current knowledge, both will be essential.
7. Since more than 90% of climate change scientists believe that human activity is driving global warming, why are we still having a climate change debate? If we are going to mov the climate change debate forward, we have to understand the arguments critics put forward. There are many reasons, here are my selection of the most legitimate:
 - a. The cost-benefit issue: those who accept climate change is a reality still argue that there are not good analytical demonstrations that the costs associated with reducing carbon emissions are justified by the likely benefits. Partly this is a discounting issues, which I discuss below, and partly a disagreement on both the level of costs but particularly the level of prospective benefits. One report I came across said that consensus forecasts are that climate change would reduce global GDP by 10% by 2100 – that is about 0.1% less growth each year from now until then (this from a researcher at the Hoover Institute at Stanford), not a stunning amount. However, even among the experts, there are huge variances in estimates of the rate of warming and of costs. And all agree that the cost of climate change will not be evenly distributed.
 - b. Some deniers argue that scientists are not unbiased. They bring prejudices and preconceptions to their work. This is an argument that one of my contrarian friends used on me recently. Of course, if you accept this argument, there is no objective science and therefore no knowledge-based way of resolving issues, which does not leave us in an especially good place for the climate change debate or many other global issues.
 - c. A continuing disagreement over the facts – for example, is the sea level rising. This is a question about now, not the future. If we cannot agree on this, how will we ever agree on what might happen 100 years from now.

- d. A confusion among the public between climate and weather. Weather fluctuates day in and day out climate is the long term. On any given day it may be colder in the winter in Washington DC than in Astana, Kazakhstan where I live half the year, but I assure you from personal experience that Astana's winter climate is way more severe than Washington's.
 - e. There is no long-term problem because plants and animals have always had to adapt to climate change – This issue here is the pace of climate change now versus previous periods.
 - f. Antarctic ice is increasing not melting – confuses sea ice with land ice.
 - g. Climate change is good for us – depends on who “us” is – if you live on an island in the Pacific, not so, if you live in Astana, possibly yes, but not guaranteed. The change in rhetoric from “global warming” to “climate change” is important – experts now recognize that global warming can cause a wide variety of climate changes, not just warmer weather.
 - h. Who bears the cost – the Paris agreement came to fruition because the developed Western countries recognized that two large sources of greenhouse gas emission – China and India – are both relatively poor and were not the source of much of the stock of greenhouse gases now warming our planet. These facts led the developed world to agree to start reducing greenhouse gas emissions earlier than China or India must. This differential treatment, which makes sense on equity grounds, is I suspect the source of Trump's decision to take the US out of the Paris agreement – his ubiquitous concern about unfair treatment. But regardless of Trump's behavior, the issue of how costs associated with reducing greenhouse gases are distributed among countries remains a thorny issue.
 - i. Enforcement – what does the world do if countries don't meet their commitments to reducing greenhouse gases.
- For the sake of the rest of my talk, let's accept two premises (1) that climate change is occurring and (2) that human activity is a contributing factor. I want first to discuss why, no matter how important you think it is, global policy on climate change is extraordinarily difficult to implement.
 - As an economist, I see two very high barriers to moving on the climate change agenda:
 - Climate change is a classic global public goods problem – dealing with climate change is costly, but if everyone else does it, I may not have to, and if I don't, I am way ahead of my competitors economically. This is the so-called tragedy of the commons phenomena: As Wikipedia says, “The **tragedy of the commons** is a term used in social science to describe a situation in a shared-resource system where individual users acting independently according to their own self-interest behave contrary to the common good of all users by depleting or spoiling that resource through their collective action.”
 - Discount rates and the need to use them also raise substantial barriers – if I offer you ten Euros today or twelve Euros a year from now most people will take the ten

Euro now. Applying the discounting to climate change, makes it a political tough sell: I am going to cut your living standards now for the vague promised that life will be better 50 or 70 or 100 years from now. A one billion Euro gain in 70 years is worth today less than 33 thousand Euro (in fact 32,866 at a 5% discount rate). Put differently, to avoid a billion Euro loss in 70 years, people today would be willing to give up less than 33 million Euro. If the loss is 100 years from now the number today is less than 8,000 Euro (7,604 to be precise).

- Now, as the loss approaches infinity, in some sense, the formula breaks down – an infinite loss means that people should be willing to pay any amount to avoid it regardless of the discount rate. This in my view is one reason why most proponents of the need to reduce carbon emissions don't bother with cost benefit analysis. They assume that the losses are, if not infinite, so large that they need to be avoided no matter what the cost – which is a mistake. Climate change effects are serious, but the earth in some form will likely survive just as it has survived previous massive climate changes. So, an infinite loss – the earth destroyed – is unlikely.
- Even those who accept the need for discounting do not agree on the appropriate discount rate. Many of those concerned about climate change see the market discount rate as wrong and unethical, but those arguments do little to help us select a discount rate. As Richard Carlson states in a 2009 paper on Discounting and Environmental decisions, “A zero discount rate implies that one cares about the welfare of someone a million years in the future as much as someone in the present. It also implies that the present generation should accept a subsistence level of living to invest in productive investments that will improve the well-being of future generations. This same logic then applies to each subsequent generation.” While a zero-discount rate is clearly not appropriate, the level that is appropriate is problematic – in our earlier example, the amount someone would be willing to pay now to avoid a billion-euro loss in a hundred years approaches one billion at a discount rate of 0.00001 that is, one 100 thousandth of a percent.
- As if all this were not enough, when we introduce a political economy element, things get even more difficult. Politicians, especially but not exclusively, those in democracies have very short time horizons, usually no further than the next election cycle. It is the rare politician who is willing to tell the electorate: If you vote for me, I will reduce your standard of living now for an uncertain and distant future gain.
- The bottom line for me: We know that even if greenhouse gas emissions were to stop today, the stock of these gases in the atmosphere would continue to warm the planet through the well-documented feedback loop – as the planet warms, its ability to absorb greenhouse gases is reduced, that is, warming causes more warming even if new greenhouse gas emissions are held to zero.
- This feedback phenomena means that alongside of continued efforts to reduce greenhouse gas emissions, we need a full-on effort to develop technologies to capture and store greenhouse gases and to adapt to the near-term consequences of ongoing climate change. This is true whether the world meets the Paris agreement targets or even more stringent targets.
- The alternatives.

- Rest assured, I have not given up on global action on reducing GHGs, but I am not optimistic and am quite sure that global cooperation will have to go well beyond reducing new GHG emissions. Yes, there will be conferences and declarations, but action will be far rarer. And, as I said, even moving to a zero level of future GHG emissions tomorrow will not stop climate change. So, what are the alternatives? If ever the world needed a Plan B, it is now.
- Colonizing another planet seems far-fetched, even 100 years from now regardless of what Steven Hawking or Elon Musk think – both of whom think we will have to leave this planet. Mars is the usual candidate – but as Forbes magazine says: Whether it's nuclear war or massive global warming, post disaster earth would be way more habitable than Mars. If you haven't read it, I strongly recommend the book The Martian by Andy Weir – great movie as well.
- So, what about adaption – using technology to reduce the impact of carbon emissions through, say, carbon capturing, and to adapt to the consequences of a more gradual global warming. While I think this solution has merit, I also think it will come at a high cost – the world is not likely to move aggressively on this front until things are very bad. And the longer we wait, the higher the cost of fixing things.
- Plus, we need to keep in mind that those most affected and by climate change will be the poorest, least technologically advanced countries, so unable to move on the adaptation front on their own. These countries are also likely to be hit the earliest – Bangladesh comes immediately to mind.
- Speaking of technology, how many of you have seen the movie Geostorm? One of my usually hidden sins is watching trash movies on airplanes when no one can see me. Since I spend a lot of time on airplanes, I have watched a lot of trash.
- For those of you who haven't seen it Geostorm is about a world in which climate change reached crisis levels but technology in the form of a series of satellites is deployed to control the effects of climate change. The only problem is that this world continues to have bad people in it, one of whom hacks into the space station that controls the satellites and turns them into climate destroyers.
- Spoiler alert: in the end the good folks win. Is this a plausible scenario? Of course not, but it does raise two serious questions: first, the cost of dealing with the impact of climate change ex-post is likely to be high if it can be done at all and it will also require global cooperation. And second, the technology is likely to be so complicated that in the wrong hands it could be turned against the world.
- So, when it comes to climate change mitigation, economics lives up to its reputation as the dismal science. In a sense, these classic economist words of doom are exactly why we are all here. So, let me turn to a different but equally important form of energy – the energy in this room.
- To put it bluntly, my generation has left your generation with a mix bag. Overall, the world is a better place now than when people like me arrived in it.
- On most dimensions that matter, the world is a far better place today than it was when I was born 74 years ago. Health is better, education up, living standards up, people live much longer, poverty is down even in the poorer countries (see Steven Radelett's new book, The Great Surge or Steven Pinker's, Enlightenment Now: The Case for Reason, Science, Humanism, and Progress.). The message of both studies is that while there are

exceptions, as there always will be, the averages tell an important and positive story. But not everything is better.

- As Richard Haass says in his 2017 book, “A World in Disarray,” we currently live in a “World of declining order.” He goes on to say, “the 21st century will prove extremely difficult to manage, representing as it does a departure from almost four centuries of history-what is normally thought of as the modern era-that came before it.”
- He argues that among the “worrisome developments” are “increased rivalry among several of the era’s major powers, the growing gap between global challenges and response, the reality of and potential for conflict in several regions, and political dysfunction and change going on within many countries, including the United states, that are likely to make it difficult to design and implement a foreign policy that can help the world contend with all the threats to order.” As dire as this sound, no day passes in my own country that does not underline its truth.
- Fixing these worrisome trends is the challenge that all of us in this room face: how to re-build a “world of order,” to build a world prepared to join forces to solve a host of decades-old challenges from climate change to poverty to income and wealth disparity, to rampant migration, to terrorism, A world that recognizes as trite as it sounds that we really are all in this together.
- So, the world is a mess and according to some likely to get worse. But there is a way out of this mess.
- My hope – indeed our only hope - is the energy and commitment in this room – the energy of youth – I am sure that many of you don’t see yourselves are youths, but everything is relative and in my eyes you all qualify as youths. Anyone younger than my own children is young to me.
- Youth has one enormous advantage in solving problems and one serious but manageable disadvantage;
 - Youth’s advantage is in a sense its ignorance. its innocence – I have failed in more things than most of you can count. As successful entrepreneurs know, failure is good as a learning experience but after a while it can lead to cynicism and a sense of paralysis.
 - A personal example: I have been at Nazarbayev University since before it existed – more than eight years now. I have seen the university struggle with many of the same problems for the entire course of its existence. I have developed solutions to these problems, most have failed. Now when someone offers a solution, all I see is something close to what I tried and therefore unlikely to succeed. Yet, in the final accounting, these problems must be fixed, so people need to be encouraged not discouraged to keep trying.
 - A second example, one that lets me promote my own recent work. In 2008 I spent time in Iraq as a member of a Gen. Petraeus organized Governance and Assessment team. I then spent much of 2010 in Afghanistan working with the 173rd Airborne Brigade developing a new approach to counterinsurgency, based in part on the lessons we learned in Iraq. The new approach worked very well but even with Petraeus’s backing, I failed to get it widely implemented in Afghanistan. To understand why, you will have to wait for my book: Why Counterinsurgency Fails: The US in Iraq and Afghanistan forthcoming, Palgrave and McMillan Press.

- But my time at NU has also given me hope. NU has problems, but one of them is I assure you not the quality of the students. NU students are an extraordinary bunch –smart, creative, entrepreneurial, inherently optimists. Working with these bright young people has given me hope for the future, not my future, which is predetermined, but my children’s and especially my grandchildren’s futures.
- But my time at NU also taught me that older people constantly underestimate the ability of youth to create, to solve problems. I am quite sure that what we need to do is to give the younger generation more space and responsibility to help.
- Let me outline your choices, and, as I hope you will see, there is really no choice. The so-called Western liberal order is in near full retreat. We can explore why in the Question and Answer session if anyone is interested. Those rushing to fill the global leadership vacuum this retreat is creating are primarily Russia and China, but Russia’s prospective internal problems are such that I don’t think it is a serious contender (apologies to any Russians among you – this is not a criticism of you but of your leadership, which is, I must admit better than my country’s, but still not great.) But China is another matter.
- There is no doubt in my mind that China will be a major shaper of global issues including the climate change agenda in the coming several decades. Many in the West want China to fail because it is not a liberal democracy. But for now, and for the foreseeable future, China is a force to be reckoned with. But even China, especially President Xi knows that China cannot go it alone. As the Economist writes, “...face to face with European bureaucrats this week, President Xi Jinping and his team agreed, in effect, that the one thing worse than an American-led world was one with no rules at all.” So, China is already moving on a strengthened European-China partnership.
- To wrap up and move to questions, let me return to the title of my talk as it contains all the elements of a way forward. A Europe-Asia cooperative Partnership – already beginning to happen; the Role of Youth – just look around this room, also happening. With your continued support and the inevitable growth in Europe-Asia cooperation, climate change can and will be addressed. But be forewarned, the road ahead will be bumpy, twisty with lot of hills.
- So, what to do next – nice philosophical talk, but what is the action agenda.
- My strong advice is to look for early wins:
 - Start by find areas with the strongest levels of agreement among scientists,
 - Then do the research necessary to choose among alternatives for fixing these problems, including Cost-benefit analysis.
- And understand that doing decent policy research is hard, but not impossible. As a recent Rand Corporation Study, with the intriguing title of “Is climate Restoration an Appropriate Climate policy goal?” shows, we already have the technology to capture and store GHGs through what is known as DAC – Direct Air Capture.
- Of course, the scale of what is available today is minuscule to what would be needed to have the necessary impact, but scale is something we can deal with if we want to.
- I will end by leaving you with a challenge: how do you at once avoid the mistakes of the past without letting them constrain your own thinking. You face a tough challenge, but I am sure you will succeed as you have energy and time on your side – you are after all young. I am convinced that we have the knowledge, now we just need the will – which is where you all come in.

- By the way, if there is anything I can do to help you on this exciting journey, you need only ask – Johanna has my email address.
- Thank you. You have been remarkable patient – your turn.