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Sessions summaries

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The AEEF is organised with the financial support of the Asia-Europe Foundation (ASEF) which promotes understanding, strengthens relationships and facilitates cooperation among the people, institutions and organisations of Asia and Europe.

SESSION 4 - THE ECONOMICS OF CLIMATE CHANGE AHEAD OF COP21

*Chair: **Andreas Esche**, Director, Bertelsmann Stiftung*

Thierry Schwarz (Department Director, Asia-Europe Foundation)

The main role of the Asia-Europe Foundation (ASEF) is to involve governments, Civil Society Organizations (CSOs), businesses, cities... in a debate to facilitate a political consensus between Asian and European countries on global issues. On climate change issues, the Asia-Europe Foundation has undertaken a program together with the Asia Centre, organising a series of events in China (on coal and climate change), Kazakhstan (sustainable use of oil) and Thailand (in Bangkok, on climate finance), culminating in an Asia-Europe pre-COP21 conference in Paris at the end of September.

Mitsutsune Yamaguchi (Special Advisor, Research Institute of Innovative Technology for the Earth)

The so called "2 degree target" is mainly political and aims to limit global warming to less than 2 degrees above pre-industrial levels. As outlined in the 5th Assessment Report made by the Intergovernmental Panel on Climate Change (IPCC), reaching this target requires countries to achieve net zero emissions, implying de-carbonisation, i.e. negative emissions, by the end of this century.

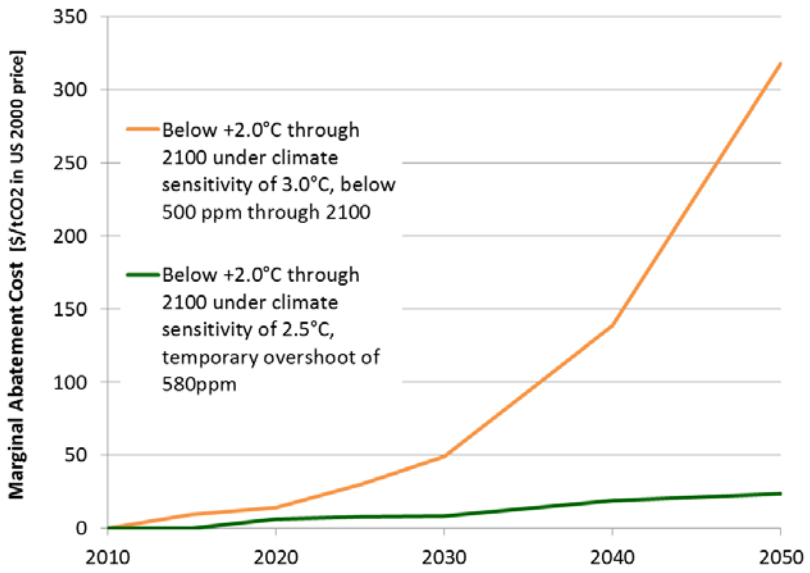


Figure 1: Marginal abatement cost and climate sensitivity
Source: Research Institute of Innovative Technology for Earth

One of the main questions linked to this target is the discounting of climate change damages. How can we share responsibilities between the present generations, who bear the costs, and the future generations, who will benefit from the efforts made by the previous ones? Article 2 of the UNFCCC specifies that the greenhouse gas (GHG) concentrations should be stabilized at a level not dangerous for ecosystems and food production but also not dangerous for the economic development. But the estimated costs to achieve the two degrees target are very large: they have been calculated as 4.8%~~3.8%~~ of global GDP in 2100, under ideal conditions (i.e. all countries participating, uniform carbon tax all around the world, and all technologies made available), meaning that actual costs will be likely higher.

Nevertheless, a large uncertainty surrounds these cost estimations. One of the main sources of uncertainty is the value of the equilibrium climate sensitivity (ECS). The ECS is defined as the response of the global temperature given a doubling of the concentration of carbon dioxide in the Earth's atmosphere. The coming negotiations in Paris are based upon an estimation of ECS that ranges from 1.5 to 4.5°C. Though a "best estimate" within this range was not shown by the IPCC because of the disagreement among experts, IPCC used 3°C in its calculation. But ECS has a great impact on emissions trajectory to achieve the agreed goal. With an ECS of 3°C (best estimates of the ECS proposed by the previous IPCC report in 2007), for example, there would be a significant gap between projected GHG emissions from the submitted Intended Nationally Determined Contributions (INDCs) and the GHG emissions that would be required to achieve the 2 degree target. On the contrary, under an ECS of 2.5°C, the two degree target is still within reach with the present INDCs. Furthermore, as shown in Figure 1, the marginal abatement cost would amount to $318 per additional tCO_2 in 2050 under an ECS of 3°C, whereas under an ECS of 2.5°C, this cost would be dramatically lower, at $24.

To sum up, policymakers should be made aware of the huge uncertainties surrounding climate change, especially in climate sensitivity, and that a 2 degree target is still plausible, in particular if the climate sensitivity is below 2.5°C. During the UN Climate Change conference to be held in Paris in December 2015, it would be important to reach a "strong weak agreement" rooted in realistic feasibility rather than "weak strong agreement". To pursue a "strong strong agreement" may bear the risk of ending up with the collapse of negotiations. The role of the scientific community, moving forward, should be to narrow the uncertainty in measuring ECS.

Discussion with Panel Chair:
The issue of responsibility in climate change emissions is complex. For example, the share of greenhouse gas emitted, and therefore the burden of each country, is not the same whether the base year considered for calculations is 1990 or 2000, the emissions of China increasing in the last years. Common but Differentiated Responsibility (CBDR) is a real issue that we cannot ignore. Developing countries argue that it is the responsibility of developed countries to tackle climate change. However, to achieve a 2 degree target, developing countries would need to reduce their emissions by 70%; as a consequence, every country should cooperate in mitigation.

Guntram Wolff (Director, Bruegel)

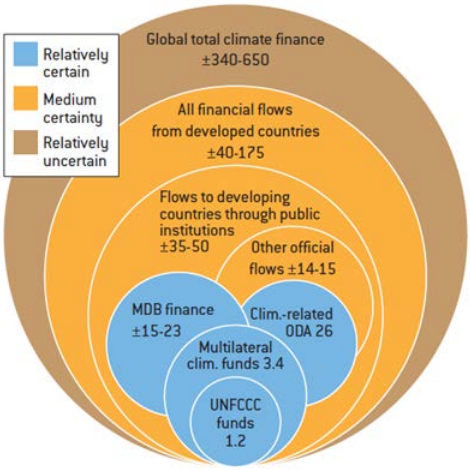
There are two key points to take away with regards to the EU and climate finance. Firstly, it is in the interest of the EU to reach a strong deal in COP21. Secondly, EU investment in climate finance would make such a deal more likely.

It is important to note that climate change is already affecting our environment, and that most of the observed increase in global average temperatures is very likely to be a result of anthropogenic increase in greenhouse gas concentrations. To address climate change, both adaptation and mitigation are needed. Adaptation is essentially dealt with by national policies whereas mitigation needs global coordination. Indeed, without an agreement where all countries participate, general equilibrium effects would lead to a situation where any reduced consumption of carbon would have a

downward impact on the price of carbon, leading to an increase in the quantity of carbon consumed and emitted by non-participating countries.

To achieve the 2 degree target, global emissions need to be drastically cut in order to reach a CO_2 concentration in the atmosphere of less than 450 ppm. This goal requires the total decarbonisation of our economies by the end of the current century and, therefore, a complete change in the investment profile, with an increase, for example, in green infrastructure, energy production sites, clean vehicles, etc. The International Energy Agency (IEA) estimates that the investment needed in the next 20 years in favour of energy supply and energy efficiency amounts to USD 53 trillion. Most economists agree that appropriately pricing emissions (carbon pricing) would be the most efficient way of achieving de-carbonisation. Then, part of these resources could be channelled to climate finance.

Climate finance is the financial flow that is targeted at mitigation or adaptation in developing countries. In the Conferences of Parties (COP) held in Copenhagen and Cancun, parties agreed that developed countries would contribute USD 100 billion per year by 2020 to developing countries. Total international climate finance can play an important role in the ongoing climate negotiations, since its potential amounts are significant (see Figure 2).



International climate finance, $ billions
Source: Bruegel based on OECD (2015) and Standing Committee on Finance (2014).

Why should the EU contribute to climate finance?

1. Without a global agreement, existing EU climate policies (the Emission Trading Scheme as well as national schemes), which represent large amounts of money, are futile. In 2013, the EU spent EUR 14 billion in climate-related Official development Assistance (ODA), and in 2014, EUR 5 billion in public R&D to generate low-carbon energy. If the EU were to establish a feed-in tariff on green energy and committed to keep the tariff for the next 10 years, this would accumulate to roughly EUR 10-70 billion. Without a global agreement, these efforts will be ineffective in fighting climate change since, as shown before, a global approach is needed.

2. Climate finance is the best EU bargaining chip in the international negotiations. Indeed, EU is a small player in climate change (in 2012, its emissions represented 11% of global emissions) while a global deal needs the participation of developing countries. Then, supporting and contributing to climate finance in order to provide predictable future finance flows to developing countries would increase the incentive for them to commit.

3. Climate finance can make decarbonisation cheaper. Abatement costs are much lower in developing countries. Then, if subsidies for the deployment of low carbon technology were used in Africa, rather than in the EU, there would be a larger benefit on decarbonisation, as the marginal effect for each Euro invested would be much larger in Africa.

It is also important to note that the EU has competitive advantage in low carbon technologies. If there is a global agreement, important choices about standards and systems will need to be made. Cooperation among EU countries will make it easier to take some European standards globally.

Given the fact that it would be beneficial for the EU to contribute to climate finance, what kind of resources could be generated? One way would be to allocate a fixed proportion of the ETS revenues to climate finance. Another source of funding may be to apply a carbon tax on sectors currently not covered by the ETS.

Discussion with Panel Chair:
Mr Wolff is sceptical about the ability to reach a serious deal in COP21 and to decarbonise our economies the way we need to in order to achieve the 2°C target. Moving forward, adaptation, endurance and geo-engineering should be the priority areas.

Bjorn Conrad (Associate Vice President for Research & Director of the Research Area on Innovation, Environment, Economy – Mercator Institute for China Studies)

China is a crucial player in addressing climate change. There are three main questions that should be asked regarding China and its position in climate change discussions.

Given the recent good media on China's efforts in addressing climate change, is China turning around and embracing environmentalism?

Media depict China as changing its strategic position towards climate change mitigation. They have widely commented the big US-China climate deal in November 2014, the submission of Chinese INDC to prepare Paris conference to be held in December 2015 and Xi Jin Ping's visit to the US in September 2015 to discuss cooperation in climate change. There is also the 2017 plan for a national carbon cap and trade system. In the media, it makes for a nice story that "China is turning around." However, Mr Conrad would argue that China's climate change policy has been consistent for the past 15 years. Chinese had a gradual, determined attitude towards climate change since Hu Jintao. The country has considerable renewable energy capacity, energy efficiency, clean technologies, and research on reducing CO_2 emissions. China has also experimented innovatively with market-based mechanisms (including carbon trading and tariffs). What is new is China's willingness to put these national targets into an international/bilateral framework. However, it is important to note that China is not making international commitments, then changing their national policies. They will always make commitments that align with their own prior national policy agenda.

In the light of past trajectories, how credible are the commitments that China is making lately with regards to climate change?

They are credible – the reason for that is because China's climate change policy is very little about climate and very much about economic and investment opportunities. The structural policies of China to shift towards a more value-added, consumption-driven growth model have positive outcomes in terms of climate change. The transition to less energy-heavy industries has a positive effect on global warming. Increasing renewable energy capability creates a fantastic market for high value-added technology. Transitioning towards high-tech and service industries is not necessarily only done to reduce CO_2 emissions, but also to move to a higher labour cost economy. China's climate change policy has been intricately embedded into its economic long term strategy. They are almost indistinguishable.

Are China's international commitments going to be credible given the economic environment that China is entering into (i.e. lower economic growth)?

First of all, when investments go down and capacities are shrinking, this leads to lower CO_2 emissions. Low economic growth is always good for the climate. But the main question is how will China address a prolonged downturn in its economy? There are two possible scenarios to consider. In the first scenario, the good one, China's government reacts by pushing reforms towards more sustainability and channelling stimulus policies into clean production. But this scenario is not very likely to happen as its gains would not be immediate – for example, the issue of unemployment would require faster action. The second scenario would consist in stimulus policies that, in the next couple of years, go into infrastructure and heavy industry, which could address growth and employment quickly, but would have a very bad carbon impact. China's course of action in the next few years will probably be somewhere in between these two scenarios.

Discussion with Panel Chair:
China has done one thing better than EU with regards to the carbon trading system: China has the guts to experiment. China has launched 7 different pilot programs in a number of provinces. This element of flexibility, adaptation and adjustment is important to creating market-oriented mechanisms for carbon trading. For example, Chinese authorities noted that their feed-in tariff rate for renewable energy was miscalculated, which was met with quick response to adjust the rate.

Jean-François Di Meglio (President, Asia Centre in Paris)

Short response on China
Even though the fact that the second scenario concerning Chinese response to a lower economic growth is 60-70% probable is a concern, Mr Di Meglio considers that China has the ability to run the middle-of-the-road approach and is confident that balance will prevail. He disagrees that China has always had strong climate change policymaking because China couldn't have achieved such rapid urbanization with such policymaking.

It is important to identify the usual gap between the federal and provincial level as a limitation to the move to a cleaner energy mix. For example, wind farms need a good coordination between the local level and the centralized state energy grid, difficult to manage. Indeed, a traditional power plant is needed to send power into the grid when wind falls. As a result, notwithstanding the large number of wind farms built in China, renewables do not work well.

Climate Finance
A whole turnaround of the financial world is needed to achieve our goals for climate finance. The annual needed global investment to be "green and resilient" amounts to USD 16 trillions. We have enough money in our financial system to reach this target: the issuance of bonds alone accounts for USD 100 trillion in financial assets. But the financial system is not geared to use this money towards climate change. Then, the question is "How to change our financial system?" Carbon markets and the clean development mechanism (CDM) can work but we failed to bank them. Indeed, markets currently do not incentivise greater ambition and opportunities for investment in green growth.

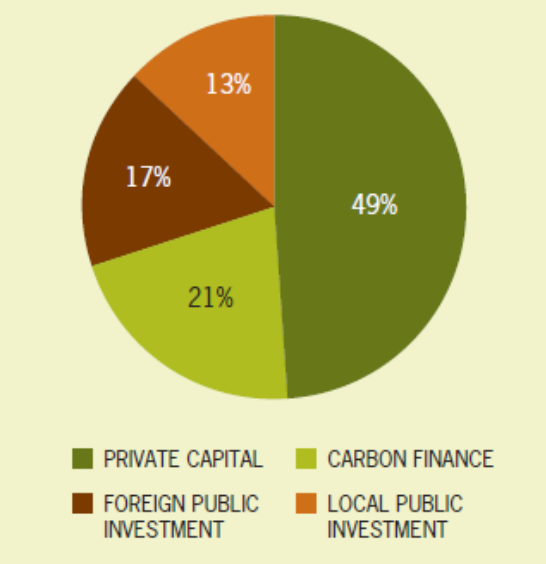


Figure 3: Origin of capital financing in World Bank CDM projects
Source: World Bank, 2010

More narrowly speaking, "carbon finance" is defined as credits in clean project mechanisms and green bonds. This can come either from markets regulated by public bodies or from "voluntary markets," which are commitments by sectors, corporations, or individuals to reduce their emissions. Private capital already plays an important role: for example, for the last 10 years, CDM projects in the World Bank were funded, for the most part, by private capital from voluntary markets (see Figure 2). Then, given the importance of private capital in climate finance, it will be important to set up the right mechanisms within the financial system to incentivise private investment in green technologies.

It is also important to consider carbon finance as an "enhancer" for the rollout phase of clean technology. Specifically, CDM can facilitate investment in green technology but the investment conditions external to carbon need to be favourable for businesses and relevant stakeholders to integrate this technology into their own operations.

Moving forward, short-term actions to make carbon finance more viable will be to simplify and standardise CDM processes and rules, in order to reduce transaction costs due to financial, technical and regulatory barriers. In the long term, markets need to be set up to create robust, reliable demand for green technology. Countries should be aware that after COP21, they will need to revisit climate finance. The real agreements will be reached in the financial world.

Questions from the Floor

Mitsutsune Yamaguchi - absence of cap and trade system in Japan
How successful was EU's ETS? To achieve the 2°C target, it would never be enough. We definitely need technological innovation to achieve this target. The Japanese pledge now is that the carbon price does not rise to more than $300 in 2030. Presently, low priced carbon can be bought on carbon markets. But if we want long term prosperity, rather than buying lower priced carbon, Japanese companies themselves need to develop their own clean technology, for which they, at least partially, still have the economic incentive to develop. Indeed, Japan's energy efficiency is one of the highest in the world.

Guntram Wolff – private funding in climate finance, and the EU's ETS
Private funding is determined by return on investment. If you look at the main issue, you need 53 trillion in terms of investment for decarbonisation. Under what conditions will the private sector invest in green energy? I would say that private investment would flow in only if there is a serious credible commitment by the global community to price carbon.

The current ETS price allowances are so low because the markets don't believe in the current European commitment of a downward path in carbon allowances in the coming years. As a result, the

effective private consumption and investment patterns have not changed. The same thing can be said about investment in green engineering and adaptation.

Jean-François Di Meglio
Concerning the absence of cap and trade system in Japan, it is worth noting that Japan was able to adjust post-Fukushima with tremendous energy savings.

As far as climate finance is concerned, public-private partnerships are the way to go.

Concerning China, the problem is that, as in many issues in climate finance, you don't have the right references and benchmarks to assess whether the public sector will commit and whether the private sector will get sufficient return on investment.

Bjorn Conrad – effectiveness of Chinese policymaking
The very thing that makes China's efforts in climate change also serves as a hindrance. Namely, economic issues will always overweigh climate change issues. Intensity targets and peak targets in China are still far away from what we would need from China to prevent dangerous climate disruption. Measuring, reporting, and verification (MRV) issues are also enormous in China – due to this, China's cap and trade system probably won't work out quickly. But things are probably changing and environmental targets becoming more important. For example, in Chun Qing, efforts to build a hydropower plant near the river had been stalled for a considerable amount of time, due to the fact that it didn't pass the environmental safety test.