



**Dinner Speech at the CEDA VIP Dinner Climate Change  
Mitigation:  
An Update on Global Initiatives**

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Ladies and Gentlemen,

The recent Climate Summits, in particular Copenhagen in 2009 and Durban in 2011, were at least disappointing. Many negotiators, many heads of state had hoped that they could bring home a more satisfying result. It has turned out that reaching international cooperation is much more complicated and much more time-consuming than many observers anticipated. Pursuing their own interests nation states seem to have an incentive to continually increase their use of the atmosphere, eventually deeply disturbing this precious ecological system. It seems that the 'Tragedy of the Commons' has not been transformed into a 'Drama of the Commons' where people learn their proper roles and accept their responsibilities, in short, where self-government can establish institutions that enable communities to manage such resources remarkably well. Managing the global commons remains a drama in any case because neither is a happy-end guaranteed nor is humankind doomed to fail. Managing the global commons requires knowledge and insights from scientists. It also requires wise and bold statecraft.

Let me highlight this point along four questions:

- 1) Who owns the atmosphere?
- 2) Is global cooperation feasible?
- 3) What can we do as individuals and communities?
- 4) What is the role of science in a democracy?

#### 1) Who owns the atmosphere?

The scarce resource of the 21<sup>st</sup> century is not oil, gas or coal. It is the disposal space for greenhouse gases in the atmosphere. The implementation of any meaningful climate target implies that the cumulative amount of carbon released into the atmosphere is smaller than the amount of carbon still stored underground. In other words, the owners of fossil resources will have to be convinced to leave a large share of their assets unused. The climate rent arises then from imposing a CO<sub>2</sub>-tax on burning fossil fuels or auctioning off emissions permits according to the scarce disposal space in the atmosphere. This implies that the scarcity rent of the fossil resource owners will be transformed into a climate rent. Thus, it is not surprising that resource owners oppose attempts to price carbon as you have recently witnessed in Australia. Admittedly, it is open to debate how the climate rent will be distributed: It might be used to compensate the owners of coal, oil and gas for their expropriation losses. It might be used to redistribute wealth to the world's poor or it might be used to increase the tax income of fiscal authorities. In any case, there is little doubt that the rightful owner of the climate rent is humankind as a whole.

Many economists and political scientists who have understood the importance of the rent mechanism are tempted to believe that the management of the global commons requires some kind of a 'world government' or 'Green Leviathan'. However, it is highly unlikely that such an institution with global coercive powers will eventually emerge and it is probably nothing one should wish for anyway, I would like to add. Instead of a Green Leviathan, we need a set of pragmatic institutions which may act in a coordinated way. This institution should not mainly rely on power but on trust. Trust between

stakeholders is essential for the successful management of common pool resources at the local level. At the global level, where frequently alternating representatives pursue fragmented national interests, trust between decision-makers is more difficult to build up and to maintain. A trust, in organisational terms, is a legal mechanism used to protect and manage assets on behalf of specific beneficiaries. Humankind has to find a way to manage the global carbon budget on behalf of current and future generations. Its tasks could include auctioning off emission permits in line with the global and the national carbon budget, managing the transition path over time and dispersing the climate rent to all people in form of annual per capita payments. The idea is intriguing for several reasons – but is it realistic?

## 2) Is global cooperation feasible?

Scholars of international affairs and game theorists have always argued that it is hard to set in place stringent international environmental agreements and institutions because of the multitude of actors and the impossibility of face-to-face interactions. Indeed, it seems that nation states are trapped in a social dilemma. Any kind of cooperation, any coalition of the willing is threatened by free riders who benefit when others abate while they continue to emit greenhouse gases. To a certain extent, Copenhagen and Durban have confirmed the paradox of international environmental agreements: The higher the level of ambition of proposals, the lower the likelihood that a global consensus can be reached. Along these lines, pessimists argue that any future international climate agreement will be weak in terms of emission reduction goals and enforcement mechanisms. According to conventional theory, global cooperation seems infeasible.

However, there might nevertheless be an opportunity to manage the global commons according to self-organizing governance. Nation states might settle on legally binding agreements where they delegate parts of their sovereignty to international institutions which are based on mutual trust and mutual benefits. And indeed, there are some promising options to enhance the prospect for international cooperation: Issue-linking with joint research and development activities, coordinated growth policies, trade incentives like CO<sub>2</sub>-tariffs

or a more clever design of the Clean Development Mechanism can be explored. Nevertheless, thinking about the international level is only a necessary condition for successful climate policy. But, as Nobel Laureate Elinor Ostrom points out, it is by no means sufficient. The polycentric approach to governance comprises all relevant levels within and between nation states.

### 3) What can we do as individuals and communities?

We should propose an approach where the slogan “think globally, act locally” gains a very precise meaning: Municipalities and small communities already have good reasons to reduce emissions even in the absence of an enforceable global climate policy regime. One might highlight measures the City of Melbourne is taking in order to save energy and perhaps even money. With regard to the global emissions outcome, however, many economists consider these efforts as useless or even dysfunctional. They argue that emission reductions at the local level will be overcompensated by domestic and international economic growth and energy demand. However, local efforts can be seen as preparatory steps which facilitate the achievement of an international environmental agreement: The internalization of co-benefits at the local level reduces the domestic mitigation costs which then increase the likelihood of an international climate agreement. The local level has a vital role to play.

In this context, it is wise to remind ourselves of the power of democracy. In this perspective, democracy is not reduced to a voting mechanism or a formal procedure to aggregate pre-existing preferences. It is perceived as a decentralized learning and searching process which is unique to democratic government. Even if a global climate regime was feasible with binding emission constraints for every country, it would not substitute community action. A world government could maybe command, control or punish – but it could not force people to learn and to experiment with new ideas and perspectives. The capability of social learning is the most important advantage of democratic government which at first glance looks complex, chaotic and at times myopic.

4) What is the role of science in a democracy in this social learning process?

This issue is of particular importance because of the IPCC's exposure to public criticism. In my view, the public criticism is partly driven by the pressure of politicians and the media on science to come up with simple answers to complex questions. With their demand for clear-cut, one-dimensional recommendations, preferably expressed in single quantitative targets, public officials and the media extend the battle zone of political debate and consensus seeking into the realm of science. How often have politicians demanded a clear recommendation on what they should do? Should we stabilize atmospheric CO<sub>2</sub>-concentrations at 550 ppm, 450 ppm or 350 ppm? Should we use nuclear power or should we focus on energy from biomass? Should we invest more in adaption or more in mitigation? Policy-makers want to have clear answers to these questions; answers which science cannot provide because they involve deeply moral judgments. Scientists have no legitimacy whatsoever to make value judgments for society at large in their role as scientists. Nevertheless, without science questions on optimal stabilization levels and technology choices cannot be answered in an informed way.

There is a century-old philosophical debate on the relationship between science and democracy. Let me highlight the three most important lines of reasoning. Proponents of the so-called *technocratic model* of the science-policy interface argue that complex problems such as climate change can no longer be understood and solved by politicians but only by scientists. Such technocratic optimism relies heavily on the assumption of constant progress in science and technology as well as on the assumption of value-free science. It results in the determination of policy ends and associated means by experts without any substantial contribution and discussion by the remainder of society. And indeed, the way some scientists speak out for specific policy targets and measures suggests that the technocratic understanding of the science-policy interface is more widely shared than one might wish. After all, the technocratic approach not only risks maximizing the exposure of science to public criticism but also risks ending in what the sociologist Max Weber called the "iron cage" for social choice - a situation in which political

institutions are given no alternatives but are told to implement the technical necessities of scientific judgment. Technocracy would bring an end to both science and democracy.

Max Weber was hence right to be very concerned about the increasing power of scientists in policy-making and vehemently demanded a clear distinction between descriptive and prescriptive judgment, between facts and values. In his so-called decisionist model, science and policy become strictly separate spheres. While citizens deliberate and decide upon societal ends through the democratic process, the scientists' role is limited to finding the means to these societal ends. Obviously, the decisionist model can only work in as far as it is possible to clearly separate facts and values, and means and ends. It becomes infeasible when applied to more complex problems such as climate stabilization. When means and ends interact Weber's classic fact/value dichotomy breaks down.

Now I would like to give an example: let's assume that politicians formulate an ambitious stabilization target to avoid dangerous interference with the climate system. Science has shown that low-stabilization paths only become feasible when they allow for an intensive use of energy from biomass. Large-scale use of bioenergy, however, may stand in direct competition with an inexpensive supply of food. It may also risk accelerating deforestation of rain forests and therefore result in a loss of biodiversity. Certain approaches implemented to address the goal of climate protection may hence undermine other social or environmental objectives. Increased energy efficiency or the use of genetically modified crops may mitigate trade-offs but they too generate their own set of side effects.

The example shows that, in light of effects and side effects, alternative means must be assessed and political goals may need to be amended in order to avoid unintended conflicts. The idea that policy-makers define goals once and for all and that science merely needs to explore the means to these ends becomes untenable with complex policy problems. To create a useful basis for decision-making, science and politics must instead engage in an iterative learning process that does not begin with fixed policy goals and does not end with science providing the appropriate means to reach those goals. A third model for the division of labor between science and policy is therefore necessary. I shall call this model the pragmatic-



enlightened model of policy advice. It is an application of John Dewey's pragmatic view on democratic decision-making.

The pragmatic-enlightened model portrays political decision-making as a perpetuated process of self-reflection. It aims at transparent and inclusive deliberation of the trade-offs between different means and ends. In this model science thus provides no clear recommendations but rather informs the public about the implications of alternative options, each with its own bundle of trade-offs. For example, the recent IPCC report on renewable energies mapped alternative paths of up-scaling the use of different renewable energy technologies and highlighted their risks and benefits and the value assumptions implicit in each of the different paths. The scientists hence assume a role akin to that of the cartographer: they explore the whole solutions space, map out different paths available within this solution space and clearly mark implied value assumptions, uncertainties and trade-offs. But, and this is important, the cartographers refrain from giving a recommendation which direction to take. Policymakers must face the fact that sound scientific advice does not provide one-dimensional recommendations for complex policy problems but instead provides information on feasible alternatives. Communicating such multi-dimensional findings poses a challenge at least as great as producing them. Decision-makers must also face the fact that by choosing one of the alternatives, errors will inevitably be made and policies will need to be amended to account for errors discovered in the process. Science can only offer an early-warning system for the risks and trade-offs that can be expected along certain paths.

### A tale coming true

Instead of boring you with theories, I intend to close with a little 'fairy tale'. There were ten people walking through the desert. Two of them had already used half of the water available. The whole group became eventually aware that water was a scarce resource. The two heavy drinkers proposed that the rest of the water should be shared equally among the ten; a proposal which provoked conflict among the group members. There were also two economists present. The first one argued that he could not help much because there was no room for a Pareto-improving policy. Instead, this purely distributional

problem should be left to philosophers. Unfortunately, philosophers were not accompanying the trip through the desert. Instead they were writing marvelous essays on why it is not a good idea to walk through a desert with a limited amount of water with a group of ten people.

The second economist argued that it did not make any sense to start a conflict over water because this would result in everybody's certain death. Instead, so he argued, should the two people who had already benefited from the water go ahead and try to find the next oasis. This statement launched a debate and facilitated a learning process. The main question was now how to solve the problem. They all hoped that the exploration team would come back soon with the right directions to the nearest oasis. They also hoped that the water there would be sufficient so that everybody could walk even beyond the desert to a place where water would no longer be a scarce resource.

The problem with my little story is that it is just that: an imaginative story. However, there are promising steps undertaken in many countries and regions. The European Emissions Trading Scheme for example has proved to be an effective tool to reduce emissions in the EU that could become the nucleus of a scheme of linked emissions trading schemes all over the world. Talking about Europe just allow me to highlight that even though facing a severe financial crisis right now it is remarkable how Europe has eventually found solutions to cooperate at an unprecedented scale. Also, in other parts of the world countries start moving: China, for example, is considering a cap-and-trade scheme to be in place after 2015. Also, the country promotes renewable energy and fosters R&D into carbon capture and storage. And, last but not least, here in Australia pricing carbon – as envisaged in July – and the government's support for emission-free renewable energy on different scales are huge steps in the right direction. Given the enormous challenge we are faced with, all this might sound like a drop in the bucket. But it also allows for some hope that the 'Tragedy of the Commons' can be turned into a 'Drama of the Commons'. It will be our responsibility to show under which conditions this can be successful.

Thank you.