## The "Sandwich Solution" to Global Climate Policy

*by Detlef Sprinz, Ph. D.*

High expectations surrounded the meetings of parties to the UN Framework Convention on Climate Change and its Kyoto Protocol in late 2009 in Copenhagen. Some hoped that a global agreement would be reached for the period starting in the year 2013. Others were more doubtful about what could be expected in a forum of divergent interests. In the end, the result was the non-binding Copenhagen Accord and the world community has still not agreed on credible commitments for managing climate change. This contribution reviews the state of international negotiations on climate change and argues that a combination of top-down and bottom-up approaches – the "sandwich solution" – to managing climate change may be a realistic expectation for the foreseeable future.

### Diplomatic Record

In the wake of a series of scientific and intergovernmental conferences since the mid-1980s, climate change has become a priority issue for an increasing number of governments. After the first report of the Intergovernmental Panel on Climate Change (IPCC), which suggested that there would be an increase of 0.3 °C per decade if emissions continued to increase unabated, the United Nations Framework Convention on Climate Change (UNFCCC) was concluded in 1992 at Rio de Janeiro. Article 2 of the UNFCCC states that the "ultimate objective […] is to achieve […] stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."

Furthermore, developed countries were called upon to curb their greenhouse gas emissions in the year 2000 to the level of 1990. The UNFCCC entered into force in 1994 and enjoys universal support.

Subsequent negotiations led to the 1997 Kyoto Protocol, which mandates specific emissions ceilings for the greenhouse gas emissions of developed countries during the 2008–2012 period. While the U.S. did not ratify the Kyoto Protocol, it nevertheless entered into force in 2004, after Russia's ratification, following intensive negotiations. Then, in December 2009, the meeting of parties to the UNFCCC and the Kyoto Protocol in Copenhagen agreed to the Copenhagen Accord, a non-binding agreement.

The Copenhagen Accord stipulates the goal of limiting global mean temperature rises to 2 °C as compared to pre-industrial levels, while leaving specific commitments to countries to decide upon. In addition, a major financial package was included in the Copenhagen Accord, including the goal of mobilizing $100 billion per year by 2020 to support the climate efforts of developing countries, with exact sources of funding left open.

More importantly, the meetings since Copenhagen show a shift away from industrialized countries as the pivotal actors towards key, assertive developing countries. Developing countries are now the major source of greenhouse gas emissions worldwide, and their new weight is reflected in the importance accorded to the BASIC group (Brazil, South Africa, China, and India). The assent of this group, and especially of China – the largest single emitter of greenhouse gases (GHGs) – is indispensible to any global agreement. China has so far proved reluctant to commit itself to legally binding restrictions on carbon emissions, despite its willingness to substantially reduce its carbon emissions per unit of GDP.

The EU has hitherto tried to lead by good example and by a comparatively ambitious emissions reduction goal of at least –20 % of GHGs by 2020. It was, however, the negotiations between the U.S. and the BASIC group, especially China, which paved the way for the Copenhagen Accord, while simultaneously preventing legally binding commitments from being included. The question of which countries will credibly exert strong leadership in subsequent climate change negotiations remains open.

In the aftermath of the Copenhagen negotiations in December 2009, many developed and developing countries published their future climate commitments. However, studies of these unilateral national commitments suggest that they are inadequate to achieve the 2 °C goal. It remains to be seen whether a global agreement can be reached to ensure the 2 °C goal becomes a reality. This goal essentially implies the transition to a low-greenhouse gas economy during the present century. How could this be accomplished?

**The "Sandwich Solution"**

The fourth Earl of Sandwich was supposedly fond of a sandwich as it allowed him to continue working while eating. By analogy, the upper slice of a sandwich may metaphorically represent the top-down approach of global climate governance, whereas the lower slice of bread represents the bottom-up approach. The UNFCCC and the Kyoto Protocol processes essentially aspire to top-down governance, whereas decentralized local, national, European, industry, or consumer initiatives represent the bottom-up approach.

The former approach is expected to work by global agreement, the latter by way of dynamic social, economic, and technological markets, which diffuse across large parts of the world. Each of these has specific pros and cons, and a combination of both may provide the right mix we can realistically aspire to in the quest to prevent dangerous climate change. In the following, I will briefly discuss the merits of each approach on its own, followed by a perspective on how both approaches could be combined synergistically.

Some top-down regulation appears perfectly desirable. Firstly, agreement on a focal point – like the 2 °C goal – is a valuable guidepost to focus minds. Secondly, monitoring, reporting, and verification of emissions and impacts provide a synoptic, transparent overview. And, thirdly, reviews of policies and the analysis of alternative future pathways allow assessments of the accomplishments achieved and the challenges that remain.

The top-down approach in universal membership systems, like the UN, has the charm of being considered legitimate and all-encompassing, yet, too often lacks both efficiency and effectiveness.

After two decades of UN climate negotiations, regrettably little has been accomplished.

By contrast, bottom-up approaches thrive on social, economic and technological innovation, and their diffusion to other entities. Inventions, such as zero-energy houses or zero-emission vehicles, may become successful innovations that create new mass markets. By offering strong incentives to innovate as well as to gain market share, select governments have succeeded in mobilizing the supply of decentralized energy, e.g., photovoltaic or wind power from offshore and onshore locations. There is also a role for small and large companies in experimenting with lowering their GHG footprints. Pursuing environmental goals innovatively often also improves profitability.

Bottom-up approaches risk not making it to the stage of market diffusion. If governments do not sufficiently tax GHG emissions or provide stringent caps on emissions, zero- or low-carbon products cannot easily compete. Governments often provide R&D subsidies, but are surprisingly disinterested in sharing in the proceeds of successful government R&D projects.

Besides business challenges, such as X-Prizes, the role of private equity and innovative philanthropic foundations is slowly emerging as a catalyst to foster innovation processes. Coordination is needed such that decentralized solutions can be rolled out more broadly. Yet, bottom-up approaches have the advantage of avoiding the delays inherent in universal membership systems, which too often include actors who favor the status quo over desirable change.

How can both approaches be suitably combined?

Firstly, overall goals show the direction and indicate the magnitude of the challenge. Environmental "*Ordnungspolitik*," i.e., frameworks created by institutions, such as nation-states, the EU, or international institutions, allow actors to pursue their self-interests while stabilizing expectations regarding the sincerity of the goals, as the framework cannot be changed frequently without losing credibility with consumers, producers, or voters. For example, the Kyoto Protocol established the widely held expectation that the price of greenhouse gases shall be positive henceforth.

Secondly, monitoring, reporting, and verification provide market transparency and enable the evaluation of progress towards the overall goal.

Thirdly, creating decentralized incentives for experimentation with social, economic, and technological innovations allows us to harness entrepreneurial spirit within the framework of overall objectives. Private equity and innovative foundations could amplify both entrepreneurial spirit as well as provide seed money and incubator support. Besides stabilizing expectations about future policies, governments could employ smart investment strategies. Like in the case of Airbus, governments could opt for project-based co-beneficiary investment positions, rather than offering traditional R&D subsidies. This design would allow state support to become revenue-generating for the taxpayer in case of profitable undertakings, while avoiding burdening business with all the risks.

Finally, employing robust decision-making techniques allows us to explore which key vulnerabilities to manage and how near-term policy choices further the achievement of long-term climate goals.

**Conclusions and Implications**

The sandwich solution may help overcome the sluggishness of reaching global agreement on a low-greenhouse gas future. The transport sector is expected to grow in terms of absolute greenhouse gas emissions over the next decades, while some other sectors are already reducing their carbon footprint. A possible sandwich solution for the transport sector may entail a worldwide sectoral cap combined with company- and industry-level innovation. Deutsche Post DHL is already experimenting with options for low-carbon pathways, and increased ambition may make it a pathfinder for low-impact logistics.

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