



*“There remains a frightening lack of leadership” (Kofi Annan)*

## **How to Escape the Climate Trap**

### **Challenges and Opportunities**

**Ralf Fücks**

I

#### **Scientific Findings on Climate Change in a Nutshell**

(according to the Potsdam Institute for Climate Impact Research)

1. Human activities have produced atmospheric greenhouse gas levels that considerably transcend the natural concentrations of the last several million years. In particular, the CO<sub>2</sub> concentration has risen from about 280 ppm in the year 1750 – at the beginning of the industrial age – to about 380 ppm today.
2. If “business as usual” continues, the world could heat up by about 5 °C by 2100. This is roughly the natural temperature difference between an ice age and a warm stage of our planet. Thus, humanity would create a “fire age” unprecedented in the last several million years.
3. As a consequence, global sea level would rise by 30-50 m in the long run.
4. In addition, uncurbed climate change could flip a number of “tipping elements” in the planetary machinery (like the Amazon rainforest or the Indian monsoon) into a different state and trigger, in the worst case, a “runaway greenhouse dynamics” through positive feedbacks.
5. There is a good chance to avoid such dangerous climate change if the anthropogenic warming is limited to 2 °C. This means – above all – that atmospheric greenhouse gas concentrations must be confined, in the long term, to values below 400 ppm CO<sub>2</sub> equivalence.
6. This, in turn, requires a reduction in industrial greenhouse gas emissions by about 1% per annum throughout this century.
7. The confinement of global warming to 2 °C and the adaptation to the residual, significant impacts nevertheless requires a re-invention of modern society that especially defines urbanity and energy-related technologies in novel ways.

## II

### **Climate Change Will Hit the Poor Hardest**

As it happens, not every citizen of the world is equally exposed to climate turbulences. Southern countries and their poor populations, which did least contribute to climate change, will be most affected. It is the rice farmers in the Mekong Delta and the fisher folk along the coast of Senegal, the shepherds in the highlands of Ethiopia or the slum dwellers on the hillsides in La Paz, whose livelihoods are threatened by climate change. People will be forced to leave their homes, wide regions will be threatened by environmental degradation, and migration will scale up dramatically. Weak states will finally collapse, and violent conflicts on scarce resources will rise. We have to recognise that climate change is not only about the environment – it is in at the very centre of global justice and stability.

## III

### **Kyoto Plus: Global Climate Governance**

While the climate debate is raging, the climate negotiations themselves are barely moving. Finger pointing seems to be the name of the game, with each negotiating bloc focused on passing the bill for solving the climate crisis onto the others. Ten years after Kyoto, greenhouse gas emissions are rising steeply.

The basic principle of the Kyoto-Protocol – fixing legally binding reduction targets for every state taking part in the arrangement – has become even more relevant today than it seemed to be years ago. But its implementation is in deep crisis due to two major factors:

- First, with the exception of the EU, most developed countries have failed to live up to their Kyoto commitments. Even many of the EU member states are not on track and will have to resort to the flexible mechanisms to meet their commitments. The US and Australia have not ratified the protocol, and it is difficult to imagine how Canada might stick to its commitments.
- Second, Kyoto's division of the world into developed and developing countries is increasingly questionable given the profound shifts in economic and political power that we're now witnessing. China is just passing the US regarding its overall amount of CO<sub>2</sub> emissions and in other new industrial powers such as India emissions rise rapidly.

In a current op-ed for the New York Times, Al Gore, one of today's most prominent advocates for a new climate policy, asked the US urgently to join negotiations for a post-Kyoto-Agreement. Such an agreement should fix binding targets to cut pollution contributing

to global warming by 90 percent in super-industrialised countries and by more than half worldwide until mid-century. Of course, such a global agreement will still have differentiated commitments, as Al Gore suggests; countries will be asked to meet different requirements based upon their historical contribution to the greenhouse effect and their current ability to take part in a global effort to limit its magnitude. It's obvious that the US has to shoulder a significantly higher share than the developing countries – given that it is emitting 20 times more greenhouse gases per capita than, for example, India.

On the long run, the most effective and fair global CO<sub>2</sub> regime would entitle everyone on the planet to the same share of a safe level of emissions and would apportion them to each country appropriately. Such a system of "contraction and convergence" would leave enough space for developing countries to speed up, and it would put the necessary pressure on the industrialised world to increase energy efficiency and to switch to renewable resources. For an intermediate period, countries like the US, whose CO<sub>2</sub> emissions per capita go far beyond their limits, would have to buy emission permits from countries that do not exhaust their agreed amount of emissions.

#### **IV**

##### **Massive Climate Change Avoidable at Low Cost**

Energy is a critical driver for economic growth – but it is also a key driver for climate change. We are facing the dilemma of having to meet growing energy demands on a global scale, and at the same time to scale down greenhouse gases dramatically. Given the rapid economic growth of emerging economies and the time horizon of investments in the energy system, decisions made in the next years will determine our energy future for many decades to come. Therefore *political regulation* on all scales (global as well as national and local) must create favourable conditions for sustainable investments and dynamic markets, in order to accelerate technological change. The German Renewable Energy Law, for example, with its fixed feed-in rates for electric energy from renewable sources, has demonstrated how conditions for new technologies can be effectively improved.

Here is the good news: The most severe consequences of climate change can still be avoided. What's more, effective climate protection through the reduction of global greenhouse gas emissions is affordable and makes economic sense. These are the main messages sent out by the latest report published by the UN's Intergovernmental Panel on Climate Change.

Several international studies have shown that the necessary steps to limit global warming would cost less than 1% of global GDP. The most conservative estimate put forward by the IPCC is 3%. But even if this more pessimistic assumption is correct, the economic costs of climate protection are far from weighing down the global economy. Furthermore – as the British economist Nicholas Stern has elaborated – investments in avoiding the greenhouse effect are much less expensive than the predictable economic fallout of accelerated climate change will be. In the truest sense of the word, society simply cannot afford a "wait and see" policy any longer.

According to the IPCC, expansion of renewable energies, improved energy efficiency, and carbon capture and storage in geological formations all play a key role in a preventive strategy. Renewable energies could make a 30-35% contribution to electricity supply worldwide by 2030, with capacity for further expansion thereafter. At the same time, a fuel switch from coal to natural gas could be used to good effect as a means of further reducing CO<sub>2</sub> emissions. By contrast, nuclear energy – discussed in detail by the IPCC for the first time – plays a far less significant role in the strategies which it proposes. Although the IPCC anticipates that new nuclear plants will be constructed during the coming decades, the report predicts that the share of nuclear energy in global electricity generation will increase to no more than 18% compared with the current figure of 16%.

## V

### **Energy Security**

With respect to the industrialised world's dependence on oil from politically unstable regions and the problem of proliferation in nuclear energy, the transition into a solar energy system is also a contribution to conflict prevention. NYT columnist Thomas Friedman was spot on when he coined the phrase "green is the new red, white, and blue", thus linking environmentalism with a new, enlightened patriotism. Why nourish despots and extremists all around the world with American petro-dollars? Why not invest in energy efficiency and renewables? It's one of the more prudent moves of the Pentagon to put energy security and energy independence on its agenda. Energy security is not only about diversification of sources and transport systems. Basically, a sustainable energy system must rely on two strategies, **energy efficiency** and **renewable sources of energy**.

## **VI**

### **The Risks and Prospects of Nuclear Power**

Climate change surely is one of the greatest challenges of the 21<sup>st</sup> century. But heating up the atmosphere by burning fossil resources does not dispel the major risks associated with nuclear power. First, nuclear power is not sustainable because its fissile fuel materials are as limited as fossil fuels such as coal, oil, and natural gas. Moreover, its radioactive by-products must be isolated from the biosphere for periods of time that defy human imagination.

From an economic perspective, nuclear energy is highly dependent on state subsidies and guarantees. Without subsidies, it does not stand a chance in a market economy. Yet companies will continue to profit from nuclear energy under special, state-controlled conditions. Extending the licences of older reactors is an attractive option for operators – but it disproportionately increases the risk of a major accident.

There will always be regimes that promote nuclear fission as a stepping stone to the acquisition of an atomic bomb. Pakistan, India, North Korea, or Iran will not remain the only ones to reach out for nuclear might. There is no Chinese Wall separating civilian from military nukes, and it's just some kind of political schizophrenia to insist on nuclear non-proliferation and promote nuclear energy at the same time.

Moreover, as has been clear since September 11, 2001 at the latest, these vulnerable and very hazardous sites represent an additional target for unscrupulous and violent non-governmental forces. For this reason, too, nuclear power will continue to divide public opinion for as long as it remains in use.

## **VII**

### **Finally: An Optimistic Outlook – New Alliances and Players**

Limiting Climate Change to a manageable size calls for new players and new alliances, both at the national and international level. Together, the EU and the US can bring about a breakthrough towards a global sustainable economy. More and more institutional investors become aware that climate change is an economic risk – but also an opportunity for new business models and profitable investments. Sub-national actors such as cities and states are taking the lead in establishing new regulations in favour of energy-efficient technologies and sustainable development. Non-profit organisations are joining forces with foresighted companies and trade unionists to pressure lawmakers and governments for a more aggressive approach to climate change. Consumer organisations are demanding more

transparency concerning the climate impact of goods and services. These are only a few examples of encouraging new alliances and actions unfolding for the entire world to see.

New technologies, new policies, and new alliances will mutually reinforce one another and will thus create a new dynamic for sustainable development. What we need is a new “Great Deal”: a joined initiative of governments, businesses and civil society to rebuild our industry, reconstruct our infrastructure and renew our lifestyles. Still, we have reason to worry: The challenges posed by climate change are unparalleled in the history of mankind. But there is reason for confidence, too: This is a challenge that offers great opportunities to those who are willing to face it.