



**Conference “Surviving the Pyrocene: Why two degrees matter?
Perspectives on climate change”**

Speaker: Professor Hans Joachim Schellnhuber

*Director Emeritus of the Potsdam Institute for Climate Impact Research and
Member of German Advisory Council of Global Change
“The Father of the 2 Degrees Limit”*

Chair of the conference: Professor Susanne Siebentritt

*Physics professor and Head of the Laboratory for photovoltaics
at the University of Luxembourg*

Wednesday 30 January 2019 at 6.30 p.m.

Introduction

by Professor *Susanne Siebentritt*

Physics professor and Head of the Laboratory for photovoltaics at the University of Luxembourg

On behalf of the Forum Dialogue, Professor Siebentritt welcomed the distinguished audience.

She presented her research activities at the University of Luxembourg related to the fight against climate change and in particular her research on solar cells.

Professor Siebentritt introduced the speaker who is a leading researcher on climate change. Professor Hans Joachim Schellnhuber is notably at the origin of the 2-degrees goal, as well as the concept of tipping elements, i.e. critical events that may occur, and of the budget of carbon dioxide.

Professor Schellnhuber has an impressive Curriculum Vitae, with numerous honors and mandates in prestigious bodies around the world.

“Surviving the Pyrocene: Why Two Degrees Matter? Perspectives on Climate Change”

by Professor *Hans Joachim Schellnhuber*

Historic CO₂ concentration figures may illustrate the present first global temperature reconstruction for the past 11.000 years.

We have indeed evidence of the reality of global warming.

Pyrocene started around 1750, with the use of coal.

An existential problem for our humanity is therefore confining global warming to acceptable levels.

We burn in one year the equivalent of one million years of oil production.

What a waste, a tremendous externality.

Global warming is not a natural phenomenon.

Since the 1970s, global warming is accelerating.

We had of course warnings about the warming but actually, nobody cared much about it in the past.

An irony was also that it was not easy for scientists to have their articles published in the most prestigious journals.

The Paris Agreement and the 2-degrees rule is a wise approach, but how will the world react to it?

Virtuality has become reality.

Global carbon emissions reached a record high in 2018.

We have to confine global warming, if possible to less than 1.5 degrees.

The Arctic is warming faster than the ocean, which affects the jetstream.

Irreversible loss of Greenland ice-sheet could start with 1.6 degrees temperature rise.

Warming is not only a question of air temperature.

The heat provided by the Gulfstream is declining. What about the effects on the European climate?

Human beings and agriculture were able to develop through the existing climate stability.

One may hope for a green scenario with rapid decarbonisation, but even in this scenario, the legacy of our emissions will last for many millennia.

Other scenarios are more probable.

Even if we stick to the Paris Agreement, we may not avoid tipping elements.

CO₂ is a very nasty substance. It stays for about 20.000 years within the climate system. Its lifetime is comparable to plutonium.

A four-degrees scenario may be expected.

Betting on good luck would not be a very good political trench.

Within two centuries, we might have an ice-free world.

So, what can we do?

First, reduce the emissions, while we are at a record high.

A favorite country is Canada, in line with Paris Agreement.

On the other hand, Russia or China are on a five-degrees course.

Africa will suffer most while contributing less to climate change.

This not fair!

A roadmap should also include many actions in various areas: mobility, construction, agriculture, tourism, reforestations, etc.

Scientific progress may help, like solar cells.

Nature itself provides some help, under the condition that we do not kill the natural reductions mechanisms of CO₂.

At EU level, various actions need to be implemented.

The European common agriculture policy should be reconsidered; present subsidies are costly, they promote an industrial agriculture producing unhealthy food and damaging the environment.

In the mobility field, more sustainable progress are possible.

Old mining areas in Europe may be transformed into sustainable regions.

Professor Schellnhuber refers to the Final Report of the High-Level Panel of the European Decarbonisation Pathways Initiative under his chairmanship (HLP-EDP, published in November 2018 on the website of the European Commission). The High level Panel recommends an ambitious Research and Innovation Strategy (R&I), capable of delivering the zero-carbon solutions needed, while also promoting industrial competitiveness in the EU economy. The HLP invites experts and stakeholders in the fields of energy, transport, industry, agriculture, finance, urban planning, social innovation, policy making and more, to debate the key challenges for decarbonisation and the R&I needs.

About 30 % of the new R&D EU investments Programme will be dedicated to climate and energy.

As a member of the German Coal Commission (Commission Designing Coal Phase-out), he contributed to a compromise solution leading to the use of coal will to an end by 2038, at the latest.



There are many options to move to another economic model.

One of his favorite project is to use wood instead of concrete and steel for constructions.

Trees grow because they take CO₂ out of the atmosphere.

To close, he showed a picture of the Pontifical Academic of Sciences at the Vatican, of which he is a member. New thinking considering a long-term approach is welcome. Let us be imaginative for the future of Europe. This is also a big challenge.

Q&As

Q. 1 Estimation of the greenhouse effect?

A. We are making progress have some concrete evidence.

Q. 2 What about a revival of the nuclear option?

A. In the past, I was relax about that, if we can get a fusion technique, why not?

Countries like Germany have taken another option.

In other countries, the debate is different. Let us keep operating plants as long as possible.

Q. 3 May persons becoming vegetarian part of the solution?

A. Sure. I mentioned long-term policy issues, like replacing coal or promoting rapid trains. However, indeed individual actions in fields for instance of food or mobility may have immediate effect. Lifestyle change are important. Any little step may help.

“Everything seems impossible, before it’s done “quoting Nelson Mandela.

Q. 4. What about the Governance problems?

A. In 1960’s, there was hope of powerful world organizations.

These prospects are fading away.

People are afraid, feeling themselves powerless. The Westphalian Treaties and the role of sovereign States still influence us. Our hope rest more now in our Europe.

The problem is the future of democracy. In Germany, for instance 80 % of the people do wish to get rid from coal, but the decision had to make compromises taking into consideration the interest of various groups.

Q. 5 What about wind energy or the current fascination for doing more for the red Planet than the Blue Planet?

A. To hope to find another planet may be an option but not very realistic for our generation.

Exploring stars or other research is fascinating.

The public sees the way science and the authorities might be corrected.

Q. 6 What about wind energy?

A. Of course, offshore wind is welcome, even if we need to use not just one bullet but various bullets.

In Europe, we have the North Sea. Let us use it.

Q. 7 Future of nuclear energy: scission or fusion, with the ITER project?

A. This fascinating technology may be successful, but only for tomorrow. It comes too late, even if there is hope at present.

Q. 8 End of fossil reserves, coal, petrol or gas.

A. We have to leave coal in the ground, to avoid global warming.
Just burning petrol or gas is nonsense.

Q. 9 What about the economics aspects, in particular the price mechanisms?

A. Discussions around carbon prices, for instance, are indeed important.
However, we need to convince the industrial associations, the trade unions and the governments. This is not easy.

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