

Transformation now - Main Stage 2021 Keynote Summary



Hans Joachim Schellnhuber is Director Emeritus of the Potsdam Institute for Climate Impact Research (PIK), which he founded in 1992. He is member of numerous science academies such as the Pontifical Academy of Sciences or the German National Academy Leopoldina. Since 2019, Schellnhuber has also been intensively involved in the creation of a “Bauhaus Erde”.

A BLEAK STATE

2021 was a horrible year for our climate. Hurricane Harvey, the Australian wildfires, flooding in Germany, Tennessee and many more. The goal of 1.5 degrees set in the Paris Agreement is already out of reach. What we really need to do is to stay below 2 degrees because everything beyond 2 degrees would be the tipping point and climate chaos **will** happen. Schellnhuber argues that through climate restoration we could even get back to 1 degree warming at some point. This would take about a century though. **But what happens, if we reach 2 degrees?** Firstly the arctic ice will melt causing a 80 meter sea level rise. Also the gulf stream, which has already weakened by 15% due to human interference, will probably shut down completely by the end of the century thus drastically changing the weather in Europe. The Jet stream which is a high speed band of wind will become weaker and create more so called Rossby waves which transport hot air from Mexico up to Canada or from the Sahara to the arctic. Before human interference these Rossby waves lasted around 3-4 days. They now stay for around 4 weeks. Rossby waves are the reason for many extreme weather events like wild fires or floods. If we can't lower earths temperature, these waves will last even longer.

WHAT CAN WE DO?

Rapid decarbonization is what we truly need. The goal has to be to get to 0 emissions by 2050. At the latest. Since some countries will not be able to achieve this, countries who can, will have to do so even earlier and in some years they will even have to produce negative emissions which means not feeding the atmosphere any GHGs while also extracting carbon from the environment. Our biosphere (trees, plants) is extracting carbon. Schellnhuber calls deforestation, especially that of the Amazonas, the **biggest madness of humanity**. The deforestation has to stop and we will have to advance artificial carbon distraction. According to Schellnhuber, this will be the biggest business on the planet in the near future. While there are already some ideas like BECCS (Bioenergy with carbon capture and storage), he describes them as being too expensive and inefficient.

WE ARE BUILDING OUR WAY TO CLIMATE CHAOS

The Built environment like the construction of buildings, streets and pretty much anything and the demolition of it all **accounts for up to 40% of global GHG emissions**. To put this in perspective, aviation only makes up about 2%. The built environment also **produces 55% of waste in developed countries**. Also, human interference has already destroyed 1 tera ton of living biomass such as trees, plants etc. on this planet. Before the industrial revolution the biomass was 2 tera tons, while the anthropogenic mass like concrete, gravel, plastics, metal, asphalt etc. keeps rising exponentially. The problem with that is that the production of these materials is creating huge amounts of CO₂.

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REFORESTING THE PLANET RETIMBERING THE CITY

We will have to replace one tera ton of anthropogenic mass with 1 Tera ton of Biomass by turning the built environment into a carbon sink and build from timber.

In 2050 there will be about 2 billion more people on this earth. All of them will obviously need housing. A scenario analysis shows that if 90% of those new buildings are built with concrete this will add another 70 billion tons of CO₂ to the atmosphere. If you would build 90% of those from timber though, it would only amount to about 7 billion tons.

CONCLUSION

We will have to rethink the way we build. Now! For this we need to create a sustainable forestry to provide all the timber for construction. On the northern hemisphere there is enough timber to build plenty of houses. In the southern hemisphere things look very bleak though because we keep destroying the forests instead of reforest. We **CAN** undo deforestation. It is not a matter of nature, it is a matter of politics. **Recycling or refurbishing building materials, building from organic materials and running the buildings with renewable energy is what needs to happen to go carbon negative.**

BAUHAUS DER ERDE

BAUHAUS der Erde is a non profit organisation Schellnhuber created. It tries to create a built environment within the planetary boundaries and a built environment that is environmentally sustainable and socially inclusive.

Find out more about "Bauhaus der Erde": <https://www.bauhausdererde.org/>
