

## **The Anthropocene - From Hunter-Gatherers to a Global Geophysical Force**

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In his talk on the evolution of the Anthropocene, Will Steffen gave an overview on the evolution of humans and their changing interactive relationship with the environment from the first appearance of fully modern humans to future scenarios.

Modern humans have lived as hunter-gatherers on planet earth for nearly all their time of existence since about 250.000 years before present, influencing their environment on a local scale. Only 10.000 years ago agriculture started to dominate human behaviour showing larger-scale impacts on earth's landscapes and ecosystems. But still the earth system was in the pre-Anthropocene, with humans having no discernable effect on the global system functioning.

The 1<sup>st</sup> stage of the Anthropocene began around 1800 AD, when atmospheric CO<sub>2</sub> concentration started to rise due to the industrial revolution. This change has led to further flow-on effects like efficient techniques for land change, synthetic fertilizer and reliable water supply accelerating the large-scale impacts of humans on the globe. These developments, in turn, led to an increase in population and in their ability to consume.

The 2<sup>nd</sup> stage of the Anthropocene is our present state. It has started around 1950 and is also referred to as the 'great acceleration' or the 'human enterprise'. From this time on, many indicators for the human influence on the earth system functioning start to increase exponentially, for instance green house gas emissions, water use, urban population, fertilizer consumption, tourism and McDonald's restaurants. The human imprint on the biophysical earth system can now be seen almost everywhere, from biodiversity loss and depleted forests to changing climate and exploited ocean ecosystems.

Vast global networks, a neo-liberal and capitalistic world economy, and new institutions like the World Bank or supra-national corporations mainly trigger this change in the human-environment relationship. The change also leads to a loss of cultural values like languages and to a global homogenization of the environment. The global footprint of the human enterprise crosses the line of sustainable use of the environment in the late 80ies of the 20<sup>th</sup> century. First evidence of ecosystem shifts and collapses arise, for instance when in 1992 the Newfoundland cod stocks entirely collapse without subsequent signs of recovery.

So what will the 3<sup>rd</sup> stage of the Anthropocene look like and when will it begin? Humans begin the 21<sup>st</sup> century in a very volatile world. We are not sure if the doubling of atmospheric CO<sub>2</sub> concentration over background levels has already passed a self-regulating threshold, if coral reefs will disappear within a large biodiversity loss, or if the emissions might even reach a level of positive feedback. This could even lead to a switch of the earth system into another stage where modern human society might collapse. Humans have to deal with these uncertainties and will have to gain back their control over the human-environment relationship in order to become self-conscious managers of the earth system and achieve a sustainable world under control of human action. This will require huge efforts of a global society.

The future will depend on the nature of human aspirations, values, preferences and choices...

Jan Ohlberger