

# Current Commitments to Green House Gas (GHG) Emissions Reduction and Perspectives

Opinion

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## Opinion

The National Determined Contributions (NDC) at countries' level are declarative documents which define broad lines of national commitments toward GHG emission reduction and sequestration. The emission reduction scenarios are planned according to economic development scenarios which foresee a proportionate increase in energy consumption. Thus, in the first step, the commitment is about decoupling progressively economic growth from the increase in energy consumption. A steeper decrease in GHG emissions is postponed to the period starting in 2030.

For less developed countries, three scenarios have been foreseen, a business as usual with a strong increase in emissions, a non-conditional scenario reflecting the efforts the country is ready to undertake on its own, and a conditional scenario implying high budget support from the international community. According to UNEP 2022 report [1], the conditional scenario would allow reducing world emissions from about 56 Giga tonnes (Gt) equivalent CO<sub>2</sub> in 2025 to about 54 Gt by 2030. The unconditional scenario would allow to stabilise emissions over the same period. Therefore, for the time being, world emissions are continuing to increase yearly and could stabilise or slightly decrease between 2025 and 2030.

However, NDCs are declarative. The foreseen investments in renewable energy production are not always secured, and the sequestration potential is mostly over-estimated. In the background of the requested investment amounts, the conditional scenario is likely to be only partly achieved in a best-case scenario. Besides, national policies developed at the countries' level focus mainly on Green House Gas emissions accounting, while the carbon sequestration potential is not always estimated with precision, and carbon credits lack an overall regulation allowing avoiding double counting.

A best-case scenario is thus unlikely to be achieved. UNEP report states that under the current policy, the scenario leads to an estimated average increase in temperature of 2.8°C by the end of the century. The unconditional and conditional scenarios would lead, respectively, to an increase of 2.6 and 2.4°C. Besides, it should be noted that unless a tremendous change occurs, the probability is high that temperatures will continue to increase beyond 2100. The trend is likely to be, in any case, above the threshold of 2°C established in the GIEC report and set as a target of the Paris Agreement (2015). The threshold thus established might appear arbitrary, but it is not without significance.

In comparison, the warming which occurred over a period of about 14,000 years following the end of the last glaciation is estimated at 1.5°C by four different models and about 5°C by one model [2]. Earth entered into a new cooling period about 6,500 years ago, which was brutally interrupted in the XIXth century. Beyond the comparison with the last quaternary era warming period, the 2°C threshold also represents the symbolic limit beyond which natural emissions triggered by the warming effect may start to increase considerably global GHG emissions. Northern frozen earth may release huge quantities of gas while forests' capacity to capture carbon dioxide from the atmosphere could be increasingly challenged by high temperatures [3].

The importance of vegetation permanent land cover on climate mitigation [4] and hydrological cycles may not yet be sufficiently taken into account by land planners. Even though ecosystems and thus the overall land cover will be challenged by global warming, they will continue to play a key role. However, in the absence of a drastic turn in the world's GHG emissions, natural resources are likely to be increasingly depleted and food security challenged. Open field production is likely to be endangered by the more frequent occurrence of high-temperature events, as well as by climatic instability. It is estimated that by the end of the century, the probability of low or no yields will progressive-



ly become predominant across the world; in the West of Uzbekistan, such occurrence could be expected by the middle of the XXIst century [5].

## Conclusion

While the effects of climate change become more visible the time might be running short to mitigate the phenomenon. The comparison of the variation of temperature which occurred over fourteen thousand years following the end of the last quaternary glaciation with the stronger ongoing phenomenon is over a few decades can be worrying. The time to change while the GHG emissions don't run out of control is running short. Paris Agreement made the choice to postpone the turning point to 2030, to leave time for the economy to develop options for the decoupling between economic growth and energy consumption. The NDCs remain declaration of intentions, without result obligation and far below the change which would be required to avoid a major disaster. Beyond ecosystem disruption, worldwide food security is at stake.

In an extreme scenario climate mitigation solutions and adaptation measures, will also reach their limits. To consider that carbon sequestration and adaptation measures may be sufficient to face the upcoming

challenge would be misleading. A change in paradigm is possible but it would require to be widely acknowledged; there is still some way to go to convince key players.

## References

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