International Journal of
Advanced Research in Environment, Agriculture and Physical Sciences
Volume 3, Number 1 April, 2025

IJAREAPS
p-ISSN: 2636-6016
e-ISSN: 2636-6908

Carbon Trajectory and Adaptation Plans

Julian Schlubach
Independent Expert, France

Article DOI: 10.48028/iiprds/ijareaps.v3.i1.04

Abstract

Reducing Greenhouse Gas (GHG) emissions is the subject of a communication battle between countries; this, much more than well-founded measures, is likely to enable the stated objectives to be achieved. Conversely, adaptation is a local issue that directly affects the future lives of populations and would require a more elaborate pragmatic approach than what it is today.

Keywords: *Trajectory and Adaptation Plans*

Corresponding Author: Julian Schlubach

First Published: https://skeenapublishers.com/journal/ijares/IJARES-05-00044.pdf

Background to the Study

National Contributions and Carbon Trajectories

Nationally Determined Contributions (NDC) at the country level are declarative documents which outline national commitments in favour of the reduction and sequestration of GHG emissions. In the case of European Union countries, the national strategies of the Member States act as NDCs and are consolidated at the European level in a single common declaration. Most NDC frameworks envisaged by different countries remain sufficiently vague and unquantified. Therefore, they are non-binding guidance documents. Questions of trade-offs and risks may be raised, but they are not the subject of a precise analysis.

Emissions reduction plans are planned according to economic development scenarios that foresee a proportional increase in energy consumption. Indeed, the economic paradigm that remains in force is that economic growth cannot take place without an increase in energy consumption. For the least developed countries, three scenarios were considered: a status quo with a sharp increase in emissions, an unconditional scenario reflecting the efforts that the country is prepared to undertake alone, and a conditional scenario involving high budgetary support from the international community. However, most of these scenarios predict a slowdown in the rate of increase in emissions rather than a drastic decrease.

Regarding the objectives, reports of the United Nations Environ-mental Programme (UNEP) foresee a transition period with moder-ate growth in emissions until 2030, then a drastic reduction to achieve neutrality in 2050. In the absence of precise and ambitious analysis and measures, this is wishful thinking. As they stand, the proposed measures are unlikely to achieve the stated objectives. As for measures, energy renovation is not likely to be sufficient with-out an overhaul of all building sector practices. The same applies to the transport sector. The transition to electric mobility is likely to shift the location of emissions, much more than responding to the reduction challenge. A shift to electricity consumption instead of fossil fuels is a valid option only as far as decarbonized electricity production replaces progressively fossil fuels.

Carbon Accounting and Perspectives

Thus, NDCs, like low-carbon strategies, are declarative. Planned in-vestments in renewable energy production are not guaranteed and the sequestration potential is largely overestimated. Given the investment amounts requested, the conditional scenario presented by developing countries will, in the best case, only be partially realised. In practice, investment projects are recorded before they have even been carried out, while some will never see the light of day. It's as if the mere intention of investing in a renewable energy project was already satisfactory in itself.

Furthermore, national policies developed at the country level mainly focus on accounting for greenhouse gas emissions, while the carbon sequestration potential is not always accurately estimated. Besides, carbon credits lack global regulations to avoid double counting. It is particularly difficult to avoid the same plantation project being financed and accounted for by different companies or countries around the world. A renewable energy production project is

as likely to be counted by the recipient country as by the financing country. However, UNEP constructs its emissions reduction scenarios for the 2030 and 2050 deadlines based on the NDC declarations of intent. Thus, the commitments to reduce GHG emissions provided for in the Paris Declaration, even if they can be achieved on paper, will be far from being achieved in practice. In the UNEP 2023 report, the gap between projection and observed reality is highlighted and a perspective of stabilisation of emissions is postponed to 2050. In all cases, the level of emissions is too high to allow slowing down the trend of climate change.

Scenarios Selected and Prospects for Achieving the Objectives Set

According to the 2022 UNEP report, the conditional scenario would reduce global emissions from around 56 Giga tonnes (Gt) of Carbon dioxide (CO2) equivalent in 2025 to around 54 Gt by 2030. The un-conditional scenario would stabilize emissions over the same period. However, the hypotheses retained remain based on theoretical contributions which constitute a high value which is unlikely to be achieved. However, even considering the most optimistic of the scenarios retained by UNEP, the conditions for keeping the rise in temperatures below 2°C by the end of the century are not met.

The UNEP 2023 report states that under current policy, the scenario leads to an estimated average temperature increase of 2.8°C by 2030. The unconditional and conditional scenarios would lead to an increase of 2.6 and 2.4°C respectively. The trend would, in any case, be higher than the threshold of 2°C set in the IPCC 2022 report and set as the objective of the Paris Agreement. However, these scenarios clearly underestimate reality, as is also highlighted in the latest UNEP report of November 2023 on adaptation to climate change. It is, therefore, highly unlikely that climate change will remain within controllable limits over the coming decades.

Discrepancy Between International Communication and Local Models

In a context of international economic competition, it is understandable, if not acceptable, to play the game of communication to the detriment of real action. The fact remains that it is a guilty game in which countries avoid looking global and local issues in the face. The fact remains that the impact at the local level is a reality that will have to be faced.

Local Issues and Adaptation Plans

Once we put aside the communication and political battle at the international level, we must remain pragmatic in the face of the challenges posed by climate change at the local level. From this point of view, it would be damaging to refer to scenarios of emissions and subsequent climate change that are too theoretical. The International Group of Climate Experts (IPCC) establishes scenarios, the most pessimistic of which has been constantly exceeded by reality since 1997.

If adaptation plans do not consider the reality of the global trajectory and its consequences, the consequences suffered by poorly prepared populations will be all the more dramatic. However, the envisaged scenario, as underestimated as it may be, already represents a major upheaval likely to endanger the ecosystems and agricultural production systems. National

policies developed at the country level mainly focus on accounting for greenhouse gas emissions. At the local level, territorial development plans do not sufficiently consider the role that natural spaces and water cycles can play.

In view of the international bias in the treatment of the climate issue, it would be appropriate to base ourselves on the most pessimistic scenario defined by the IPCC and develop intersectoral impact analyses likely to inform the issues and the options offered region by region within countries. Such an analysis cannot ignore international interdependencies, particularly in terms of trade and the supply of raw materials and food. Adaptation is not a panacea, but we might as well anticipate a situation that we cannot avoid.

Conclusion- Issues in Terms of Response and Trade-Offs

The world cannot be reduced, in a compartmentalized manner, to economic, social or environmental issues. A systemic approach is necessary in order to position ourselves pragmatically for the future. This amounts to establishing cause-and-effect links without compartmentalizing areas. Flooding events will be likely to increase while the water availability in rivers will be likely to diminish in summer when demand is maximal. Sprinkling by water spray may allow, to a certain extent, to protect field crops from high temperatures, but at the cost of increased water demand. Excessive exploitation of natural resources in the short term may also have tiered consequences. A multi-sector analysis is necessary, but it is also important to have a sufficiently comprehensive reading grid to correctly prioritise resource use and adaptation measures in regard of gains and risks.

Plant cover plays an important role in regulating the climate at the local level, infiltrating water into the soil, reducing the risk of flooding, and replenishing groundwater. Maintaining biodiversity makes it possible to have living systems that are more resilient to climatic hazards and can thus continue to provide those services. However, a growing place is reserved for carbon sequestration even though the increase in temperatures will gradually erode or even locally cancel the storage capacity of the plant cover. In this regard, limiting the vision of plant cover to the sole role of carbon sequestration is highly simplistic and misleading with regard to the role of vegetation in terms of adaptation. Finally, the tendency to want to minimize the impact of climate change, ignoring the limits of ecosystems while betting on hypothetical and expensive technological solutions, is a dangerous and uncertain option, to say the least.

References

1. (2023) https://www.unep.org/resources/annual-report.

2. (2022) Emissions Gap Report, United Nations Environmental Pro-gramme (UNEP).

3. (2022) IPCC sixth report, https://www.ipcc.ch/report/ar6/wg2/.

4. J Schlubach (2023) Crops and Ecosystem Services, a Close Interlinkage at the Interface of Adaptation and Mitigation, Intertech Open.