



## Can we still comply with the maximum limit of 2 °C? Approaches to a New Climate Contract\*

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### Abstract

*The international climate policy is in trouble. CO<sub>2</sub> emissions are rising instead of shrinking. The 2025 climate summit in Paris should lead to a global agreement, but what should be its design? In an earlier paper in Cadmus on the issue, the author outlined a contract formula based on the so-called ‘Copenhagen Accord’ that is based on a dynamic cap and an intelligent burden sharing between politics and the private sector. The private sector was brought into the deal via the idea of a voluntary climate neutrality of private emissions culminating in a ‘Global Neutral’ promoted by the United Nations. All this was based on a global cap-and-trade system. For a number of reasons, it may be that a global cap-and-trade system cannot or will not be established. States may use other instruments to fulfil their promises. The present paper elaborates that even under such conditions, the basic proposal can still be implemented. This may prove useful for the Paris negotiations.*

### 1. Introduction

In view of the current climate-related negotiations and the “schedule” agreed therein, this text presents a suggestion for a global climate contract for the end of 2015, which is to become valid as of 2020 and allows us to **still comply with the upper limit value of 2 °C** in spite of the **moderate economic growth in the industrialized nations and fast (catch-up) growth in the remaining countries**. The presented ideas have developed from my suggestion on how to reach a new climate contract which is based on the extensive 2010 FAW/n report on this topic, originally issued on the subject of climate protection for the Global Economic Network Sektion Deutschland e.V.<sup>1,2</sup> The updates refer to criticism uttered by attendees of a workshop in September 2013 at the Institute for Advanced Sustainability Studies e.V. in **Potsdam** led by **Professor Klaus Töpfer** on the subject of my original suggestion.<sup>3</sup> The present text has been supplemented by the experience gained from the congress on “For the economy and society: Added value through more forests” held on 20<sup>th</sup> March 2014 in Berlin by the **Global Economic Network Sektion Deutschland – Senat e.V.** and the **World Forest**

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Further development of the suggestion as presented previously weakens the required political decisions and thus the rigorous nature of a potential global climate contract as opposed to the initial suggestion in some decisive aspects.<sup>4</sup> In particular, the text no longer assumes that the nations of the world will reach any agreement as to a global cap-and-trade system based on the Copenhagen formula over the next few years: **Nevertheless, the basic structure of the agreement remains as per what is known as the Copenhagen Formula (going back to a US-Chinese compromise):**

The industrialized nations will reduce their emissions by an absolute factor, the non-industrialized nations by a factor relative to their economic growth rate. **In this course, the nations determine individually and independently their respective reduction target values (pledges).** A **Green Climate Fund** of at least 100 billion US dollars annually, funded by the industrialized nations, to support climate-related action in the remaining countries, is another essential part of the package. All this addresses **questions to justify** appropriately among the nations with regard to the climate issue, which is the **dominant first justice dimension** in the public debate in the context of climate issues.

All in all, the Copenhagen Formula renders a **dynamic global cap**, which may even grow temporarily and which is parameterized based on the economic growth rates of the non-industrialized nations.

For this scenario, the initial suggestion I have assumed is that the described structure could be transferred into a global cap-and-trade system.<sup>5</sup> As already mentioned, this idea was objected during the IASS workshop since a consensus **would be hard to reach on the political level.** This text thus only uses as a basis the weaker requirement that the nations of the world shall implement their pledges under the Copenhagen Formula via various implementation mechanisms which cannot probably be integrated into a uniform cap-and-trade system. Individual implementation components at the governmental level could range from carbon taxation across forced technical standards all the way to regional/national cap-and-trade systems (such as the European system of certificates). Furthermore, it is accepted that there will most probably be no internationally coordinated and monitored standardized measurement and monitoring system for emissions. The text subsequently describes how the suggestion as developed previously can be modified and/or amended in such a way that the described restrictions can be complied with.<sup>6,7</sup>

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*“It will be in particular the wealthy premium segment, i.e. the globally most powerful consumers and their companies, who will indirectly pay for the “restructuring of our civilization”.”*

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*Based on the status of international discussions, after conclusion of the prep conference in Warsaw in 2013, the basic structure of a climate contract is presented which, on the one hand, appears feasible under aspects of “negotiation mechanics” and the initial situation and, on the other hand, allows us to still comply with the upper limit value of 2 °C. In this course, we try to consider any additional restrictions and/or requirements regarding a climate contract as mentioned during the workshop in Potsdam (exceeding the assumptions mentioned earlier). At the same time we also try to consider the partially very diverse interests of the various nations as well as the “negotiation stand-off” and the narrow remaining time slot until the end of 2015.*

## 2. Fundamental Considerations Regarding a New Draft Contract

Subsequently, we will present a pragmatic proposal for a global climate contract. The proposal logically builds upon the Copenhagen Formula as described below and sees it in a positive light. We cannot expect a better result and this result is already a giant step forward. However, such a contract would not suffice on its own in order to comply with the upper limit of 2 °C. This would require further elements. In this regard, we place greater emphasis when compared to most literature on the potential of negative emissions (e.g. for time gain). Furthermore, the workload needs to be shared between the political and the private sectors (organizations, companies and private persons) and such a shared workload has become a conceptual objective. In this regard, the private sector greatly contributes in 2 ways: It pays (nations) either directly or indirectly for generating less emissions than acceptable per global climate contract in a certain national territory (e.g. by “withdrawing” emission rights). Altogether, this amounts to approximately 250 billion tons of CO<sub>2</sub> emissions by 2050 and it pays for “negative emissions” (altogether this amounts to max. 250 billion tons of avoided CO<sub>2</sub> emissions by 2050 which will be withdrawn from the atmosphere). This will happen in particular through means of biological carbon sequestration, primarily as large-scale reforestation projects on degraded tropical soil. However, it will also happen in the form of grassland management with forced humification and is about wetlands maintenance and management.

The central element to allow this great contribution in facts and funds is the concept of **voluntary climate neutrality** of important players (organizations, companies and private persons) against the background of an increasing “**moralization of the markets**” and an ever-strengthening CSR orientation of brand companies in simultaneous interaction with intelligent and high-performance consumers (e.g. known as LOHAS) in the context of a **sustainable marketing management**.<sup>9,10</sup> This concept furthermore promotes **technical civilization restructuring** by reducing emission rights and the corresponding **Green Race** in the field of climate-friendly technologies and can largely contribute to filling the **Green Climate Fund** for the benefit of developing nations. As of 2020, (a minimum of) 100 billion USD shall be available in the fund per year, however, its funding principle is yet unknown. Further financial contribution affects the promotion of developing nations, i.e. in the context of reforestation projects to generate negative emissions, which, in some aspects, feature cha-

characteristics of a **Global Marshall Plan**.<sup>11</sup> This is one of the pillar concepts of the highly successful kids' and youths' initiative named **Plant-for-the-Planet** on this issue.<sup>12</sup> Industrialized and non-industrialized nations have different responsibilities. The (voluntary) climate neutrality of many economic high-performers allows an important **2<sup>nd</sup> justice dimension** in climate related activities to gain significance, namely the responsibility of powerful consumers – and their suppliers when compared to other people – in the realm of climate issues.<sup>13</sup> Attention should be paid to the fact that these high-performing consumers (approximately 2% of the global population) are spread **all over** the world with partially very high emission volume levels of up to 100 tons of emissions per person or year, even in poor countries. It is also in such countries that we partially encounter extremely wealthy people.

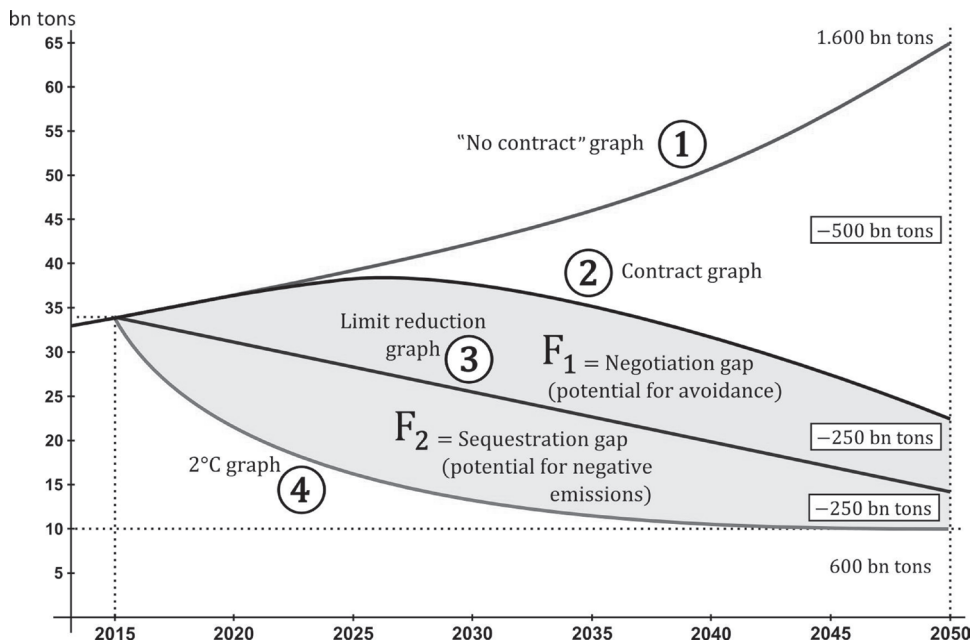
Please specifically note that I consider the reduction of existing emission rights at a certain point in time in the future as well as the funding of negative emissions through high-performers of the private sector (organizations, companies and private persons) who intend to position themselves as climatically neutral, which is **a decisive approach** if we still aim to comply with the upper limit value of 2 °C.<sup>14,15,16</sup> It will be in particular the **wealthy premium segment**, i.e. the globally most powerful consumers and their companies, who will indirectly pay for the “restructuring of our civilization”. As already indicated, apart from the north-south issue this affects a second important dimension of justice which needs to be considered as a solution to the climate problem.<sup>17</sup> To make it even clearer: A typical Hartz IV recipient (*Translator's remark: Hartz IV = German concept for financial support for long-term unemployed people or people who need to rely on social welfare from the government*) in Germany cannot be expected to pay for the climate costs caused by an Indian millionaire's lifestyle. This would never find consent. On this issue, please note the important cognition from Chakravarthy et al., stating that the upper limit value of 2 °C may yet be comparatively easily complied with if all people were to maintain their individually allocable climate gas emissions today, if those are below 8 tons of emissions per year, and otherwise limited their emission levels to a maximum of 8 tons annually. The premium consumers, who in part generate more than 100 tons of CO<sub>2</sub> emissions per year, should thus in particular take **voluntary** action in climate protection. Positioning oneself **individually** and **voluntarily** as climatically neutral is an attractive (and affordable) option in this regard. This was a core topic in an erstwhile article of mine and Chakravarthy et al., and will be subsequently elaborated even further. The required contribution from the private sector, added up until 2050, could make up for a volume balance of approximately 500 billion tons of **avoided CO<sub>2</sub> emissions** and/or **CO<sub>2</sub> withdrawal from the atmosphere**. The costs for this endeavor could be about USD 5,000 billion, i.e. annually approximately USD 140 billion. This is a drastic but bearable amount for this group.

Approximately 2% of the global population will be affected in particular either directly or indirectly, i.e. the top-earners with a financial volume of approximately EUR 1,000 per capitum on an annual average. The thus generated financial volume would apparently suffice to largely top up the Green-Climate-Fund through suspension payments.

### 3. Balances, Emission Graphs, Potentials – Contractual Components

The following approach discusses the structure of a potential climate contract in 2015, to be valid as of 2020, and about potential measures for the period until 2020. A graphic image of the expected and/or desired emission graphs and emission graphs achievable through various instruments will be used as a basis (see figure 1). This is a development of a previously used image.<sup>18</sup> It includes 4 graphs: (1) the “no-contract” graph, (2) the (expected) contract graph, (3) the (pragmatic) limit reduction graph and (4) the 2 °C graph. Until 2040, the curve of the no-contract graph is mostly compatible with the statements as recently published in *International Energy Outlook 2013*.<sup>\*</sup> The 2 °C graph is oriented towards what is known as the **WBGU budget equation**.<sup>19</sup> The structure of the graph is generic. The described approximated graphs are **obligatory** on principle if the upper limit value of 2 °C is to be complied with in one way or another. In this case, the core questions are: Will we solve the climate issue? What will the **exact** curve of the mentioned graphs actually look like? We have merely shown **principal graphs** here.

*Figure 1: Various Development Graphs for Climate Gas Emissions until 2050*



\* See World carbon dioxide emissions by region, Reference case, 2009-2040, [www.eia.gov/forecasts/ieo/](http://www.eia.gov/forecasts/ieo/) and [www.eia.gov/oiaf/aeo/tablebrowser/#release=IEO2013&subject=0-IEO2013&table=10-IEO2013&region=0-0&cases=Reference-d041117](http://www.eia.gov/oiaf/aeo/tablebrowser/#release=IEO2013&subject=0-IEO2013&table=10-IEO2013&region=0-0&cases=Reference-d041117)

## 4. The Copenhagen Formula as a Basis

Just like the initial contract suggestion, the currently suggested contract is geared by the **Copenhagen Formula**: The industrialized nations will reduce their emissions by an absolute factor, the non-industrialized nations by a factor relative to their economic growth rate. In this course, the nations determine individually and independently their respective reduction target values (**pledges**). A **Green Climate Fund** of at least annually 100 billion US dollars, funded by the industrialized nations, to support climate-related action in the remaining countries, is another essential part of the package. There is hope that certain agreements already affect the period between 2016 and 2020.

## 5. Resulting Dynamic Cap

The implementation of the Copenhagen Formula renders a **dynamic global cap** (the contract graph (2)), which may even grow temporarily and which is parameterized based on the economic growth rates of the non-industrialized nations.

## 6. Non-homogeneous Set of Instruments from the Government

As per the Potsdam workshop, we cannot expect a homogeneous global cap-and-trade system in 2020. Instead, a **non-homogeneous set of instruments** from the nations for the implementation of their contractual obligations will be considered and will include the following points:

- Regional cap-and-trade systems
- Carbon taxation
- Forest protection and reforestation
- Promotion of renewable energies
- Enforcement of energy restructuring
- Stipulations as to energy mix
- Investment promotion in the field of restructuring
- Interventions in the field of energy
- Balancing of fossil energy carriers
- Promotion of a climate-oriented green race in the field of technology

## 7. 500 Billion Tons of Anticipated Decrease in Volume

Based on the above arguments, politicians are expected to achieve a decrease from the non-contract case of an estimated 1,600 billion tons of total climate gas emissions from fossil resources by approximately 500 billion tons of emissions to 1,100 tons of emissions via the described global climate contract by 2050 as opposed to the scenario where the states of the world cannot agree on a global climate contract at all. (Transition from the no-contract graph (1) to the negotiation graph (2) in figure 1).

## 8. Continuation of Proven Instruments

The adaptation and continuation of the proven instruments of emission trading, joint implementation and CDM of the Kyoto contract under the new framework conditions as an integral part of the global climate contract are proposed and assumed.

## 9. Central Integration of the Private Sector

The added-up volume of CO<sub>2</sub> emissions from 1,100 billion tons of fossil fuel emissions by 2050, which is to be anticipated upon government interaction, still exceeds the value of approximately 600 billion tons of emissions that would still be compatible with compliance with the upper limit value of 2 °C as per the **WBGU budget equation** by approximately 500 billion tons.<sup>20</sup> For this, the **private sector** (organizations, companies and private persons) is strongly called upon to cooperate with politics in order to close this gap through **voluntary action**, as assumed in the author's initial suggestion. Politics must set a framework for such action. On the one hand, by means of the described **dynamic cap** for total emissions at the approximate 1,100 billion tons of emissions and, on the other hand, by allowing for and/or promoting action in the private sector in order to close the remaining gap. This affects, for example, the fiscal treatment of such contributions by companies as business expenses. The voluntary contributions from the private sector are of crucial importance if we are yet to comply with the upper limit value of 2 °C. In terms of volume, such contributions will have to amount to the same volume as the direct contribution from politics, i.e. approximately 500 billion tons of emissions by 2050.

Especially the two subsequent approaches as described below offer the private sector opportunities for decisive contributions to climate protection, namely **withdrawing** emission rights and “generating **negative emissions**”.

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*“Voluntary funding for negative emissions generation is a feasible option. Negative emissions remove CO<sub>2</sub> from the atmosphere. This can be achieved especially through biological carbon sequestration.”*

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## 10. “Withdrawal” of the Private Sector

Funds can be raised voluntarily by the private sector in order to further reduce the allowable emission rates in cooperation with the nations, e.g. by withdrawing emission certificates from the market without using them under a regional cap-and-trade system. This is theoretically possible as long as the reduced emission levels remain compatible with further (moderate) economic growth in the OECD nations and quick catch-up growth in the other nations. The political side of the issue focuses on this aspect.<sup>21,22</sup> We will probably not be able to fully exploit the estimated potential of maybe 300 billion tons of emissions by 2050



since the precise fixing of the existing potential (known as **limit reduction graph**) turns out to be difficult. However, avoiding approximately 250 billion tons of emissions by 2050 seems possible and **pragmatically feasible** (lowering of the negotiation graph (2) down to the (pragmatic) limit reduction graph (3) in figure 1). These approaches and considerations on the procedure may be found in more detail in the unabridged version.<sup>23</sup>

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*“We need to advocate a climate neutrality movement in the private sector in order to implement the mechanisms of emissions “withdrawal” and “negative emissions generation” on a broader scale.”*

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## 11. Generation of “Negative Emissions” by the Private Sector

Voluntary funding for **negative emissions** generation is a feasible option. Negative emissions remove CO<sub>2</sub> from the atmosphere. This can be achieved especially through biological carbon sequestration. This includes efficient forest protection, grassland management, wetlands management, and **in particular international reforestation programs** in the tropics. The generation of negative emissions must render a reduction of atmospheric stress by approximately 250 billion tons of CO<sub>2</sub> emissions by 2050 if the upper limit value of 2 °C is yet to be complied with (transition from the (pragmatic) limit reduction graph (3) to the 2 °C graph (4) in figure 1). This is very ambitious, however, still feasible with great efforts. In terms of reforestation, the above calls for the reforestation of 500-1,000 billion hectares of degraded soil. As per analyses carried out by the World Resources Institute, areas of this size are available worldwide, especially in the tropics.<sup>24</sup>

## 12. (Co-)Funding of the Green-Climate-Fund / Funding of International Cooperation in the Climate Sector through the Private Sector

There is an extensive funding for the **Green-Climate-Fund** via contributions from the private sector, in particular in the context of “withdrawing” emission rights.<sup>25,26,27</sup> At the same time, developing nations are promoted under the framework of climate partnerships via the funding of negative emissions generation.<sup>28</sup> As described above, the **justice gap** between **premium consumers** with per-capitum emissions rates far beyond 8 tons of emissions per year and the other citizens in terms of climate issues will thus in particular be closed.<sup>29</sup> This amends the closure of the **justice gap** in the climate sector between the developed and the developing nations by way of the targeted global climate contract.

## 13. Advocating a Climate Neutrality Movement in the Private Sector

We need to advocate a **climate neutrality movement in the private sector** in order to implement the mechanisms of emissions “withdrawal” and “negative emissions generation”



on a broader scale. Already today, there is a strong movement towards this direction in the context of CSR action and an orientation towards sustainability in companies. This is even promoted by the shopping behavior of enlightened consumers in the context of “moralization of markets.” (**issue of reputation**)<sup>30</sup>

#### 14. Proposal for a “Globally Neutral Program” of the United Nations

We encourage the United Nations to quickly initiate a (voluntary) **Globally Neutral Program** analog to the Global Compact. This program is to motivate companies worldwide to position themselves **climatically neutral** based on an individual schedule over a maximum of 10 years, on a voluntary basis and exceeding legal stipulations. Apart from the increase in energy efficiency, the use of green energy and a change in behavior, the instruments of “withdrawal” and “negative emissions generation” are particularly useful in this regard. The annual reduction increments towards climate neutrality should at least be linear, if not larger. This means, for example, that the climate gas emissions of a company which participates in the GLOBALLY NEUTRAL program must be cut at least by half over the first 5 years.

The 2013 **Klimaneutralitätsbündnis Vorarlberg** is a good example for such a program.\*

#### 15. Border Tax Adjustments

We need a stipulation of a regime of **border tax adjustments** in a manner that is compatible with the **WTO requirements** on imports into contract nations of the targeted global climate regime from nations which do not participate in a global climate regime.<sup>31</sup> In this way free-riding will lose its economic charm in the climate sector. Nearly all nations are expected to participate in the agreements on border tax adjustments against free-riding under a global climate contract. This is important since the cross-border, trade-induced, indirect exchange of responsibilities in terms of climate gas emission generation continues to gain importance.<sup>32</sup> What is more, in the way described, we will finally be able to achieve a **carbon-leakage-free international climate regime**, which is not even the case within the realm of the European Union today.<sup>33</sup>

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#### Notes

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