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BUND

FRIENDS OF THE EARTH GERMANY

Climate Justice

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Summary

This paper presents the position of BUND on climate justice in the aftermath of the UN climate conference in Paris 2015 and beyond, since the Paris Agreement has meanwhile entered into force. For BUND, climate justice means that we develop the necessary emission reductions and the answers to issues of global allocation, as well as including financing issues, in this paper. According to acknowledged scientific predictions, changes in the climate will imminently cause irreversible devastating effects globally that would harm humankind almost certainly existentially and economically to a high degree and which are already to some extent noticeable today. Pursuant to Art. 2 of the Framework Convention for Climate Change (UNFCCC), global climate protection aims to prevent any dangerous anthropogenic interference with the climate system. This objective is also to be founded upon human rights. Although the fundamental rights and liberties of those living here and now, whose freedom of consumption is affected by climate targets, must naturally be taken into consideration, a maximum bearable condition of ideally not more than 1.5 degrees Celsius temperature increase compared to pre-industrial levels is reasonable. The target set by the international community of a maximum of 2 degrees Celsius seems to be insufficient. Accordingly, Art. 2 para. 1 Paris Agreement determines legally binding that states need to undertake efforts to stay within the 1.5-degree temperature limit and in any case well below 2 degrees.

Regarding the actual allocation of emission reductions, the allocation of costs for adaptation measures to climate changes, and the eradication or the compensation of loss and damages suffered already, there is a scope in potential political decision-making which is nonetheless framed by clear principles. These principles result from international climate law and from human rights. Besides the equal treatment of all humans with regards to CO_2 per capita emissions, the "ability to pay" principle (capacity) and the "polluter pays" principle are particularly important. The "polluter pays" principle includes the historical responsibility for the emissions from the recent past that remain in the atmosphere often for centuries. In due consideration of this and other factors like population and economic development, BUND has identified climate targets for Germany by 2030.

In regards to its position on global climate justice, BUND demonstrates that Germany must bring forth about 65 – 80 % of emission savings by 2030 and then 95 % of the emission reductions domestically by 2050 to even meet a 2-degree target. Furthermore, even on the basis of a 2-degree target, Germany must provide financing services of at least 35 – 42 billion USD for climate protection in other countries by 2030; this would be a significant increase compared to the existing commitments so far. In addition, there is a double-digit billions amount for climate adaptation measures and for the eradication and the compensation of damages resulting from climate change. For a 1.5-degree target, all these figures will need to be raised even further. It becomes apparent that the IPCC call for zero emissions in 2050 is quite liberal in its Special Report of 2018 because its scenarios aim at reaching 1.5 degrees with a 50 – 66 % probability (and is counting on Carbon Dioxide Removal).

While at first this sounds like a lot, it expresses a balanced global estimation which includes the factors capability of climate protection measures, responsibility for anthropogenic climate change and, of course, the drastic severity of the problem. It must be always taken into consideration that also in view of the national economy (as well as for individual business players and companies) such a climate protection path makes much more sense than to let climate changes further take their course or to meet

them only half-heartedly. Ambitious climate protection offers economic potential for future-oriented sectors, like the renewable energies and efficiency technologies, especially for fast movers and for countries of the global south. In return, massive – and economic – resulting damages can be avoided.

Because German administration, parliament (Bundestag) and EU institutions do not yet take the 1.5-degree target and its basis in human rights sufficiently serious, BUND has together with partners filed a suits at the Federal Constitutional Court (Bundesverfassungsgericht) in 2018. Its objective is to determine that the political majority has to drastically raise its ambition in climate policies.

1. Problem, Paris 2015 and Beyond

In December 2015 at the 21st Conference of the Parties (COP 21) of the UNFCCC in Paris, a new climate treaty was signed. Pursuant to the objective in Art. 2 of the UNFCCC, global climate protection aims to prevent any dangerous anthropogenic interference with the climate system even before. In order to achieve this objective, binding emission reduction obligations have to be imposed on states in further international treaties. The first concrete protocol of this nature, the Kyoto Protocol (KP), envisaged reduction obligations only for industrial countries. Their total emissions constitute meanwhile only about one fifth of the global emissions. Moreover, the reduction obligations were calculated merely until 2012; a planned binding updated amendment failed in due course at the COP-15 in Copenhagen 2009.

Although the year 2012 had passed long since, the states had been negotiating drafts of a new global climate treaty without a concrete result . Meanwhile, the Kyoto Protocol was prolonged until 2020. However, Japan, Canada, New Zealand, and Russia refused to accept the obligations of this second period of 2013 to 2020, and thereby only European countries and Australia were contained within the Kyoto Protocol. Though further states have proclaimed national targets at the climate conference in Cancun 2010, these are however not comparable, difficult to monitor, and not binding in international law.

The Paris Agreement of 2015 has entered into force in 2016 and henceforth applies for five or ten years from 2020 onwards and embrace all UNFCCC member states (which means practically all states worldwide, as long as no one bows out as the US have done). However, the content is essentially based on voluntarily determined emission reduction obligations indicated by each state for themselves, which then become legally binding. However, so far, these obligations are deficient in view of the target to limit global warming to 1.5 or well below 2 degrees Celsius as Art. 2 para. 1 Paris Agreement requires. Thus far the process of implementing at least monitoring procedures of these reduction targets is dragging on leaving uncertain whether loopholes for embellished and exaggerated calculations will be closed. Furthermore, whether the industrial countries will provide sufficient financial help for intensified mitigation and adaptation measures as well as compensation for unavoidable loss and damage in the global south, or loss or damage already occurring. Due to these foreseeable problems and open issues of allocation among the states, BUND hereby presents a position on global climate justice which shall deliver solutions. The success of climate protection depends on the design of those issues (ambitious targets, comparability, financing of adaptation, etc.). This calculation was originally done before the Paris climate conference. Generally, the scenario has not been changed with the note that, in order to meet a 1.5-degree target, the numbers will appear even more extreme, in comparison also to the IPCC Special Report on Global Warming of 1.5°, newer analyses and a new BUND position on energy (IPCC 2018; Ekardt / Wieding / Zorn 2018; BUND 2017).

Global climate protection is by itself not only existentially important for humankind and for the stability of the ecosystems in the long term, but it is also connected to economically significant advantages (excepting perhaps those states that massively export fossil fuels like the oil-producing countries). This applies especially if the avoided climate damage is included.[1] From a long-term perspective the same also applies often for individual businesses or for homeowners who renovate their buildings to provide greater energy efficiency. Nonetheless, the international community has neither set ambitious reduction targets, nor has it found an intelligible sharing of the burden. This is not only because of general

[1] *At the moment, for industrial countries, it is most economical to reduce carbon dioxide, in the developing and newly industrializing countries however the reduction of methane is more economical.*

barriers to climate protection, such as the unpredictability of long-term and complex damage processes, the conflicting normative notions of a fossil-oriented world, or the problems of common pool resources and path dependencies. Rather the states and their representatives, that act primarily self-servingly, have not been willing to agree on a burden allocation formula so far. It seems much more appealing to hope that the emission reduction obligations as well as financial support for the global south are covered at the expenses of the respective others (alleged or actual). In addition, there are strong lobbies of the fossil energy industry and multinational corporations that fear a loss of profit from climate protection.

The imminent overall result is that in the end all together – and thereby humankind – will run into an ecological and economic crisis. The central problem even after the Paris Agreement remains to find an appropriate emission reduction target for the whole of the states (or an according accumulation of their sub-targets) and to offer a convincing proposal for the burden sharing. The present position of BUND is that both of these should be achieved and to further elaborate the conclusions for the case of Germany precisely. It concerns also the long-term outlook until 2050 as well as potential additional years as intermediate targets for the sake of clarity. Ideally, the community will try to reach a sufficient overall goal out of the sum of all the voluntary chosen targets of the individual states. Therefore, a clear conception of the just contributions of the individual states for the global climate protection effort is necessary.

[2] Carbon dioxide (CO_2) is the most produced greenhouse gas. Greenhouse gases are driving anthropogenic climate change. Methane, laughing gas, CFCs and sulphuric gases are however also climate relevant, although they emerge in different quantities and concentrations. In the present scenario greenhouse gases are indicated as CO_2-equivalents (CO_2e) for the sake of simplicity.

[3] Cf. www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf (p. 64).

[4] The IPCC refers to CO_2 only in this fugure. Meanwhile Schellnhuber 2015 as originator of the mentioned budget calculation talks of CO_2 respective CO_2 equivalents. The exact value remains arbitrary to a certain degree.

2. Deduction of the Reduction Target (Carbon Budget)

2.1 Scientific Basis and Art. 2 para. 1 Paris Agreement

If an increase in the probability of food and water scarcity, tremendously increasing natural catastrophes, migration streams, wars and civil wars and thereby the overall chaotic as well as irreversible conditions resulting from climate changes are not wanted, it seems from a scientific point of view mandatory to clearly limit global warming. Already the average global warming up to now of about 1 degree Celsius compared to the pre-industrial age (before 1850) is held responsible for consequences such as increasing droughts in regions of Central Africa which are fatal for many humans and which threaten the means of existence of countless others. Climate change might become thereby the central ecological and at the same time social and ecological catastrophe of the 21st century. Due to automatic amplification effects, once the changes in the climate begin to occur, it is likely that the consequences turn out even more drastic and existential for humankind than the already extremely worrying recent prognoses predict. Also, minor warmings can develop their own dynamics that lead to significant further accelerations of climate changes and severe consequences.

Politically, BUND therefore demands a limitation of temperature rise to 1.5 degree Celsius compared to the global average temperature of pre-industrial times. This has fortunately found entrance into Art. 2 para. 1 Paris Agreement. The norm clearly states that global warming has to be limited to well below 2 degrees Celsius, while making efforts to meet the 1.5-degree target. Art. 3 Paris Agreement shows that, even if states may choose their emission reductions seemingly freely according to Art. 4 Paris Agreement, they have to be oriented towards the ambition required by Art. 2 Paris Agreement. To stay within the 1.5-degree limit, the IPCC Special Report on Global Warming of 1.5° (IPCC 2018) calls for global zero emissions in all sectors within the next about three decades. As the calculation was done before the Paris conference, and back then there was no completely thoroughly calculated data for a 1.5 degree Celsius scenario available, here the calculations of the 2-degree-target of the IPCC will be used. According to the IPCC, in order to limit global warming to under (!) 2 degree Celsius with a probability of 66 % not more than 2,900 Gigatons of carbon dioxide equivalents ($GtCO_2e$)[2] in total are may enter the atmosphere (including beyond 2050) by human activities within the time period since extensive industrialization.[3] Already between the years of 1850 and 2011, 1890 $CtCO_2(e)$[4] were emitted worldwide. This means that only a budget of 750 to 1400 $CtCO_2(e)$ remains, depending on the IPCC scenario to remain under 2 degree Celsius with a probability of 66 %. According to the IPCC, at a rate of 750 $CtCO_2(e)$ there is still a probability of 33 % to come below 1.5 degree Celsius, whereas it is possible that differences can also still occur depending on the scenario.[5] When looking at these numbers, it must be taken into consideration that certain basic emissions, for example from agriculture, land use, and other processes, are impossible to eliminate even with maximum efforts.[6] We will come back to the question of whether negative emissions – beyond relatively harmless measures such as wetland and land-use management – could therefore conversely be necessary.

For a 1.5-degree target, all these numbers are more severe. The IPCC operates in its Special Report with relatively optimistic numbers as it is basing its calculations on a very moderate probability to achieve the 1.5-degree target, even more so because it allows for Carbon Dioxide Removal. Elsewhere (in Ekardt / Wieding / Zorn 2018), the issues of natural science and the law are analysed in detail and it is

[5] *In order to come below 1.5 degree Celsius with a probability of 66 %, the IPCC indicates a remaining budget of 400 $GtCO_2e$. If this smaller budget is taken as the basis compared to the 750 $GtCO_2e$ mentioned in the text, the emission reduction obligations would be significantly higher. The calculation (more in chapter 3) used at the present conception furthermore does not provide the data basis for a budget of 400 $GtCO_2e$ which is also less researched. Therefore, in this scenario the 750 $GtCO_2e$ are used as budget. Thereby, the 2-degree-target is reached regardless with a high probability (even according to those scenarios that assume a relatively small budget in relation to the respective temperature target) and also the 1.5-degree-target is even under relatively pessimistic assumptions at least partly to some extent probable (33 %). However, the probability of the 1.5-degree-target can be higher under less pessimistic assumptions as the IPCC always creates several scenarios simultaneously.*

[6] *The calculations of the amount of basic emissions vary to a large extent. The Federal Environmental Agency assumes 60 million tCO_2e per year in Germany. www.umweltbundesamt.de/themen/klima-energie/klimaschutz-energiepolitik-in-deutschland/szenarien-konzepte-fuer-die-klimaschutz/treibhausgasneutrales-deutschland-2050.*

derived that a zero-emission target globally and across all sectors is legally required within the next one to two decades. In line with that, the BUND position on energy is based on zero emissions by 2040 at the latest (BUND 2017). BUND demands this for all sectors, also beyond electricity, heating and transport, and also on an EU level.

2.2 Political-legal Basis: Framework Convention for Climate Change and Human Rights

Statements about a climate protection objective are normative statements, which means they testify to how societies should be and how humans should behave. The questions of climate justice cannot be answered by scientific facts and threat scenarios. This is because norms or values, meaning statements about what one should do, do not result from facts. Rather a norm is needed to proclaim that certain facts, like climate change, are unwanted. We will show in the following that Art. 2 para. 1 Paris Agreement has further legal basis.

The basic norm is Art. 2 UNFCCC, in which the states of the world have collectively declared that dangerous climate change must be warded off, amongst other things, due to food security. Many states however seem to think that this can be implemented in terms of insufficient obligations of protection, like in the Kyoto Protocol or perhaps in Paris 2015, and that, for example, there exist also contrary norms in international law like the free trade regulations of the World Trade Organisation. BUND believes that these attempts to relativize are completely erroneous because Art. 2 UNFCCC and Art. 2 para. 1 Paris Agreement also contain further guaranties from which states cannot simply "go rogue" or be altered by economic interests: Human rights.[7]

We, the people living today, in particular those of the Western-industrialized world and in the upper class of the newly industrializing countries, are damaging not only ourselves but also our fellow citizens, future generations, as well as the inhabitants of other countries with today's emissions, with our way of life and of economy, and many of these victims have contributed little or almost nothing to the changes in the climate system. Conflict solution among humans, meaning the resolving of situations, in which perhaps one person desires one thing (that is to say, continuing to live as before) and others foreseeably do not want this (because they suffer from substantial disadvantages), is the subject matter of ethics and law. The law does not only codify political measures concretely and bindingly, like the ban of light bulbs, the emission trade, or the greenhouse gas reduction targets, for example, in international treaties – the law also codifies social goals and values as well as their weighting among each other.[8] From the constitution in respect to the basic norms of the corresponding legal level here in the international arena - namely international law – it is possible to deduce binding provisions also for the political process; here the international climate negotiations. Somewhat different from the national level, the core principles in the international context are not a written constitution. However, it does exist and it contains the human rights guaranties in particular. Though they are social norms as well, they are still guaranteed in international treaties and they apply at the same time as unwritten general legal principles.

Since the existence of declarations of human rights, human rights have been the rights to self-determination in respect to freedom and to the elementary preconditions to self-determination and freedom. Legally and morally, the rights to the preconditions of freedom, life, health, and a minimum subsistence level are important as central justifications for

[7] *For a more detailed discussion of human rights and climate change, see Ekardt 2015*

[8] *As opposed to ethics, law is comparably concrete and uses sanctions as consequence of illegal actions.*

climate protection. This is because the minimum subsistence level requires, for example, food and water. Both are threatened by climate change at least potentially in some parts of the world. Minimum subsistence level also means a sufficiently stable climate, breathable air, and sufficiently stable ecosystems. These rights to the preconditions of freedom are guaranteed. They are explicitly stated in international, European, and national human rights declarations – for instance in the International Covenant on Economic, Social, and Cultural Rights. Preconditions of freedom are also included in civic-political rights like those of the freedom of speech, freedom of assembly, and freedom of property. This is because freedom can only exist if elementary preconditions like food, water, a stable global climate, peace, or merely life and health are guaranteed.

Not only state power is held at bay by human rights but also a lack of state protection against fellow human beings. That is important because climate emissions usually do not originate directly from states, but from all of us. These human rights oblige the states (and international state-like organisations like the EU) to ensure protective measures. With regards to climate protection there is a danger that human rights are impaired, often likewise beyond borders and over long periods of time. Since the human rights must protect in case freedom is endangered, a protection is also called for in this case. Policymakers often ignore this. The human rights of, for example, the Bangladeshi call for a reduction of European climate emissions. The same applies to the human rights of our perhaps still unborn grandchildren.

All this is hardly considered within the political negotiation process (also) after Paris 2015; the negotiation process proceeds as though the negotiating states had the power to adjudge at will on the relevance of human rights. What was said concerns valid law – including the containing ethical basis – and not willingly negotiable political claims. Universal human rights apply regardless. Therefore, the currently debated question, whether human rights will be mentioned in this or that form within the possible forthcoming climate treaty, is in the end irrelevant.

2.3 The Necessary Extent of Climate Protection

What weight does the transnational and cross-generational protection of the preconditions of freedom mentioned in chapter 2.2 have in balance with the clashing of human rights? One example for such a clash of rights are for instance the guaranties to the freedom of companies and consumers. Here politics come into play: courts can set a frame, that is to say they can rule on the basis of human rights, that democratic and administrative decisions are not made too one-sidedly, that they are based on proper facts and that they are in line with certain balancing rules. So that, for instance, climate change and the food situation are assessed realistically. Within this drawn frame policy-makers are in control. Nevertheless, it should not be the political will to produce conditions in favour of consumption or economic growth in the industrialized countries that threaten to deprive (globally and permanently) this very system of freedom, of its foundation, in the foreseeable future: it is not at the liberal-democratic politics' discretion to collapse this very system itself. And since at the same time at least minor emissions are inevitable for human existence, it seems intruding to globally adopt an equal per capita emissions-right for the remaining possible emissions.

Even though precise information is problematic, a (minor) political scope for decision-making nevertheless remains in this regard; as stated above, the

assumption of a global temperature target like 1.5 degree Celsius, at maximum however well below 2 degree Celsius, is a necessity – not only according to Art. 2 para. 1 Paris Agreement but also on in terms of human rights. Politically, BUND supports a global temperature target of 1.5 degree Celsius, which means a maximum average global warming of 1.5 degree Celsius. Even this is by no means harmless for human beings and is already a consequence and the result of balancing the climate protective human rights to life, health, and a minimum subsistence level, and the rights of today's consumers and companies, although today people suffer from global warming, for example in Africa.

The target supported by BUND is by no means radical and also not one-sided in relation to other possible political objectives; it is rather realistic in view of the otherwise imminent disastrous humanitarian and economic consequences. Likewise, it is realistic that all humans worldwide shall have access to affordable energy on a permanent basis to the extent which is necessary for a human existence that meets the requirements of human self-determination; this is also a manifestation of the human rights-based minimum subsistence level. According to the state of scientific knowledge presented in chapter 2.1, the whole emission budget must be limited to below 2,900 $GtCO_2e$ in order to uphold a temperature target of 1.5 degree Celsius with a high probability until 2050 and beyond that. With about 1,890 $GtCO_2e$ already emitted in the period from 1850 to 2011, a budget of roughly 750 $GtCO_2(e)$ remains for the period 2012 to 2100 within this scenario (see chapter 2.1 for a more detailed explanation and in IPCC 2018 as well as Ekardt/ Wieding/ Zorn 2018). In the following, we will look primarily at the necessary targets until 2030, especially since this is possibly a crucial subject of negotiations in Paris 2015.

3. Allocation Criteria for Reduction Obligations and Financing Shares

In the context of the UN negotiations after Paris 2015, there is still a need for an allocation decision. The international community and its members have to determine which emission reductions and which financial burdens[9] every state has to assume for the emission avoidance in other parts of the world, for adaptation as well as for loss and damage. As mathematical assistance in the following, the Climate Equity Reference Calculator[10] that was developed by the Stockholm Environment Institute (SEI) will aid further elucidation. This calculator is not a contextual "model"; it is merely mathematical assistance to deduce concrete emission obligations and financing obligations from certain normative principles. Hereinafter, it is the normative statements used by BUND are explained; context-wise they are independent from the application of the calculator.[11]

The idea of equal per capita emission rights justified initially in chapter 2.3 is hereinafter most important; however there are further criteria that are developed below. They arise both indirectly from human rights and directly from the UNFCCC. Since there are various criteria, we can illustrate only an approximate direction as concerns law. Therefore we will highlight wherever a concrete political demand of BUND is concerned.[12] Based on that, we will conduct a concrete calculation of emission reduction obligations and financing burdens for Germany in chapter 4.

- The above elaborated rule of the principally **reduced but equal per capita allocation of emission rights** can be applied as the most important human rights rule. They are administrated respectively by the countries for the whole of their inhabitants.

- At the same time, it is clear from both the human rights ideals of freedom and the aforementioned Art. 3 of the UNFCCC that those responsible must account for their emissions: the **"polluter pays" principle** applies. On the one hand, greenhouse gases remain in the atmosphere often for centuries. On the other hand, the industrialized countries have emitted higher amounts in the past. Consequently, the Global North has a greater responsibility than the Global South.

- Central to the "polluter pays" principle is also that states cannot acquit at will their **historical emissions**. A repeatedly discussed question is to what extent the emissions from the beginning of the industrialization approximately 200 years ago can be attributed to the states. In our BUND model, the historical emissions from 1990 onwards are in any case taken into consideration. Because, firstly, current generations can be held responsible only to a limited extent for the activities of earlier generations. Secondly, not only the country in which the emissions are produced is benefitting from the affluence consequences of historical emissions. Thirdly, the harmfulness of greenhouse gas emissions to the climate was not at all or not well known until about 1990. And every known legal system as well as every known ethics exclude the accountability for damage of which the possibility has been completely unrecognisable to the involved parties. In return, this means the emissions generated since then must be attributed to the respective states and their population in accordance with the "polluter pays" principle. Choosing exactly the year 1990 is, of course, a political decision that follows the Kyoto Protocol and the reasons stated above. Considering the manifold nature of the discussion, we show by ways of comparison below the comparative figure which would result from the base year 1850 and which is advocated by the international network Friends of the Earth to which BUND is a part of.

[9] *The actual purpose of that money, like technology transfers, will not be discussed at present.*

[10] *http://gdrights.org/calculator. The advantage of this calculator compared to others is the wide range of variables that can be adjusted and the individual calculation that goes beyond a mere provision of a database. All data, unless stated otherwise, are based on the data basis of the calculator. We do not adopt all the normative ideas of the Greenhouse-Development-Rights approach that is connected to the calculator. However, we offer hereinafter partly our own justifications and criteria.*

[11] *Not every conceivable justice issue that could possibly be deduced from what was mentioned above is discussed here, for example, gender issues. That does however not mean, that these issues do not deserve a discussion elsewhere.*

[12] *A broad overview on a number of alternative approaches is offered by e.g. Vieweg et al. 2015.*

- The principle of "common but differentiated responsibility" (CBDR) of the global north and south that is enshrined in Art. 3 of the UNFCCC represents also another human rights balancing principle alongside the "polluter pays" principle, and that is the "**ability to pay**" principle. Like the "polluter pays" principle, capacity is itself subject for legal interpretation and is thereby an open political decision-making scope. The "polluter pays" principle however makes clear that capable states like the industrialized states, the oil-producing states, and, more and more, the newly industrializing states must bear higher burdens. Accordingly, for the "ability to pay" principle this means that since human rights are to guarantee the minimum subsistence level, humans and societies must also have the right to eradicate existing poverty by economic development. Art. 3 of the UNFCCC calls this the right to sustainable development. On that basis BUND advocates the following political conclusions. The states' capacity or ability to pay depends on the capability of their economies. Therefore, we take the average per capita income, considered suitable as an indicator, as a basis for the determination of economic capability. The capability is not only calculated according to the financial possibilities; also technical and infrastructural parameters play a role in the determination of how much climate protection a state is capable of. Since this is however not clearly quantifiable, the tax rates are used as indicator for the national capability to provide a stable framework for innovation and technical and social development. BUND is of the opinion that an annual per capita income up to 4,000 USD represents an inability to perform climate protection – and therefore this per capita amount is subtracted from the calculation of the capability for all humans (except for incomes higher than 100,000 USD, where a strong capability is obvious and therefore an amount of exemption does not seem justified). What is meant here is not the absolute amount but rather the so called purchasing power equivalent.[13] This value of 4,000 USD is above the determination of absolute poverty of one USD per day that is often taken as a basis, because depending on the region this is not sufficient to sustain life, but nevertheless this value is below the income of the middle class in many parts of the world.[14] Attention should be paid however that our model does not calculate individual "climate change burdens" for citizens, but the costs for states. It is thereby not determined how these are then allocated within the states. For BUND it is further obvious that the dismissal of fossil fuels is a task for the whole of humanity and is not restricted to middle and upper classes – also that the exact extent of the minimum subsistence level is rather vague and the precise choice of the amount therefore is a political demand of BUND that is, however, grounded on a certain basis (see above). The consequences of the capability idea and the 'polluter pays' idea are equally important, because there are no obvious arguments for a higher weight of one of the two factors.

- **The costs for emission mitigation, adaptation to climate change, and in the context of possible damages** cannot be predicted reliably. They are however relevant because only in this way can the financing burden to be allocated be clearly determined. In our calculations we are oriented towards the so called Stern report, which assumes that 1 – 2 % (~1.5 %) of the gross worldwide product (GWP) should be invested in climate protection measures to prevent disproportionately higher adaptation costs.[15] The costs for adaptation are dependent on the sensitivity of the concerned areas; they depend significantly on whether limiting the effects of climate change can be accomplished by avoiding greenhouse

[13] *That does not mean that an Indian actually has these 4,000 USD at hand – but rather the (significantly smaller) equivalent that is necessary to buy the goods in his countries for which 4,000 USD in the USA would be needed.*

[14] *As already mentioned at the historical emissions, a definite number cannot be deduced from the legally enshrined justice principals elaborated here; therefore political decision-making scope exists to estimate the capability a bit lower or higher as well.*

[15] *In the original report 2006, 1 % of the GWP was estimated, meanwhile Stern has revised his assertion upwards.*

gases. The results of the IPCC report concerning the quantification of adaptation costs diverge 4 percentage points from the GWP, depending on whether a more optimistic or a more pessimistic scenario is presumed.[16] It is assumed that 5 – 10 % of the gross domestic product (GDP) in developing countries are at risk due to climate damages, whereas the costs for adaptation to these climate damages, the costs for mitigation of these damages respectively are estimated between 5 – 20 % of the GWP. The World Bank predicts an amount of 10 – 40 billion USD per year alone for adaptation measures in developing countries and further 15 – 150 billion USD per year (0.05 – 0.5 % of the OECD-GDP) in OECD countries. The UNEP Adaptation Gap Report assumes rather still higher numbers (see for example UNEP Adaptation Gap Report 2014). In this present scenario we have assumed 1.5 % of the annual GWP (36 USD[17] for the prevention of one ton CO_2) that arise in addition to the costs of climate protection measures. This share is estimated rather low, but it would have substantial consequences for the national economies (further below about the concretisation for Germany).

- **All greenhouse gases from all sources** are taken into consideration, as well as emissions that were released by land use and land use change. Nonetheless, there is no reliable data for the attribution of the emissions of imports and exports. Therefore, the territorial principle is used here as the basis as is done hitherto in international climate law. That means that emissions from the production of consumer goods that are, for example, produced in India for the German market, are attributed to India not to Germany. This means a statistical distortion in favour of the industrialized countries, if imports and exports are compared to each other, because the emission intensive production stages take place internationally more and more in newly industrializing countries. If this distortion is ignored, if one follows the territorial principle of international law and measures the emission, where they directly emerge and not where the consumer of the end product is located, then this ensures a clear calculation since the effects of international trade are not precisely recorded. It also emphasizes nonetheless that the industrialized countries must take on especially high shares of emission reduction and financing.
- The reductions within the calculation are ascertained in comparison to a reference scenario in which the emission tendency hitherto is continued, without taking into consideration that today's climate protection measures could be effective or that emissions could already be saved due to other reasons like increase of efficiency (without rebound- and relocation effects). The difference to the targets specified by the budget show the reduction obligations.

- Until 2050 further **population growth** is expected; this is relevant in view of the assumed equal per capita emission rights because the fair emission budget of a state results from its number of inhabitants. In this scenario the "middle variant" of the UN Department of Economic and Social Affairs (UNDESA) is taken as the basis according to which the world population will rise to 9.5 billion by 2050. According to these estimates, the population of Germany will decrease from 82,562,000 to 79,551,501.[18]

- The development of **economic growth** that is relevant to determine the capability is also taken into consideration. Therefore, data from the World Bank (historical development) and the International Monetary Fund (historical development and five-year forecasts) as well as McKinsey's long-term forecasts are used. Growth rates

[16] *IPCC: Assessment Report 4. www.ipcc.ch/publications_and_data/ar4/syr/en/spms3.html, Table SPM 2.*

[17] *This number results from 1.5 % of the predicted GWP in 2030, converted to the tCO_2e-emissions that are allowed to be emitted at maximum until 2030 according to this calculation. UN Department of Economic and Social Affairs – Population Division.*

[18] *UN Department of Economic and Social Affairs – Population Division. www.un.org/en/development/desa/population/theme/trends/index.shtml*

of 2010 are taken as basis and it is assumed that the purchasing power and the foreign exchange rates are increasing analogously on the market. For the economic growth in Germany a rate of 1.8 % until 2030 is assumed due to the last encountered growth rates. Considering that the climate targets developed here are taken seriously, they will however only be achieved if along with new technology changes in behaviour also take place. Different to new technology, however, they will have a rather negative effect on economic growth because less consumption takes goods and services off the market economically – even if it is personally experienced positively. Therefore, in the long run a serious climate protection will, with a high probability, leave the present growth-driven society behind and will result in a post-growth society all in all.

- **Numbers and forecasts regarding climate change** are based, as explained above, on the calculations of the IPCC. Since that report assumes rather conservative scenarios, so that hitherto in every new report a faster and more severe progression of climate change and its consequences is prognosticated than in the previous report, the basis for the scenario described here might be possibly still too optimistic, for example, in view of the slowly disintegrating West Antarctic ice shelf.

4. Concretisation Concerning Germany

With the intention of not exceeding global warming of 1.5 degree Celsius, but even in case of well below 2 degrees, and of emitting 750 $GtCO_2(e)$ at maximum globally in accordance with the explanations in chapter 2.1, Germany must yield a high quantum of emission reduction and at the same time contribute to the financing of emission mitigation, climate adaptation, and compensation for loss and damages in other parts of the world. The necessary extent of emission reduction and of financing can be calculated on the basis of the explanations made in chapter 3. In order not to exceed the emission budget of worldwide 750 $GtCO_2(e)$ in the long run, the emission will have to have decreased to 24 $GtCO_2(e)$ per year by 2030 globally and after that will have to be reduced further to ever lower yearly rates. Germany's fair share of global climate protection emerges from the inclusion of the above depicted factors, responsibility and capability in equal shares. As mentioned, findings regarding zero emissions within less than two decades will be even more severe, however, even looking at these, in preparation to Paris conducted, calculations show clearly that the current (German) climate policies lack in ambitions and need to be improved.

The calculation is developed as follows. In the year 1990, 36.7 $GtCO_2e$ were emitted globally. According to the scenario-forecast about 74 $GtCO_2e$ will be emitted in the year 2030 in the case of continuation of present developments, assuming no new political course takes place. In order to limit climate changes to below 2 degree Celsius with a high probability, only 24 $GtCO_2e$ are allowed at maximum, so that emissions in 2030 must be about 50 tCO_2e lower than they would be in case of unrestrained progress – otherwise the budget of about 750 $GtCO_2(e)$ calculated by the IPCC would be exceeded. The previously mentioned amount of emissions for 2030 assumes a continuous yearly emission reduction, so that in 2030, 24 $GtCO_2e$ are emitted at maximum and after that a further reduction to the basic emissions by 2050 must occur. Germany's reduction share is calculated from the equal emission rights of an assumed population of 79,551,501 in 2030 as well to equal shares from the historical responsibility for the greenhouse gases emitted in Germany (from 1990 onwards, see below in the continuous text also the number from 1850 onwards, thus from the beginning of clearly increased emissions due to industrialization and the beginning of reliable recording) and from the economic capability of Germany to implement climate protection. This capability is determined by means of the average per capita purchasing power via income. A per capita annual income which is below the equivalent of the purchasing power of 4,000 USD is excluded, income of above 100,000 USD purchasing power per year is taken into the calculative approach without any amount of exemption. The costs for climate protection result from the assumption that 1.5 % of the GWP must be spent for climate protection. Here the forecast for the GWP in the year 2030 is taken as a basis and allocated to the emissions to be saved. Costs for adaptation are not considered within the calculation but are added. The emission reduction mentioned above costs therefore around 1,807 billion USD in total. Germany's capability accounts for 3.2 % measured against the world income. The share of causation of Germany measured against the total emissions since 1990 accounts for 4.6 %. This means that Germany must bear per capita total of 3.9 % (1.9 $GtCO_2e$ in the year 2030) of the emission reductions of which then a share would have to be borne as financing.

Thus, for Germany this results in a share of 3.9 % of the emissions reduced by 50 $GtCO_2e$ for the period between 1990 and 2030 (compared to the business-as-usual-scenario for 2030). Expressed in percentage, this means a reduction obligation for Germany of 162 % with respect to 1990, because such a reduction obligation is higher than the total amount of German emissions.[19]

A total number of 162 % emission reduction with respect to 1990 sounds at first fundamentally unrealistic, however it is not: It rather depicts which severe consequential damages are imminent – and how large Germany's share of causation as well as the economic capacity of Germany measured against the global scale are. If 162 % is taken literally, Germany would have to generate negative emissions (-9.8 tCO_2e per person). The possibilities to generate negative emissions are in a large part not yet tested. Due to the connected risk BUND rejects most of these possibilities (utilization of biomass for the generation of energy with conclusive emission sequestration and storage, various forms of geoengineering). Other measures like large-scale afforestation (or an improved wetland and land-use management) are only feasible to a limited extent. Therefore, BUND presumes, with its calculations prior to Paris, that Germany can bring forth about 65 – 80 % of emission savings by 2030 as well as 95 % emission reduction by 2050 domestically (more is hardly possible). This should be achieved domestically since otherwise the global achievement of emission reduction targets seems endangered and since the necessary changes must take place in the industrialized countries – stepwise, because phenomena of collapse are globally of no use to anyone. Since Germany has however far overdrawn its emission budget measured against the calculation made above, additional financial transfers must occur. Because the domestic reduction possibilities are gradually exhausted, the share of financing compared to the further domestic emission reductions will thus further increase after 2030.

In view of the extent of necessary reduction dues, BUND therefore believes that Germany should principally, and in equal parts, bring forth climate protection domestically and support it on a global level by financing emission reduction in other countries. This means a saving of approximately 0.96 $GtCO_2e$[20] or about 80 % by 2030 with respect to 1990 within Germany, whereas approximately 0.96 $GtCO_2e$ must be saved by measures that can be implemented together with other states on the international level, or through climate protection measures in a partner state. This commonly means financing measures that are implemented by others. Here it must again be emphasized that the borders of "national emissions" of imported and exported goods become blurred so that a number of avoided emissions abroad can be attributed to products consumed in Germany.

The full IPCC report of 2014 assesses the costs for climate protection measures at 1 – 4 % of the GWP when assuming a 2-degree target. We have assumed that the costs will be about 1.5 % on the basis of the rather conservative estimation of the Stern report as explained above. Considering the remaining emission budget and the projected GWP for 2030 by McKinsey, the globally emerging costs for climate protection per year are amounting to 1,807 billion USD or 36 USD per tCO_2e, regardless of whether they would be spent on the national level, abroad or as part of an international collective measure.[21] According to our calculation, Germany has to pay an amount of about 35 billion USD in total by 2030, if 50 % of the climate protection measures are

[19] *As already explained in chapter 2.1, the reduction obligation would be again even more drastic, if the 1.5-degree-target was to be reached with a probability of more than 33 % within pessimistic IPCC scenarios, thus assuming a budget of only 400 $GtCO_2e$*

[20] *0.96 $GtCO_2e$ is half of the 1.92 $GtCO_2e$ (3.9 % of the necessary global reductions) that Germany is allowed to emit at maximum in the year 2030.*

[21] *Here an average value is assumed. Of course, some climate protection measures can be implemented more economically than others, and also there are global differences in the amount of investment which are necessary to save CO_2.*

accomplished through financing outside of Germany. Additionally, there are costs for adaptation (including compensation of emerged damages / loss and damage already incurred) to inevitable consequences of climate change already underway that are not defined in detail at present (see chapter 3). These numbers are then equivalent to 80 % of the domestic emission reduction by 2030. BUND's figure indicated above regarding the minimum amount of 65 % domestic emission would in contrast be equivalent to about 42 billion USD for climate protection measures abroad. In both cases adaptation costs as well as loss and damage must be added for which the same allocation ratio applies, but whose absolute amount is however difficult to determine at the moment.

If the historical emissions are included not only since the year 1990, but rather since 1850, the year that is used as standardized reference for the beginning of significant anthropogenic greenhouse gas emissions, then Germany's responsibility of global emissions increases to 4.6 %. This results in a reduction obligation of 190 % with respect to 1990 until 2030. Here it must be taken into consideration that the historical responsibility counts in the calculation only for 50 % and the rest results from the economic power of Germany, so that a mere calculation on the basis of responsibility would turn out higher. Since the reduction targets of 65 – 80 % can hardly be changed realistically, Germany's financing burden for climate protection, adaptation, as well as loss and damage would increase accordingly. For climate protection alone this would result in 14 billion USD additionally versus the amounts of 35 and respectively 42 billion mentioned in the paragraph above, again plus adaptation as well as loss and damage. All these, as mentioned, remain statements on reaching a 2-dregree target, leaving only a 33 % chance of meeting a 1.5-degree target. To achieve zero emissions within the next two decades, ambition has to be raised even further. German politics is very far from doing so.

5. Demands and Prospects

BUND shows with this position paper which reduction obligation and financing burdens Germany should take on in the context of the international climate negotiations. Thereby the goals and targets are relevant and not the question which concrete instruments should implement them. BUND demands that the German Federal Government enter the forthcoming climate negotiations, both 2015 and beyond, taking into consideration the proposals again summarized in the following. In the present case, the numbers until 2030 are calculated, the systematics of argumentation however applies as well beyond that, thus for example until 2050.

1. There is a political scope for decision-making when it comes to the concrete allocation of emission reductions as well as the allocation of the costs of adaptation measures to climate changes and in the context of damages emerging already. That decision-making scope is however framed by clear principles. These principles result from international climate law and human rights. In addition to the equal treatment of all humans with their emissions, it is especially important to assert the "polluter pays" principle (including more recent, but not all historical emissions) and the "ability to pay" principle.

2. Having stated that, BUND finds in particular that according to the present scientific and human-rights-based findings, Germany must bring forth about 3.9 % of the global emission reduction by 2030, about 65 – 80 % of which are domestic emission savings by 2030; by 2050, 95 % of the emission reductions must be reached domestically. In order to stay within 1.5 degrees, zero emissions between 2030 and 2040 are required.

3. Furthermore, already considering a 2-degree target, there must be financing services for climate protection in other countries of at least 35-42 billion USD by 2030, as well as an amount for climate adaptation measures that is difficult to quantify but is likewise an additional double-digit billions amount and a similar sum in the context of climate change damages emerging already.

4. This sounds like a lot at first, it is however the manifestation of a balanced global estimation which includes capability, responsibility, and, of course, the drastic severity of the problem. It must be always taken into consideration that also in view of the national economy (as well as for individual business actors and companies) such a climate protection path makes much more sense than letting climate changes continue their course further or meeting them only half-heartedly.

5. In this perspective BUND has justified its own draft in detail and has thereby provided a standard on how to achieve well justified climate protection targets and allocation standards beyond 2030 and therefore permanently, thereby attaining climate justice.

Because German administration, parliament (Bundestag) and EU institutions do not yet take the 1.5-degree target and its basis in human rights sufficiently serious, BUND has together with partners filed a suits at the Federal Constitutional Court (Bundesverfassungsgericht) in 2018. Its objective is to determine that the political majority has to drastically raise its ambition in climate policies.

6. Literature

- **BUND (2017):** Position Energie.
- **Climate Equity Reference Calculator:** www.gdrights.org/calculator.
- **Ekardt, Felix (2016):** Theorie der Nachhaltigkeit: Rechtliche, ethische und politische Zugänge – am Beispiel von Klimawandel, Ressourcenknappheit und Welthandel, 3. Aufl., Baden-Baden: Nomos.
- **Ekardt, Felix / Wieding, Jutta / Zorn, Anika (2018):** Paris Agreement, Precautionary Principle and Human Rights: Zero Emissions in Two Decades?, Sustainability, 2812.
- **IPCC (2018):** Special Report – Global Warming of 1.5 °C, www.ipcc.ch/sr15/
- **IPCC (2007):** Assessment Report 4. www.ipcc.ch/publications_and_data/ar4/syr/en/spms3.html.
- **IPCC (2014):** Climate Change 2014, Synthesis Report, Summary for Policymakers www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf.
- **Schellnhuber, Hans Joachim (2015):** Selbstverbrennung. Die fatale Dreiecksbeziehung zwischen Klima, Mensch und Kohlenstoff, München: Bertelsmann.
- **UN Department of Economic and Social Affairs – Population Division:** www.un.org/en/development/desa/population/theme/trends/index.shtml.
- **UNEP:** The Adaptation Gap Report 2014. www.unep.org/climatechange/adaptation/gapreport2014/.
- **Vieweg, Marion / Sterk, Wolfgang / Hare, Bill / Hagemann, Markus / Fekete, Hanna (2014):** Squaring the Circle of Mitigation Adequacy and Equity: Options and Perspectives, Umweltbundesamt: Dessau.
- **Wuppertal-Institut (2008):** Anpassung an den Klimawandel – Risiken und Chancen für deutsche Unternehmen epub.wupperinst.org/files/2903/WP171.pdf.

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