

Climate Change and Social Distributive Justice

Study for the Conference of the
Chinese Academy of Social Sciences

By order of the
Konrad-Adenauer-Foundation and of Misereor

Prof. Dr. Felix Ekardt, LL.M., M.A.
Research Group Sustainability and Climate Policy
& Baltic Sea Institute for Environmental Law

University of Rostock, Faculty of Law, Germany
www.sustainability-justice-climate.eu
felix.ekardt@uni-rostock.de

English Translation: **Daniel Kornack**
(to be published in an anthology edited by Pan Jiahua, 2010)

Abstract (see also the short paper for the conference on this homepage)

The global greenhouse gas emissions have risen since 1990 by 40 %. But they would have to fall worldwide to 2050 by about 80 % in order to prevent huge economic losses, millions of deaths, migration and possibly violent conflict over scarce resources such as water and fertile land. This study pursues a socially balanced concept of climate protection - the “task of the century” - on a national and global level from a legal and interdisciplinary social science perspective. In doing so, the alleged contrast “social distributive justice (and economic development) versus ambitious climate policy” is thoroughly investigated and disproved. The result is a more resolute climate policy with a more resolute (both national and global) social component - in contrast to the flagrantly insufficient current national and also to the anticipated new global guidelines after Copenhagen. The study leads thus into a conceptual alternative to the expectable totally inadequate global climate policy in the wake of the Copenhagen summit, which follows exactly opposite to what has been said along the line: unambitious targets for developed countries and no or vague goals for transition and developing countries; questionable sanctions for failure to meet the targets, too many loopholes, too little money for a grand transition in developing countries and against global poverty, which is exacerbated by climate change; insufficiently financed funds instead of clear financial demands of developing countries.

The study therefore offers a global climate protection concept, showing how a radical change in climate policy in the self-interest of almost all (!) people and states is possible after (and despite) Copenhagen - and connecting climate protection with social equity. The basic idea in a pointed form is: strict reduction targets worldwide, which also specify a strong medium term sustainable development path for newly industrialising countries, and at the same time a high level of financial compensation from the industrialised countries (which mainly caused climate change) to developing and newly industrialising countries (and a social balance within the industrialised countries). The study thus takes into account the social distribution component on the one hand by increased compensation for certain distribution effects of climate policy at a national and global level and on the other hand by proposals for more intense climate policy, which in turn is an essential long-term social action. *Short-term plus long-term social impact compatibility through climate effectiveness and related actions is the conceptually elaborate idea.*

Its basis is first a detailed analysis of the different social implications of climate policy and its national, European and global instruments, which also shows that an occasional “social touch” of certain climate policy instruments ultimately does not appear sufficiently suited to map the complex social climate problem; not even with regard to the “only national” area:

- Although climate policy, which must cut down fossil fuels and increase their prices, has a disproportionately burdensome effect on lower income earners due to the larger share of energy costs on their income, that effect is based on a variety of rules, not only on direct energy price regulation.
- Sporadic attempts of social reconciliation like the German reduction of mandatory pension contributions from the environmental tax revenue can offset this effect only in limited parts and by nature do not benefit substantially weaker social groups who do not contribute to the respective insurance or scheme anyway.
- Many climate policy motivated programmes and tax benefit only benefit those who have taxable income.

- On the other hand, it has to be noted that not specifically climate policy hits the poor to a greater extent. It is no different with respect to VAT. Therefore, it is at least disingenuous, if some voices prominently accuse climate policy of having particular distribution effects.
- In addition, an effective climate policy creates jobs already in the short term, e.g. in the field of renewable energy or energy efficiency. Furthermore, it increases an overall economic development, which leads to positive social effects.
- Moreover, climate change itself would lead to significantly greater social disadvantages of certain groups compared to the current, moderate measures to prevent it: also in Germany and Europe, the poor would disproportionately be affected by the looming impact of climate change – e.g. of natural disasters, wars on resources, energy price explosion, collapsing food or energy security, etc.
- On a global scale, the main victims of climate change will be developing countries and future generations - even though their share of causation of climate change so far is quite little.
- On the other hand, a resolute climate policy can serve social issues such as stable energy prices (by decoupling of the anticipated price explosions in the fossil fuels oil, gas, and maybe coal) and security of supply on the long term. This is true for developed countries and developing countries.
- All of this is particularly relevant, as the world's social inequality is already extremely pronounced. Its decrease could stabilise the social situation in the industrialised countries, even if it would need massive financial support from the latter, since the danger of a global race to the bottom in social standards could be avoided.

The widespread political line of “social policy through low cost, inadequate climate policy” is, against this background, nationally and globally insufficient and harmful, with respect to climate policy as well as social policy. However, it can easily be found behind the national climate policy and the completely inadequate global climate compromise that might occur after Copenhagen (even with significant improvements compared to what can reasonably expected, it still would be flagrantly inadequate). Instead, the main issue is to develop reform concepts, which are both effective from a climate policy point of view (and thus socially effective in the long term) and at the same time avoid short term social national and global dislocations.

For all this the study develops a legal and theory-of-justice-based foundation – and it also shows in detail that the typical economic “cost-benefit justification” for any kind of climate policy, as it also underlies the IPCC reports, has serious flaws (this is true for the underlying “preference theory” as well as for the methods quantifying human damages and of discounting future interests and of some other aspects). A sustainable lifestyle, i.e. one that can also be practiced by future generations and people from all around the world, may substitute car sharing for individual cars, reduce the consumption of meat as far as possible, make holiday flights an exception and take place in zero-emission buildings. Apart from the fact that this just does not have to diminish the happiness of life, this is also not a problem of justice. Of course, a just society must guarantee the necessities of life, legal equality and real development opportunities for all - but it does not guarantee equal distribution of goods. This is why not every effect of climate policy on social distribution may be challenged (both legally and

ethically-philosophically); even without environmental protection not everyone can afford everything. Moreover, although free societies guarantee self-determination, others' freedom has to be taken into account. Otherwise, one limits self-determination to economical self-expression and separates it from the responsibility for the consequences of one's actions which is mandatory for freedom as autonomy. So far Western societies live with respect to the climate problem at the expense of future generations and the people in the South. And the necessary social distributive justice can be correctly understood as the current and long-term, national and global security of freedom and its basic physical preconditions, which include a basal energy access and a stable global climate. The study also shows in detail that the typical economic "cost-benefit justification" for any kind of climate policy, as it also underlies the IPCC reports, has serious flaws (this is true for the underlying "preference theory" as well as for the methods quantifying human damages and of discounting future interests and of some other aspects).

This outreaching the everyday context might often be displaced because people emotionally might deem the here and now and the little fenced self-expression central - and a true change in climate might seem unusual, uncomfortable, or superficially "too expensive" for many people. But we have to keep in mind: Despite for example the in Europe and Germany often claimed role as a "climate leader", data until 2005 shows that e.g. a German still emitted about three times the greenhouse gas amount of a Chinese and about twenty times of an African, while southern countries will be affected relatively more from climate change. The same applies to future generations: they are the victims of climate change without having caused it. Total global emissions since 1990 have increased by 40 % - but scientists tell us we need a global (!) reduction target of *minus 80 % (!)* by 2050. Therefore, the study also analyses the limits to the idea of never-ending growth and the typical focus only on "technical solutions" instead of lifestyles.

Long-term national and global security and social distributive justice supports the idea of massive steps in climate policy together with national and global social compensations for the socially disadvantaged, to ensure "basal energy access" as their elementary requirement of freedom at all times. This compensation may not, however, mount to the form of "social tariffs for electricity", etc.; it must rather maintain the incentive for behavioural changes an effective climate policy has to bring forth. Specifically, a socially just global climate protection concept might look like this:

1. Emissions must be strictly limited and be divided globally among all States according to their population. Each person counts the same amount.
2. Some 0.7 tonnes times population - that would be the allowable emissions in any State in 2050.
3. The global average of 5 tons per person would be a start. The permissible level would have to fall every year in many small steps.
4. If countries wanted to emit more greenhouse gases, they would have to buy remaining emissions rights from southern countries, which are currently well below 5 tonnes. Such emissions trading already exists, but with too lax targets in the West, and no targets at all in the South.
5. Temporarily, developing countries would get more than their per capita share and the West correspondingly less to compensate for the historical causation of climate

change (e.g. 6 tonnes versus 4 tonnes). This way the former could sell even more and earn more. This would allow funding climate protection and climate change impact - while still limiting the long-term greenhouse gases emission.

6. Thus, in addition to climate change also the second major global problem would be addressed: not the financial crisis - but global poverty.
7. A global institution - such as the existing UN Climate Change Secretariat in Bonn - would have to monitor and enforce emission reductions with strict sanctions.
8. "After" the emissions trading between countries or continental entities (EU), the existing annually decreasing number of emission rights would be sold through a comprehensive national or European emissions auction to primary energy producers (coal, gas, oil, and biomass companies). Every importer's or seller's sale of fossil fuels could only cause greenhouse gas emissions at the citizens level if the former bought emission rights accordingly. Unlike the current EU emissions trading for some industrial sectors with its lax targets, this system would cover almost all greenhouse gas emissions. For the primary energy quasi projects the total of production and consumption. Much of the complexity of climate policy would become superfluous.
9. Primary energy companies would pass on their costs of emission rights evenly via products, electricity, heat and fuel to final consumers. The government or a continental entity as the EU, respectively, would distribute the auction revenue per capita to all citizens as an ecological bonus (eco bonus).
10. Other sectors with a large climate impact like land-use and cross-border air and sea transport should be included, as well as the deforestation, such as in the rainforest.

By so doing it is possible to gradually but rapidly lower global greenhouse gas emissions and the use of fossil fuels. Automatically this would lead to massive "low GHG" renewable energy and energy efficiency. All that would be economically very sound - if only for the otherwise drastic costs of climate change. And even in the short-term more energy efficiency and renewable energies are often economically advantageous: they foster new economic activities and independence from energy imports as well as rising oil and gas prices. One ensures long-term energy supplies, and avoids violent conflicts over diminishing resources.

That the West has to pay money to the South for the purchase of emissions rights is just. For per capita a European still emits many times more than a Chinese or African. Furthermore, the southern countries - and future generations - will be the main victims of climate change, caused primarily by the West. At the same time the eco bonus helps the socially weak in Western countries: The eco bonus is equal per citizen and those who consume little energy and products, i.e. the poor, only marginally feel the increased costs of emissions trading. Energy is and will remain affordable for everyone: long-term, independent of oil or gas prices. This is true although the eco bonus in relation to the redistributed costs of emissions trading would be low in the West and high in southern countries. For the emissions trading costs between the States would be added to the "southern" eco bonus and subtracted from the "Western" eco bonus. That would be the financial transfer to the South.

Therefore we need a strong global political approach - but to put in into practice, relying on new technologies will not be enough. For there is a strong interconnection between mental change and political change. Imitating American way of life on the worldwide scale cannot be the goal. The world (and economic growth) is physically limited.

Contents

1. Problem statement

2. Methodology of this study

3. Realistic climate data, economic damage, dealing with uncertainty - and the limits to growth

4. Climate protection and justice: Theoretical foundations

4.1 The core of sustainable ethics

4.2 A key distinction: Anthropology (homo economicus) versus normative preference theory / efficiency theory

4.3 Why the economic efficiency theory (normative preference theory) is ethics itself - also on the concepts of objectivity and rationality

4.4 Why the normative preference theory is not convincing

4.5 The case for a theory of justice based on discourse rationality as a better alternative to the preference theory

5. Climate change and justice: Questions of social distribution

5.1 Balancing and efficiency: The basic structure of social distributive justice in the area of climate protection in contrast to the economics of climate

5.2 Ambivalent social effects of previous climate policy

5.3 “One human, one emission right”

5.4 Basic thoughts of a renewed effective and social climate policy

5.5 A ten-point plan for effective and social climate protection

5.6 How exactly does a new climate policy approach protect social distributive justice? And how does it also serve the self-interest of (almost) all people?

5.7 Refutation of some objections – also on the question of necessary new institutions of global climate negotiations

5.8 Historical emissions as a social distributive justice issue

5.9 Governance: “More business ethics and CSR” as an effective instrument of climate protection? Also on the misleading distinction of “bottom up”/ “top down”

Bibliography

1. Problem statement

This study addresses the question of how the two possibly greatest challenges of our time can be seen as interconnected addressed together: the safeguarding and creation of social distributive justice at a national and transnational level - and maintaining a stable global climate, without which any peaceful life and thus any social policy would possibly be waste. The theme of social distributive justice is still relatively “new” in the climate debate. And if it indeed occurs, as in the weeks surrounding the (albeit predictable) failure of the Copenhagen conference, it is based exclusively on the North-South relationship and insofar, too, not nearly begin treated satisfactorily. Social distribution issues are, however, not only national but transnational. The study should try to take into account and merge both dimensions. In doing so, the constantly alleged contrast “social distributive justice versus ambitious climate policy” is thoroughly analysed. This will also produce concrete alternatives to the current national and global sub-optimal approaches after the failed Copenhagen climate conference. Those provide for global social compensation which was demanded by transition and developing countries such as China de facto by sparing the newly industrialising countries climate targets. In return, the industrialised nations accept only moderate goals and no significant monetary social compensation measures to the emerging and developing countries. This, however, benefits neither climate nor social distributive justice, for the biggest global social problem besides poverty in the next few decades will probably be climate change, which cannot be stopped this way (and whose costs will greatly exceed currently saved climate policy costs, as we will see later on).

The study therefore seeks concepts for a radical change in climate policy after (and despite) Copenhagen in the self-interest of almost all people and States, taking into account a social component. This has a great practical importance in particular in the discourse of EU Member States and emerging economies, e.g. in the German-Chinese discourse. So far, in Europe and even more in emerging markets such as China, climate protection is - even though recognised by some as an economic opportunity - more often seen as an obstacle on the path of sustained economic growth and social equality coupled thereto. But since, for example, China could be one of the main victims of climate change by the melting of Himalayan glaciers, the perspective of an “environmental policy only after economic and social growth” might already economically and socially have significant disadvantages in the long run. This makes it seem essential to initiate an exchange of views on climate change and social distributive justice.

Social substantive distribution issues are only one aspect of justice. The term “social”, in this study, features questions of distribution with respect to climate policy and climate change; on the one hand within the countries and on the other hand between developed and developing countries. In no case supported is the idea, which is included in the (primarily German) “three-pillar concept” of sustainability, that “ecological” and “social” are two separate notions describing two distinct aspect of the real world.¹ Moreover, a too broadened definition of “social” no longer has any usable content.

Concepts of a climate social science (Klimasozialwissenschaft) - in contrast to the climate (natural) science (Klimanaturwissenschaft) – with respect to concrete policy advice are so far almost exclusively developed from climate economics (Klimaökonomik)². These concepts make, without this being noticed more, statements on justice and determined in large parts

¹ For an alternative to the „three pillar model“ of sustainability (as a matter of philosophy as well as of legal interpretation) see Ekardt, *Theorie der Nachhaltigkeit. Rechtliche, ethische und politische Zugänge*, 2010.

² This means the economics of climate change, not the economy itself.

what is thought about climate change and justice. Although there are different approaches of climate economics, as far as they are based on neoclassical economics which is prevailing in Western countries and increasingly throughout the world, those are exposed to some major objections.³ Therefore, the analysis will run in a continuous contest with climate economics. The subject of climate economics is the calculation of optimal climate policy paths; this is also underlying the economic parts of the IPCC reports, where economists are so far the only representatives of climate social science. Hereto, the looming damages of climate change and general advantages and disadvantages of climate policy steps, (for the most part) translated into monetary values, are set in a relationship. Looming damages of climate damage, climate policy costs and climate policy benefits (translated into monetary values) are thus generally netted in economics to come to an optimal path of climate protection.⁴ The underlying principle is the idea of efficiency. This traditional welfare economic cost-benefit method, however, has a fundamental problem. “Exact data” in climate economics and in the IPCC may be convenient for many politicians and media representatives, and especially appear to be so. Seemingly “exact data”, however, disguise concealed facts and assumptions about climate facts and normative goals. If these assumptions are wrong or questionable, the figures are worthless and ultimately a dishonored suggestion of objectivity. Even if “exact data” scientifically - and even more politically and for reasons of media coverage – may appear seemingly attractive⁵, we shall see below that the economic approach is a disguised theory of justice, namely, the dominant theory of the climate debate. Unfortunately, the theory proves untenable in important parts.

2. Methodology of this study

The present study deals with the assessment and the impact of current and possible ways of policies and respective laws in the context of climate change.⁶ Here, on the one hand, the focus is on an analysis based on the notion of justice (such is any economic efficiency analysis, as we shall see later) and, on the other hand, providing a governance analysis of existing and potential instruments. A governance analysis - which is also known (without calling it governance analysis) of some sociological and philosophical classics⁷ – estimate the likely impact of certain proposals, for instance with respect to the intersection of “climate protection and social distributive justice”. The issue is to analyse whether certain means effectively meet certain targets. Such an assessment may include different elements: (a) textual analysis of relevant laws, (b) secondary analysis of existing quantitative or qualitative empirical material⁸, (c) application of theoretical insights into the effects of certain kinds of political measures, in which also social science behavioural models (anthropologies) play a role. Already this basis can allow for a reasonable debate about a socially more just and at the same time more effect-

³ A counter approach to the neoclassical approach would be ecological economics; cf. Daly, *Beyond Growth. The Economics of Sustainable Development*, 1996; Rogall, *Nachhaltige Ökonomie*, 2009, p. 157 et seq. But some of the objections are also relevant for such alternative approaches (see below).

⁴ For an example see Lüdemann/ Magen, *Effizienz statt Gerechtigkeit?*, Preprint des Max-Planck-Instituts für Gemeinschaftsgüter, 2008, p. 5; Posner, *Notre Dame Journal of Law, Ethics and Public Policy* 1986, 85 et seq.; Nordhaus, *A Question of Balance. Weighing the Options on Global Warming Policies*, 2008, p. 5.

⁵ Critical on that also Stehr/ von Storch, *GAIA* 2008, 19 et seq.

⁶ ETS, eco tax or consumer information policies also have a legal form (and become binding this way). Therefore it does not make much sense to differentiate „legal“ and „economic“ instruments (more precise would be: command and control versus incentives).

⁷ Cf. Habermas, *Between Facts and Norms*, 1994 and Luhmann, *Das Recht der Gesellschaft*, 1993.

⁸ Cf. IFEU, *Energiekostenanstieg, soziale Folgen und Klimaschutz*, 2006; Niebert, *Perspektiven einer sozialen Umweltpolitik*, 2008.

ive climate policy. Hereto the precise monetary quantification of the impact of a measure is less interesting than the recognition that certain systems work at all in a certain direction.⁹

The underlying key question to specific proposals - what is (from a climate policy point of view or generally) “socially just” – is in contrast to any governance question not a descriptive but a normative issue. Normative issues deal with the question how something *should* be. However, what *should* be cannot be observed or quantitatively measured, but only what in fact is the case. Thus it is for example measurable, what certain groups of people factually deem just. But that must not necessarily correspond to what really has to be considered as just, as we shall see.

3. Realistic climate data, economic damage, dealing with uncertainty - and the limits to growth

First, we have to recapitulate the factual elements of the climate problem briefly. This is also necessary because already there the dominant climate economics approaches are sometimes problematic, which has consequences for justice issues, inter alia because the looming damages might be underestimated. Climate change is likely to challenge mankind with unprecedented problems. At its core concern climate protection is rather simple despite the scientific complexity of climate change¹⁰: the simple issue it to emit far fewer greenhouse gases, i.e. (mainly) to consume a lot less oil, coal and gas. This requires strict greenhouse gas reduction targets, more energy efficiency, more renewable energy, which theoretically are largely free of GHG emissions, but perhaps also a certain amount of sufficiency. Thus a model of civilization is at stake, which especially in the West in the last 200 years, is largely funded on a high consumption of fossil fuels. In that model fossil fuels are omnipresent. Not just in gasoline and electricity, even in heat, in fertilizers, in almost every product, in plastics, transportation of goods. High meat consumption, car trips and regular long distance holidays, overheated homes, consumer electronics, etc. therefore become part of the climate change discussion.

By the year 2100, assuming unchanged development, global warming is forecast to range between 3 and 6 degrees, possibly even more, especially if the emerging economies like China and India are increasingly successful in adopting the Western lifestyle. Without a much more rigorous climate protection the world is threatened with economic damages and dangers for global peace as well as loss of life to a great extent. At the heart lies a flagrant global and intergenerational conflict¹¹: Despite the in Europe and Germany often claimed role as a “climate leader”, data until 2005 shows that a German still emitted about three times the greenhouse gas amount of a Chinese and about twenty times of an African¹², while southern countries will be affected relatively more from climate change.¹³ The same applies to future generations: they are the victims of climate change without having caused it. Total global emissions since 1990 have increased by 40 %. Even in Western countries, emissions mainly (only) remained constant, and even this is almost exclusively “crabwise” by accounting the industry collapse of Eastern Europe in 1990 and the (unintended) relocation of production to emerging

⁹ On the limits of quantifying see also Hofmann, *Abwägung im Recht*, 2007; for more details see below (5.1).

¹⁰ See also Hänggi, *Wir Schwätzer im Treibhaus. Warum die Klimapolitik versagt*, 2008, p. 7.

¹¹ On sustainability (which means „more intergenerational justice plus more global justice“) see Ekardt, *Theorie*, §§ 1-6; Ott/ Döring, *Theorie und Praxis starker Nachhaltigkeit*, 2004.

¹² Cf. also Baumert/ Herzog/ Pershing, *Navigating the Numbers, Greenhouse Gas Data and International Climate Policy*, World Resources Institute, 2005, p. 22.

¹³ Böhringer/ Welsch, *Jahrbuch Ökologische Ökonomik* 2008, 265; Nordhaus, *Balance*, p. 6; Stern, *Stern, A Blueprint for a Safer Planet*, 2009, p. 13.

countries as “domestic climate policy”.

One often hears in political and scientific debates that global warming needs to be limited to no more than 2 degrees. Therefore it was necessary to emit 60-80 % less GHG in developed countries and 40-50 % less worldwide by 2050 compared to 1990. However, the global climatological research, regularly consolidated in the IPCC, demands far more radical reductions to be able to avoid the possible catastrophic consequences with some certainty. The IPCC states in its 2007 report, a 50-85 % reduction of worldwide (!) greenhouse gas emissions from 2000 to 2050 was necessary if one wants to accept no more than 2-2.4 (!) degrees global warming. It calls this (because of the feedback effects not covered) as probably still too cautious.¹⁴ With a world population growing from 6.6 billion today to about 9 billion this IPCC figure would require a reduction of per capita CO₂ emissions from 4.6 tons per year (excluding deforestation) - in Germany, about 11 tons - to about 0.5-1 tons.¹⁵ For industrialised countries, this would result in well over 90 % emission reductions by 2050. This (1) does not even take into account feedback effects, and (2) 2-2.4 degrees global warming may already imply substantial threats. In addition (3) recent research related to the IPCC shows, that the 2007 IPCC forecasts of climate change¹⁶ will be overtaken by reality.¹⁷ Hence, from the perspective of climate science the 2050 target for the Occident is basically a (nearly) zero-emission society, if one wants to avoid catastrophic damage.¹⁸ Since human land-use emissions can never fall to zero, even negative emissions may be required for the energy sector, i.e. the recovery of greenhouse gases from the atmosphere.¹⁹ All this is easily overlooked, since climate change is a delayed phenomenon and greenhouse gases sometimes remain in the atmosphere for centuries.

On the one hand some damping feedback effects are already largely included in the climate models upon which climate forecasts are calculated. On the other hand, possibly massively climate change reinforcing feedback effects are currently only inadequately covered. This concerns for instance melting ice, which can reflect less sunlight, increasing amounts of water vapor around the world due to increased temperature, the role of a change in cloud formation, the role of the oceans and the marine fauna, the release of greenhouse gas from thawing permafrost soil, and effects of climate change related changes in land use. Further calculation uncertainties exist in agriculture, particularly so in nitrous oxide and methane, and especially with respect to the global deforestation, which contributes about 20 % to climate change. Climate skeptics (who are never even climatologists) (1) not only ignore that the IPCC is rather cautious. They also exaggerate the degree of uncertainty in climate predictions and understate the predicted damage.²⁰ In addition, they regularly miss that (2) solely because of the running out of fossil fuels robust action is required even if less dramatic forecasts at the end prove to be closest to the truth. Moreover, (3) climate skeptics in most cases neglect the precautionary

¹⁴ See also IPCC, Climate Change 2007. Mitigation of Climate Change, p. 15, SPM.5.

¹⁵ Cf. Hänggi, Treibhaus, p. 31 for an exact mathematical analysis of the IPCC data.

¹⁶ Cf. IPCC, Climate Change 2007. Mitigation of Climate Change, 2007 (http://www.ipcc.ch/publications_and_data/publications_and_data.htm).

¹⁷ Cf. the scientific Copenhagen Synthesis (2009), <http://climatecongress.ku.dk/pdf/synthesisreport>); see also Hansen, Environmental Research Letters 2/2007 on research of the NASA.

¹⁸ See also the statement of the EU minister council on 02/03/2009, <http://register.consilium.europa.eu/pdf/de/09/st07/st07128.de09.pdf>.

¹⁹ For example, CCS could be combined with bioenergy plants; cf. Ekaradt, Cool Down: 50 Irrtümer über unsere Klima-Zukunft – Klimaschutz neu denken, 2009, chapter 15-16.

²⁰ As an example for the following see Lomborg, Cool it! The Skeptical Environmentalist's Guide to Global Warming, 2007. For example they oversee the physical limits of the world and that certain damages cannot just be compensated by growing wealth in some other areas. Furthermore, they use rather optimistic data with regard to the scientific base and uncertainties of climate change.

principle: If one assumes that may be a dramatic risk to sensitive issues is imminent and one knows that at the onset of the risk it will probably be too late for a remedy, it is recommended to act today. The latter, however, is a normative idea and assumes that there are normative issues that deserve protection. That this is indeed the case will be shown in chapter 4.

The first problem of climate economics is that many climate economists appear relatively optimistic regarding the future development of climate change. Accordingly, they assume too little potential climate damage. Even the scientific foundation just described is not or not continuously represented throughout the previous climate economics. At best, the IPCC 2007 data are used which due to their methodology reflect the state of knowledge of about 2004, and often also in that context there a more lenient scenario is used. Even Nicholas Stern, who is considered perhaps the most influential climate economist and in this case often cited exemplary and who likely exceeds a number of other climate economists in many ways, still talks in the summer of 2009 of a global reduction of only 50 % until 2050 and does not even seem to have accounted for the Copenhagen Synthesis by IPCC members (2009). On the other hand, the Stern Review of 2006 points out that those figures are likely to be rather low. Thus, problematic factual assumptions become the basis for climate economical calculations, which tend to underestimate the potential climate damages. This is all the more true, if in the sense of the many Stern-critics such as William Nordhaus, who is to be used hereinafter sometimes exemplary for a more “skeptical” position, the Stern assumptions are even rejected as exaggerated.²¹

It is therefore often overlooked, that climate change leading to crop failures, natural disasters, floods, water shortages, food shortages, areas and whole countries becoming uninhabitable, as well as vast migration flows would be many times more expensive than effective action on climate change. Although the Stern Report of 2007 has highlighted this recognition against large resistance in economics²², under latest calculations it now actually proves too careful.²³ Stern on the other hand criticises that many economists do not adequately see the economic benefits of climate policy, that greenhouse gas limits, more efficiency, more renewable energy, and more sufficiency indeed secure permanent supply of electricity, heat and fuel long-term at acceptable prices, given the scarcity of fossil resources and the instability of some supplier States²⁴, as well as even short-term savings in energy costs (such as thermal insulation) and the opportunities for new jobs and markets through new technologies.²⁵ Beyond the question of current climate data, however, another major omission is present in the economic fact material, in the Stern Report, the IPCC as well as otherwise: the maybe cynical sounding, but perhaps most monetarily quantifiable cost does not seem to occur - the cost of possible military conflicts over oil, water and other resources. If calculations are still rather too cautious, then this also documents how problematic even in purely economic terms the current political debate about “less climate protection because of the financial crisis” likely is.²⁶

²¹ Cf. Nordhaus, Balance, p. 5, 123 et seq.

²² Stern, Stern Review Final Report, 2006, http://www.hm-treasury.gov.uk/stern_review_report.htm; Welzer, Klimakriege, 2008; Ekardt, Theorie, § 1; Kemfert, Die andere Klima-Zukunft, 2008, p. 63 et seq.

²³ Parry u.a., Assessing the costs of adaptation to climate change: a review of the UNFCCC and other recent estimates, 2009, <http://www.iied.org/climate-change/key-issues/economics-and-equity-adaptation/costs-adapting-climate-change-significantly-under-estimated> mention damages of 500 billion Euro instead of some 100 billion.

²⁴ Cf. Stern, Blueprint, p. 39 et seq.

²⁵ Cf. for example Kemfert, Klima-Zukunft, p. 135 et seq.

²⁶ This is overseen by Knopp/ Piroch, ZUR 2009, 409 et seq. and Frenz, in: Frenz/ Müggenborg (ed.), EEG-Kommentar, 2009, § 1 Rn. 1 et seq.; more precise Wustlich, ZUR 2009, 515 et seq.

These suggestions for an “update” of climate economic calculations do not yet reject a climate economic approach altogether but could be considered within an economic framework. A structurally unsolvable problem, however, cast some general doubt about the climate economic approach. Due to its high degree of complexity, climate change cannot exactly be predicted with respect to its concrete development and its economic impact. Rather a high degree of uncertainty is immanent. Future uncertain events are hardly integrated into precise cost calculations. For if a future event is not subject to specifiable probability (risk), but that probability is rather uncertain (uncertainty), this will render quantification impossible per se. Consequently, one cannot say something like “a looming damage of 10 billion euro with a probability of 10 % is valued 1 billion euro” in a case of uncertainty. This problem is also apparently not solved in the Stern Report. From this problem Stern’s critics draw the conclusion that rather low damage forecasts should be made.²⁷ However, a different conclusion could be more convincing (which is also a thesis of this study): that the economic approach altogether partially suggests false precision and that, therefore, a critical review as such is necessary.

Ultimately, these are all well-known problems - less with respect to climate data, but as regards economic loss amounts and dealing with uncertainty. Therefore, in the following, the focus will be more on other less discussed problems of climate economics, which are not unique to Stern and the IPCC but in about the same to their critics. The first concerns an almost entirely overlooked factual assumption - and then a set of normative assumptions, which are conditions for the further discussion, whether the projected climate data and associated events (e.g. hurricanes or high oil prices) can lead to the classification as a “benefit” or a “loss”.

The most problematic factual assumption in climate economical calculations of the “optimal climate policy” is the core assumption of “eternal” global economic growth - coupled with the focus on emission reductions to be achieved through technical measures (which is characteristic of the IPCC Working Group III). In this view of things, climate damage could perhaps result in (maybe significant) “setbacks in growth” (Wachstumsdellen). That long run (!), however, after a recent economic revival due to the promotion of new technologies and after the (necessary) fight against poverty in parts of the world, an effective climate policy might require more of a critical revision of the idea of growth, is almost not an issue in the current climate economical discussion. This also applies to Stern.²⁸ This problem is further reinforced by Stern and apparently the IPCC accepting that climate change was a mere “market failure” (i.e. it is just seen as an *economic* and in the logic of current economics *solvable* problem).²⁹ Other economists such as Nordhaus fall far behind Stern and are even less open to critical questions on the validity of eternal growth.³⁰

The cause of the climate problem is, however, in brief, the wealth of the industrialised world. When aiming at further growth, energy consumption and the consumption of fossil fuels also tend to increase. But climate protection at its core has to dramatically reduce the use of oil, gas and coal, and thus the amount of GHG emissions. Of course one can say: you can switch from fossil fuels to renewable energy - which emit only little greenhouse gases - and it is generally possible to use energy more efficiently.³¹ These are key strategies to combat climate

²⁷ See on that in detail Byatt u.a., *The Stern Review: A Dual Critique. Part II. Economic Aspects*, World Economics 2006, 199 et seq.

²⁸ See for example Stern, *Blueprint*, p. 11 oder p. 92; cf. also Weimann, *Klimapolitikkatastrophe*, p. 26.

²⁹ Cf. Stern, *Blueprint*, p. 11 et seq.

³⁰ Cf. Nordhaus, *Balance*, p. 32 et seq.

³¹ For an example see Stern, *Blueprint*, p. 111 et seq.

change. Thus, energy consumption, prosperity and economy seem to be able to continue growth, and yet shrink the greenhouse gas emissions. Climate protection is indeed a short term opportunity for profits. For three reasons, however, sooner or later climate change will make it necessary to review the growth paradigm as such:

1. If economic growth continues limitless, the increase in wealth outweighs at least in part the GHG reductions from technically feasible energy efficiency and renewable energy on greenhouse gas savings (“rebound effect”).³² Figuratively speaking, if my car is still running ever more energy-efficient, but globally more and more people drive a car (and I myself an ever bigger car), little is gained. And such is currently the trend. This explains why the emissions in developed countries stagnate since 1990 despite various climate policy efforts.
2. If one wants to limit global climate change to a non-catastrophic level, *drastic* greenhouse gas reduction targets are urgently needed. It's not a matter of increasing global prosperity and keeping GHG emissions constant through greater efficiency or slightly decreasing them, but in fact it is necessary to reduce them globally (!) by about 80 %. And these goals with the size of the challenge force us, besides “energy efficiency”, also to contemplate an end to the paradigm of infinite growth in prosperity. For a reasonably stable global climate is the basis of human existence.
3. Ultimately something banal, but very basic applies: in a finite world, growth has physical limitations (unless we think of growth in education, piano-playing skills, etc.). It is impossible for the entire world - including all the Chinese, Indians, Indonesians, Brazilians, etc., which gradually take over the Occidental life-style and growth – to become infinitely richer. Even if humanity switches from fossil fuels to solar energy, other raw materials of this world remain finite. Wind turbines and eco-cars are made of resources, too. And that only “new ideas” grow permanently and thereby allow “eternal growth” without any use of resources, one might hope though, but it seems at least open, so it is doubtful whether one should develop serious climate policy recommendations on the basis of such an assumption.³³ As a general result “ideas” potentially lead to consume of material resources. The Internet, for example, may seem an intangible idea, but computers and servers still require electrical power and finite and scarce resources for the production of various devices and the corresponding infrastructure.

All three problems are basic in kind. They cannot be negated by saying that the world today has, for example, larger oil reserves than was predicted 30 years ago. The problems can only be postponed (if at all). The problem of “physical limitations” of the earth also shows something essential: Even without climate change, the common perspective on the idea of growth deserves a review.³⁴ This is also reflected at other points. Global growth rates, for example,

³² The German Federal Environmental Agency found that effects e.g. with regard to energy consumption of private households, cf. <http://www.umweltdaten.de/publikationen/fpdf-1/3544.pdf>; even more pessimistic Garrett, Are there basic physical constraints on future anthropogenic emissions of carbon dioxide?, 2009, <http://www.met.utah.edu/tgarrett/>.

³³ The question whether it would be reasonable or not to build modern societies on a vague perspective like that is controversially discussed within the framework of the new Network on Sustainable Economy (www.nachhaltige-oekonomie.de). See also www.wachstumimwandel.at on the debate on growth initiated by the Austrian Federal Government.

³⁴ On the following see also the contributions by Schmidt, Behrens/ Giljum und Löhr, *Forschung für angewandtes Stoffstrommanagement* 2005, 7 et seq., 13 et seq. und 33 et seq.; see also Ekardt, *Zeitschrift für Umweltpolitik und Umweltrecht* 2009, p. 223 et seq.; Daly, *Growth*, passim; Wuppertal-Institut, *Zukunftsfähiges Deutsch-*

give no information about the distribution of wealth: Some are getting richer and those in need who needed growth the most occur remain poor or get even poorer. Moreover, the growth concept - so far it is a well-known debate – ignores many aspects: private social work, such as private child care, and the ecological damage of the growth path which are currently deemed without alternative. Likewise, there is no empirical proof that growth per se increases human happiness.³⁵

If the much-needed debate on climate change thus becomes a growth debate, however, this creates a serious problem. In most common economic views, capitalism and welfare need some form of growth, and even Marxists usually assume some form of growth. Whether this is so compelling, is of course quite controversially discussed.³⁶ The idea that a departure from the idea of growth would be the end of adequate human life, appears at least historically dubious. For the whole human history up to the end of the 18th Century there was basically one of only stationary, i.e. non-growing economies.³⁷ Historically, a growth society is a special case tied to the occurrence of fossil fuels. Moreover, mankind in the age of fossil fuels has gained technical knowledge, which should nevertheless enable it to maintain substantial achievements of this era.³⁸ Whatever one may think of this: The scale of the climate problem, the “rebound” and the physical finiteness of the world could spare any debate about it. To accept this, however, would mean unlike the IPCC, Stern and much of the research no longer to search solely for “new technologies”, but (in the developed world) to draw more on taking into account the possibility of sufficiency with regard to certain habits. Similarly, an increased reflection and research on the problems of a long-term “end of the idea of growth” would be appropriate.

One might ask, whether a discussion on the previous problem be worth while. Who says that facts or forecasts of future facts on oil prices, hurricanes, etc., are of any relevance? Why do we not leave all this to the purely factual preferences of consumers? The present study is to oppose such a view, however. This leads to a review and critique of the preference approach, which is typical for economics - and also for the IPCC Working Group III with its mainly economic-engineering focus. At issue here are not just quantification and discounting, which are rather treated separately (see below 5). It is rather a broader question of climate change and justice.

4. Climate protection and justice: Theoretical foundations

4.1 The core of sustainable ethics

This leads to a not (natural) scientific or empirical, but normative question, i.e. a question of “ought” or judgement: To what extent ought the (uncertain, but possibly drastic) negative and irreversible consequences, possibly after a consideration of present interests, be prevented or accepted? Because from an empirical nature observation as such does not follow logically that this observation is normatively welcome or unwelcome; even this basic fact is not sufficiently

land in einer globalisierten Welt, 2008.

³⁵ On the psychological research on human happiness cf. Wuppertal-Institut, Deutschland, p. 282 et seq.

³⁶ For a differentiated answer see Rogall, Ökonomie, p. 157 et seq.

³⁷ Cf. Daly, Growth, passim. This alone already reminds of the (partially) cultural background of the idea of growth (which lies not only in classical liberalism but also in calvinistic protestantism); cf. Ekardt, Cool Down, chapter II.

³⁸ The classical national policy „for growth and jobs“ has probably no future anyway – for reasons of global competition; see Ekardt/ Meyer-Mews/ Schmeichel/ Steffenhagen, Globalisierung und soziale Ungleichheit – Welthandelsrecht und Sozialstaatlichkeit, Böckler-Arbeitspapier Nr. 170, 2009, chapter 1 und 3.

present in the economic and scientific debate.³⁹ This leads us into the field of ethics or theory of justice (the terms are used here interchangeably).⁴⁰ In the following, it will be shown that climate economical models are not only based on questionable descriptive (see above), but also questionable normative and ethical assumptions. However, many economists would argue that their discipline has nothing to do with ethics at all when cost-benefit calculations or the efficiency of certain paths of possible climate policy are examined.⁴¹ It will be seen below, however, that this is probably incorrect.

To see this, some more general thoughts are necessary. Let's assume the following thesis: A society is just where everyone can live according to their own ideas, and everyone else can too - where everyone alike (!) has such a right to freedom, and conflicts of freedoms are resolved through democratic means including a separation of powers. Human coexistence would be just if human rights or liberties (Freiheitsrechte), the rights to the basic preconditions of freedom (elementare Freiheitsvoraussetzungen), and certain other freedom supporting arrangements ("additional freedom conditions"/ "weitere Freiheitsvoraussetzungen"), respectively, were optimally achieved, including the ever-necessary balancing conflict resolution between the competing spheres of freedom. The considerations in the following sections will briefly try to show that this is the only necessary and possible criterion of justice, if only one interprets it right. Suffice it say that with a proper (re-)interpretation of democratic legal systems with respect to all of the following statements there is convergence of a genuinely ethical and (in free democracies) a legal perspective, since human rights are the subject of international treaties and national constitutions.⁴² The right to freedom is often referred to as human rights, which could be split up as general freedom of action, freedom of assembly, freedom of occupation, freedom to own property, religious freedom, freedom of speech, etc.⁴³ Legal and ethical traditions, however, often only parenthetically consider the protection of fundamental preconditions of freedom such as life, health, and subsistence (e.g. a basal access to energy, but also a sufficiently stable global climate⁴⁴) as well as the freedom of future generations and people in other parts of the world. However, there is a strong argument that the protection of fundamental preconditions of freedom is already logically inherent in the concept of freedom itself: For without those basic preconditions there can never be freedom. An argument for the expansion of freedom in an intergenerational and global dimension will be given in chapter 4.5. More detailed, ethical and legal arguments for this "new" freedom - different from the classical liberal model of the West and in the sense of freedom worldwide and for all generations - were subject elsewhere.⁴⁵

³⁹ Only mentioned very carefully by Stern, Blueprint, p. 86 et seq.

⁴⁰ As an example for some possible misunderstandings within the context of the following chapters see Dilger, ZfU 2006, 383 et seq. – and the answer to Dilger from Ekardt, ZfU 2006, 399 et seq.

⁴¹ As an example see Wink, Generationengerechtigkeit im Zeitalter der Gentechnik, 2002; Nordhaus, Balance, p. 175 et seq.; Böhringer/ Welsch, JbÖkolÖkon 2009, 261 et seq.

⁴² Ethics can – in contrast to law – give the very basic principles of justice a stabile fundament and justification; on the relation of ethics and law see Ekardt, Information, Partizipation, Rechtsschutz, 2. Aufl. 2010, § 1 A. (law always combines normative rationality and instrumental rationality).

⁴³ This distinction has no substantial meaning – apart from the fact that (see below 5.1) that the legislator has sometimes given some structure to the balancing with regard to a certain right.

⁴⁴ On the relevance of uncertain encroachments (precautionary principle) see above 3.

⁴⁵ On the theory of justice in chapter 4. see in detail Ekardt, Nachhaltigkeit, § 3-7; Ekardt, Cool Down, chapter 4-6; Ekardt, Die Verwaltung 2010, Beiheft 1; on the intergenerational dimension see also Unnerstall, Rechte zukünftiger Generationen, 1999. On freedom, governance instruments and anthropology see also the controversy Dilger, ZfU 2006, 383 et seq. versus Ekardt, ZfU 2006, 399 et seq. (caused by the contribution of Ekardt, ZfU 2004, 531 et seq.).

4.2 A key distinction: Anthropology (homo economicus) versus normative preference theory / efficiency theory

The important thing is: all these considerations are part of a theory of justice. In contrast, a theory of action describes the purely factual behaviour of humans, unlike a normative (moral or legal) consideration based on the theory of justice, which refers to how people ought to behave and how societies should be arranged. Instead of action theory one can also use the terms anthropology or idea of man. Unfortunately much confusion is based on the common misunderstanding that an idea of man erroneous was something normative, a picture of how man should be or how the society should be. This leads to a blurring of anthropology and theory of justice.⁴⁶ That the economists' common theory of action which assumes that man is only self-interested is oversimplifying has widely been noticed in the last decades, though some economists might still use it. A theory of action saying "man is purely factually (almost) only self-interested", i.e. Thomas Hobbes' theory of the homo economicus, is the focus of controversy in many discussions with economists. This doctrine, however, which helps economists explaining and forecasting possible factual developments will not be analysed here. Elsewhere it was shown in this regard how companies, voters/ consumers, and politicians are often linked in vicious circles to each other - and how factors such as conformity, emotional perception problems with spatiotemporal long-term consequences of own actions, self-interest, incorrect traditional values, technical-economic path dependency and structures of collective interests have thwarted drastic climate protection efforts.⁴⁷ Even though economic anthropologies do not always reach this necessary differentiation, their reference to the human tendency to self-interested behaviour makes a valuable contribution (in fact the concepts of the homo economicus has correctly been modified in the last few decades and today is quite close to the ideas just presented).

Therefore, the real problem is not what Marxist economists often target: the empirically reasonably accurate descriptive anthropology of the *mainly* self-interested man. The problem is neither any theory of happiness of life. With respect to the principle of freedom, such a theory of happiness lacks any general standards, so that there cannot be such a theory at all. Hence, an analysis of the dispute between some economists, who may see a particular increase in happiness as the result of economic struggle for profit, and their Marxist-inspired critics, who instead deem living a life of solidarity (as is allegedly a true human desire) happiness increasing, is unnecessary on a theoretical level. In that regard, a freedom based democratic ethical and legal framework does not set any defaults, since there is no objective criterion for "happiness", and freedom allows no binding idea on happiness, too. However, a less "resource focused" ideal of happiness would help many people recognise that their own freedom be restricted for the intergenerational and global freedom's sake.

However, the problem is rather the (not only climate) economics underlying theory of justice, i.e. the efficiency theory or normative preference theory, as it is called in this context. Thus, the problem is not mainly descriptive anthropology but the normative theory of how human beings and societies *should* be.

4.3 Why the economic efficiency theory (normative preference theory) is ethics itself –

⁴⁶ The blurring is so misleading, because it leads to the tendency of seeing facts in the perspective of how they „should“ be – and (vice versa) to miss the question how exactly one can justify normative principles; overseen by Heinig, *Der Sozialstaat im Dienst der Freiheit*, 2008, p. 330 et seq.

⁴⁷ Cf. fn. 45; see also Rogall, *Ökonomie*, p. 63 et seq.

also on the concepts of objectivity and rationality

In order to show that an objective theory of justice is possible and that it must have the content that was briefly described above - and that the efficiency theory and normative preferences theory is a different but incorrect theory of justice – we first have to consider a question following from the given arguments on freedom: Is there a reason to deem the principle of freedom and its consequences (perhaps globally equal per capita emission rights) objectively just? Justice in this sense means the general rightness (Richtigkeit) of any social order. Thus justice is not something “additional”, which can be formulated after demanding prosperity or something similar. Any idea of how a society should be (even a simple “a society should be as rich as possible, and the distribution of wealth does not matter” or just “right is whatever the sum of the empirical preferences is”), is inherently a concept of justice, no matter whether it is right or wrong. Theories of a successful society – as can be found work in moral philosophy, law, normative politics or moral theology – are per se concerned with justice, like physics or biology or sociology deal per se with a descriptive truth (even if some research might result in untrue findings, and therefore fails to meet the claim). The basic idea of neo-classical (including climate) economists that it was necessary to maximise wealth as expressed in valuable goods, is thus neither trivial nor can even be classified as “empirical”. This basic idea is rather a normative concept - it is an ethics (of efficiency)⁴⁸, which appears for the first time in Thomas Hobbes, like the homo economicus. Unlike anthropology it is not meant to explain or predict anything, but rather propose right decisions. It follows:

- “Efficiency versus justice” or “efficiency versus ethics” as an alternative, as economists like Stern or Nordhaus and their left-wing critics are used to state it, is just wrong.⁴⁹ The only reasonable discussion is whether the ethics of efficiency is right or wrong. Consequently, there is no point, if the IPCC in its fifth progress report wants to include an ethics or theory of justice analysis (the terms are synonymous) “in addition” to the efficiency analysis. This is again erroneously assumes, that ethics (or justice) was a kind of diffuse part of the questions of social life, such as issues that seem somehow “very important” or even appear to have a religious connotation.⁵⁰ Such can be read in the Stern Report.
- The controversy “ethics versus efficiency” rather concerns the question whether to a greater extent social equality in certain material goods as defined by increased redistribution should be reached. However, this is a more specific question. We come back to this shortly in chapter 5.

But is there an objective ethics? Are there any objective, universal standards in a post-metaphysical, global, multi-cultural world (regardless of whether they are called “ethical” or “efficient”)? That statements of fact, e.g. as regards anthropology or climate data, although partially uncertain and hard to prove, can be basically true and therefore objectively reasonable, i.e. rational, is seldom contested. Less clear is whether moral and legal norms may be correct and objective/ rational. Many economists, including Stern, implicitly assume that only economic and empirical (natural) sciences can be rational. It will therefore be outlined briefly,

⁴⁸ For a convincing economic perspective on that see Gawel, in: Gawel (ed.), *Effizienz im Umweltrecht*, 2001, p. 9 et seq. und 43 et seq.

⁴⁹ Maybe a bit misleading: Nutzinger, in: Nutzinger (ed.): *Regulierung, Wettbewerb und Marktwirtschaft*, 2003, p. 77 et seq.; Grzeszick, *JZ* 2003, 647 et seq.; on that topic see also Mathis, *Efficiency instead of Justice*, 2009.

⁵⁰ Unfortunately the common use of the word „ethics“ (or morals) is very arbitrary and unprecise. It makes little sense to qualify questions of „killing and letting die“ for example as „ethics“ and on the other hand refuse to do so for questions of the limitation of economic freedom.

that there are indeed rational and objective norms and that freedom is their basic principle.⁵¹ But first we have to define the following terminology:

- “Objective” means “not subjective”, thus not subject to special perspectives, cultural backgrounds or settings - that is universal and valid everywhere.
- Reason, respectively rationality refers to the ability, to decide questions with reason, i.e. objectively. When it comes to the question of the rightness of moral and legal principles of justice – here freedom and the rules for balancing conflicting freedoms that can be derived from it – this is called normative reason (normative Vernunft). On the other hand, instrumental reason (instrumentelle Vernunft) and theoretical reason are related to facts. Instrumental reason is concerned with the question what means can implement any norm which is assumed to be right, e.g. a specific climate target (or a very selfish target as a theft) most effectively – e.g. through an emissions trading. Theoretical reason regards the determination of facts without any concrete related action, such as the scientific climate research. Economist usually only accept the balancing aspect of normative rationality; the subject of this balancing, however, are preferences expressed in monetary values. That this is not convincing we will see in the further course of analysis.

Whether there are objectively valid, i.e. rationally provable, norms and facts, is distinct from the - correct - observation that factually humans are often biased by subjective views when trying to determine facts and norms. This tendency for a subjective point of view is a natural one. But this by no means proves that objectivity - for example through careful examination and discussion with others - is altogether impossible.⁵² We can consider the following example: It may be true that there are scientists who express their opinions for or against the presence of human-induced climate change because they expect financial benefits. Their statements were therefore not objective but subjectively distorted. But this does not mean that it is impossible to gain objective and unbiased insight on climate change. Furthermore, the finding that often perspectives are very “subjective” logically requires that there *are* objective perspectives – otherwise the subjective nature of those subjective perspectives could not reasonably be determined.

With respect to normative questions (unlike questions of fact) economists, sociologists, and political scientists mainly deny the possibility of objective statements altogether. For (not only climate) economists “norm” is usually just what people purely factually prefer. Rational were only quantifying (!) considerations, which transformed the not rationally verifiable preferences into a single “currency” (money) and thus made them comparable. If an economist asks for the right climate policy, he usually does not ask: What climate policy framework does freedom (including the freedom of those spatially and temporally far away as well as balancing rules derived from freedom) set under which then various political decisions are possible? Economists would usually rather ask: How much would people living today be willing to pay for a stable global climate and what would be the advantages and disadvantages of climate change on the one hand and climate policy on the other hand, expressed in market

⁵¹ Partially similar theories of justice (without reference to sustainability and climate protection) are developed by Alexy, *Recht, Vernunft, Diskurs*, 1995, p. 127 et seq.; Illies, *The Grounds of Ethical Judgement*, 2003, p. 129 et seq.; Kuhlmann, *Reflexive Letztbegründung*, 1985; Apel/ Kettner (ed.), *Zur Anwendung der Diskursethik in Politik, Recht und Wissenschaft* 1993; Habermas, *Moralbewusstsein und kommunikatives Handeln*, 1983, p. 56 et seq.; Ott/ Döring, *Theorie*, p. 91 et seq.

⁵² Very precise (but very often misunderstood): Berger/ Luckmann, *Die gesellschaftliche Konstruktion der Wirklichkeit*, 1960, p. 2.

prices? Such a preference theory might get to the conclusion: Valid is what all can agree on. Or: Valid is the mathematical sum of preferences respectively expressed in money. Political scientists often tend to say: Valid are simply the actual preferences of the respective majority.⁵³ It is important to note that in any case even though these perspectives are founded on a theory of self-interested behaviour or anthropology (homo economicus), as was mentioned above, they can still strictly separately be considered. To put it bluntly, one can use the following simple formula: "People are in fact purely self-interested" (= anthropology) - "and this is a good thing, and listening to the purely factual preferences of the people is the best order of society" (= theory of justice, specifically the normative preference theory).

4.4 Why the normative preference theory is not convincing

The normative preference theory is the theoretical basis of how much climate change the respective economists deem objectively right, respectively efficient.⁵⁴ Any other approach, especially a normative argument without "figures", as will be developed in the course of this analysis, is usually declared unscientific and irrational. There are, however, strong objections against the preference theory not only but also with respect to climate protection:

- Quite familiar in neo-classical is the objection is that the standard methods to identify the actual preferences as numeral values simply do not work. The relevant issues and the necessary balancing of interests just cannot adequately be represented through prices. And it is impossible to detect actual preferences from real economic transactions on the basis of some kind of "disclosed morality of markets" (not even if de facto preferences as such were normatively relevant!). And even if this somehow were possible, must future damages not be discounted. This whole aspect of "simply not functioning" is subject of a separate section (chapter 5.1). Instead, it shall be shown here – and this might come as a surprise to economists – that regardless of those "application problems" the preference theory as such is unconvincing:
- According to the preference theory, our purely factual will is per se right (one could only ask whether the average utility (Durchschnittsnutzen), the sum of utilities (Nutzensummen) or a genuine consensus shall be accounted for). Any normative test of "how the world actually is" is no longer present. The theory of justice or ethics as independent discipline would be pointless and abolished per se.
- But we are not only facing a practical, but also a logical problem. For this is a naturalistic fallacy: Why should our purely factual preferences ("is") be considered to be correct per se ("ought")?
- Furthermore, the question arises: Should the factual ignorance as to the needs of future generations who cannot express any preference today per se be correct?
- If one pleads for majority rather than average preferences, there is the further question: whose preferences are meant? Can 50.1 % of a society take any decision, or 73.4 %, or 84.5 %? And why should the majority per se always be right without any limits (as envisaged by a liberal democracy in the form of guarantees of freedom)?

⁵³ Cf. (= implicitly, as in most cases) Stern, *Blueprint*, chapter 5; Panther, in: Nutzinger (ed.), *Gerechtigkeit in der Wirtschaft – Quadratur des Kreises?*, 2006, p. 21 et seq.; for the opposite opinion see Ott/ Döring, *Theorie*, p. 41 et seq. *passim*.

⁵⁴ Cf. Stern, *Blueprint*, chapter 3, 5; Nordhaus, *Balance*, p. 38 et seq. and 59 et seq.

- But particularly, the preference theory of justice entails a logical self-contradiction. For whoever says that there are no general normative propositions, and therefore general preferences should be determinative, makes a general statement about norms. The statement “everything is relative with respect to norms” refutes itself. The possibility of objective morality just cannot logically be contested. Its denial contradicts itself.
- It should be noted that all these arguments also apply with respect to some kind of ethics that is not based explicitly on preferences, but goes something like: “Just is that society that represents the current de facto national traditions.”

All this does of course not mean that, for example, self-interested preferences - or de facto national traditions - do not play a major role for the *factual enforcement*, i.e. the governance of climate protection. It was only pointed out that a *normative (moral or legal) justification* of climate protection – or a normative limitation or refutation – cannot be based on those preferences. But the principle of freedom, including its rules of balancing might be suited for this purpose. This principle can take future generations into account, is not subject to any of the problems of the type just described, while retaining the basic intention - everyone should be able to determine themselves – and derives it compellingly.

4.5 The case for a theory of justice based on discourse rationality as a better alternative to the preference theory

However, this is correct only under a major condition: namely, if the principle of freedom, including all principles derivable from it, founds the universal standard for justice. But why should this be right? And why should such a statement possibly be “objective”? We can briefly consider the following: In a pluralistic world we necessarily argue on normative issues. Even fundamentalists and autocrats do so inevitably, at least *occasionally*. And they avail themselves of the human language. But who argues with reasons (i.e. rational, i.e. with words like “because, since, therefore”), who uses phrases like “X is valid because of Y” with respect to normative questions logically assumes (1) the possibility of objectivity in morality, and (2) the existence of freedom - whether he wants it de facto or not⁵⁵:

1. We imply logically that normative questions can be decided using reasoning at all and ergo objectively and not only subjectively, preference based, otherwise we contradict ourselves. We assume this (a) even every day when we pose normative theses and justify them, that is attach them with the claim of objective acceptability (rather than to present them only as subjective). And it would be almost impossible never to use words such as “because, since, therefore” with respect to normative questions. Thus there is no escape from the fundamental *possibility* (!) of objectivity in normative issues. We even logically imply the possibility of objective statements (b) if we say: “I am a skeptic, and say there are objectively only subjective statements about morality.” This statement can only be valid if there is objectivity. Thus, the criticism raised towards objectivity voids itself.
2. We also logically imply that potential discourse partners deserve equal impartial respect. For reasons are egalitarian and the opposite of violence and degradation, and

⁵⁵ So-called „negative“ or „transcendental pragmatic“ arguments are also used by Alexy, *Recht*, p. 127 et seq.; Illies, *Grounds*, p. 129 et seq.; Kuhlmann, *Letztbegründung*, passim; Ott/ Döring, *Theorie*, p. 91 et seq. The basic logical structure behind that was already known by Plato and Augustine; on some misunderstandings on such arguments see the controversy between Dilger, *ZfU* 2006, 383 et seq. and Ekardt, *ZfU* 2006, 399 et seq.

they are addressed to individuals with intellectual autonomy because without autonomy one cannot assess reasons. No one could say: “My theory X and its reasons could easily be refuted by Mr P, but you, Mr Q, as a fool, should believe in it.” And no one could say: “After we had P silenced we finally were able to convince us that Y is a good reason for X.” It therefore contradicts the very meaning of “reasons”, to understand the act of reasoning as relative to the person of the addressee – a reason is convincing and can be tested by anyone. Someone who gives reasons in a conversation about justice (i.e. uses sentences with “because, since, therefore” etc.), but then disputes the other’s respectability ergo contradicts what he assumes logically.

This means: Logically, who ever engages in the dispute of justice based on reason must respect the partner as equal - regardless of whether he is aware of the implications of his reasoning or whether he intends to reason only to persuade the other one, for it is all about strictly *logical implications* of our speech (but not about our purely *factual self-image* which per se does not imply anything). The respect for autonomy as self-determination as required by reason must apply to the individual and therefore mean respect for individual autonomy: collectives as such are in fact no possible discourse partners. This is rather the individual human being arguing.⁵⁶

This is the justification for the principle of respect for the autonomy of individuals (human dignity⁵⁷). In addition, but hardly distinguishable this also founds the principle that justice means independence from subjective perspectives (impartiality/ Unparteilichkeit). From this in turn follows the right to freedom for all people⁵⁸ – and only the principle of freedom: Due to the lack of compelling reasons, other principles cannot interfere with the principle of freedom. Therefore, the same freedom based self-determination, along with its supporting preconditions, is the sole criterion of justice. Being man in general, after all, requires necessarily (only) the right to self-determination for all. And this right to freedom applies to all people, even if I never talk to them. For reasons in issues of justice (unlike statements made in private or aesthetic issues) are addressed to anyone who could potentially disprove them – therefore, I have to recognise all people as to be respected, as soon as I *occasionally* use reasons, and that everyone does. This in turn is made clear by the following control example. No one could seriously say: “The absent Mr P could immediately refute my theses - but because of your stupidity you should believe them.” This, of course, is no valid reasoning.

The principle of freedom is thus universally founded. And because potential discourse partners are included, as we have just seen, I must also concede freedom to people living spatially and timely far away. This is (a) one of the key arguments for the extension of the principle of freedom to future generations, thus for global justice and intergenerational justice and hence for sustainability - in addition (b) to the idea that freedom as such implies protection exactly there, where freedom is threatened. A “Kantian discourse ethics” concept of reason and autonomy, as outlined here, in this case opts different from a “economic-Hobbesian” concept. However, both concepts are concerned with freedom. But for the discourse ethics, not just in

⁵⁶ On a number of (real or fictive) objections against the whole theoretical approach see Ekardt, Theorie, § 3; Ekardt, Wird die Demokratie ungerecht?, 2007, chapter 3.

⁵⁷ From a both ethical and legal point of view, human dignity itself is no fundamental right and not even a norm that is dedicated to give legal answers to single cases. Human dignity is the justification of human rights and formulates their basic idea: individual autonomy; for more details see Ekardt/ Kornack, KritV 2006, 349 et seq.; Ekardt/ Kornack, ZEuS 2010, i.E.; similar Enders, Die Menschenwürde in der Verfassungsordnung, 1997; for the opposite opinion see Böckenförde, JZ 2003, 809 et seq.; Heinig, Sozialstaat, p. 330 et seq. and 353 et seq.

⁵⁸ That freedom can be deduced from human dignity, can also be seen in the wording e.g. of the german constitution and of the European Charter of Fundamental Rights; see Ekardt/ Kornack, ZEuS 2010, i.E.

the sense of consumer sovereignty and factual consumer preferences.⁵⁹

5. Climate change and justice: Questions of social distribution

5.1 Balancing and efficiency: The basic structure of social distributive justice in the area of climate protection in contrast to the Economics of Climate

Solving the generational and global conflict between many competing freedoms, i.e. determining the right amount of climate policy, is not an easy task. Both, the normative weighing or balancing itself and the relevant facts (see chapter 3 supra), which are necessary to find out in how far a certain normative concern is actually affected, are characterised by uncertainty. As regards the climate facts, we already encountered this problem supra. It is also possible to ethically and similarly legally derive rules of balancing (Abwägungsregeln) from the principle of freedom and infer institutions of balancing (Abwägungsinstitutionen) (as has been done elsewhere in more detail⁶⁰). A rule of balancing is, for example, that the factual basis of a decision has to be determined as carefully as possible.⁶¹ Another rule is that only freedom and the (broadly understood) freedom conditions are possible concerns that are relevant for balancing. Another one is that freedom and its fundamental and “further” conditions may only be interfered with as far as it is necessary to strengthen other freedoms and freedom conditions. Yet another rule – again, already inherent in the very concept of freedom itself – promulgates that if someone shall be obliged ex ante to prevent or ex post to remedy impairment of a freedom, this should wherever possible be the causer of the impairment. Still another rule was derived earlier in this study, namely the precautionary principle: even under uncertain circumstances, the interference with freedom or its conditions need be recognised, but possibly with less weight. Many other rules can be derived. In all this there generally is no “one correct” result of balancing. This is true for climate policy as well. Consequently, there is certain leeway with respect to a just climate policy - but not arbitrarily large. And the bodies which have to use this leeway within the framework of the balancing rules are not arbitrary, too: Rather, an institutional rule can be derived from freedom saying that a decision maker which can be elected and deselected has to make the decision. Where necessary, further concretisation must be made by authorities and courts obeying to the principle of the separation of powers; furthermore, there must be constitutional courts to verify compliance with the balancing rules.⁶²

Economists, however, quantify all interests concerned and calculate what the “right” level of climate protection is. Everything that has a value for people, i.e. that a respective factual preference exists, is translated into monetary terms, including life and health – or it is disregarded.⁶³ Specific rules of balancing are unnecessary within the framework of such an approach. The facts of benefits and harm merge with the preferences. This sounds attractive in-

⁵⁹ See for a partially similar result also Rothlin, *Gerechtigkeit in Freiheit – Darstellung und kritische Würdigung des Begriffs der Gerechtigkeit im Denken von Friedrich August von Hayek*, 1992 and Ott/ Döring, *Theorie*, p. 78 et seq. und 91 et seq.; Hoffmann, in: Hoffmann/ Scherhorn (ed.), *Eine Politik für Nachhaltigkeit. Neuordnung der Kapital- und Gütermärkte*, 2009, p. 23 et seq.; Nutzinger, *Gerechtigkeit*, p. 7 et seq.

⁶⁰ Cf. fn. 45 and Susnjar, *Proportionality, Fundamental Rights, and Balance of Powers*, 2010; Alexy, *Theorie der Grundrechte*, 1986.

⁶¹ As we have seen, the balancing (or efficiency) decision in itself is objective but normative. Facts alone never justify a normative decision, because there is always the need for some criteria.

⁶² Furthermore, it can be deduced that institutions should exist where freedom conflicts could be solved at the best – which means for climate questions: on the global level; see Ekardt/ Meyer-Mews/ Schmeichel/ Steffenhagen, *Böckler-Arbeitspapier Nr. 170*, chapter 1, 3 and 5.

⁶³ Cf. Nordhaus, *Balance*, p. 4; see also Burtraw/ Sterner, *Climate Change Abatement: Not „Stern“ Enough?*, 2009, http://www.rff.org/Publications/WPC/Pages/09_04_06_Climate_Change_Abatement.aspx

so far as no leeway is required – theoretically “exactly one” policy recommendation can be made and the results are “exact figures.” This, however, is problematic in several ways. First, (see 4 above) the underlying normative preference theory in itself is not convincing. Second, (see 3) already benefits and damages, which have a market price, lack sufficiently precise facts if, as with climate change, the entire world economy is involved with unmanageable numbers of individual actions, and also periods of more than 100 years. Third, there are, as already indicated and now further demonstrated, more insurmountable problems of application of the preference theory⁶⁴: The calculation of climate change costs (and, in comparison, climate policy costs) disguises the fact that essential concerns cannot be quantified in monetary terms⁶⁵, e.g. (massive) damage to life and health. For the absence of damage to life and health from climate change has just no market price, neither has peace in the sense of “absence of conflicts over resources.” Thus both cannot reasonably be quantitatively be used to offset the economic effects of climate change and climate policy. Neither can an artificial market price be determined for concerns without an actual market price, as economists are doing by the “hypothetical willingness to pay” for life and health, i.e. the absence of hurricanes, wars, etc. This is already true since those willingness is fictitious and therefore not very informative (that no taking a preferences based on a “morality of markets” does not help is discussed immediately after when analysing the discounting method). Moreover, the willingness to pay is of course limited by the ability to pay and would lead to the remarkable result that, e.g., Bill Gates’ interests are worth much more than a Bangladeshi’s, because Bill Gates can pay a lot and the Bangladeshi can pay nothing. This is also noticed by Stern, contrary to the economic mainstream, and yet he suddenly uses monetary values for “non-market effects”.⁶⁶ If he accounts the same amount for every human, this is in fact true (see below), but in the context of the preference theory without justification and therefore inconsistent.

Another problem of climate economics is discounting⁶⁷: Future damages are said to weigh less than today’s. This is understandable, at least superficially, if the victim today and in ten years is the same person. But why should a Bangladeshi’s damage in 50 years (1) per se be less important than my damage today? One could say: future people cannot express any preferences today, so they are uninteresting. This idea is, as has been indicated, inherent in the preference theory. But then, consequently, one would not have to discount, but to completely disregard someone’s damage, who is not yet alive. And compared to those living today the discounting is inconsistent with regard to the passage of time. Given the preference theory, why should an economist be allowed to dictate whether I have a present preference and should not care for the future? The expectation of perpetual growth (2) also cannot justify discounting, whether with respect to those already living today or to future generations. The limits of growth shall be recalled. Also (3) the empirical observation of real market prices (“morality of markets”), which according to many economists expresses the preference for the present over the future, does not justify discounting. For (a) there are no observable market or interest rate developments that would say anything about what factual preferences exist in terms of damages over several centuries – and with irreversible character. Moreover, (b) drawing conclusions from market prices, only considers the preferences of today’s people.

⁶⁴ Cf. Ekardt, *Theorie*, § 6; Mathis, *Efficiency*, p. 113 et seq.; Otsuka, *Philosophy & Public Affairs* 2006, 109 et seq.; Meyer, *Philosophy & Public Affairs* 2006, p. 136 et seq.

⁶⁵ This is admitted by Stern, *Blueprint*, p. 92.

⁶⁶ Cf. Stern, *Stern Review*, p. 148.

⁶⁷ Very critical on discounting Unnerstall, *Rechte*, p. 320 et seq.; see also Rawls, *A Theory of Justice*, 1971; for the opposite opinion see Birnbacher, *Verantwortung für zukünftige Generationen*, 1988.

Those preference determination based on a “morality of markets” is criticised by Stern (stating this as a criticism against most other economists)⁶⁸, but not the growth-oriented discounting. Stern certainly offers an argument for discounting which is at least worth considering: (4) the uncertain probability of future losses. However, whether this can be mathematically expressed is doubtful. At least where no mathematical probability can be determined, a supposedly clear discount rate is ultimately arbitrary, and therefore is not superior to general balancing rules as where introduced above. And even if all this could be disregarded, discounting would only be possible if the respective damage could actually be expressed in monetary terms despite the above criticism. And this is often not the case.

All this shows once again the fundamental problem of (not only but especially climate) economic approaches: behind seemingly clear mathematical results, assumptions are concealed which are far from universally compelling, but are rather contestable in important respects. This criticism is not limited to normative assumptions (e.g. to discounting and the preference theory) but is also directed at factual assumptions: e.g. on the extent of looming climate damage or the growth idea. *Hence, it is impossible to calculate the correct amount of climate protection and the associated distributional issues required by morality and legal principles.* It is rather necessary to make climate policy decisions within the limits set by the described rules of balancing - worldwide and nationally. As repeatedly indicated such a decision must mean more climate protection than previously. Briefly stated⁶⁹: (1) the existing climate policy probably already disregards the balancing rule that its decisions must be based on a correct factual basis: In particular, the recent actions are probably erroneously deemed suitable to avoid the looming of drastic damage caused by climate change. (2) Furthermore, politics so far has not taken into account in its decision-making that the basic right of freedom also has an intergenerational and a global cross-border dimension and therefore the legal positions of future generations and the proverbial Bangladeshis have to be considered in parliamentary/ legal decisions.⁷⁰ (3) The human right to a subsistence minimum as elementary precondition for freedom (which is a right of those living here and now, but also intergenerationally and globally) can be overcome in balancing only in limited areas because freedom is pointless without this physical basis. But this right also includes a basal energy access and at least somewhat stable global climate. This in turn requires drastic climate policies. This, too, has currently not been taken into account by decision-makers. Similarly, it has not been considered that the scarce remaining emissions budget would probably have to be distributed equally in the face (a) of its scarcity, and (b) of the imperative nature of at least low emissions for human survival.⁷¹ An egalitarian distribution is also proposed by Stern, but with the mistaken reason (relying on the uncertainty of the burden of proof) that there was ultimately no reason to argue against an equal distribution.⁷² This leads us to a main point of the debate which we will consider separ-

⁶⁸ Cf. Stern, *Blueprint*, p. 80 et seq. and 95 et seq.

⁶⁹ Legally and ethically this also means: The constitutional courts have the power to oblige the legislator to obey these balancing rules and therefore make a new decision on the concepts of climate policy; see in more detail Ekardt, DV 2010, Beiheft 1.

⁷⁰ The whole topic is analysed not on prevention but on liability level by Verheyen, *Climate Change Damage and International Law: Prevention Duties and State Responsibility*, 2006.

⁷¹ On climate justice see Ekardt, *Cool Down*, chapter 4-5; Ekardt/ von Hövel, CCLR 2009, 102 et seq.; similar without an ethical justification, without the legal background and without the eco bonus Wicke/ Spiegel/ Wicke-Thüs, *Kyoto Plus, 2006* and (without quoting Wicke and others) WBGU, *Kassensturz für den Weltklimavertrag: Der Budgetansatz*, 2009.

⁷² In contrast to Sen, *Development as Freedom*, 1999 the approach which underlies this paper has a philosophical justification for freedom and the right to the fundamental preconditions of freedom, as well as a balancing theory. These advantages are also relevant in comparison to neo-marxist basic needs theories. Furthermore, the latter theories mix empirical anthropology and normative theory of justice, and they have no criteria for their central

ately (see *infra* chapter 5.3). By the way, it should be mentioned once again that all this is meant as a both ethical and legal statement.

To verify the factual basis of a political decision, economic research is undoubtedly extremely valuable - and it also helpful for balancing to the extent that goods with a market price are concerned and unvarnished figures are generated which also account for, e.g., the costs of possible climate wars (this is not included in the Stern Report⁷³). If a calculation is done, one should at least try to include all the real monetary costs to the extent they are recognisable. In this way, economists can provide crucial factual material for balancing – within the framework of the overall balancing theory. It shows for instance that the actual monetary damage to the climate such as crop failures or other weather damage would be more expensive than an effective climate policy. These are key benefits of the IPCC reports and the Stern Report. Equally important are statements on the probabilities of events. In my view, however, economists and natural scientists can often only provide those probabilities with a lower degree of precision than one would expect. The natural conditions of climate change and the global economy are simply too complex. A perhaps more modest, not normative, also less quantifiable and less focused on natural science – a climate economics which is merged with the other climate social sciences within the framework of a balancing theory could be a feasible consequence. Provided, however, that climate social science is concerned with these themes: limits of growth, a normatively and logically rigorous theory of justice, a theory of balancing, anthropology, also a governance and control theory which is based on more than purely economic perspectives (see below 5.9).⁷⁴ In governance, too, climate economics is and remains very important, but again not exclusive. It is therefore a welcome development that Stern admits the omissions of the economic approach - if only generally and without addressing the basic problems of growth and preference theory.⁷⁵

On the other hand, the efficiency theory must be defended against John Rawls' accusation stated under the (once again) misleading heading "efficiency versus justice." Rawls criticises that the efficiency theory - in other words, the utilitarian and Hobbesian ethics – does not recognise *absolute* rights, i.e. rights that cannot be offset by other rights, not to be confused with *universal* rights meaning "everywhere applicable"!).⁷⁶ Even though this is true for the efficiency theory, just as it is for the balancing approach advocated in this study, given the many possible collisions of freedoms, which are at the heart of (climate) policy, there is little need to do so. Absolute guarantees of freedom are only rarely justifiable, mainly when balancing would undermine the liberal character of the system as a whole (for example torture in order to convict criminals).

Until now, some key points on climate change and justice conflicting with the dominant climate economics can be summed up as follows: (also climate) ethical findings are not empirical, and especially no natural scientific observations, they are rather normative (= judgement / ought) findings. Even though the application of an ethical or legal norm often refers to sci-

concept (what is a „basic“ need?). Still, they imply a blurring of justice and question of good life; overseen by Ott/ Döring, *Theorie*, p. 78 et seq.

⁷³ Stern only mentions increasing „instability“; cf. Stern, *Stern Review*, p. 151.

⁷⁴ On some other aspects of climate social science see the contributions in Voss (ed.), *Der Klimawandel – sozialwissenschaftliche Perspektiven*, 2010 (for example: on the description of the climate discourse; on the description of the development of climate awareness; etc.).

⁷⁵ Cf. Stern, *Stern Review*, p. 149 et seq.

⁷⁶ Cf. Rawls, *Theory*, p. 19. Also German lawyers – see for example Böckenförde, *Staat, Verfassung, Demokratie*, 1991, p. 188 et seq. – tend to make the mistake of blurring the critique of balancing and of quantification (and of „universal“ and of „absolute“ norms); not sufficiently precise on that Heinig, *Sozialstaat*, p. 353 et seq.

entific (factual) questions, these facts do not infer as such any ethical or legal result. Furthermore, the basic principles of ethics, although normative in their nature, can objectively be specified. Ethics is not “subjective” or “mere convention”, and is not founded on “axioms” with arbitrary starting points. On the other hand, the actual decision of specific ethical issues is somewhat blurry. Yet, the balancing rules and the institutional competences limiting the discretion are again objective. Since ethics is generally concerned with the conflict between different interests, every ethical decision is ultimately a balancing problem between conflicting freedoms (and their preconditions). Absolute obligations or strict balancing prohibitions (e.g. an absolute right to environmental stability at any price which cannot be balanced with other interests) are ethically and legally hardly justifiable. This does not mean that the balance can be resolved by a mathematical quantification - even though “figures” have the advantage with respect to politics and the media that they allow complex statements to be easily displayed. Therefore “figures”, even if they represent a new welfare index, as defined by Amartya Sen and others, for the “landmark gross national product” (the latter being calculated on the basis of valuable goods) as it is currently discussed in France, can only be symbols, but no replacement for complex balancing.

5.2 Ambivalent social effects of previous climate policy⁷⁷

Based on this, a more detailed discussion about the social distribution effects of climate change and climate policy is possible. At least at a national level it might not appear very attractive to adhere to the above formulated call for a stricter climate protection. Doesn't a resolute national climate policy at home in the short and medium term lead to social problems or to problematic distributional effects? So far this question has been raised under the heading “environmental justice” with respect to pollution policy, but hardly for climate policy. Some argue that national climate policy in and of itself, regardless of the social distribution of climate policy costs, weakens the national competitiveness in the global market (as long as some countries e.g. the United States, Australia, etc. remain apparently idle). For this alienated companies and this already threatened the labour market to the detriment especially of the socially weak. And even with a global approach to climate policy, jobs were endangered by social change induced by this very climate policy.

Correct is first of all a certain assumption about the background of climate policy. Since renewable energies have only a limited capacity, partly due to adverse effects such as are known for bio- or wind energy - the world is physically finite - climate policy ultimately results in energy efficiency and, in some instances, foregoing. Thus, the most means of climate protection aim, directly or indirectly, at making fossil fuels (combustion of which constitutes the core of the climate problem) more expensive - and energy is pretty much included indirectly in any product. The costs of climate policy burden socially weaker more intense while, for example, rising energy costs are a relatively lesser burden to the wealthy. But how is the situation under sober reflection? To analyse this we have to examine in greater detail the indicated social effects of climate change and climate policy - in the sense of a governance analysis:

- In fact, e.g. the German tax on electricity and petroleum (“eco-tax”) and the European emissions trading in certain industrial sectors, which works similar to a tax as a cost

⁷⁷ On the own approach of the author – which is summarised in the next chapters – see Ekardt, Cool Down, chapter III, IV und V; Ekardt/ Heitmann/ Hennig, Gerechtigkeit, chapter 3.1 und 5.

contribution to the final consumer of energy, products, etc., have a “regressive” effect. Their effects are (short-term!) to the detriment of less-income earners. In other words, their financial flexibility will be cut much more than higher earners’ due to the larger percentage share of energy costs to their income (even if the latter absolutely consume more energy per capita).

- In addition, the German approach to reduce mandatory pension contributions as compensation from the environmental tax revenue does not benefit those weaker social groups (such as unemployed) who do not contribute anyway.
- Many climate policy motivated programmes and tax breaks, whether in Germany or elsewhere, benefit in practice only those who already have a good income and pay taxes. This applies to the aid on energy-efficient purchases, such as for space heating.
- Nevertheless: In view of the still rather small share of “climate policy” costs of the price of the kilowatt hour one can hardly say that, for example, in Germany increasing electricity and gas blockings for late payment in low-income households were primarily the results of failed climate policy. Following on from that the picture begins to become relative, if not to reverse even in part:
- For we must continue: It is not specifically climate policy that hurts the poor. There is no difference between climate policy costs and for instance VAT. With respect to the latter the socially disadvantaged does not even have a possibility to avoid the higher tax burden - such as by purchasing energy efficient products in terms of eco-taxes. It is therefore at least disingenuous if some prominently accuse climate policy way of social distribution effects.
- In addition, an effective climate policy creates jobs, such as in the area of renewable energy or energy efficiency. Therefore, even without specific measures to avoid competitive disadvantages, for example if a climate policy is instituted only at a European not a global level, economists assume that climate policy would be beneficial in terms of jobs and thus social policy.
- In addition, as has been mentioned several times, climate change itself will lead to significantly greater social disadvantage of certain groups than the current, moderate measures to prevent it: In Germany and Europe, too, the poor will be effected disproportionately by climate change – i.e. of natural disasters, wars, energy price explosion, collapsing security of supply, etc. For low-income earners due to their financial situation have fewer prevention and alternative options to those developments.
- For the same reasons, on a global scale, the main victims of climate change will be developing countries and future generations - even though (at least so far) they have contributed only a limited share to cause climate change.
- Conversely, long-term (!) a robust climate policy can benefit social issues such as stable energy prices (by decoupling of the anticipated price explosions in the fossil fuels oil, gas, maybe also coal) and the security of supply. This applies to developed countries and developing countries.
- All this is even more relevant, since the world's social inequality is already extremely pronounced. Its decrease could in turn, even it were massively subsidised by industrial countries, stabilise the social situation in developed countries, since the danger of a

global race to the bottom in social dumping could be avoided.

These aspects - on closer inspection none very spectacular, but in their concurrence rarely seen clearly – lead to a central observation: Those who want to minimise the social problems of distribution shall prevent climate change, but they should also openly talk about the allocation of costs of climate policy. Short-term and long-term, national and global aspects of social distributive justice have to be considered. The analysis showed that lower (consumption increasing) energy prices do not bring these complex entanglements in line (even though this is currently a popular demand in Western countries). For they accept climate change as a social problem insofar as they partly eliminate the energy-price incentive instead of pursuing comprehensive climate policy and mitigating possible social consequences in a climate-friendly way. Nor is the current climate policy (which will be analysed next) sufficient, as can be seen from the greenhouse gas balance, or socially reasonable.

5.3 “One human, one emission right”

Based on the findings thus far, a new own systematic proposal for a future climate policy will be developed. On the one hand, the findings with respect to rules of balancing from chapter 5.1 have to be specified and, on the other hand, they have to be transformed into a concrete policy proposal. The aim is to increase the effectiveness of climate policy (beyond what can be expected globally after Copenhagen and what can be found in the various national regimes) and to consider besides the described long-term social component also the short-term social impact of a clearly intensified climate policy without forming a compromise that disregards the long-term requirement. The basis is the fact that the national and global social distributive justice – as well as the short-term and long-term social distributive justice - must be considered conceptually. This requires a more detailed reflection on the bases of justice in social distribution and a search for concepts at the national level and on a global level.

In previous debates on social distributive justice in climate policy (but also in other policy areas) it is striking that most the time it is not indicated what is being meant by “social distributive justice”. Purely by definition it is always a statement about the (usually physical) distribution aspects of a particular policy, i.e. part of the general question of social distributive justice as the correctness (Richtigkeit) of the social order. But what is the concrete content (as opposed to the definitional meaning⁷⁸) of “socially just”? In any case, it would be doubtful, simply appellatively-emotionally to presume just any “understanding of social distributive justice”. We therefore - albeit in very brief summary – systematically ask the question: What is a “socially just” climate policy? The answer is still running parallel a response from political philosophy and an interpretation of human rights principles of liberal democracies, which has been given elsewhere in much more detail and is repeated here only in its core findings.⁷⁹ The thesis is that socially just is climate policy which guarantees a lasting and global fundamental right of all people to a secure basal energy access, but also to basal climate stability - no more and no less. In particular:

- First of all, the banal empirical observation can be made: single wealthy individuals

⁷⁸ „Definition“ just tells us what e.g. justice means; the „content“ of justice tells us which contents or results can be justified as just; see on this structure Ekardt, Theorie, § 1.

⁷⁹ The whole approach is still both a legal interpretation of the term „freedom“ and an ethical theory; for all details see Ekardt, Theorie, §§ 3, 5, 6, 7. The rights to the fundamental preconditions of freedom are also often called social human rights.

are not the object of primary interest for both the creation of welfare-state distribution mass and for the total amount of greenhouse gas reductions. Thus, one cannot avoid the climate policy debate on a necessary major social change through the “hint” to individual rich “spendthrifts” (even though this might be psychologically attractive). The point is to focus on the political and social climate relevancy of the living situation of ordinary people.

- As shown above in more detail, the measure of justice can only be to enable all people to live in self-determination and according to their own ideas. Here the task of politics is to solve the constant conflicts between the one’s and another one’s freedom and, in addition, to guarantee the availability of external freedom preconditions. This does not mean that the political and democratic process has to provide an equal distribution in the sense that certain material goods would necessarily always equally be available for everyone. Consequently, the details of social distribution (they can be summed under the notion of “other” freedom-promoting conditions in contrast to the “elementary” freedom conditions which were both introduced above) are subject to political discretion. Put simply: Even without climate policy not everyone would be able to afford a Ferrari or a flight to Tenerife. The fact that climate policy has social distribution effects does not have to be prevented per se from the point of view of the principles of liberal-democratic societies. Therefore, the answer to the question whether the widespread allegations against the neo-classical economics, that their efficiency approaches do not adequately take into account social equity, are valid, is “yes and no.” For a strict requirement for extensive redistribution cannot be derived within the framework of the balancing rules.
- However, with respect to elementary preconditions of freedom an equal treatment, as for liberties themselves (i.e. unlike for “other” freedom-promoting conditions), is necessary to provide that everyone gets a particular absolute minimum of something. For without these basic requirements like food, water, clothing, basal energy there can be no freedom from the outset. This also requires restrictions on the wealthy (a concept for this is developed in this chapter), to generate the same minimum for all. This is supported by two arguments:
 - Without a right to an equal absolute minimum level of elementary freedom preconditions freedom would be of no value for the poor – and liberal constitutions respectively human rights *guarantee* equal liberties. This “equal subsistence” means specifically two things: everyone must have a minimum level of energy available – however, all must be (because this is also basic) protected from a disastrous climate change as far as possible. Greenhouse gas emissions must be reduced absolutely, while every man needs to release at least a certain quantity of greenhouse gases – and many people worldwide do not nearly reach their “equal” per capita share so far. This makes it rather obvious to be cautious about inequalities in the distribution of greenhouse gas emission rights.
 - If a public good such as the climate is monetised, it seems plausible to turn the usage rights or the “proceeds” of an unequal distribution (the atmosphere use) in equal parts for all persons as far as possible – for no one can claim for themselves that she had accomplished a special “performance” to produce that

good. This second argument can also be seen as an argument e contrario of the polluter pays principle (which also follows from the principle of freedom). Not generally “equal wealth” (nationally or worldwide) but very probably the same greenhouse gas emission rights for all appear reasonable.

- The same freedom and the polluter pays principle apply globally and intergenerationally. Thus the same emission rights exist globally and permanently.
- For long-term security of freedom rules are necessary because what justice commands is in constant tension with anthropology. Therefore, justice must be transformed into control or governance instruments.

5.4 Basic thoughts of a renewed effective and social climate policy

But how can such a long term (through effective climate protection) and short term (through adequate social cushioning) socially just climate policy succeed? For the time being we look at the national level, such as Germany and the EU, and then globally in the next step. First we have to recall: the best way to have long-term affordable energy available for all, to prevent resource wars, to avoid economic and existential problems, and to reduce GHG emissions (first in the OECD countries which are known to have the highest per capita emission, but ultimately also in other States) is stepping up the conversion to more energy efficiency and renewable energy. A certain increase in the cost of energy, however, can hardly be avoided. In any case, to minimise problems regarding the competitiveness of national enterprises as many countries as possible have to participate in vigorous action on climate change.

The most elegant tool for a concrete implementation of the principle of “one human, one emission right” would be a fixed greenhouse gas reduction target in conjunction with a common carbon price, as a single common energy tax which might replace existing energy taxes and their associated benefits - or as a comprehensive emissions trading. All this, however, in each case coupled with a distribution of all revenue as “eco bonus” (Ökobonus) per capita to all citizens. Energy tax and fuel tax, vehicle tax, tax exemptions, emissions trading, but also e.g. the pension subsidies from the environmental tax could theoretically be overcome by such a model. Since the eco bonus benefits everyone, but high-income earners contribute more due to their greater energy consumption, this offsets a possible social imbalance of climate policy. The overall effect would be: Those who live energy efficient (e.g. by using renewable energy) end up with a profit – those who do not do, however, incur a loss. And this is precisely the desired effect, which combines short-term social equity with better climate protection which is long-term social equity. Given upgraded climate price instruments the eco bonus could also be a starting point to a basic income model.

A radically broadened emissions trading scheme (ETS), if implemented accordingly, e.g. in the EU, would be the more feasible version in term of practical politics than a major new EU energy tax. For an EU ETS already exists and simply needed to be developed in such a way that it led to vigorous climate protection steps, and (also in the interest of democracy, transparency and avoidance of bureaucracy) covered the area of climate policy as widely as possible. In this sense an ETS extended to all areas of society would be reasonable. Such an ETS would be linked to the primary energy production, which would capture the bulk of at least the carbon dioxide emissions (and any other greenhouse gas emissions) - with a 100 % annual certificate auction, whose costs are passed on from the purchaser to the consumer. In

turn from the auction proceeds a EU eco bonus could be financed. This way it becomes obvious that as a starting point all have the same rights to use the atmosphere - and that all have a financial basis in order to cover a basic need for energy. Such a new EU ETS, however, would have to work with more drastic reduction targets than previously. Essentially no exceptions could be provided, etc. For as was demonstrated at the beginning of this study this is the fundamental error of the current climate change policy: many instruments, but only minimal success with respect to what would be necessary in terms of per capita GHG reductions.

Instead of these two alternative routes, ETS or comprehensive tax, one could employ a complicated overall assessment of the measures which could replace such a general approach – and an eco bonus. This is conceptually unsatisfactory, but politically not unlikely. But just the comprehensive solution (fewer instruments, e.g. European energy tax or European extended emissions trading) would actually be particularly citizen-friendly and democratic for it makes a policy decision transparent for the citizens, even without technical parameters. And a steadily increasing eco-tax, whose ever tougher steps would be precisely determined in advance, or an ETS, respectively, allowed better planning for citizens and enterprises, and less bureaucracy than the (for current energy policy typical) hardly manageable number of small, ultimately rather less effective arrangements. In addition, pricing models are in accordance with the idea of freedom, and they are efficient: everyone can freely decide how to save energy and where it pays the most.

5.5 A ten-point plan for effective and social climate protection

In view of the given reasons of justice “one human, one emission right” is not only a claim within e.g. Europe but globally. In that regard, the core finding referred to several times shall be recalled which already shifts the view from the purely national and European level: the main social victims of climate change are likely to be the people in the developing and emerging economies such as China or India, who are generally far less responsible for climate change than the inhabitants of the OECD countries. The already biggest social problem of the world, the devastating poverty in many countries, is exacerbated by climate change one more time. But what would a practical instrument for solving the problem of social distributive justice in climate policy might in such a comprehensive sense, and considering the idea just presented “reduction in exchange for social compensation” actually look like? It takes a more complex design than the simple idea just presented “resolute climate policy with social compensation”. Because of the global nature of the climate problem climate policy must be globally; and also the social problem is a global one. But it is also a matter of avoiding competitive disadvantages for firms in active climate policy states.

This shifts our view to international climate policy instruments, which form the States’ global general obligations. To fulfil these obligations national (or European) instruments such as eco-tax or EU ETS are applied. The global context framework, as manifested so far mainly in the Kyoto Protocol of 1997, consists of statements on climate gas reduction targets for each State, combined with a very cautious approach to assist developing countries financially as the main victims of climate change and to keep the cost of climate protection for industrialised countries low through certain mechanisms such as emissions trading between the Western States. The previously agreed measures of climate protection at the global level and those that are expectable for the time being, however, remain insufficient if the drastic distortions due to a massive climate change described in chapter 3 shall be avoided: global emissions, as

mentioned, have increased since 1990 by 40 %, but by 2050 they would have to fall by 80 %. The Kyoto Protocol obliges the industrialised countries only to reduce emissions by 5 % from 1990 to 2012. Even this level is not expected to be met. And if it were met, it would more or less be due to the industrial collapse in Eastern Europe during the collapse of the Soviet bloc. Newly industrialising countries, under the Kyoto Protocol, are not subject to any obligations. The global climate policy will most certainly keep the defects which it has since the Kyoto Protocol⁸⁰: too unambitious targets for developed countries and no or vague goals for emerging economies like China and India, few sanctions in the event of a failure to meet the targets, too many loopholes, too little money against global poverty, which is exacerbated by climate change, inadequate funds instead of clear financial rights of developing countries, no regime for social distribution issues within the States. This will likely hold true even if the minimalist Copenhagen Accord of December 2009 by some 30 countries, which was not adopted by the international community but only “noted”, would be transformed into a proper agreement soon with a somehow more specific content. The following basic problems remain which give some further details about what has just been developed:

a) The planned overall 50 % greenhouse gas reduction target by 2050 is inadequate - if it will be firmly agreed at all in 2010. It was no longer included in the last compromise proposal, but only an (only indirect) objective of a maximum of 2 degrees of global warming by 2050. Likewise, it remains insufficient, to include the emerging and developing countries only partly into the global targets.

b) In addition to the limited target there is a weakness due to vagueness: A 50 % - or 2-degree target (if this will be agreed in 2010) leaves it largely open who must take what concrete steps in which periods of time. The failure to meet these little ambitious targets is thus inherent at the outset.

c) Yet more important, it remains open whether a strict international monitoring and enforcement mechanism will be created. Targets that cannot be enforced if necessary are only of limited use, since then States could insist on their sovereignty and their short-term self-interest and ignore the targets in whole or in part.

d) The concepts discussed in Copenhagen also envisioned large loopholes that would massively dilute any climate target. This applies for instance to the accurate assessment of land-use emissions.

e) The same effect as the land-use problem will be the (possible even extended as compared to the Kyoto Protocol) license for developed countries to meet their emissions reductions (often only allegedly) through projects in developing countries. So far in more than half of all cases, these CDM projects have not provided the allegedly achieved greenhouse gas savings – yet, the discussion in Copenhagen envisaged an expansion of these CDM governed by even more contestable requirements.

f) A clear mechanism for financing of climate protection and climate change adaptation in developing and emerging countries (as the main victims of climate change) is still missing. Neither are sufficient payments from industrialised countries as the main causers of climate change discussed (which might have to exceed the sums mentioned by NGOs), nor are there clear mechanisms to ensure a proper use of the money on the table in accordance with climate policy - and in turn clear medium-term absolute (not just relative) emission limitations for

⁸⁰ Cf. for all these points in detail Ekardt, Cool Down, chapter I.

newly industrialising countries, too.

In parallel to this global climate diagnostics after Copenhagen it must be stated that the social situation and poverty in most developing countries is still seriously problematic. But I think a firm climate change policy is not (as commonly believed) a kind of additional risk to this already precarious situation, but rather an introduction to the solution. *If one combines the national and the global as well as the short-term and long-term side of climate policy, this might form a comprehensive social approach.* Even in the self-interest of most people involved, but also with a moral-legal background, as it has just been developed. Given what was just explained, such an approach, which might be understood as a (very clear) proposal for improvements as against the background of the expectable global climate protection, might look like this. It follows the basic idea: strict reduction targets worldwide, which also specify a sustainable development path for newly industrialising countries in the mid-term, and in turn a large financial compensation from the industrialised countries for the benefit of developing and emerging countries. Specifically, the following basic design appears feasible and appropriate⁸¹:

1. Global GHG emissions have to be limited – more strictly than previously announced, if only to avoid a “flight” of emissions into other countries (carbon leakage) – and must then be divided among all States based on their population. Each person counts the same amount.
2. Some 0.7 tonnes times population – something like this has to be the allowable amount of emissions in a State in 2050.
3. One should now begin with the global average of 5 tons per person. The permissible level in many small steps would have to fall by 2050.
4. If countries wanted to emit more greenhouse gases, they would have to buy remaining emissions rights from southern countries, which are currently well below 5 tonnes. Such emissions trading between States already exists, but with too lax targets in the West, and no targets at all in the South.
5. Developing countries would get more than 5 tonnes per capita and the West correspondingly less to compensate for the historical causation of climate change. This way the former could sell even more and earn more. This would allow funding climate protection and climate change impact – while still limiting the long-term greenhouse gases emission.
6. Thus, in addition to climate change also the second major global problem would be addressed: not the financial crisis - but global poverty.
7. A global institution – such as the existing UN Climate Change Secretariat in Bonn – would have to monitor and enforce emission reductions with strict sanctions.
8. “After” the emissions trading between countries or continental entities (EU), the existing annually (or periodically) decreasing number of emission rights would be sold through a comprehensive national or European emissions auction to primary energy producers (coal, gas, oil, and biomass companies). Every importer’s or seller’s sale of fossil fuels could only cause greenhouse gas emissions at the citizens level if the former bought emission rights accordingly. Unlike the current EU emissions trading

⁸¹ Cf. Ekardt, Cool Down, chapter III; Wicke/ Spiegel/ Wicke-Thüs, Kyoto Plus; WBGU, Kassensturz, passim.

for some industrial sectors with its lax targets, this system would cover almost all greenhouse gas emissions. For the primary energy quasi projects the total of production and consumption. Much of the complexity of climate policy would become superfluous.

9. Primary energy companies would pass on their costs of emission rights evenly via products, electricity, heat and fuel to final consumers; the government or a continental entity as the EU, respectively, would distribute the auction revenue per capita to all citizens as an ecological bonus (eco bonus).
10. Other sectors with a large climate impact like agriculture and cross-border air and sea transport should be included, as well as land-use including deforestation, such as in the rainforest.

This would gradually but noticeable reduce the global greenhouse gas emissions and de facto the use of fossil fuels. Consequently, one would rely almost entirely on low GHG renewable energy and energy efficiency. As is well known, this would all be economically very reasonable - if only because of the otherwise drastic cost of climate change. And even short-term more energy efficiency and renewable energies are often economically advantageous: It fosters new economic activities and creates independence from energy imports and rising oil and gas prices. It ensures long-term energy supplies – and avoids violent conflicts over diminishing resources. It also terminates a global race to the bottom for lowest (allegedly “most business friendly”) environmental standards.⁸² In addition, emissions trading will ensure that climate protection will be operated there, where it is cheapest. All emissions would be covered (including problems with Western meat consumption or bioenergy, and indeed much better than through automatically incomplete and hardly enforceable bioenergy sustainability criteria⁸³).

Another global condition might be besides maximum and maybe minimum prices for the global certificate trade to give the global authority (a “world climate bank”) a right of intervention purchases to address speculative trading. The climate protection regime would have to find a way to take into account indirect effects such as deforestation or agricultural change. However, this should be done in a way which does not halt the entire system for the sake of bureaucratic absolute accuracy.⁸⁴ In any case, for the first time this would set a clear long-term limit for developing countries, as is of course already existent in countries such as China - and the OECD countries for the first time a challenging goal. With respect to the reduction target, the measure of comparison, the reduction period, and the percentage of reduction still have to be specified.

There is still the practical problem that an immediate conversion of essential parts of the climate policy instrument mix existing in most countries to "one" instrument, such as emissions trading, results in subsequent problems. For example in Germany the related abolition of the environmental tax would probably require the need to substitute the emissions trading auction proceeds for the current eco-tax-subsidy to continue payments to the public pension fund, otherwise an abrupt increase in social security contributions would be necessary. Nevertheless, one should gradually terminate such a pension fund subsidy and integrate the released funds in the eco bonus, otherwise a relevant revenue from the eco bonus could not be created.

⁸² On the positive consequences see also Wicke/ Spiegel/ Wicke-Thüs, Kyoto Plus and WBGU, Kassensturz.

⁸³ For a critique of bioenergy policies see Ekardt/ von Bredow, in: Leal (ed.), The Economic, Social, and Political Aspects of Climate Change, 2010 (forthcoming).

⁸⁴ This idea is shared by Wicke/ Spiegel/ Wicke-Thüs, Kyoto Plus and WBGU, Kassensturz.

The new EU emissions trading Directive for the period from 2013 falls short of the guidelines developed here, even if it represents a significant improvement compared to the existing EU ETS. In particular, it does not follow the – globally and nationally - proposed way to move from a sector specific to a comprehensive emissions trading regime based on primary energy. Only individual new sectors (air transport) will be included. Similarly, other greenhouse gases beyond carbon dioxide are included only partially – and in total the reduction targets are set way too low, as well as the full auctioning is missing. The argument put forward for this reluctance is “path dependency”: This is to avoid that the previous substantial investments in the emissions trading system are devalued by a strong change in the system. This argument of course does not really convince, as an amendment at the present time (a) would certainly be less cumbersome than a later amendment and (b) greater success in climate protection through a change in the system would result in long-term cost savings (in terms of climate damage). Moreover, the continuation of the sectoral emissions trading and its thus necessary combination with many other governance instruments (c) continually create new transaction costs. Thus the complex relationship to other instruments is still a subject matter of the new EU emissions trading Directive (such as the use of auction proceeds). In addition, (d) sectoral emissions trading suffers from the problem that so far at best it includes a social equity component between different European States. However, this is of little value for the underprivileged individuals within the respective States. Another problem is, that in addition to the primarily CO₂ based emissions trading an instrument for methane and nitrous oxide from agriculture - but also for deforestation – is necessary but partially missing in the current legislation. It makes sense, however, that the new emissions trading Directive provides medium-term reduction targets.

No matter whether one uses mainly “one” instrument or rather continues to use a wide fanned mix of instruments: in every case, the climate and social impact of climate gas emissions-promoting subsidies must be included in the overall consideration, such as the commuter allowance and other tax exemptions and subsidies. All these subsidies have a climate impact and are paid by someone, which also has social distribution effects. Whether one also wants and may add to economic instruments individual total prohibitions on luxury goods (such as SUVs) needs further discussion, even if this would probably increase the de facto acceptance of climate policy. Specific regulatory rules, such as consumption limits for cars would of course also have a positive broad effect: For this might slightly lower the price of gasoline – to which socially weaker parties due to their lack of existing investment capital cannot react in the desired manner by “buying a more energy saving” (but more expensive with respect to the purchase price) car. Certain additional rules for a new ETS will always be necessary this way or another.

5.6 How exactly does a new climate policy approach protect social distributive justice? And how does it also serve the self-interest of (almost) all people?

But isn't it completely insane and also socially unjust to subject developing countries to climate policy today? The global climate negotiations, as mentioned earlier, rather tend not to commit these countries to specific reduction targets, but only to make relatively abstract requirements. From the German climate policy this would be known as “little climate policy as a social measure.” But a closer look reveals that this is not a very good idea. While it is to be noted that the developed countries have per capita still a multiple of the emissions of Southern

countries, but will be affected by climate change comparatively less. Moreover, in view of the extreme longevity of greenhouse gases the historical emissions of developed countries since the 19th Century still contribute to climate change today - even if the emerging markets are catching up economically. Nevertheless, the above-suggested approach, including a “Southern” eco bonus, seems right:

- This concept supports the economic development and poverty reduction in developing countries. Who consumes little energy and products, i.e. the socially disadvantaged, would be spared most of the costs passed on from emissions trading. The following also helps the most vulnerable in the South: as seen before, the eco bonus compared to the emissions trading costs which are passed on to retail customers through energy and product prices would be low in the West and high in southern countries - because the emissions trading costs between the States would be added to the “southern” eco bonus and subtracted from the “Western” eco bonus. Precisely this would be just if we assume for the time being, that all men have an equal right to greenhouse gas emissions: it compensates for the fact that Europeans and North Americans per capita do more harm to the climate.
- The socially weak would also benefit globally from the financial transfer to the South since this stimulated the development of social welfare there, so that social dumping would become less which would also stabilise the Western welfare state medium term.
- And above all, a serious fight against the devastating social consequences of climate change in North and South might still be prevented. The worst form of this looming damage, however, becomes already clear: Migration flows and distribution wars over resources like water, which become scarce due to climate change.
- Even a global and sustainable basic supply of affordable energy is made possible by this concept.
- Extra emission rights (and a start with moderate per capita targets) mean that emerging economies like China or India, which already exceed the sustainable amount of emissions, can temporarily sell emission rights and are still able to create revenues. If necessary, one could also consider compensation for lost profits of coal- and oil-exporting countries such as India, Russia or Saudi Arabia by additional emission rights (and accordingly reduced emission rights of Western industrial countries). For these profit expectations are one of the main obstacles to a drastic global climate agreement.
- Last but not least: In the interest of future generations all countries worldwide must commit to climate targets. Otherwise, we will pay social equality today by making tomorrow’s world a hell for future people.

This last point identifies a cardinal error of current concepts of combining environmental and social policy, as can be found in the Kyoto Protocol and probably soon in the new global agreements: that error implies that “something less environmental policy” were the best way to relieve the socially weak. On the other hand, I use the principle of “serious environmental policy, in return for financial compensation for the socially disadvantaged” – such compensation, as was stated before, is advisable economically, existentially and with respect to peace policy and it is overall economically more beneficial than accepting climate change. The approach advocated here is thus ecologically and socially more effective than simply specifying “different reduction commitments for different countries” as has happened so far in

the Kyoto Protocol and will probably happen in subsequent agreements. For the approach presented establishes a financial flow specifically to the benefit of the poorest. This is generally necessary with respect to poverty, and it is necessary to start a climate-friendly development in the South. Furthermore, the South needs immediate financial support against climate change impacts that can yet no longer be prevented. All this cannot be achieved by underfinanced vague funds which in addition rather tend to benefit Southern elites instead of the poor.

If some, like indigenous peoples, do not have bank accounts one could and should transitionally invest in specifically defined social projects like the creation of health care and retirement plans, rather than paying the eco bonus. In general, the eco bonus is much less bureaucratic than for instance government subsidies assigned to very specific measures (such as the purchase of climate-friendly household appliances). Furthermore, subsidies or tax exemptions of all kinds are often beneficial to those who already can afford a “basic amount” - that is rarely the poor. The eco bonus does also not incentivise increased energy consumption. Although more wealth is regularly associated with more energy consumption, the greenhouse gas emissions are indeed capped globally by this concept. In the Western society, people will not get richer from the eco bonus. Here, it is primarily supposed to compensate rising to offset rising energy prices for the most vulnerable. The whole approach, however, would not make much sense from the outset, if in return we were to reduce social welfare or development aid.

This leads directly to the next question, which will once again be made explicit: Isn't this concept at least unjust for the socially weak in the Western States now and today, if not for the socially weak in the South? With this global climate protection approach individual cars, vacation flights etc. would become more expensive and less normal in the West. Climate policy makes energy more expensive, at least temporarily - and energy is included in pretty much everything. In fact, emissions trading has a stronger detrimental impact on less-income earners because it is passed on to the consumers through additional costs for energy and products. For their financial flexibility is cut significantly more because of the larger percentage share of their income on energy costs than higher earners' (even if the latter consume more energy per capita in absolute terms). However, this very problem is addressed by the eco bonus in the West, too. Since the eco bonus benefits everyone, but high-income contributes more due to higher energy consumption, this offsets the possible social imbalance of climate policy. Those who live energy-efficiently or use renewable energy sources end up making a profit due to the eco bonus - who does not do, however, has to bear a loss. For the former bear less emissions trading costs, but still receives the same eco bonus as the latter. Furthermore, climate policy tends to create permanent jobs, which is socially advantageous. Moreover, climate change is likely to lead to much greater social disadvantages of the poor than the recent (modest) measures to prevent it. And permanent price stability and secure energy supply structures also benefit socially vulnerable groups. And those who criticise nonetheless that a “right to own a car and to equal wealth for all” throughout Europe is not supported by the entire approach have to be reminded that this is not meant by social distributive justice (see above 5.1). This non-existence of a strict “right to equal wealth for all” is already true regardless of the other social implications of climate change and climate policy, such as those just described.

An open question is how to take into account the population growth in the South (or the population decline in northern countries) with respect to the allocation of per capita emission rights. Either, one chooses a fixed initial allocation, or it is adjusted annually. Ultimately, a fixed initial allocation is desirable insofar as would not create perverse incentives of popula-

tion growth, which steadily exacerbated the climate problem and the problem of poverty. Conversely, the population stabilization e.g. in China and the Western States would explicitly be awarded. Migration processes would partly level this effect which also creates a reasonable balance.

5.7 Refutation of some objections – also on the question of necessary new institutions of global climate negotiations

The main objection to such a real concept on climate change, in addition to the usual “there can never be a consensus on this,” is of course, to put it casually: “From a practical point of view, this is not manageable.” But it is manageable – provided that the already existing UN Climate Secretariat will be upgraded to a powerful global climate authority with real monitoring and enforcement powers, similarly powerful to today’s WTO institutions, which can commit States against their will and impose sanctions. Of course, some additional rules would be required. Such a rule might be besides maximum and maybe minimum prices for the global certificate trade to give this global authority (a “world certificate bank”) a right of intervention purchases to address speculative trading. That markets with financial relevance must have rules and regulations, is - in theory – widely respected, at least since the financial crisis.

The last major objection would be that the economic consequences of such a climate protection concept would be unmanageable. Now: Since in fact the exact economic consequences of large steps are not exactly predictable, one should start with relatively moderate reduction targets, but then tighten them rapidly. One could, for example, start with 5 tons of CO₂ equivalents per person on earth. Nevertheless, it cannot be overemphasised: Rigorous global emission limitations primarily linked to emissions trading (albeit for some issues to different models) have been carefully calculated several and are economically functional.⁸⁵ Once again: with respect to existential and peace-policy aspects, a global change in climate policy is imperative and without alternative. And the costs of climate change or climate wars will largely outweigh the distributional effects of a global climate protection concept. And that morally an equal distribution of emission rights is no dispensable luxury has already been made apparent.

In any case, the model proposed here avoids fundamental problems of technical infeasibility. Such problems would probably arise, if instead of the proposed system a global personal carbon trading would immediately be established. In such a system every citizen of the world would be charged directly, “by swiping her credit card” for his personal greenhouse gas relevance on every daily action and, accordingly, would become a global certificate trader. “Europeans” would become permanent certificate purchasers, “Africans” would permanently - and “Chinese” for some time – make money from certificate sales. The approximate economic and climate effects of this model would probably be identical with the model developed here, but the per capita emissions trading raises possibly unmanageable issues of enforcement and control in southern countries, where people often do not even have a bank account. Of course this does not rule out to switch globally to such a personal carbon trading system at a – much – later time, e.g. in a few decades. This would have the significant advantage that the actual distribution of such funds for the benefit of the poor could be addressed more directly.

One might ask how the idea of a “sale” of own emission rights fits with the concept of “one

⁸⁵ Cf. for example Wicke/ Spiegel/ Wicke-Thüs, Kyoto Plus.

human, one emission right”. However, this is based on a misunderstanding. First, no one is forced to sell their emission rights. Second, the sale is accompanied by financial compensation which is particularly useful for developing countries. More important is the fact that the distribution of trading revenues via an eco bonus or something similar does not at once solve all social problems in developing countries. Therefore, the system presented here, of course does not preclude supplementary rules, e.g. global social standards under the WTO regime, which would be coupled with the new climate policy as a remedy against a race to the bottom.

Global social standards and a new climate policy secure some kind of control for (national and continental) politics over market economy. Apart from that the further development of the institutions of global politics - and perhaps the integration of climate policy in a democratised WTO with its own parliament like the EU – remains a major issue. The current global debate on new institutions of climate policy after the failure of Copenhagen is unfortunately heading in the wrong direction. It has been started directly after Copenhagen with international opinions expressed by economists in particular, advocating that in the future a kind of cartel-G20 without smaller States, NGOs/ environmental organizations, etc. should negotiate global climate treaties. That point of view (a) is as unconvincing as the contra-position (b) defending the previously existing institutions such as Copenhagen-style UN climate conferences as without alternative - even though these institutions have so far achieved but very little. Some critical questions to the G-20 solution are: Should we really rely on a global cartel instead of a further development of the (currently of course inadequate) global-democratic approaches in the UN? Doesn't the weak Copenhagen Accord of some 30 countries, which eventually has not even been adopted, cast doubt on the idea that these few States accomplish something worthwhile? It is noteworthy especially for the institutional debate, who participates: are economists, scientists and engineers really the (main) experts on issues of political and legal institutions, and questions of justice? Finally: Does the (in particular environmental) history actually support unilateral approaches? With respect to climate protection, instead of a “G20” solution one should rather use the experience of the EU's and the WTO's history: global institutions which (a) work permanently, (b) may form majority decisions, (c) have effective enforcement mechanisms available, and (d) allow a more formal – since it indeed requires improvement - NGO participation are ever more necessary – the same is true perhaps in the medium term for some kind of (e) international parliamentary decisions.

5.8 Past emissions as a social distributive justice issue

But is it fair if the emissions of the industrial countries over the past 200 years are only compensated by a few extra emissions rights for developing countries and not fully accounted for? I think the model is fair and takes into account to a large extent the concerns of developing countries. In any case, it would be in contrast to the idea of a sustainable protection of freedom through climate policy, if one simply granted China, India, etc. some 150 years of “unrestrained” greenhouse gas emissions, which would destroy the livelihood of future generations worldwide. But also an ex post remedy for *all* (!) past historical emissions cannot be considered appropriate.

- One cannot simply say that developed countries alone have enjoyed the “benefit” associated with the amount of greenhouse gases previously emitted. For countries like China and India are benefiting themselves from these “advantages” because by importing economic systems and technologies from the West they can now reach an ac-

ceptable level of wealth quite quickly.

- In addition, the consideration of historical emissions - and the problem of determining their precise amount – leads to a complex discussion, what advantages and disadvantages the various countries have experienced from the complex world-historical developments of the last centuries. It is therefore impossible to accurately transform some “historical debt” into emission rights. This is another argument for the presented global solution with its idea of *partial* compensation of historical emissions.
- Most importantly, however: Considering historical emissions takes into account the benefits and detriments of already deceased individuals and regards nations as collective entities. If the presented approach of justice “only freedom and freedom preconditions” is convincing, then that would be inconsistent. We are not our great-grandparents, and we are not responsible for their lifestyle without further ado. Therefore, a limited consideration of historical emissions and of adaptation cost – by way of extra emissions rights for developing countries in addition to the per capita distribution, and also fewer emission rights for developed countries – is simpler, less bureaucratic and more reasonable.

However, the international (scientific and political) climate debate discusses several alternatives to “one human, one emission right” – which deal differently in particular with historical emissions. Comparing these different concepts of emissions trading⁸⁶ shows that the issues are similar. From a global perspective it is often proposed to combine climate protection obligations of the Kyoto Protocol or similar regimes with the sanctions of international trade law, namely WTO.⁸⁷ A number of approaches is based on the premise that every individual worldwide has a right to the same amount of emission rights. Differences concern obligations of industrial countries and relief for developing countries. This idea is promoted mainly by the Greenhouse Development Rights (GDRs) approach, which is not premised on equal emission rights, but focuses on the right to development as the core of greenhouse gas reductions.⁸⁸ Hereto a “development threshold” (Entwicklungsschwelle) has been introduced to make a distinction between the poor and the “consumers” of the world. People whose income is below this threshold shall not be burdened by a commitment to greenhouse gas reduction, while all the others due to their well-being have the financial capacity to be charged and with respect to their luxury-oriented consumer behaviour are to a higher degree responsible for climate change (capacity and responsibility). The threshold is defined at \$ 9,000 annual income as income of a global middle class. The level of commitment of individual States to reduce emissions should correspond to the number of residents whose annual income is above this threshold. Thus the polluter pays principle is only applied for those emissions resulting from consumption which is not exclusively used to cover basic needs. From a simple calculation the Responsibility and Capacity Indicator (RCI) is derived, which is supposed to be the basis the allocation of reduction obligations. Hereto the individual State’s share of responsibility for emissions is multiplied by their ability to reduce emissions. The result is supposed to show what share of reduction costs each State has to pay. The GDR approach comes to the conclusion that developed countries like the United States have higher overall reduction commit-

⁸⁶ See also Lyster, *Carbon & Climate Law Review* 2007, 89 et seq.

⁸⁷ Radermacher, *Global Marshall Plan. Ein Planetarischer Vertrag. Für eine weltweite ökosoziale Marktwirtschaft*, 2004; Ekardt/ Meyer-Mews/ Schmeichel/ Steffenhagen, *Böckler-Arbeitspapier Nr. 170*, chapter 5.

⁸⁸ Cf. Kartha/ Baer/ Athanasiou, *The Right to Development in a Climate Constrained World. The Greenhouse Development Rights Framework*, Paper of the Heinrich-Böll-Stiftung, EcoEquity, and the Stockholm Environmental Institute, 2007.

ments than they can fulfil by reducing the emissions in their own country, even if it would be a reduction to zero.

Although the GDR approach takes the social aspects of climate change as a basis for all other considerations, but for a number of reasons is not really convincing. Already the level of the development threshold of \$ 9,000 will likely mean that States are committed to less reduction than they were capable of, even without having to abandon any development or poverty reduction in their own country. Although it must indeed be guaranteed that certain basic needs (= elementary freedom conditions) can be covered, but this can be achieved while still some inexpensive emission savings are possible without neglecting the basic needs. To define the “global middle class” *per se* as needy and to declare it in a figurative sense incapable of taking responsibility for emissions cannot be justified. Furthermore, the GDR concept may conflict with the above considerations on historical emissions. In addition, an approach focussing on freedom is incompatible with a collectivist orientation, as in the GDR on “social development rights.” That the individualistic approach, proposed here, which recognises only freedom and freedom conditions as an acceptable subject matter, can hardly be confuted philosophically and legally, has already been shown. Moreover, the GDR concept also appears extremely difficult to agree upon, if one considers that even the relatively weak Kyoto Protocol has not been ratified by all and certainly not seriously implemented: a commitment that exceeds the complete termination of all emissions in a country is hardly imaginable even for powerful States. In addition, factual capability does not logically result in unlimited liability. Precisely this was shown above by the approach of social distributive justice.

The extensively discussed Vattenfall approach, just as the GDR, is not based on equal emission rights per capita, but categorises countries on the basis of similar gross domestic products (GDP). There is supposed to be a certain threshold, too. But in this case countries below the threshold shall not only be exempted from the requirement to buy emission rights, they shall be excluded from the emissions trading scheme altogether. The scheme shall only be used by States with the highest GDPs, anyway, while countries which are above the threshold, but have lower GDPs are supposed to depend on emission rights subsidies from rich countries, as they are usually based on an emissions-intensive (though less prosperous and thus again less emitting) economy. This concept has to be rejected simply because it leaves poor countries in the dependence of the so-called donor countries or even increases their dependence. The poorest countries would often be excluded from world trade, which is already the case today. This fails to account for the required social-ecological perspective.

Although some other approaches are based on equal emission rights, they modify those rights by certain countries’ historical emissions and/ or take into account geographical circumstances, existing energy supplies and each country’s economic structure. Should quotas therefore instead of per capita rather be distributed by country, country size, GDP, economic structure (in the sense of “grandfathering”), the country’s average geographical-meteorological circumstances or their natural resources? This would be too complicated. The necessary criteria were (a) hard to develop and would result in great bureaucracy. How can the advantages and disadvantages of different geographical areas accurately and exhaustively be balanced? This repeats (b) those and other problems that are already known from the discussion about historical emissions. Furthermore, (c) an approach focussing on freedom is incompatible with a collectivist focus on States or country size. In general, (d) the lack of compelling philosophical and legal fundamental justification and (e) balancing theory and (f) of an adequate consideration of global and national distribution problems has to be criticised in those “common” ap-

proaches.

5.9 Governance: “More business ethics and CSR” as an effective instrument of climate protection? Also on the misleading distinction of “bottom up”/ “top down”

The fact that the proposed approach has to work on a global level, follows (a) from the global nature of the climate problem and (b) from the threat of a simple shift of emissions from a country with ambitious climate policy into another country (carbon leakage) which would be devastating for both, climate protection and competitiveness - if, for example, steel companies transfer their industrial plants from Europe, for example, to China. Finally the following aspect shall be discussed. There are economists who seem to focus on “bottom up” approaches on climate protection instead of political regulations, i.e. on voluntary corporate climate protection activities. Certainly any voluntary corporate commitment in terms of climate protection (or sustainability in general) is welcome. For the company itself, this should often be attractive, either as a means of customer acquisition, or to motivate employees, or simply as a means of cost savings (e.g. with respect to resource consumption). However, appeals to individual firms or citizens, and a reliance on their voluntary initiatives, unregulated free trade, and industry self-regulation⁸⁹ cannot replace binding climate policy regulations.⁹⁰

- First, the individual citizen or entrepreneur is not the appropriate authority to undertake ethically always necessary complex balancing of different interests. This is rather primarily the task of politics formed into a legal order, i.e. the legislature. This problem of “too little specificity” is a standard problem of purely ethical appeals, if they are not transposed into a legal form and thus substantiated.
- There is a second fundamental problem of relying on purely voluntary activity: this will regularly only work as far as potential property interests of the company are involved. And when a massive change is needed, the question is precisely: Can we really expect that, for example, the auto industry will “voluntarily” (i.e. without economically incentivising instruments such as emissions trading) adapt the social model “only car-sharing” and will therefore switch to the production of bicycles? Why should the mostly self-interested man, who is regularly diagnosed by economists, reduce emissions to almost zero on a purely (!) voluntarily basis? And how will rebound effects from companies’ private pursuit of growth disappear, if they might try to produce more efficient products but ultimately want to sell more products than before? And how can consumers, especially in light of economists’ demand for realistic anthropology, be truly expected to exert pressure for the described necessary change through their purchasing decision? Especially as the worst affected by climate change, the world’s poor and the future poor, have the lowest purchasing power to exert market pressure on companies through their purchasing decisions. Ultimately on entrepreneurial initiative also always remains a variant of the general growth paradigm - which is doubtful.

In that regard, on an instrumental or governance level we must adhere to the anthropological insights of many “climate macro economists” as opposed to CSR-oriented climate micro eco-

⁸⁹ As an example for the following problems see Becker, *Journal of International Business Ethics* 2009, 7 et seq.; Davidson, *Journal of International Business Ethics* 2009, 22 et seq.; Wieland, *CSR als Netzwerk governance*, 2009; Suchanek/ Lin-Hi, in: Baumgartner/ Biedermann/ Ebner, *Unternehmenspraxis und Nachhaltigkeit*, 2007, p. 67 et seq.

⁹⁰ On the following see Ekardt, *Information*, § 1 C. II.; Ekardt, *Theorie*, § 8.

nomists: Climate appears on the market superficially as a "free" good and is therefore used too strongly. And there are many other human characteristics such as short-term interest, tendency to convenience and habit, emotional non-perception of spatial-temporal remote loss, etc., which further increase the problem. The only response is the creation of regulations (such as taxes or certificate markets) which provides clear enforcement mechanisms and sanctions for the given targets and which already today price looming climate damage and thus stop the "market failure". That this is so far too occasionally compared to the challenges can be explained with the described "vicious circle" of politics and voters. This, however, does not change the fact that without political and legal regulations, which due to the vicious circle in turn depend on a social rethinking, a solution to the climate problem cannot be expected. All this cannot be changed by demanding a general "bottom up" rather than "top down" approach to climate policy. Of course, voluntary actions ("bottom up") are welcome in principle. But where they cannot be expected with reasonable certainty, other alternatives are required. One cannot argue that this is adverse to freedom. Precise political regulation rather protects the freedom of future generations and the people in transition and developing countries, which have contributed little to climate change.

Bibliography

- Alexy, Robert (1995): *Recht, Vernunft, Diskurs*, Frankfurt a.M.: Suhrkamp.
- Alexy, Robert (1986): *Theorie der Grundrechte*, Frankfurt a.M.: Suhrkamp.
- Apel, Karl-Otto/ Kettner, Matthias (eds.) (1993): *Zur Anwendung der Diskursethik in Politik, Recht und Wissenschaft*, Frankfurt am Main: Suhrkamp.
- Baumert, Kevin A./ Herzog, Timothy/ Pershing, Jonathan (2005): *Navigating the Numbers, Greenhouse Gas Data and International Climate Policy*, World Resource Institute.
- Becker, Gerhold (2009): *Moral Leadership in Business*, *Journal of International Business Ethics*, p. 7.
- Behrens, Arno/ Giljium, Stefan (2005): *Der globale Ressourcenabbau*, *Forum für angewandtes systemisches Stoffstrommanagement*, p. 13.
- Berger, Peter/ Luckmann, Thomas (1966): *The Social Construction of Reality. A Treatise in the Sociology of Knowledge*, Garden City/ NY: Anchor Books.
- Birnbacher, Dieter (1988): *Verantwortung für zukünftige Generationen*, Stuttgart: Reclam.
- Böckenförde, Ernst-Wolfgang (2003): *Menschenwürde als normatives Prinzip*, *Juristenzeitung*, p. 809.
- Böckenförde, Ernst-Wolfgang (1991): *Staat, Verfassung, Demokratie*, Frankfurt am Main: Suhrkamp.
- Böhringer, Christoph/ Welsch, Heinz (2009): *Effektivität, Fairness und Effizienz in der internationalen Klimapolitik: Contraction and Convergence mit handelbaren Emissionsrechten*, *Jahrbuch Ökologische Ökonomik*, p. 261.
- Burtraw, Dallas/ Sterner, Thomas (2009): *Climate Change Abatement: Not „Stern“ Enough?*, http://www.rff.org/Publications/WPC/Pages/09_04_06_Climate_Change_Abatement.aspx
- Byatt, Ian u.a. (2006): *The Stern Review: A Dual Critique. Part II. Economic Aspects*, *World Economics* 7, p. 199.
- Daly, Herman (1996): *Beyond Growth. The Economics of Sustainable Development*, Boston: Beacon Press.
- Davidson, Kirk (2009): *Ethical Concerns at the Bottom of the Pyramid. Where CSR meets BOP*, *Journal of International Business Ethics*, p. 22.
- Dilger, Alexander (2006): *Ökonomik versus Diskursethik. 10 Thesen zu Felix Ekardt*, *Zeitschrift für Umweltpolitik und Umweltrecht*, p. 383.
- Ekardt, Felix/ Kornack, Daniel (2006): *Embryonenschutz auf verfassungsrechtlichen Abwegen?*, *Kritische Vierteljahrszeitschrift für Gesetzgebung und Rechtswissenschaft*, p. 349.
- Ekardt, Felix/ Exner, Anne-Katrin/ Albrecht, Sibylle (2009): *Climate Change, Justice, and Clean Development. A Critical Review of the Copenhagen Negotiation Draft*, *Carbon & Climate Law Review*, p. 261.
- Ekardt, Felix (2010): *Theorie der Nachhaltigkeit. Rechtliche, ethische und politische Zugänge*, Baden-Baden: Nomos.
- Ekardt, Felix (2009b): *Cool Down. 50 Irrtümer über unsere Klima-Zukunft – Klimaschutz neu denken*, Freiburg: Herder.
- Ekardt, Felix/ von Hövel, Antonia (2009c): *Distributive Justice, Competitiveness and Transnational Climate Protection: “One Human – One Emission Right”*, *Carbon & Climate Law Review*, p. 102.
- Ekardt, Felix (2009d): *Nachhaltigkeit und Recht*, *Zeitschrift für Umweltpolitik und Umwelt-*

- recht, p. 223.
- Ekardt, Felix/ Kornack, Daniel (2010): „Europäische“ und „deutsche“ Menschenwürde und die Gentechnik-Forschungsförderung, *Zeitschrift für europarechtliche Studien*, i.E.
- Ekardt, Felix (2006): Ökonomik versus Diskursethik in der Umweltpolitik: Antikritische Bemerkungen zu Alexander Dilger, *Zeitschrift für Umweltpolitik und Umweltrecht*, p. 399.
- Ekardt, Felix/ Meyer-Mews, Swantje/ Schmeichel, Andrea/ Steffenhagen, Larissa (2009e): Globalisierung und soziale Ungleichheit – Welthandelsrecht und Sozialstaatlichkeit, Böckler-Arbeitspapier Nr. 170, Düsseldorf.
- Ekardt, Felix (2010a): Schutzpflichten, Abwägungsregeln, Mindeststandards und Drittschutz, *Die Verwaltung*, Beiheft 1.
- Ekardt, Felix (2010b): Information, Partizipation, Rechtsschutz. Prozeduralisierung von Gerechtigkeit und Steuerung in der Europäischen Union, 2. Aufl. Münster: LIT Verlag.
- Ekardt, Felix/ Heitmann, Christian/ Hennig, Bettina (2010): Soziale Gerechtigkeit in der Klimapolitik, Düsseldorf: Edition der Hans-Böckler-Stiftung.
- Ekardt, Felix/ von Bredow, Hartwig (2010): Managing the Ecological and Social Ambivalences of Bioenergy – Sustainability Criteria versus Extended Carbon Markets, in: Leal, Walter (ed.): *The Economic, Social, and Political Aspects of Climate Change*, Berlin: Springer.
- Ekardt, Felix (2004): Verengungen der Nachhaltigkeits- und Umweltschutzdebatte auf die instrumentelle Vernunft – am Beispiel der Wirtschaftswissenschaften, *Zeitschrift für Umweltpolitik und Umweltrecht*, p. 531.
- Ekardt, Felix (2007): Wird die Demokratie ungerecht? Politik in Zeiten der Globalisierung, München: C.H. Beck Verlag.
- Enders, Christoph (1997): Die Menschenwürde in der Verfassungsordnung, Tübingen: Mohr Siebeck.
- Frenz, Walter/ Müggenborg, Hans-Jürgen (ed.) (2009): *Kommentar zum Erneuerbare-Energien-Gesetz*, Berlin: Erich Schmidt Verlag.
- Garrett, Tim (2009): Are there basic physical constraints on future anthropogenic emissions of carbon dioxide?, <http://www.met.utah.edu/tgarrett/>.
- Gawel, Erik (2001): Ökonomische Effizienzanforderungen und ihre juristische Rezeption, in: Gawel, Erik (ed.): *Effizienz im Umweltrecht*, Baden-Baden: Nomos, p. 9.
- Grzeszick, Bernd (2003): Lässt sich eine Verfassung kalkulieren?, *Juristenzeitung*, p. 647.
- Habermas, Jürgen (1983): *Moralbewusstsein und kommunikatives Handeln*, Frankfurt a.M.: Suhrkamp Verlag.
- Habermas, Jürgen (1994): *Between Facts and Norms*, Cambridge/ Mass.: The MIT Press.
- Hänggi, Marcel (2008): *Wir Schwätzer im Treibhaus. Warum die Klimapolitik versagt*, Zürich: Rotpunktverlag.
- Hansen, James E. (2007): *Environmental Research Letters, Scientific Reticence and Sea Level Rise* No. 2.
- Heinig, Hans Michael (2008): *Der Sozialstaat im Dienst der Freiheit. Zur Formel vom „sozialen“ Staat in Art. 20 Abs. 1 GG*, Tübingen: Mohr Siebeck.
- Hofmann, Ekkehard: *Abwägung im Recht – Chancen und Grenzen numerischer Verfahren*, Tübingen, 2007.
- Hoffmann-Riem, Wolfgang/ Schmidt-Abmann, Eberhard (eds.): *Methoden der Verwaltungswissenschaft*, Baden-Baden, 2004.
- Hoffmann, Johannes (2009): Ethische Kritik des Wettbewerbsrechts, in: Hoffmann, Johannes/

- Scherhorn, Gerhard (eds.): Eine Politik für Nachhaltigkeit. Neuordnung der Kapital- und Gütermärkte, Erkelenz: Altius Verlag.
- IFEU: Energiekostenanstieg, soziale Folgen und Klimaschutz, Düsseldorf, 2006.
- Illies, Christian (2003): The Grounds of Ethical Judgement - New Transcendental Arguments in Moral Philosophy, Oxford: University Press.
- IPCC (2007): Climate Change 2007. Mitigation of Climate Change.
- Kartha, Sivan/ Baer, Paul/ Athanasiou, Tom (2007): The Right to Development in a Climate Constrained World. The Greenhouse Development Rights Framework, Paper of the Heinrich-Böll-Stiftung, EcoEquity, and the Stockholm Environmental Institute, Stockholm/ Berlin.
- Kemfert, Claudia (2008): Die andere Klima-Zukunft, Hamburg: Murmann-Verlag.
- Knopp, Lothar/ Piroch, Ingmar (2009): Umweltschutz und Wirtschaftskrise – Verschärfung des Spannungsverhältnisses Ökonomie/ Ökologie?, Zeitschrift für Umweltrecht, p. 409.
- Kuhlmann, Wolfgang (1985): Reflexive Letztbegründung, Freiburg/München: Alber-Broschur Philosophie.
- Löhr, Dirk (2005): Zins und Wirtschaftswachstum, Forum für angewandtes systemisches Stoffstrommanagement, p. 33.
- Lomborg, Björn (2007): Cool it! The Skeptical Environmentalist's Guide to Global Warming, Random House.
- Lüdemann, Jörn/ Magen, Stefan (2008): Effizienz statt Gerechtigkeit?, Bonn: Preprint des Max-Planck-Instituts für Gemeinschaftsgüter (Nr. 221).
- Lyster, Rosemary (2007): Separating the Wheat from the Chaff: Regulating Greenhouse Gas Emissions in a Climate of Uncertainty, Carbon & Climate Law Review, p. 89.
- Mathis, Klaus (2009): Efficiency instead of Justice? Searching for the Philosophical Foundations of the Economic Analysis of Law, Berlin: Springer.
- Meyer, Kirsten (2006): How to be Consistent without Saving the Greater Number, Philosophy & Public Affairs, p. 136.
- Nutzinger, Hans G. (ed.) (2006): Gerechtigkeit in der Wirtschaft – Quadratur des Kreises?, Marburg: Metropolis-Verlag.
- Nutzinger, Hans (2003): Effizienz, Gerechtigkeit und Nachhaltigkeit, in: Nutzinger (ed.): Regulierung, Wettbewerb und Marktwirtschaft, Festschrift für Carl Christian von Weizsäcker, Göttingen: Vandenhoeck & Ruprecht, p. 77.
- Nordhaus, William (2008): A Question of Balance. Weighing the Options on Global Warming Policies, New Haven: Yale University Press.
- Otsuka, Michael (2006): Saving Lives, Moral Theory, and the Claims of Individuals, Philosophy & Public Affairs, p. 109.
- Ott, Konrad/ Döring, Ralf (2004): Theorie und Praxis starker Nachhaltigkeit, Marburg: Metropolis.
- Parry, Martin u.a. (2009): Assessing the costs of adaptation to climate change: a review of the UNFCCC and other recent estimates, <http://www.iied.org/climate-change/key-issues/economics-and-equity-adaptation/costs-adapting-climate-change-significantly-under-estimated>
- Posner, Richard (1986): Wealth Maximization Revisited, Notre Dame Journal of Law, Ethics and Public Policy, p. 85.
- Radermacher, Franz-Josef (2004): Global Marshall Plan. Ein Planetary Contract. Für eine weltweite ökosoziale Marktwirtschaft, Wien.

- Rawls, John (1971): A Theory of Justice, Cambridge/ Mass.: Cambridge University Press.
- Rogall, Holger (2009): Nachhaltige Ökonomie, Marburg: Metropolis-Verlag.
- Rothlin, Stephan (1992): Gerechtigkeit in Freiheit – Darstellung und kritische Würdigung des Begriffs der Gerechtigkeit im Denken von Friedrich August von Hayek, Frankfurt am Main: Peter Lang Verlag.
- Sen, Amartya (1999): Development as Freedom, Oxford: Oxford University Press.
- Schmidt, Matthias (2005): Wachstum mit Zukunft, Forum für angewandtes systemisches Stoffstrommanagement, p. 7.
- Stehr, Nico/ von Storch, Hans (2008): Anpassung und Vermeidung oder von der Illusion der Differenz., GAIA 17, p. 19.
- Stern, Nicholas (2006): Stern Review Final Report, http://www.hm-treasury.gov.uk/stern_review_report.htm
- Stern, Nicholas (2009): A Blueprint for a Safer Planet: How to manage Climate Change and create a new Era of Progress and Prosperity.
- Suchanek, Andreas/ Lin-Hi, Nick (2007): Unternehmerische Verantwortung, in: Baumgartner, Rupert/ Biedermann, Hubert/ Ebner, Daniela (ed.): Unternehmenspraxis und Nachhaltigkeit, München und Mering: Rainer Hampp Verlag, p. 67.
- Susnjar, Davor (2010): Proportionality, Fundamental Rights, and Balance of Powers, Leiden: Brill.
- Unnerstall, Herwig (1999): Rechte zukünftiger Generationen, Würzburg: Königshausen & Neumann.
- Verheyen, Roda (2006): Climate Change Damage and International Law: Prevention Duties and State Responsibility, Leiden: Brill.
- Voss, Martin (ed.) (2010): Der Klimawandel. Sozialwissenschaftliche Perspektiven, Wiesbaden: VS Verlag.
- Weimann, Joachim (2009): Die Klimapolitik-Katastrophe, Marburg: Metropolis-Verlag.
- Welzer, Harald (2008): Klimakriege, Frankfurt am Main: p. Fischer.
- Wicke, Lutz/ Spiegel, Peter/ Wicke-Thüs, Inga (2006): Kyoto Plus, München: C.H. Beck Verlag.
- Wieland, Josef (2009): CSR als Netzwerk-governance, Marburg: Metropolis-Verlag.
- Wink, Rüdiger (2002): Generationengerechtigkeit im Zeitalter der Gentechnik, Baden-Baden: Nomos.
- Wissenschaftlicher Beirat Globale Umweltveränderung/ WBGU (2009): Kassensturz für den Weltklimavertrag. Der Budgetansatz, Berlin.
- Wuppertal-Institut (2008): Zukunftsfähiges Deutschland in einer globalisierten Welt, Frankfurt a.M.: p. Fischer.
- Wustlich, Guido (2009): Ökonomisierung im Umweltrecht, Zeitschrift für Umweltrecht, p. 515.