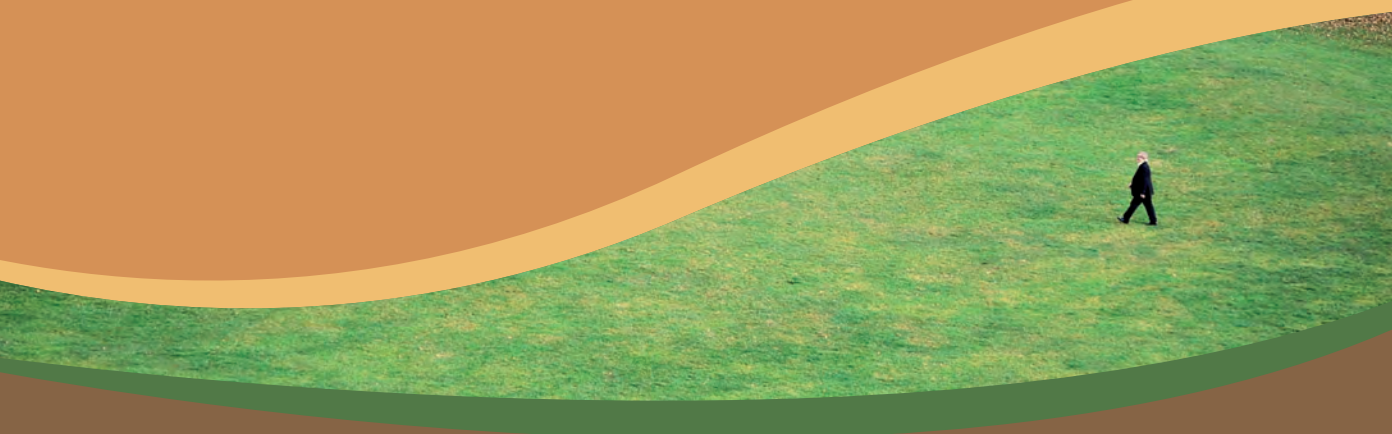
Rachel Carson Center

Perspectives

Climate Justice

MARKUS VOGT



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An Ethical Analysis of the Conflicts, Rights, and Incentives surrounding CO_2 Emissions

1. Climate change causes new justice failures

1.1 The conflict between climate protection and fighting poverty: A stalemate, or a chance for a fairer globalization?

Climate change is, for the most part, man-made (anthropogenic). So, from an ethical point of view, it has to be classified not as a stroke of fate, but as a question of justice. The dimensions of climate change are so vast that they affect nearly every aspect of globalization processes:

- Never before has humankind interfered so extensively in the biosphere, with such far-reaching spatial and temporal consequences.[1]
- Climate change is a culture shock. The world we used to know no longer exists. An age of radical transformation stands before us.[2]
- Climate change will lead to a creeping destruction of the homes and food sources of countless people in subtropical regions. It will undermine the existence of 2.5 million people worldwide who make their living from agriculture.[3]
- Climate change is a direct attack on the economic, social, and cultural rights of vast numbers of people. The right to live in humane conditions can only be safeguarded by climate protection measures.[4]

1 Intergovernmental Panel on Climate Change [IPCC], *Climate Change. The Physical Science Basis*; Rahmstorf and Schellnhuber, *Der Klimawandel*, 29-52; and Schönwiese, "Der Klimawandel in Vergangenheit und Zukunft," 17-21. See also Lienkamp, *Klimawandel und Gerechtigkeit* and Vogt, *Prinzip Nachhaltigkeit*, esp. 44-49 and 415-19.

2 See Leggewie and Welzer, *Das Ende der Welt*, 13ff.

3 Santarius,"Klimawandel und globale Gerechtigkeit," 21.

4 United Nations Development Programme [UNDP], *Fighting Climate Change*, 8-15; Oxfam published differentiated research about the human rights abuses resulting from climate change in September 2008: Oxfam International, *Climate Wrongs and Human Rights*, esp. the table p. 6. According to this, the rights to life and to security of person, and access to food and healthcare of many hundred million people are under threat or have been negatively affected.

- The unresolved problem of levels of emission rights is one of the greatest opportunities for injustice in the present phase of global development.[5]
- Climate change and the associated debates about access to resources, the destruction of habitats, and the migration of many hundreds of millions of people are all central questions for the various national foreign and security policies.[6]
- And, in the words of the German [Catholic] Bishops' Conference, "global climate change probably represents the greatest existential threat for the present and, to a much greater extent, for coming generations, as well as for non-human nature."[7]

The right of physical integrity lays the foundation for human rights; therefore, lowering the level of greenhouse gas emissions is an act of protecting human rights.[8] Justice and peace cannot be realized in the twenty-first century without climate protection. This dependency is mutual: we can only hope for global cooperation in climate protection when the poor majority recognizes that this course of action allows them a fair chance at humane development. Cooperation in climate politics is a precondition and an active condition of the new global course of preventative peace politics.[9]

However, in all this there is a profound conflict between climate protection and the fight against poverty, for the known and financially viable methods of economic development are to a large extent dependent on access to fossil fuels.[10] Most developing and emerging economies aim to fight poverty and institute wealth through energy-intensive industrialization, following the example set by the affluent northern hemisphere. However, there is no capacity left in the atmosphere for the CO_2 that would be emitted by developing countries if they were to develop along the same lines as the industrialized nations; "the world's wealthy minority has left precious little atmospheric space for the poor majority."[11]

5 Baer, Athanasiou, and Kartha, *The Right to Development in a Climate Constrained World*, 19-21.

6 Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen [WBGU]: *Welt im Wandel. Sicherheitsrisiko Klimawandel*, esp. 15-42 and 169-90.

7 Deutsche Bischofskonferenz [DBK]. *Climate Change*, 5.

8 Santarius, "Klimawandel," 21.

9 Der Wissenschaftliche Beirat der Bundesregierung Globale Umweltveränderungen [WBGU, German Advisory Council on Global Change] writes of "redefining security." See WBGU 2008, 19ff.

10 Ostheimer and Vogt, "Energie für die Armen," 10-13.

11 Baer, Athanasiou, and Kartha, *The Right to Development in a Climate Constrained World*, 10.

The technical possibilities for fighting poverty and protecting the climate, and for the integration of these two aims, are in theory relatively good. Realizing these aims is primarily a question of overcoming political and institutional obstacles, as the necessary investments can only be made in conditions which facilitate a fair, cooperative, and long-term sharing of the burden. Currently, from the point of view of the developing countries, there are hardly any consensual and attractive suggestions on the table for fair "burden sharing" in terms of climate protection. If they fail to adhere to an ethical basis, political negotiations are headed for a stalemate; "disagreements about fairness and equity are at the center of the impasse."[12]

We can, however, see this as an opportunity for the globalization process. In the words of an UNDP report, "climate change provides a potent reminder of the one thing that we share in common. It is called planet Earth."[13] In the shadow of climate change, a change of conscience with regard to the global context is taking place.

1.2 "The greatest market failure the world has seen"

The "Stern review," a report commissioned by the British Government and published in October 2006 under the title "The Economics of Climate Change," estimates the cost of not acting to prevent the consequences of climate change at 5 to 20 percent of the global gross domestic product. That would be up to 5,500 billion U.S. dollars per year, more — insofar as any comparison of this nature is possible — than the cost of both world wars put together. The markets didn't give us any warning of these gigantic costs. Stern calls it "the greatest market failure the world has seen."[14]

Stern does not stop there with his portrayal of the impending disaster, but goes on to calculate that taking action quickly could result in preventing the worst consequences for a relatively small sum (circa 300 billion U.S. dollars per year, equivalent to 1% of the global GDP). Even today, the damages caused by ever more severe storms and flooding can result in costs into the billions. In poorer regions of the world, the costs incurred are less when measured in financial terms, but great in terms of the

12 Baer and Athanasiou, *Frameworks*, 5.

13 UNDP, *Fighting Climate Change*, 2.

14 Stern, *The Economics of Climate Change*, II.

existential suffering of people and habitat due to drought, fire, failed harvests, storms, and flooding.[15]

Time is short. According to Stern and other experts, the window for a fundamental change in political direction is limited to ten to fifteen years, if climate change is to be managed without escalating costs and conflict.[16] The main reasons for this urgency are as follows: (a) habitat destabilization caused by climate change, which can only be halted by an immediate reduction of harmful anthropogenic practices; (b) the risk of irreversible changes (what is sometimes referred to as "flipping the ecological switch")[17] in the climate, which according to current analysis will occur rapidly if climate change results in a rise of more than two degrees Celsius; (c) the looming conflicts over decreasing natural resources, in particular water and oil, which could result in war of hitherto unknown dimensions; and (d) the slow reaction time of the market economy, the growth of which will collide with the demands of climate protection, and whose transformation will take decades.

The central reason for the market economy's failure to face up to climate change is the externalization (outsourcing) of costs for fossil fuels: we are using the atmosphere as a rubbish dump and are burning, quite literally, the future of our children and grandchildren. Other reasons lie in the volatility, political dependence and international unpredictability of energy prices, the short-term nature of technical developments, and investment cycles which need to work bottom-up, but which are often not cost-effective on a microeconomic level. High oil prices do not necessarily lead to a reduction in use, since corresponding sums of money are then invested in the exploration of oil fields, the utilization of oil shale and oil sand and in the liquefaction of coal.[18] Thus a structural change in the provision of energy is a question of political — and therefore also moral — decisions, and not the automatic consequence of market economy adaptation.[19]

15 Loster, "Die Armen trifft es am härtesten," 5-6.

16 See also Rahmstorf and Schellnhuber, *Der Klimawandel*, 91-120.

17 See the composition of the Climate Research Institute in Potsdam: http://www.pik-potsdam.de/infodesk/tipping-points (accessed 13 September 2008).

18 Edenhofer and Flachsland,"Ein Global Deal für den Klimaschutz," 24ff.

19 Vogt, "Notwendiger Strukturwandel."

The problem is that we cannot rely on market forces to bring about an automatic adaptation of society, although in many respects the logic of market economies has taken control of global development.[20] Here, though, we must differentiate. On the one hand, the obsession with short-term, purely economic thinking is climate protection's greatest opponent. On the other, despite all the justified criticism of the one-sided dominance of the economic mindset, we should not overlook the fact that climate change can only compete with economic interests to a limited extent. Market forces are in many respects effective and freedom-facilitating means of regulation.[21] But they need new conditions and rules.

Climate protection and the fight against poverty will not succeed by fighting market economies, but rather through ecologically and socially responsible markets.[22] The founding idea of the social market economy (Ökologisch-Sozialen Marktwirtschaft), support for which was publicly declared by the churches in Germany in 1985, before any of the political parties had spoken out,[23] could be the greatest political principle to emerge out of Europe with regard to climate change. It is, however, a highly challenging concept. Moral standards in society are often underestimated as an economic factor. The success of the market economy is dependent in the long run on a culture of responsibility and fairness. On the global level, the institutional prerequisites for a reliable integration of markets and morals are too weak. The current form of energy-intensive globalization, which is simultaneously the driving force behind climate change, is neither ethically justifiable nor economically viable.

1.3 Hallmarks of the justice debate in the age of climate change

The particular nature of ethical problems arising from climate change lies in the great distance between perpetrators and victims.[24] This distance comprises three main aspects:

20 In *Global Exit*, 13-27, Carl Amery refers to the commitment of the world's destiny to capital interest.

21 Vogt, "Markt und Moral."

22 Ostheimer and Vogt, "Gesellschaftsvisionen im ökologischen Diskurs"; and WBGU, *Welt im Wandel. Armutsbekämpfung durch Umweltpolitik*.

23 Rat der Evangelischen Kirche in Deutschland und der Deutsche Bischofskonferenz [EKD and DBK] *Verantwortung wahrnehmen für die Schöpfung*, 79-87.

24 For analyses of the unequal distribution of climate damage, see Santarius, "Klimawandel," 19ff.; UNDP, *Fighting Climate Change*, 2007, esp. 24-31; and Lienkamp, "Die Ungerechtigkeit des Klimawandels," 4-6.

(a) *Our modern life and economy, which has caused the climate change, has mortgaged our future and will burden in particular later generations.*

(b) *The poorer countries in the southern hemisphere were only to a limited extent involved in causing climate change and are much less able to adapt to the changes, whereas industrialized nations are responsible for most of the emissions of damaging greenhouse gases and yet have much better chances to protect themselves against the consequences of climate change.*

(c) *Climate change is having a profound and negative impact on the habitats of fauna and flora and thereby also on the relationship between humans and nature.*

This can be regarded as a threefold externalization of the costs of our model of wealth/wealthy society; it will fall to the future, to the poor, and to nature to repay the debts we have incurred. Each of these three externalizations is in itself a complex ethical minefield, answering to the categories intergenerational justice, global justice, and ecological justice, respectively. The German Bishops' Conference has referred to climate change as the "focal point of global, intergenerational and ecological justice" on the basis of this analysis.[25] It is an exemplary field for justice research, encompassing new dimensions of justice, solidarity, the protection of wealth and responsibility for the natural world in the twenty-first century. In the remainder of this paper I will restrict myself to the question of global justice, and to the conflict between climate protection and the fight against poverty.

According to the UNDP, "on average around 262 million people were affected [by climate disasters] each year between 2000 and 2004, over 98 percent of them living in developing countries."[26] Measured by the number of fatalities, the victims of climate disasters reside overwhelmingly in developing countries.[27] According to the UNDP, in some developing regions the effects of climate change, such as losses in agricultural production, will likely undermine efforts to combat poverty.[28] Climate change compli-

25 DBK, *Climate Change*, 31; regarding the Amercian expression "ecological justice," see Leist, "Ökologische Gerechtigkeit als bessere Nachhaltigkeit."

26 UNDP, *Fighting Climate Change*, 30.

27 Loster, "Die Armen trifft es am härtesten," 5ff.

28 UNDP, *Fighting Climate Change*, 9-10.

cates the achievement of the Millennium Development Goals (MDGs). There is a real risk that the progress made over generations in the eradication of extreme poverty and in areas such as health, nutrition, and education will stagnate and eventually start to reverse: "in today's world, it is the poor who are bearing the brunt of climate change. Tomorrow, it will be humanity as a whole that faces the risks that come with global warming."[29]

With the awareness of global warming, the fight to reduce poverty has a new focal point and new dimension of complex interrelations. Many distribution problems are exacerbated and have become a struggle for access to resources and habitats, no longer resolvable through traditional models of growth. Ecological problems overwrite social conflicts without erasing them.

The ethical-political problem is particularly complex, boasting an opaque web of winners and losers, both in terms of climate change and in terms of our climate-hostile economic system. The winners (e.g. those countries exporting oil, or northern regions in terms of agriculture) have little incentive to contribute to the costs of avoidance strategies. Since climate change affects people differently — in terms of geography, and immediacy, and in the nature of the impact — there is a broad range of interests and perspectives at stake. On a more fundamental level, there are the dilemmas of ecological versus social-ecological interests, short-term versus long-term, and national versus global concerns that are often not directly resolvable by individual agents or political movements.[30]

Since countless people in developing countries are urgently concerned in the short term with the fundamental problems of existence, it is difficult to communicate any sense of the long-term and geographically broad solidarity needed in climate protection. In Indonesia, for example, the pressure exerted by poverty to utilize peat and areas of rainforest is extremely high.[31] Therefore, Indonesia will only be prepared to take climate protection measures if there are attractive conditions attached. Indonesia

29 Ibid.

30 Vogt, "Kann Politik globale Solidarität mit künftigen Generationen organisieren?" 138-57.

31 Indonesia is both victim and perpetrator of climate change; due to the burning of large areas of rainforest and methane-rich peat soil for use as palm oil plantations, the country has become the third biggest producer of greenhouse gases. See Müller, "Indonesien zwischen Armutsbekämpfung und Klimaschutz," 14.

can draw on the Rio declaration in defense of the right to sovereign decisions about the use of national natural resources.[32] A widespread delimitation of key postulates of justice runs the risk of ending in excessive demands and vacuity unless attempts at clarifying the attendant claims and duties, limiting them to specific agents, pluralizing them freely, and anchoring them structurally are immediately successful.

In climate research there has been a notable discrepancy between intensive collation and analysis of scientific data on the one hand and the poor level of research into the resulting questions of ethical and political justice on the other. The lack of precise analysis of the conflicts and hindrances, and of the priorities and benchmarks for imminent decisions, is often covered up by an over-enthusiastic appeal to moral sense. Climate protection, however, needs a code of ethics which shows up the opportunities for injustice, analyses dilemmas, and provides firm criteria on which to base political decisions.

2. Ethical bearings for a new "global deal"

2.1 Common but differentiated responsibility

The management of climate change is a challenge facing society as a whole. This assertion has legal and ethical basis in the 1960s concept of nature as the "common heritage of mankind." However, this has not yet established itself reliably as customary international law. For that, international law would have to change from co-existence to cooperation law.[33] That would entail duties of information and consultation and the establishment of international rules and standards on prevention, liability, and conflict with regard to the environmental impact on human life and the natural world.

The ethical challenge posed by climate change involves three kinds of solidarity:

- Long-term solidarity, incorporating measures of prevention or mitigation of climate change through the rejection of fossil fuels. Since everyone would be affected, climate change here is a question of cooperation, or *consolidarity*.

32 Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit [BMU], *Konferenz der Vereinten Nationen für Umwelt und Entwicklung im Juni 1992 in Rio de Janeiro*, Rio Declaration, Principle 2.

33 Epiney, "'Gerechtigkeit' im Umweltvölkerrecht," 34.

- In the medium term, adaptive measures are the main priority (e.g. water provision, resettlement, ecological and agricultural adaptation).
- Short-term solidarity is mainly a question of disaster response, hitherto something that has been relatively well provided, thanks in part to pity-inducing media images. The ever-intensifying scale of disasters calls for these reactive measures to be backed up by the establishment of international funds. This kind of help can be termed *pro-solidarity*.

The debate about the ethics of climate change tends to stifle the importance of adaptive measures and the need for solidarity, in contrast to the debate about *mitigation*.[34] Since climate change is already well underway, threatening the habitats of many hundreds of millions of people, long-term adaptive measures — in addition to short-term reactive measures — will form a crucial part of the international climate protection strategy. Today there are innumerable people who have inadequate access to drinking water and water for washing; this is not a stroke of fate but the result of climate change, and therefore a question of justice. A solidarity-based distribution of the dwindling freshwater resources, which in southern regions are often "wasted" on plantation irrigation, has become an existential question for half a million people. But the situations in the different regions are so varied that there can be no straightforward solution to the water problem.[35]

The pressure to cooperate as a result of climate change requires a different kind of solidarity, one that does not fit into existing structures; it demands engagement with a distant crisis. The climate is our collective property; its problems are borne by all and there are no individual profiteers. And yet we can hardly be surprised by the collective inertia and freeloading mentality which together block all initiative. It is too easy to exploit investment in climate protection. Funds need specific institutional ring fencing. Action must be taken to address structural deficits if solidarity in terms of climate protection is to be realized.

To form a firm basis for inter-departmental multilateral negotiations, we would need to create an independent organization for environmental concerns, equipped with the

34 UNDP, Fighting Climate Change, 38-39.

35 See Mauser, *Wie lange reicht die Ressource Wasser*, 207-39.

power to impose sanctions, under the umbrella of the UN.[36] The idea of an Environmental Court of Justice to sanction those whose actions in breach of international regulations affect a large sector of the population is also gaining in popularity. There is a serious deficit in terms of legal justice, because agreements that are made are often simply not adhered to. Institutional reforms which would result in a greater degree of legal control have therefore become a matter of urgency, in order to embed both market-oriented ideas (such as trade-offs) and solidarity-based ideas (fair distribution of resources) within a stable legal framework.[37]

The critical ethical and political challenge is to overcome short-term thinking and activate moral, political and economic solidarity in order to move from mere reactive disaster aftercare to preventative climate protection and innovative energy technology. This calls above all for an increase in the powers of the global institutions which enforce regulations on CO_2 emissions. The ethical management of climate change is dependent on a process of institutional change: a path towards *global governance* with new strategic alliances in politics, economics, and civil society.[38]

The UN Framework Convention on Climate Change in Rio describes the challenge of climate protection as a "common but differentiated responsibility."[39] The industrialized nations are charged in the first instance with taking action on climate change, due to their high level of CO_2 emissions past and present, and their technical, economic and political influence. The phrase "common but differentiated responsibility," however, allows for a range of different interpretations. A global agreement on justice in CO_2 emissions is needed to clarify the exact meaning.[40]

36 Epiney, "'Gerechtigkeit' im Umweltvölkerrecht," 38. What the individual reforms should look like is a difficult political question.

37 Justice demands as good a balance as possible between elements from the three basic categories of legality, distribution, and exchange. On systematic aspects of these three Aristotelian forms of justice and their significance for modern society, see Vogt, "Soziale Interaktion und Gerechtigkeit," 284-309. See also Veith, *Intergenerationelle Gerechtigkeit,* 141-53.

38 Vogt, "Kann Politik globale Solidarität mit künftigen Generationen organisieren?"; Ekardt, "Wie die Klimawende wirklich gelingt," 20ff.

39 BMU, *Konferenz der Vereinten Nationen für Umwelt und Entwicklung im Juni 1992 in Rio de Janeiro*, Art. 3.1. Quotation trans. K. Ritson.

40 Edenhofer and Flachsland, "Ein Global Deal für den Klimaschutz," esp. 30-33; see also this text, section 3.

Notwithstanding the conflict between northern and southern hemispheres, the differences between individual countries are also beginning to become more marked. Solidarity between globalization profiteers and poor sectors of the population is needed in southern countries, too. Since climate protection is, above all, a question of cooperation, its realization is dependent on people's trust that the burden will be divided fairly, both nationally and internationally.

2.2 The right to development

Key to understanding the conflict between climate protection and the fight against poverty is the recognition of the right to development. Baer, Athanasiou, and Kartha put it this way: "while people remain poor, it is unacceptable and unrealistic to expect them to focus their valuable resources on the climate change crisis."[41] Global climate protection is only acceptable to the majority of developing countries if it is combined with recognition of the right to development, encompassing (a) the satisfaction of basic human needs, (b) freedom from deprivation and vulnerability and (c) a basic degree of safety and well-being. Since access to fossil fuels has led to a bottleneck for the achievement of development aims, and developing countries often have few means of reducing their levels of emissions, it follows that they must be accorded more or different rights, or at least not required to reduce emissions by the same percentage as industrialized nations.

The right to development is not the same as the right to economic growth; it is a right to the conditions that support the sustaining of life in dignity, and in solidarity with society in preventing and recovering from crisis. Those below a certain level of development (a "development threshold"), must have the chance to manage their own development without being burdened with climate protection concerns.[42]

The right to development in the context of climate protection has its basis in human rights.[43] Human rights theory provides the criteria for equality in terms of basic needs,

41 Baer, Athanasiou, and Kartha, *The Right to Development in a Climate Constrained World*, 5.

42 Ibid; see also section 3.1 of this text.

43 Santarius, "Klimawandel," 19ff.; UNDP, *Fighting Climate Change*, 4ff. See also Wallacher and Reder, "Klimaverhandlungen brauchen ein ethisches Leitbild," 12ff.; Oxfam, *Climate Wrongs and Human Rights*, 1-3. In terms of theological ethics, the *option for the poor* is an important principle: on this, see an article by G. Kruip in the same volume.

equal opportunities, and equal access to justice.[44] Equality in terms of basic needs means that the meeting of these needs is seen as a priority. Equal opportunities are realized through investing in human capital, giving citizens the power to act so that they may better manage the risks posed by climate change. Procedural fairness is most likely to be achieved through an improved institutional framework for climate protection and by widening participation.

Enshrining the right to development calls for a basic agreement, *Greenhouse Development Rights,* allowing a fair distribution of the burden, and protecting investment in climate protection from exploitation. As well as a just distribution of emission rights, a fair distribution of expertise and of human, natural and social capital needs to be part of the equation,[45] since these factors significantly influence our ability to fight poverty and adapt to climate change.

3. CO_2 justice: At the heart of a new global deal for climate protection

In the following section, for the sake of simplicity I will concentrate on a global deal on CO_2 emissions. Although not wishing to disregard other waste gases qualifying for a similar deal, for example methane (far more aggressive than carbon dioxide, particularly with regard to agriculture, where the burning of peat and the thawing of peat-rich permafrost pose a considerable problem), CO_2 at the moment accounts for 90 percent of climate damage;[46] therefore it seems reasonable to focus on this emission alone.

3.1 Responsibility and capacity

A study by the Heinrich Böll Foundation, "The right to development in a world threatened by climate change," combines the indicators for responsibility for and capacity

44 Wallacher and Reder, "Klimaverhandlungen," 12ff. The exact definition of the relationship between human rights and justice is worth a discourse of its own. The principles of (or better: criteria for) justice mentioned here are cited without any further justification, so that the selection and exclusions might seem arbitrary. For an attempt at systematising the various types of justice, see Vogt, "Soziale Interaktion" and — including the diachronic expansion of intergenerational justice which is so important for the climate debate — Veith, *Intergenerationelle Gerechtigkeit,* 140-67.

45 Wallacher and Reder, "Klimaverhandlungen," 13.

46 On the relevance of the different greenhouse gases, see DBK, Climate Change, 18.

to influence climate protection to form a "*responsibility and capacity indicator*" (RCI).[47] The study assumes that responsibility and capacity can only be freed up from that portion of income and emissions which are not directly necessary for existence.[48]

This is similar to the basic principle of tax law, which states that the subsistence level of income must be free from state payments; that is to say, at this level, there are no resulting duties to the state. The requirement to contribute towards international climate protection is conceived as a kind of luxury tax on the global consumer class.[49] Only those people who belong to the global middle class (or consumer class) have the responsibility, and indeed the capacity, to pay their dues to a climate-political emergency program.[50] An additional condition is that only those emissions are counted that occurred after the extent of their harmfulness had been ascertained (conclusive only from about 1990 onwards.)

The million dollar question — almost literally — with regard to this concept is how to define the threshold between basic subsistence and luxury. The authors assume that an annual income of 9,000 U.S. dollars is usually enough to meet basic needs and is therefore a passport to the "global middle class."[51] The global average income is around 8,500 U.S. dollars annually. Others put the threshold rather lower and make one important differentiation: "if we take an income threshold of 7,000 U.S. dollars as a basis, which is approximately the level of social security in Europe, then we can see that as well as the 900 million heavy consumers in the northern hemisphere, there are also more than 800 million 'new consumers' in the developing countries."[52]

47 Baer, Athanasiou, and Kartha, *The Right to Development in a Climate Constrained World*, 11.

48 Ibid., 11: "We define capacity as income, excluding all income below the development threshold. We define responsibility as cumulative CO_2 emissions, excluding all emissions deriving from consumption below the development threshold." Income below this is termed "survival income" or "survival emission" respectively und cannot be claimed for climate-political purposes.

49 See Baer, Athanasiou, and Kartha, *The Right to Development*, 32 regarding "'luxury' emissions."

50 See Baer, Athanasiou, and Kartha, *The Right to Development*, 33: "countries cannot be asked to incur any mitigation costs as long as they are developing." On the quantification of *Global Development Rights*, see idem, 23-44.

51 Ibid., 82-84. Income is calculated in terms of purchasing power.

52 Santarius, "Klimawandel," 18ff., quotation trans. K. Ritson; see also Baer and Athanasiou, *Frameworks*, 12: "inequality within countries is as great or greater than inequality between countries."

The *responsibility and capacity* model can calculate the actual quantitative reduction in emissions that is required; according to the model, a third of the efforts towards climate protection should come from the U.S. and a quarter from Europe.[53] These contributions would be entirely manageable for the industrialized countries. With a "2°C target," the prognosis suggests that the drop in consumption would be in the region of 1 to 4% of GDP in the U.S., Japan and Europe, depending on the exact scenario. However, the drop in Russia and the Middle East could be up to 12% of GDP. In Africa, on the other hand, consumption could potentially grow by up to 22.4%.[54]

The model does, however, suggest a range of methodological problems, whether in the exact definition of the boundary between subsistence and luxury, in the black-and-white differentiation between poor and rich, even within countries in the southern hemisphere, or in the limited value of "income" as an indicator. For there are other factors which contribute towards individual well-being, such as the communal institutions of safety, access to clean water, education, health care, and culture.

The concept of *responsibility and capacity* seems to me at best only suitable as a transitional solution, as long as no global market in emission rights has been established. A market would have the advantage that the southern hemisphere countries which emit less CO_2 would not only be rewarded with fewer responsibilities for climate protection measures, but could also profit financially from the sale of emission rights.

3.2 Contraction and convergence

One of the most interesting concepts for a common contract on CO_2 justice is currently being debated under the title *contraction and convergence* (C&C). This combines a contract which fixes an upper limit for global CO_2 emissions (contraction) with a gradual introduction of a distribution of emission rights according to egalitarian principles (convergence).[55]

53 Baer, Athanasiou, and Kartha, *The Right to Development*, 5. And idem, 12: The burden is shared as follows: USA 34.4%, EU 26.6%, Russia 5.5%, China 7%. An optimistic estimate, which calculates the costs for emergency assistance at 1% of the world gross national product, the following costs per inhabitant are incurred over the "development threshold" ca. 780 U.S. dollars annually in the U.S., 372 dollars/year in the EU, 142 dollars/year in China.

54 Ibid., 42.

55 Baer and Athanasiou, *Frameworks*, 14-18; and Baer, Athanasiou, and Kartha, *The Right to Development*, 23-45.

The basis for the fixing of a global upper limit is consensus within society about a justifiable level of ecological risk. However, ecological risks can neither be calculated from a natural threshold nor predicted with any certainty. Yet there is a broadly accepted consensus within current political negotiations that global warming by 2°C or a 450ppm concentration of CO_2 can be taken as just such a threshold.[56] Following the principle of risk avoidance, the C&C concept uses this rather low upper limit, although climate researchers disagree as to whether or not it is still a realistic goal.[57]

For the process of negotiating CO_2 reduction rates the C&C concept accepts the historical distribution as the basis for proportionally-fixed contributions ("grandfathering").[58] This is however only the starting point for what then becomes a process with fixed and binding stages, aimed at gradually drawing closer to an egalitarian pro capita distribution of emission rights. The grandfathering principle eases the transition for countries with a high level of emissions. It can be justified ethically as property protection and pragmatism.

Baer and Athanasiou write that "while a convergence that begins with grandfathering can be ethically justified as easing the transition on high-emitting countries, consistency would seem to demand a similar 'back end' mechanism by which emission in low-emitting countries would be allowed to temporarily overshoot the global average, if, that is, 'easing the transition' is indeed the justification for initial grandfathering." [59]

The post-Kyoto negotiations have not yet reached a decision regarding the two types of model described here as *contraction and convergence* and *responsibility and capacity*.[60] C&C offers a realistic opportunity for strategic north-south alliances and is

56 The *Vattenfall* Proposal assumes that the 2°C target with 550ppm is achievable. The transitional period is extended accordingly, with a 1.5% rate of reduction annually seen as sufficient. According to this concept, abrupt changes carry a higher risk and are therefore ethically unjustifiable. See Baer and Athanasiou, *Frameworks*, 37-56.

57 Rahmstorf and Schellnhuber, *Der Klimawandel*, 46-50; Latif, *Bringen wir das Klima aus dem Takt?*; and IPCC, *Climate Change*.

58 On this, see Baer and Athanasiou, *Frameworks*, 2007, 14ff.; and Rahmstorf and Schellnhuber, *Der Kilmawandel*, 18ff.

59 Baer and Athanasiou, Frameworks, 15.

60 Ibid., 7.

currently enjoying growing support, for example in Great Britain.[61]

3.3 Global egalitarianism as the founding principle of the global deal on climate protection?

An important axiom of the human-rights and developmental-ethics-based approach to climate protection discussed here is that global climate justice is enacted on a pro capita basis, rather than per nation state. The principle of an equal distribution of emission rights is ethically justified by the view that climate is something we share; presenting it as a national asset has only very limited application. All of the earth's inhabitants must, in principle, have equal access.[62] That all people are equal is enshrined in the universal declaration of human rights. That this applies also in terms of climate politics has, however, far-reaching political consequences: given the fact that on average a U.S.-American emits 100 times as much CO_2 as someone in Southern India or West Africa, it can meet with fierce resistance. When estimating population figures, in order not to give a false impression of population growth, one needs to set a starting year.[63] The year 1990 seems a good candidate, since this is already accepted as a starting point in many models.

Egalitarianism in terms of climate politics can also be interpreted using the "golden rule": we can talk about CO_2 justice when no individual produces more CO_2 than he or she would tolerate from others. If this is extended to apply to future generations, then there is an additional clause, namely that the total amount of greenhouse gases produced may not be more than the global capacity for absorption.

But aiming for absolute equality among human beings is problematic in two respects. Geographical and cultural differences result in different needs; in justice theory, this can be described as treating equals equally and unequals unequally.[64] One of the reasons for demanding a greater level of reduction from countries in the northern hemisphere is that they generally have a much higher capacity to invest in efficiency

61 Ibid., 18.

62 Santarius, "Klimawandel," 24.

63 See Baer and Athanasiou, *Frameworks*, 16.

64 For an ethical and philosophical discussion of the legal aspects of egalitarianism, which has rather unexpectedly become highly relevant as part of the climate justice debate with respect to equal rights to CO_2 emissions, see Krebs, *Gleichheit oder Gerechtigkeit*; and Pauer-Studer, *Autonom leben*.

and substitution strategies. Based on the ethical criteria for equality of effort, industrialized countries are required to make a greater contribution to climate protection.[65] Another relevant argument is that industrialized nations, on account of their high standard of technological development, use the same level of emission more effectively than a less industrialized country. Moreover, it should be remembered that for people in industrialized countries (and for affluent elites in emerging and developing countries) it is not a question of survival, but loss of wealth that is at stake; even with substantial emissions reductions, these sectors of the population would still be living far above the basic subsistence level. The principle of *proportionality* argues for a higher contribution from these groups.

The "*polluter pays*" principle demands that the industrialized nations, which in the last 150 years produced more than 90% of harmful gases, contribute the lion's share towards climate protection measures. But this begs the question to what extent a contemporary concept of justice should be based on the past. The huge differences within developing and emerging countries need to be taken into account; it is analytically unsound to see the three groupings as homogenous blocks which can be set against one another. Problematic for the view of historical guilt is the fact that during most of the time in question there was little or no knowledge of the harmful consequences of CO_2 emissions. In trying to define a defensible ethical and political viewpoint it is therefore sensible to limit historical guilt to the period after 1990 or 1992. This has the advantage that there is relatively detailed data available for this period. Taking the date 1992 as a starting point allows reference to the Framework Convention on Climate Change in Rio, which drew up a legally binding international agreement on climate justice.

So there is a plethora of very different viewpoints, all of which are worthy of consideration in terms of justice theory. In spite of many problematic issues, the per capita distribution of emission rights can be seen to be an acceptable and workable approach to climate justice. I argue for this not because it ignores the necessary differentiation of egalitarianism,[66] but because, subject to the demands of data and the justice axioms discussed above, it has been shown to be one of the relatively robust and therefore politically achievable compromise solutions. It should serve to give us our ethical

65 Baer, Athanasiou, and Kartha, *The Right to Development.*

66 See Krebs, *Gleichheit oder Gerichtigkeit*, 7-33.

and political bearings, at least as long as the ethical and political discourse and the provision of reliable data on the costs of climate change and climate protection do not reach any other broad consensus.

At the same time, experts in justice theory need to pick up the scarcely begun task of researching into criteria and data needed for a reliable distribution of climate protection duties. Over and above the questions raised here, the selection of data for the calculation of the CO_2 balance and the responsibility for protection is of enormous ethical importance. Should, for example, a positive contribution to climate protection, such as the planting or maintenance of forested regions in a particular country, be taken into account? This could be of importance for Russia or Brazil, for example, with their vast forests. Is it justifiable to take account of land use, which plays a decisive role for the climate, but which has so far been only marginal to climate protection negotiations? How should CO_2 emissions caused by international air travel, which up until now has been left out of all of the usual calculations, be brought into the equation?

3.4 The trade in emission rights

Particularly controversial from an ethical point of view are those parts of the global deal on climate protection called the flexible mechanisms: joint implementation, the clean development mechanism, and in particular the trade in emission allowances. These mechanisms offer advantages in terms of allocation (a more effective employment of limited means), which make themselves felt not only in economic terms, but also in view of the urgency of the situation, which is of direct value for ethical and social measures. The trade in emission allowances does require a functional market, however, something which exists only in certain territories such as the EU, and even then only to a limited extent. The rules for allocating allowances are often not clear (in Germany the first round of allocations fell flat). Procuring allowances should not become a substitute for structural reforms, neither on a national nor on a business level. For this reason, the German Bishop's Conference suggests that 50 percent of the agreed rate of reduction must be achieved within the home country.[67]

The evidence suggests that the trade in emission rights will have a positive effect on or developing countries: "if the average cost of reducing emissions is less in a developing

67 DBK, *Climate Change*, 50.

country than the price of emission allowances — something that is evidently the case — then the developing countries will be able to profit from the sale of allowances. The profits from the trade in allowances could for example easily top the sums spent on developmental aid in Africa."[68]

But despite all this an ethical safeguard must be in place: according to Santarius, "in the trade in emission rights, the power of the market forces must not be greater than the commitment to human rights."[69] This means that developing countries should not sell off their emission rights to the extent that the potential to develop out of poverty is substantially compromised. The proportion of emissions which can be defined as an existential minimum (or a minimum for prosperity) should be considered to be unsalable. This is particularly significant for countries where the governments do not adhere to the principles of democracy and justice. Payment for emission allowances must not be permitted to end up in the hands of small groups of people or potentially corrupt governments; instead, the money must be invested in sectors of the wider population that collectively have a reduced rate of CO_2 emission. The greatest challenge will be to channel the flow of money from the northern hemisphere to local communities in the southern hemisphere and thereby ensure that benefits reach the right people.[70]

Since there has so far been no adequate incentive to introduce CO_2-cutting measures (such as tropical rainforests), we need to seek means of rewarding these and making them tradable commodities. Just because CO_2-cutting measures — indispensible for the functioning of the global economy — cannot be transported and sold (in the way that oil can, for example) does not mean that a market for them cannot exist. But as long as there are no institutions which translate the collective interest of humankind in cutting CO_2 emissions into national, business, and individual duties and opportunities, climate protection will continue to lack the necessary momentum.

68 Edenhofer and Lotze-Campen, "Emissionen müssen etwas kosten," 11. Quotation trans. K. Ritson.

69 Santarius, "Klimawandel," 24. Quotation trans. K. Ritson.

70 Ibid.

4. Opportunities

4.1 A new industrial revolution

According to the current state of negotiations, CO_2 justice demands that the emission of harmful gases be reduced by 20 to 30% by 2020 (compared with the emissions in 1990). Germany intends to lead the way with a 40% reduction, which represents the upper end of the window negotiated in Bali (25 to 40% reduction in the industrialized nations by 2020). By the end of the century, CO_2 emissions should be reduced by 80 to 90%. These goals can only be achieved as part of a new industrial revolution.

A start has already been made; Germany has had considerable success over the last two decades in uncoupling energy consumption from economic development, and would have enough technical potential to continue progress in this direction without any substantial loss of prosperity.[71] Germany could improve its CO_2 record still further by closing legal loopholes in eco-tax and finance reforms[72] and eliminating the numerous exceptions which seriously hamper the effectiveness of current legislation.

Despite the conditions of the Kyoto protocol, however, there has still been a marked increase in CO_2 emissions in industrialized nations.[73] It is imperative that we act decisively and quickly. At the same time, the *global deal* calls for a much stronger cooperation with developing countries to achieve reduction targets, since their share of CO_2 emissions is rising, in some cases very quickly. China's rate of CO_2 emissions, for example, has since 2003 been rising at the fastest rate in economic history. Measures to improve energy efficiency, which were moderately successful in the 1990s, have slipped back. Coal is one of the major problems for climate protection. Worldwide coal reserves stand at least 728 gigatons; moreover, coal is relatively cheap, so it would be currently more or less impossible to force through an embargo. For this reason, sequestration (the separation and storage of carbon dioxide) would seem, despite its

71 Hennicke, "'Abrüsten mit neuer Energie,'" 32-42. The technical potential can, of course, only be realised in the context of sweeping cultural changes; see Leggewie and Welzer, *Das Ende der Welt*, esp. 174-230.

72 See here Lienkamp, "Light-Version," 75-81.

73 The U.S. has increased its CO_2 emissions by 16.3%, Portugal by 15.8%, Australia by 17.65%, Italy by 18.6%, Spain by 38.3%, and Canada by 31.3% (increases are for the year 2005 as compared with 1990). See http://www.unfccc.int/ghg_emissions_data/ghg_data_from_unfccc/time_series_annex_i/items/3841.php (accessed February 2008).

many problems, to be a necessary compromise if China and India are to participate in the climate protection agreement.[74]

Climate change is the greatest collective problem humanity has ever had to face. There is no lesson to be found in history which offers us a blueprint for a solution. We will only succeed if we can negotiate a new balance between freedom and justice.[75] Up until now, the process of globalization has been based on trading in resources. The hunger for energy in developing countries is only just beginning to make itself felt. Climate protection fits only with difficulty into the patterns of trade that have built up around the pursuit of wealth in the short-term.

Enforcing efficient climate protection measures requires us to take our leave from inward-looking national political perspectives and establish new institutions.[76] The roads to development we have journeyed along are now leading us, via climate change and dwindling reserves of gas and oil, to a dead end. We need intelligent ways to downsize. The ways in which we manage access to energy and water and the provision of food for the world's population are going to be the driving forces behind the new definition of development in the twenty-first century.

4.2 Strategies for climate protection

The scope for solutions to the climate problem can be divided into different strategies and operative levels:[77]

Macro-solutions include the Kyoto Protocol, the *contraction and convergence* concept, the unified emission allowance system, and the proposal to use the Marrakesh funds to finance climate protection and disaster recovery efforts in severely affected regions. These different strategies are not exclusive, but complement each other, since the former strategies are mainly preventative and the latter are adaptive financial measures. Micro-solutions belonging to the preventative category include local or national systems for the trade of emission allowances and neoliberal strategies for the adaptation

74 Edenhofer and Flachsland, "Ein Global Deal," 24-27.

75 Edenhofer and Lotze-Campen, "Emissionen," 9
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76 Ekardt, "Wie die Klimawende wirklich gelingt," 17-29.

77 Rahmstorf and Schellnhuber, *Der Klimawandel*, 102.

of business structures and land use. The lifestyle debate aims to integrate these various strategies on a micro-level. Numerous impulses are necessary if anything is to be achieved in society or the economy as a whole.

Affluent countries like Germany are characterized by a high and ever-growing lifestyle demands. Renewable energies can, in the best case, compensate for this in the short term, but they cannot provide the same standards in the long term if commitments to climate neutrality and (thereby) justice are to be upheld. The unchecked appetite for ever-faster travel, to name one example, cannot be met in a socially and ecologically responsible way merely by switching to renewable energies and more efficient technologies. If we are truly to free ourselves from fossil fuel dependence, we must make profound changes in key aspects of our Western model of affluence.

Climate change is, therefore, not just a challenge for political negotiation and technical innovation, but also a question of changing society's values. It demands individual and collective answers to genuinely ethical questions about the goals, limits, and conditions of our lifestyles. How much is enough? What are the priorities in striving for progress? How can we ensure fair chances for people all over the globe? How can we ensure that long-term interests are properly represented in the democratic system? In the search for answers to these questions, which are profoundly significant for the twin goals of fighting poverty and protecting the climate, churches and religious communities can also make a substantial contribution.

In some respects, the potential for progress on environmental and climate issues is to be found in regional and local networks, rather than on a national or international level.[78] It is no coincidence that the city of London, to cite one example, has taken radical measures to become independent from fossil fuels long before other organizations. In developing countries, micro-loans are instrumental in securing many small projects that work towards stabilizing sustainable development. Without bottom-up innovation, the idea of a global commitment to justice will hit a dead end. Climate protection will not fall like manna from heaven, but will grow slowly through the businesses, networks, regions, and sectors of the population that begin to develop their potential locally.

78 Wulsdorf, *Umweltethik, Gerechtigkeit und verbindliche Selbstregulierung*, 129-68.

Conclusion

Climate protection, to summarize the points I have made here, is a question of ethics, particularly in terms of CO_2 justice. It can only be achieved by means of a global contract that recognizes the right to development and sets out negotiable solutions for the transitional period. The common but differentiated responsibilities of industrialized, emerging, and developing nations must be taken into account, in accordance with their capacities and abilities to act. Given the historical record for CO_2 emissions in industrialized nations, these should not reject the idea of global equality, which would grant each individual equal CO_2 emission rights. Current research, taking into account current use and demographic trends, suggests that the figure might be set at about 2 tons per person per year. However, transitional solutions that take account of the current, more disparate situations (grandfathering) and move step by step towards a reduction in emissions should be the first choice. Overall, the ethical-political definition of emission rights should function as a framework for negotiating flexible solutions, by which (among other things) a gradual integration of national and continental markets could lead the way towards a global market for trade in emission rights. Research needs to be done into means by which a systematic provision of incentives for CO_2-cutting measures could be introduced.

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Sustainability and Climate Justice from a Theological Perspective

1. Methodological approach: What the theology of sustainability is not

When a theologian starts on the subject of sustainability, what hastily-drawn conclusions and dead-ends can we expect? I want to touch on a few: by doing so, I hope to fumble my way towards a defensible standpoint by process of elimination.

(a) For many, Christian theology, with its human-centered (anthropocentric) ethics seems to be more part of the problem than part of the solution. Which begs the question: is sustainability compatible with Christian ethics? For over 30 years, Christian ethics have been on the defensive against Deep Ecology criticism, which sees Christian ethics at the cultural and historical root of the modern-day environmental crisis.

(b) The specifically ethical-religious approach is often linked to the concept of Creation. But one can question whether the theological elevation of ecological imperatives is really necessary; in these times of climate change, the view that we are in the middle of destroying the basis for our very existence should alone be sufficient. We do not need religion to shore up environmental-historical imperatives. Talk of Creation is a mere distraction, perhaps even a weakening of the ethical argument, because it sets conditions that cannot easily be integrated into scientific teachings.

(c) The main conceptual problem in the realization of sustainability is its broad content. We are talking about so many things at the same time, and getting stuck in diffuse, non-committal statements. Won't interference from theologians simply make matters worse? After all, theologians tend to explore the moral and even metaphysical aspects of a particular theme, rather than containing and limiting it by employing a specific methodological approach. And science needs the objects of its attention to be contained.

(d) The promise of sustainability is characterized by an excess of optimism; society should develop not just in terms of ecological balance, social responsibility and energy efficiency, but also in terms of global and inter-generational justice. Isn't the-sustainability program just aiming at an eco-social panacea that would be better ser-

ved by subjection to critical analysis rather than being granted theological blessing? Wouldn't theology do better to take up position opposing this new form of societal utopia (as Oliver Reis suggests[1])? In the following section I will give a brief outline of some answers to these questions.

Anthropocentrism

The absolute dignity of human life, which is bound together with the idea of the human being as a moral subject, is indispensable as the starting point for democratic and enlightened ethics. We need not overcome the turn to the subject, which was reflected in Kant's ethics of human rights. What we do need is an ecological enlightenment of anthropocentrism: we must engage more with the biological and social-cultural conditions of our self-awareness as moral subjects, and find ways to enshrine these conditions as obligatory in the form of eco-social imperatives. My aim is not to overthrow anthropocentrism, but to reveal its conditions and limitations in the context of an ecological humanity.

One finds this distancing of the ecological counter-ethos from self-reflective modernity in many variations at the heart of debates about sustainability:

- in advocating technical innovation to enable better conservation of natural resources, rather than a rejection of technology;
- in advocating an ecological-social market for less resource-heavy prosperity, rather than a rejection of the pursuit of wealth and the free market;
- in perceiving a "second age of modernity," rather than post-modernity, in ethical terms;
- in promoting ecological humanity rather than ecocentrism.

For some, this is simply not radical enough. And a second glance indicates that critics are often correct when they suppose old structures to be behind these fine new words. This is why we need this debate about the correct understanding of anthropocentrism.

The driving principle of sustainability, however, is clear: it is in its origins a concept pertaining to the use of nature, and thus is clearly anthropocentric. On the initia-

1 Reis, "Nachhaltigkeit — Ethik — Theologie."

tive of developing countries that wish to protect themselves from nature conservation measures that come at the cost of their right to development, the first principle of the Rio Declaration (the 27 ethical maxims of sustainability formulated in Rio in 1992) is "human beings are at the centre of sustainability."

The enlightened anthropocentrism of sustainability has weathered the polarization between ecological and developmental-political ethics and made its key demands (at least in terms of political definition of targets) the subject of widespread consensus. The critical questions of ecocentrism remain relevant to Christian ethics. But they are not central to the concept of sustainability. This is liberating for discussions on this subject, for the most important single factor for a viable ethical standpoint is the recognition of the inseparability of the protection of humanity and the protection of nature.

What do we mean by "Creation"?

The 1980s and 1990s saw a renaissance in the doctrine of Creation in Christian theology (according to Moltmann and to Welker[2]). Creation had long been in the shadow of the doctrine of salvation, partly because of the difficulty of presenting Creation as a rational idea in the context of a worldview shaped by Darwinism and scientific inquiry. This has had enormous consequences for Christian ethics, as it caused its dislocation from its roots in anthropology and in nature.

The rediscovery of the ethics of Creation has, however, often been only superficial. Creation is misused as a convenient hook on which to hang sentimental ideas of ecology, as a rhetorical figure, serving merely to add weight to ecological imperatives and increase moral pressure. In a literal understanding, the concept of "safeguarding Creation," something which both the Protestant and the Catholic Churches have repeatedly appealed for since 1989 — the start of the conciliar process in Europe — is absurd, as if Creation were an object of social care. We ourselves are only a tiny part of Creation. The idea of Creation as an object of our ministry places an impossible burden on the shoulders of well-meaning eco-activists, with the backing of the church. Those who think themselves responsible for saving the whole world overestimate their strength.

2 Moltmann, *Gott in der Schöpfung*; and Welker, *Schöpfung und Wirklichkeit*. For a new interpretation of the "constructive correlation" from cosmology and soteriology, see Bergmann, *Creation Set Free*, 175-352.

The second mistake supported by this charitably reductive idea is the naturalistic wrong conclusion, as if nature itself were inherently good, and the moral and political challenge purely the maintenance of this good order. Evolution, however, is a creative process, not a potential object of conservation.

Sustainability is misunderstood as a new variant model of ecological balance, in which, at the end of the day, the entirety of human civilization is a disruptive force. But it is neither possible nor useful to reform all social and economic processes in human society according to models of sustainability taken from nature; as Haber suggests, "in the end we have to recognize that the cultural development of humanity, especially in its industrial stage, has set itself beyond the sustainable organization of nature, and irreversibly so."[3]

An ethically qualified definition of sustainability does not derive from the purely ecological level, but is found in the exclusive context of socially and culturally shaped views of justice and a good life. Without this reference to societal goals and interests, which set the observation plane through their structures of time and space, sustainability is an empty concept. Only on this level is the ethical significance of a belief in Creation relevant; ecology and biology are descriptive sciences, which are therefore not qualified to make judgments about good and evil.

The specific quality of the Christian belief in Creation lies — in my opinion — in the fact that it is not characterized by ecological ideas about harmony, but sees nature as a system of order in which conflict, existential struggle, death, and suffering also play their part, without it losing its quality as a place and source of healing. This allows us to see nature as a cultural challenge, and to combine positions of radical life-affirmation with humility in facing up to the limits of nature within and around us. The ethos of this kind of Creation-based spirituality can be found for example in the teachings of Francis of Assisi, who today is mostly subjected to excessively naïve interpretations of his ideas about ecological harmony.

3 Haber, "Nachhaltige Entwicklung — aus ökologischer Sicht," 9-13, esp. 13. Quotation translated by K. Ritson.

Thus, a theological ethics of sustainability does not teach ecological salvation. It is not naturalistic ethics. Rather, it sees nature as an open order, an irresolvable tension between nature and culture, between safeguarding and renewal. This is the basis on which an ethical model, one able to handle conflicts of modern technology, can build.

How does theology delimit its specific perspective on sustainability?
The thematic delimitation of sustainability does not work according to the traditional pattern of isolating an object. It is programmatically concerned with problems at the interface of ecological, economic, and social factors.

At the logical core of the sustainability principle is the paradigm shift from linear to networked thought processes, from the concentration on individual objects and linear chains of cause and effect to the focus on more complex systems of interactions and network-like units with their own tempos and rhythms. This eye for connections and contexts, non-linearity, feedback loops, dynamic balances, and order out of chaos in situations that are far from balanced has revolutionary consequences for social ethics, which are currently discussed above all in the context of social system theories (e.g. that of Niklas Luhmann).

The perspective on sustainability given by system theory leads to a new quality of the links between natural and social sciences. Current research on climate change is an example of the necessity of such an approach. Theories of complex systems provide the natural and philosophical basis for sustainability. The German [Catholic] Bishops' Conference has introduced for this the expression *Retinität* (thinking and acting in networks and systemic relationships).[4]

With this in mind it should be apparent that sustainability needs to be understood as something far more significant than merely a juxtaposition of ecology, economics, and social concerns. The frequent definition of sustainability as a model of three-column parity is meaningless. One cannot directly compare the ethical value of ecology, economics, and social concerns. Sustainability is not the sum of these three things, but the way in which they interact with each other.

4 Deutsche Bischofskonferenz [DBK], *Climate Change*, 37, citing DBK, *Handeln für die Zukunft der Schöpfung*, 96, 114, 118ff., and 140-41. See also Vogt, *Prinzip Nachhaltigkeit*, 347-72.

Critiquing utopia

The critique of sustainability as a secularized salvation is a fourth aspect of critical views which I will examine later in the context of ideas of progress. For the isolation of sustainability from the type of societal utopias with which we have had such awful experiences in the twentieth century is a substantial interest for me in the context of this essay.

2. A new contract for global and inter-generational justice

Ethics without boundaries?

The concept of sustainability outlined in Rio does not employ a discursive logic that is specifically ecological. Rather, it is grounded in the extension of ideas of justice across global and generational divides (global and intergenerational justice). This extension is the logical consequence of technology and globalization: the long-term effects, and the way that social interactions are no longer subject to spatial/territorial constraints, call for a matching lifting of the constraints on ethics.[5] This is why safeguarding the functioning of the biosphere is one of the most important social contributions we can make to the future, and to the fight against poverty.

The shortage of drinking water, the desertification and erosion of fertile lands, and the climate-related changes to natural habitats in the twenty-first century are some of the main causes of poverty, as well as its consequences. There is a close connection in global terms between ecological and social problems.[6] There is no justice without environmental protection, and no environmental protection without justice.

Sustainability is often derived from two ethical principles: 1) that future generations should have the same right to life; and 2) that all people should have the same access to globally available resources. I regard this new global and intergenerational egalitarianism, which is scarcely questioned in ethical-political and scientific texts, to be urgently in need of qualification, yet at the same time revolutionary and, in any case, lacking in viable alternatives.

5 Höffe, *Moral als Preis der Moderne*, 179-95.

6 United Nations Development Programme, *Fighting Climate Change*, 8-38 and 58-68; and Lienkamp, *Klimawandel und Gerechtigkeit*, 95-155.

The right to life for future generations

If one wishes to avoid the sophisticated argument of an "objective nature teleology" as proposed by Hans Jonas as a theoretical concept of intergenerational future ethics,[7] one can take the argument of fair dealing, in this case postponed to the next generation in the chain. This principle calls for a provision of care for the next generation to the same standard that one has received oneself. This is "not a vague consideration of solidarity" but an inescapable obligation to justice.[8] One can also apply the Golden Rule to the next generation: the parent generation should not harm the children's generation more than they would have liked to have suffered at the hands of their own parents.

The postulate of intergenerational justice brings ethics face to face with a series of methodological difficulties, since the future cannot be calculated. In particular, the needs and abilities of future people are wholly unknown to us. So the idea of an equal distribution of resources across the generations is of limited help. The scope of the aim should rather be to leave our successors with a world that offers them sufficient means and freedom to take their own decisions.[9] Just as vital as the safekeeping of our natural and social habitats is the development of the cultural competencies necessary to solve unforeseeable problems in the future (i.e. through education and science).

Right to access globally available resources

Currently, around 20 percent of the world's population uses well over 80 percent of the world's resources. The decisive question in justice theory is whether it can be argued that all people have the same claim to make use of globally available resources. Since the just/unjust distinction is only applied to actions and structures within society, and not to inequalities that are a product of nature,[10] this demand is primarily pertinent to the framework conditions of the world economy, and areas of risk sharing, for which their exists a global solidarity agreement (i.e. the Agenda 21 and the Climate Framework Convention). Since world market imports of raw materials are often mechanisms

7 For a critical view on this, see Hasted, *Aufklärung und Technik*, 167-73.

8 Höffe, *Moral als Preis der Moderne*, 183. Quotation translated by K. Ritson.

9 Weikard, "Liberale Eigentumstheorie," 42ff.

10 Ricken, "Gerechtigkeit, philosophisch," 71-73, esp. 72.

for exploitation, and the needs of the poorest are usually neglected, the unequal distribution of resource use represents a huge injustice.

The UNEP assumes that the majority of the population of poorer countries can only have adequate opportunities for development if the industrial nations reduce their use of natural resources in the long term by 90 percent. I count myself among these advocates of the "factor 10 solution."

Such goals are not unrealistic. In the past, and in the present, there have been numerous areas in which proportionally similar reductions of "the utilization of nature" have been achieved, in the sense of deliberate reductions in harmful substances or particular practices, for example through the mandatory use of filters in industrial combustion plants in the 1980s, the introduction of catalytic converters, and the worldwide ban on CFCs. In methodological terms, it is vital that the category "use of resources" is not simply discussed as a given entity, but defined in terms of concrete parameters.

Climate justice as an ethical and political litmus test for sustainability

According to estimates by the Intergovernmental Panel on Climate Change (IPCC), by the year 2100 the average temperature of the atmosphere will have risen by something between 1.1° C and 6.4° C degrees, leading to a rise in the sea level, the melting of glaciers, and an increase in the number of extreme meteorological occurrences.[11] Current statistics indicate that we are heading alarmingly towards the upper limit of this scenario. Climate change "probably represents the greatest existential threat for the present and, to a much greater extent, for coming generations, as well as for non-human nature."[12] It is an existential threat to human rights concerning the food, safety, and habitat of hundreds of millions of people.[13] Climate change is increasingly recognized as the central issue in foreign and security politics. In the long term and on a global scale, the securing of humane living conditions will not be possible without measures to reduce climate change and adapt to its consequences.

11 Intergovernmental Panel on *Climate Change* [IPCC], *Climate Change*, pt. 1.

12 Deutsche Bischofskonferenz, *Climate Change*, 5. See also IPCC, *Climate Change*; and UNDP, *Fighting Climate Change*.

13 Wissenschaftlicher Beirat globale Umweltveränderungen, *Welt im Wandel*, esp. 1-24 and 181-90.

Climate change is primarily caused by humans (anthropogenic). So, from an ethical perspective, it is not a question of fate, but of justice. The excessive use of fossil fuels in industrial countries is ecological aggression, robbing millions of people in developing countries of their right to life; it should be recognized as a new form of colonialism (this time carried out anonymously via the atmosphere). Climate protection is the litmus test for sustainability in the twenty-first century.

Since our climate is common property, its damage affecting all of us and its individual beneficiaries scarcely discernible, investments in climate protection are easy to exploit. Thus, sustainability is impossible without specific institutional protection for climate regulation. A new global agreement on sustainability and cooperation on climate protection measures is needed,[14] as well as a new independent organization for environmental issues within the UN with the power to impose sanctions.

The ethical core of climate justice is the distribution of CO_2 emission rights. In light of current CO_2 emissions, a compromise made up of four key justice principles will be necessary:

(1) absolute distribution of the rights for carbon use and emissions (for Germany, this means a reduction in CO_2 emissions from 11 tons to a maximum of 2 tons per person per year);
(2) equality of relative effort (reduction in percent);
(3) demands set according to ability to contribute and involvement in the cause of the problem (greater contributions from industrial nations, as these bear the most responsibility for climate change); and
(4) recognition of compensation measures (e.g. forestation to reduce carbon emissions or the development of CO_2-reduction technologies).

There has not yet been, in my opinion, an adequately clear model for an appropriate weighting and allocation of these four different approaches for climate justice. If one compares the intensive research on the empirical facts of climate change with the research on ethical, political, and legal conflicts, one can only wonder at the massive discrepancy. The research by the humanities disciplines into sustainability is, when compared with scientific research, the lesser by several orders of magnitude. Perhaps

14 Edenhofer and Flachsland, "Ein Global Deal für den Klimaschutz," 24-33.

the new Rachel Carson Center, a humanities institute for environmental studies research and a joint initiative of LMU Munich and the Deutsches Museum, will help to improve this situation.

For me, the most exciting aspect is to see how the threefold crisis of climate, energy, and economy might be seized as an opportunity to change the political direction. This is on the one hand difficult, as the pressure to find short-term solutions is immense. On the other hand, the fact that these three different crises intersect gives valuable space for creative solutions. The solving of dilemmas using networks and synergies (e.g. a green form of Keynesianism, which solves problems of economy, climate change, and energy supply simultaneously) is the core of the political and strategic meaning of sustainability.

3. Managing contingency: Future ethics between fear and utopia

Climate change reflects an experience on the edge of society's ecological, social, and economic expectations. The ethical and political principle of sustainability answers this experience with a new definition of the conditions, limits, and aims of progress. Instead of a permanently increasing tally of goods and speeds, the safeguarding of the ecological, social, and economical stability of human habitats has prime place in the development of society and in political planning. "Faster, higher, further" has proved to be an inadequate ideal of progress. Only wealth built on fewer resources, open to as many people as possible, is capable of providing justice.

Sustainability is not the byword for a social and economic program for conserving resources; it should be understood as an ethical and cultural reorientation. The contemporary paradigm of progress as unlimited growth needs to be replaced by a value-based and integral concept of development.[15] Long-term economic success needs to be measured by how well it is integrated into the rhythms of nature. The "Index of Sustainable Economic Welfare" can serve here as a means of measuring and checking progress, evaluating prosperity not merely in terms of the gross national product, but according to criteria of sustainable development.[16]

15 Benedikt XVI, *Caritas in veritate,* 48-52.

16 Diefenbacher, *Gerechtigkeit und Nachhaltigkeit,* 133-70.

Our current model of progress is based on the nature philosophy of Newton's mechanics, which sees time and space as empty vessels, as something lacking both direction and structure, both a beginning and an end. Time and space are merely obstacles to be overcome. Our accelerated society, which is managing to use up millennia of resources at a breakneck speed and defines the pace of our lives by the maxim "everything, now, forever," is a consequence of our interpretation of nature. Belief in Creation leads us to search for alternatives to this view of nature, and can today base its nature philosophy on process theology.[17]

Sustainability is a precaution for the future; its motivating hope is not belief in everlasting progress, but the vision of a well-led life within the limits of nature. In the Christian faith one can find such a view of life. It is not founded on the idea that things are constantly improving and that humans will be able to build a perfect society, but in fact on the opposite: on the existential consciousness of the limits of humanity, which can be turned into hope if humans recognize that human life is a gift and moreover that everyone is dependent on the existence of a human community.

This ethos should serve as a corrective to some interpretations of sustainability which have become the main twenty-first century utopia of a global, eco-social and economic management. Without the profound insights of critical anthropology and nature philosophy, sustainability is a deeply ambivalent utopia.

Seen from a theological perspective, sustainability demands a rejection of the utopia that politics and science can solve all problems. This will only be met with acceptance if humans stop projecting their needs for a horizon of clear purpose into the future, and start looking for this horizon in the midst of all the mysteries of life.

How these experiences on the edge can be turned into new opportunities is an exciting research agenda for interdisciplinary dialogues between psychology, theology, and cultural studies. Perhaps economists would be able to find analogies here too, going by the motto, "today's needs are tomorrow's markets."

17 Faber, *Gott als Poet der Welt*. Other approaches come from trinitarian cosmology and from Liberation Theology. See Bergmann, *Creation Set Free*, esp. 57-171 and 269-321.

Even the agreements drawn up in Rio offer us the chance to critically analyze the deeply ambivalent promises which paper over the cracks of these existential boundaries; we are promised a utopian, global management of ecological and social problems, while behind the scenes, the same old models and power networks are pursued. The talk is of sustainability, but what is really meant is the traditional prosperity model, which, according to the trickle-down principle, makes the supply and accommodation of the poorest in society dependent on the growth and surplus of the rich part of society. The experiences of the last two decades show that this is misleading promise. The rejection of the fossil-fuel-dependent economy and way of life are just the beginning.

The utopian excess of this model of sustainability, as it is currently communicated politically, is open to question. The promise of the two-degree target in climate politics is, in my opinion, already unconvincing. CO_2 emissions are still increasing rapidly. The methane emissions from the melting permafrost have exceeded various worst-case-scenarios and we are well on the way to accelerating this process further.

Given this, and other pertinent facts, there has been return in sustainability debates to the apocalyptic visions of the 1970s. How can Christian theology, based on its gospel of Good News, negotiate a path between Scylla and Charybdis, between playing down the danger on the one hand and a discourse of fear on the other? Christian faith has nothing in common with a belief in progress. It is a hope quite separate from the expectations of security and prosperity which we have grown accustomed to in the West. It is a way of managing contingency in the face of the ambivalence of progress and setbacks, security and risk, joy and suffering, life and death.

If we assume that managing contingency is a primary function of religion,[18] then it is here also that we find the specific competence of theological ethics in the discourse on climate change and sustainability; managing contingency is vital to answer the postmodern breakdown of the belief in progress which is the starting point for debates on sustainability, without resorting to ecological apocalypse scenarios or to a new version of the utopia of permanent growth. The specific competence of churches and religious communities in the context of climate change is based in the fact that

18 Luhmann, *Die Religion der Gesellschaft.*

they embed moral claims in a cosmology and a symbolic or ritual communication.[19] In such a way embedded moral claims have more opportunities to change human behavior. The Catholic Church is the oldest global player on earth and the biggest global institution; therefore it has specific duties to fight for a globalization of solidarity. All religions define themselves through a long-term perspective. On this basis they have a very fundamental approach to the ethics of sustainability.

Christian ethics of sustainability do not constitute a closed system of self-serving nature ontology, a guarantee of equality or a utopia of human progress; rather, they offer a form of seeking a way forward in the dialectics of progress and risk.

This is exactly what Hans Jonas meant with his responsibility principle as a counter-argument to the principle of hope as formulated by Ernst Bloch. Jonas demands an ethics of caution, the acceptance of limits and the "heuristics of fear."[20] We need an "intelligent self-restraint," for it is not the limits of nature, but the seemingly limitless desire of humanity in connection with the extreme rise in knowledge of its availability which are today the main threats to our future. The ability to enact self-restraint is a precondition for the redirection of technical and economic development to serve the wellbeing of humanity and Creation.

4. The principle of sustainability: Its place in Catholic social ethics

Sustainability has not been a systematic part of Catholic social doctrine. The term sustainability does not appear in papal documents. There have indeed been impassioned calls for a "return to ecology" but these have not made it past the level of individual ethical virtues, while on the level of political systems there has been no systematic reflection on the relationship between environment and development. This is why I would like to postulate an extension of social principles — that along with personality,

19 Gardner, "Engaging Religion in the Quest for a Sustainable World"; and Vogt, "Religiöse Potentiale für die Nachhaltigkeit," 91-118.

20 Jonas, *Das Prinzip Verantwortung,* 63ff. In my opinion, the "heuristics of fear" as suggested by the religious philosopher needs further differentiation in terms of society and decision theory. We need different models to enable analysis and to manage different kinds of risk. Renn illustrates this under the heading of risk maturity in *Risk Governance*; see also Vogt, *Prinzip Nachhaltigkeit,* 369-72.

solidarity and subsidiarity, sustainability should be recognized as a fourth social principle. This is the core argument of my book in terms of the systematic aspects of Catholic social ethics.[21]

Sustainability is the "missing link" between belief in Creation and social discourses on the environment. Just as the Christian idea of charity was for centuries only understood ethically on the level of a personal virtue, and only became politically effective in connection with the solidarity principle, belief in Creation needs a translation into ethical categories, so that it can become politically viable and justiciable, and clarify concrete consequences of organizational structures and economic decisions in the context of climate change. Belief in Creation without sustainability is, in terms of structural and political ethics, a form of blindness. Sustainability without belief in Creation (whether Christian or not) runs the risk of losing ethical depth.

Sustainability unites and refreshes the traditional principles of social ethics by opening up the problem-horizon of the ecological question, gaining hereby a constitutive part of its definition, its ethical motivation, and an organizational structure drawn from its close referential relationship to the known social principles:

- Without a foundation in the principle of personality, that is to say the absolute dignity of human beings and their ethical and systematic centrality as active and responsible subjects, an attempt to give the wide-ranging demands of the sustainability principle an ethical basis would end in a natural fallacy.
- Without the solidarity principle and all of the many institutions enlisted in the fight against poverty, the sustainability principle would essentially exist in a political and societal vacuum, isolated and — as the UN concept has shown — without any stringent foundation for its social and political elements.
- Without the context of the subsidiarity principle, the concept of sustainable development would lack an organizational motor. Ecological imperatives could be abused to demand more state control, more regulation and more centralization, rather than structures that embrace freedom and adaptation to socio-cultural and natural habitats.

21 Vogt, *Prinzip Nachhaltigkeit*, 456-94.

These considerations, with regard to the ecological dimension of traditional social principles, give non-human nature a voice only via other issues. An understanding of ecological factors as merely an interpretation of social or economic responsibility does not do justice to the problem at the heart of the matter. It contradicts the sustainability principle, which sees the ecological dimension as a target variable of societal development.

Ecological social ethics

A crucial factor for the acceptance of sustainability as one of the fundamental principles of Catholic social teaching is finally that it summarizes effectively the social-ethical diagnosis of the "signs of the times" and gets to the heart of the associated challenges for society and the church: "the social explosiveness that the question of solidarity introduced at the end of the nineteenth century is being reformulated at the start of the twenty-first century in terms of the question of sustainability."[22] Sustainability is a synthesis of the social-ethical diagnosis, and on this basis also a barometer for the way the future will be managed in all political dimensions.

Sustainability shows up justice loopholes which must be eliminated. It is the issue at the interface of all of the main questions about the future, often displaying surprising parallels and structural similarities to different dilemmas in different contexts. Sustainability introduces the dimensions of Time and Nature into socio-political debates. It opens the way for new analyses and solutions for the complex interplay between local and global phenomena.

Such a central function can, however, only be realized by sustainability discourse when this submits to ongoing questioning of its boundaries. This is where theology can be a useful tool in opening up sustainability's search for hope and meaning, which stretches beyond that which is achievable by human, societal, or technical effort. This critical expansion of this sustainability horizon is crucial in view of the risk of sustainability discourse closing itself off and mistaking its integral nature for an omnipotent power to solve. Sustainability needs to look to the humanities — to philosophy, theology, sociology, history, and cultural studies — for accompanying critical perspectives.

22 Wulsdorf, *Nachhaltigkeit*, 12. Quotation translated by K. Ritson.

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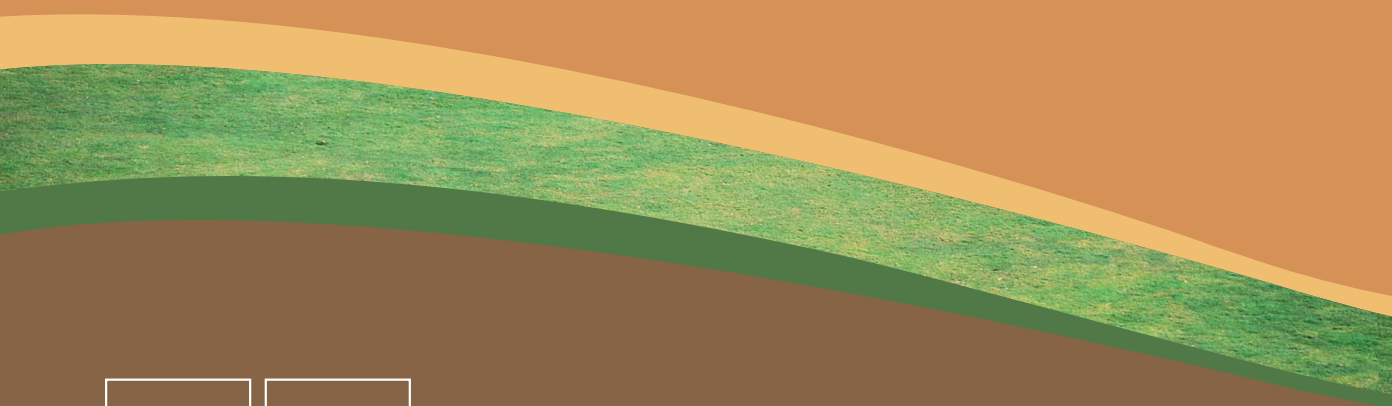

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