Developmental Policy and Limits to Growth

Thomas Kesselring

Lowering global poverty is dealing with economic growth. In contrast, trying to stop global warming is dealing with the limits to growth. Are the two goals compatible, or do they exclude each other? This is the leading question of this paper. Its first part (part I) is dedicated to two preliminary questions: (1) Given that there is no *absolute certainty* about global warming, and given that its risks are incalculable, why shouldn't we simply continue business as usual? (2) If we decide not to continue business as usual, what should we do instead, what should be our leading strategy, and where should we put the priorities? To answer these questions, we have to distinguish between what is necessary for reaching the intended purposes and what is sufficient to do so – a difference which in the case of global warming is commonly blurred.

When dealing with the just-mentioned questions, the problem of world poverty and global justice cannot be left aside, for two reasons: Global warming adds a new dimension to the debates about international justice which, by the way, has not yet systematically been discussed by philosophers. And reducing world poverty seams to countaract the measures of reducing the greenhouse gase effect. These topics is given a special emphasis in part II and III of this paper.

I. A situation of incalculable risks: The wager

If we trust the last IPCC-report, then the global increase of temperature can only be stopped at 2 degrees (centigrade), if we succeed in lowering greenhouse gas emissions (in equivalents of CO_2) by 80 % in global average until 2050.

Politicians commonly refer to lower figures, and many economists tend to diminish even more the proportion by which greenhouse gas emissions must be reduced.

How should we behave in a situation of uncertainty, like that determined by climate change? Many people simply deny or repress the urgency of the challenge, desperately looking for signs that things are not so bad; they sometimes denounce the bearers of bad news as liars.[1] Others say: We know, but what can we do? Still others reply: It's too late to react! … Although psychologically, these reactions may at first glance appear understandable, they are irrational.

It is worthwhile to clarify our attitude towards what we are doing with our natural environment from which we all depend. By doing so, we can emulate the strategy with which in the 17th century Blaise Pascal clarified his attitude towards Christianity (Pascal 1952, p.213-16). He treated the question of whether God exists, as a wager: If I bet on God's non-existence, Pascal argued, then either I win the bet, but then nonetheless don't gain anything, or I lose it, and then lose everything. If, on the converse, l bet on the existence of God, I lose nothing essential, if I lose the bet, and I gain infinitely, if I win it. The French philosopher Michel Serres has transferred this wager to our attitude toward climate change: Do we bet that climate change is caused by human action or that it isn't?

> "If we judge our actions innocent and we win, we win nothing, history goes on as before, but if we lose, we lose everything, being unprepared for some possible catastrophe. Suppose that, inversely, we choose to consider ourselves responsible: if we lose, we lose nothing, but if we win, we win everything, by remaining

[1] One of the most recent examples is: Larry Bell: Climate of Corruption. Politics and Powers behind the Global Warning Hoax. Austin (Texas): Greenleaf Book Group Press, 2011.

the actors of history. Nothing or loss on one side, win or nothing on the other: no doubt as to which is the better choice." (Serres 1995, p.5)

Somebody may raise the question in how far we lose nothing when we lose the wager. The answer is simple: Climate change is not the only challenge we have to deal with. In 2010 we were kept in suspense with the oil spill in the Gulf of Mexico, in 2011 with the havoc of the nuclear power plant in Fukujima, Japan, and apart from this there are a couple of constant invisible treats which are not in the newspaper's headlines, such as loss of biodiversity or water depletion in agriculture: Half of the world population depends on food production based on water resources which are overexploited. The Earth's pollution is another constant eyesore, and the Great Pacific Garbage Patch, an area bigger than the surface of US covered with swimming plastic litter, shows its frightening dimensions.

Michel Serres' wager exemplifies the outcome of rational choice in one of the most urgent dilemmas of the present. Since we risk to "lose everything", if we chose to follow the most comfortable route, it is rational not to do so. But what is the alternative route, and what are its challenges?

II. What shall we do agains global warming?

1. An allegory

The same author, Michel Serres, has illustraded the relationship between men and nature by comparing it with the situation of sailors on the high sees:

"Unable to have any private life, they live in ceaseless danger of anger. A single unwritten law thus reigns on board, the divine courtesy that defines the sailor, a nonaggression pact among seagoers, who are at the mercy of their fragility. The ocean threatens them continuously with its inanimate but fearsome strength, seeing to it that they keep the peace."

"[The sailors] know that, if they come to fight among themselves, they will condemn their craft to shipwreck before they can defeat their internal adversary. They get the social contract directly from nature." (Serres 1995, p. 40)

Michel Serres' allegory matches perfectly with the imminent threat of climate change: We have to cooperate for tackling global warming. By no means should we prioritize to continue fighting against other nations or different ethnic groups, inciting tensions between Christians and Muslims, Muslims and Hindus, Israelis and Palestinians, and so on. The "war" against terrorism, too, is a distraction from a much more important goal: If we fail in adapting our economy to the conditions defined by the limits to growth, then we (and our children) will suffer by far more destruction than terrorists ever can bring about.

2. What shall be our main purposes, and where shall we put the priorities?

But what exactly shall we do? The response seems to be evident: Our economy can be maintained on a more moderate material basis than it is today, since human labor and human ingenuity are both *non material sources* of economic value creation. Ideas, figures, mathematical structures, arguments, hypotheses, and so on, are immaterial. The human mind's creations and know how can be multiplied without limits, as far as they remain (at least at a high degree) independent of material realization. Nevertheless, economy cannot completely emancipate itself from its material basis: Our body and its immediate needs, such as housing, clothing, food and water, are part of the material world. On Earth material substance is limited, and with respect of some elementary material goods, such as drinkable water and food, these limits are now more and more becoming visible. That's why immediate steps toward efficiency increase are necessary. We need technologies which are more and more energy efficient and also more and more resource efficient. The proportion should be *factor five* (Von Weizsaecker et al. 1995 and 2010). This seems possible, at least within a decade or so, when the

technological changes are backed up by habit changes: Instead of taxing labor, we should tax energy use and material resource consumption; instead of pushing private mobility, we should establish reliable public transport systems etc. There are many strategies to reach the efficiency target.

Yet, are these strategies sufficient? They aren't, unfortunately. That a means is "necessary" doesn't imply that it is "sufficient". In fact, efficiency gains are often counteracted by increasing demand – a phenomenon called *"rebound" effect*: It's nice to know that in a decade or so an aircraft's energy consumption will possibly diminish by twenty percent. But how much fuel will be saved, if in the meantime air travels become more frequent? It is expected that the number of flights will rise more quickly than aircraft engine efficiency. Examples like this illustrate the so called *"backfire" effect*.

Such effects can have reasons of three types. The first is related to more accessible prices due to higher efficiency. Lower prices stimulate the demand. When about a hundred years ago the first bulbs were replaced by another, far less energy-consuming kind of bulbs, electrical light became cheaper, and energy use exploded. Backfire processes like this are best known in both, affluent as well as poor countries. In both cases they trigger economic growth and accelerate resource exploitation.

3. First reason for "rebound" and "backfire processes

This first reason has to do with an entrenched dogma of modern economic thinking: To be healthy, it is said, an economy must grow. What is it what should be growing? The Gross National Product (GNP). GNP, however, grows also when air planes crash, when there are traffic accidents and people need medical treatment and victims are to be buried. Growth of GNP not necessarily increases wellbeing and quality of life. The marginal utility of mere growth in many cases is zero, and sometimes even negative, as ghe many environmental damages show.

An economy is held to grow, if the sum of the values it produces increases. A growth of about 3% a year means that by 3% more economic values are produced than the year before. – But what are the sources of economic growth? Two main sources of value creation have never been seriously disputed: labor and capital, understood as physical capital (productive goods, such as tools, machinery, buildings, etc.). Capital formation is usually explained by the willingness to save. A third source consists in human capabilities and *know-how* (knowledge, information, training, skills). Human capabilities are the base for technological progress. But there is a fourth factor of value creation that seems to have escaped to the economic classics: nature (Binswanger 1992).

As Adam Smith noted in the 18th century (Smith 1776), the demand for capital goods is higher and more diverse in a society with division of labor than in one without such a division. Smith held that the acquisition of such equipment becomes possible mainly because of people's propensity to save money. But that is only half the truth, since like consumption, investments, too, can be increased by the *creation of money*, that initially was based in mining gold and silver, later on in printing paper money (banknotes), and nowadays in granting credits and mortgages by banks. These strategies however seriously increase the risk of inflation. The only way to avoid this risk is escorting the creation of money with an increase of the real economy. That is to say, the creation of economic values has to increases in the same pace as the creation of money. Speaking more concretely – the volume of human work and the amount of exploited resources must also increase: New land must be put under the plow, more irrigation systems operated, additional mineral deposits, oil fields, energy sources etc. exploited, more forests cut, more wood turned into paper, etc. All of these items refer to what we generally call „nature". The productivity of natural resources covers, on the one hand, processes such as soil fertility, growing of organic mass (plants, animals, algae, fungi, etc.), sources of renewable energy (solar energy, heat from bowels of the Earth, power of water, wind etc.), and on the other hand, natural self cleaning processes on a chemical and biological level (cleaning atmosphere, cleaning water, decomposition of garbage, poison etc.), and any process granting the equilibrium of eco-systems, climate stability etc.

Classical economics has never given due attention to this factor, first because its' contribution to value creation was simply taken as a matter of course: For a long time, the nature's supply was infinite, its use was free of charge, and its protection was not an issue to care about. A second reason for systematically underestimating the contribution of natural resources was economic theory in itself which postulated that economic value is mainly based in human labor. At the end of the 17th century, John Locke wrote in his *Second Treatise of Government*, „that of the *products* of the earth useful to the life of man nine tenths are the *effects of labour"*. But then, he immediately corrected himself, by saying that in most cases „ninety-nine hundredths are wholly to be put on the account of *labour*" Locke 1690, chap. 5: On Property, § 40).

As classical economics appropriated this view, it neglected completely the difference between nature, which is finite and limited, and money, which is potentially infinite. Only recently, the Club of Rome's account of *The Limits to Growth* has called our attention to this difference.

4. Second and third reason for "rebound" and "backfire processes

The second reason for rebound effects is the growth of global population which actually amounts to 219'000 persons per day (Brown 2011, p.12) or 77 million a year or 1 billion in 13 years. This growth unavoidably raises material demands, if we don't want that the average level of material wellbeing lowers.

The third reason for rebound effects is related to poverty reduction. About two fifths of the world's population is still marginalized, i.e. not integrated into the global market, and live at the subsistence level or below. According to a deep-rooted belief poverty reduction necessitates economic growth. John Rawls has based his "difference principle" on this belief: If the poor benefit more from economic growth than the wealthy, then there is no need for the rich to give something away to the poor (as Peter Singer urges: 1984, 2002). The lower the living standard of a given social group, the bigger its share of the economic growth should be. The World Bank, too, considers economic growth to be essential for poverty reduction, but her allusion to the so called "trickle down effect" leaves open to what extent the poor are supposed to participate in this growth.

Apart from the fact that economic growth is not unlimitedly possible, at least not in a material sense of growth, the "trickle down" metaphor sounds somewhat cynical, since it suggests that even if the poor become just a few crumbs, they after all still get more than nothing. – What is intended with this assumption? The message implied in the "trickle down"-metaphor refers implicitly to the law of diminishing marginal utility. According to this law, the satisfaction we derive from a series of equal units of a good, say pastries, diminishes with each subsequent unit. At first glance it seems possible to conclude that the first unit of a good *always* gives a higher satisfaction than each subsequent unit. This law, however, doesn't apply under conditions of severe deprivation. If the units of a good are very small ("crumbs"), then the law of diminishing marginal utility may be invalid. This depends on whether a good is a means for increasing pleasure and well-being or whether it serves for relieving pains or misery. Let's give an example: When we got too close to a beehive and were stung seven times, then treating the stitches with an ointment eases our pain. The relief, however, is lowest, when we apply the ointment to the first stitch, since there are six stitches left, and highest, when we cure the last stitch. – In a similar way, some single "crumbs" reaching a poor person don't contribute sufficiently to relieve their misery. A person, who daily gets just a few drops of water, nevertheless will die of thirst after some days, and a person malnourished and weakened by disease never will get healthy, if her diet remains below the required minimum of calories. Thus, if a person living in misery is given equal amounts of material aid, the easing effect of each additional unit becomes bigger the closer this person gets to the poverty threshold (Karelis 2007, p.68).[2] From this we can conclude that poverty reduction is most effective only when it helps the poor not remain below this threshold.

[2] This threshold does not necessarily coincide with the World Bank's definition of poverty line, which is based on monetary criteria. The poverty threshold could be defined as the level from which on the amount of wellbeing increase caused by further units of material aid (= marginal utility) starts shrinking.

5. The main reason for economic growth is poverty reduction

All in all, we must distinguish between necessary and sufficient conditions. Although the promotion of efficiency is a necessary strategy for sustained growth, it is not sufficient unless it is backed by effective measures to contain "rebound" effects and prevent "backfire" effects. The dogma that economic growth can go on for ever stands on feet of clay. For the affluent societies, continuous economic growth is also, from a psychological point of view, no longer necessary, since further economic growth does not raise peoples' satisfaction or happiness. Nations with a high living standard, such as South Korea, Japan, Finland or Switzerland, often have a higher proportion of suicides than countries with a low living standard do. Apparently, each unit of material resources or energy we use in addition, no longer contributes to our well-being. It is true - a higher number of cars and a higher frequency of trains and flights increase considerably our mobility. Therefore we are tempted to cover longer distances between home and work and to book more frequently long-distant holiday flights. But all this doesn't help us saving time. On the contrary, rising mobility leads rather to urban sprawl and traffic chaos than to growing satisfaction. So, it's easy to conclude that economic growth must not be an end in itself. Population increase and poverty reduction remain the only arguments in its favor.

In fact, world poverty is an issue as serious as global warming. Since „(…) poverty continues unabated, as the official statistics amply confirm: 1,020 million human beings are chronically undernourished, 884 million lack access to safe water, and 2,500 million lack access to basic sanitation; 2,000 million lack access to essential drugs; 924 million lack adequate shelter and 1,600 million lack electricity; 774 million adults are illiterate; and 218 million children are child laborers." (Pogge 2010a, p.11).

Climate change in combination with world poverty is a double challenge, and this hardly facilitates the solution of each of these problems. This becomes evident, if we introduce the abyss between rich and poor into Michel Serres' allegory of the sailors on the high seas. Instead of only one ship, a whole fleet is threatened by a storm – a fleet consisting of some luxury steamers, a couple of simpler ships and a large number of fragile boats. If the crew of just one single luxury liner stands together and cooperates for succeeding in crossing safely the dangerous zone, the risk for the others remains undiminished. To lower this risk for the whole fleet, the mariners have to elaborate a strategy accounting for all sailors and all passengers of all vessels. Would it be justifiable to give up the fishing boats? And if so, would the luxury liners' crew and passengers agree to take up their occupants, sharing with them their noble cabins? Or should the marines advise the fishermen to improve on the high seas the equipment of their boats? Would they at least help them doing so, in the hope they will then be able to face the storm? And would there be enough time left for realizing this strategy?

III. World Poverty and Unequal Distribution

Effective strategies to lower world poverty presuppose a sound diagnosis of its main causes and mechanisms. These causes and mechanisms were intensely debated during four decades. In this part of the paper some reflections about this debate are to be made before proceeding to discuss, in the final part of the paper, the implications the limits to growth have (or should have) on development policy.

1. What are the Causes of the Poverty Gap?

To discuss the causes of world poverty wouldn't produce heated tempers, if there was no direct causal relationship between the poverty of the ones and the wealth and abundance of the others or, speaking differently, if the people belonging to the "bottom billion" (Collier 2008) would be themselves responsible for the hardship they are suffering. It is often argued that reality is not very far from this "ideal", because the plight of people living in "absolute poverty" is supposed to be primarily rooted in some particular patterns of their local culture.

The late John Rawls, e.g., adhered to this view: "The problem is commonly the nature of the public political culture and the religious and philosophical traditions that underlie its institutions. The great social evils in poorer societies are likely to be oppressive government and corrupt elites." (Rawls 1993, p.77) – There are many examples which support this hypothesis – from Idi Amin and Houphé-Boigny to Abacha and Mobutu...

This theory, however, didn't remain unchallenged. In the sixties and seventies of the 20th century, the adherents of the "dependency" theory argued that the persistence of hunger and malnutrition in some parts of the world and the material wealth of the affluent societies are just the two sides of the same coin (e.g. Galtung, 1972). As they occurred in the age of the Cold War, these discussions were not always free from ideological noise.

Due to "globalization", however, the causal connections between wealth and poverty have become more complex. Many different factors are playing together. To understand this interplay, it is appropriate to distinguish between causes on a local (or regional) level and causes on the global (or international) level. Crossways to this difference another distinction holds, too, namely between conventional causes, which in principle can be controlled and changed, if necessary, and natural or accidental causes, which cannot be influenced. The effects of these natural causes, however, can possibly be eased, if we study how they exactly work. - In a schematic view, we can distinguish four types of causes:

(1) *local conventional causes*, e.g. a society's cultural heredity, religious attitudes, political habits etc.[3] (2) *local natural causes*, such as the geographical location and the availability or lacking of natural resources.[4] (3) *global conventional ones*, such as, foremost, the international political and economic order regulating any kind of cross-border exchange. This order is given with the Law of Nations, the Laws of International Economics, as well as the dominant ideas about development policy ("Washington Consensus"), the existing WTO rules, the business practices of multinational corporations, etc. All these factors determine how political and economic power is distributed on the global scale.[5] (4) Finally, there are some *global random conditions*. They include all types of immutable facts, as for example the fauna and flora, which have evolved and spread over the world, the size of each continent, the number of actually living human beings, the development of social organization patterns since the Stone Age, the current level of technological development, etc.[6]

Table 1: The factors which cause poverty ("world poverty") can be classified in four groups:

	Conventional causes	*Natural or random causes*
Local or regional	**(1) A society's cultural heredity, religious attitudes,**	**(2) Geographical location and availability or lacking of natural**

[3] See e.g. Rawls 1993, p.77.
[4] See Collier 2007, 2009; Landes 1999, 1st chap.; Sachs 2005, chapter about Africa.
[5] See e.g. Beitz 1985, Pogge 2007, 2010; Stiglitz 2003.
[6] See Diamond 1997.

causes	**political habits etc.**	**resources, etc.**
International or global causes	**(3) Law of Nations, Laws of International Economics, the WTO rules, the dominant ideas about development policy, the business practices of multinational corporations, etc.**	**(4) the fauna and flora, which have evolved and spread over the world, the size of each continent, the number of actually living human beings, the current level of technological development...**

Factors of all these types interact in complex ways and produce effects of a big variety. This can be illustrated with the different impacts the learning conditions in a classroom usually have on different students: The teaching practices may help some students succeed brilliantly, while others learn with difficulty and others again stagnate or even regress. When a student fails, the proportion in which the school and its teachers have contributed to this result and the share of the student's own responsibility cannot be calculated exactly. As for the student's part, the proportion in which acquired capabilities and innate factors led to the failure, remains unmeasurable, too. In the classroom, therefore, four kinds of factors play together, in a way similar to that in developmental politics – namely conventional and natural or accidental causes, both operating on the institutional and the individual level.

For pragmatic reasons, it is worthwhile to reduce the complexity. Since we cannot change the natural or accidental factors, but only mitigate their effects, and since the local conditions for poverty in distant areas overseas are supposed to escape the reach of what we can do, the most direct way to help lowering the poverty gap is sticking to the *conventional global factors* – in other words, the rules prevailing in the given world order.

2. Globalization of markets

Global economy has grown in an accelerated pace since markets are globally integrated. New huge markets have emerged. The BRIC – Brazil, Inda, China – and some other states now belong to the mightiest global players. But not all nations have equally benefited from the economic growth. And of the many kinds of effects – environmental, social and political, not all are ultimately positive (Kesselring 2003, chap. 7-9).

First, the large-scale integration of markets triggers a global competition between locations – something completely new in human history. In this competition, some nations are doing well while others are ailing. And in all countries the poverty gap has deepened. In India, e.g., "despite its enthusiastic and much-touted participation in the globalized economy of high technology industry and services, just 1.3 million of India's 400 million workers had jobs in the 'new economy'. To say the least, the benefits of globalization take an extraordinarily long time to trickle down." (Judt 2010, p. 194).

As long as markets were limited to a regional scale and there were only small stock markets, competition occurred mainly restricted between enterprises with similar specializations. Economic competition didn't unfold the destructive power it has today. Most countries with a comparably weak economy would be less burdened, if they had not to fear the concurrence from any part of the world. In Africa a great number of countries have their capital at the sea shore. Most of these capitals are involved in a far more lively exchange with partners overseas than with their own hinterlands. This is a main obstacle for the development of local markets. For similar reasons, in a globalized market a country suffers particular disadvantages, when it is landlocked and depends on its neighbor's infrastructure, such as Bolivia, Paraguay, Nepal, Mongolia and about 20 of Africas poorest countries do. All these countries would profit if the regional economic bounds were strenghtened and the burden of global competition eased.

Second, the greater the distance over which trade occurs, the more difficult it becomes to uphold transparency. How an American or a Canadian buyer of a laptop can check whether its production and, later, its disposal fulfill all the necessary humanitarian and environmental criteria, if he doesn't even know in what parts of the planet these processes occur? This embarrassment is sometimes mitigated thanks to the investigations some non-governmental organizations make when they suspect illegal or harmful practices. For eliciting the consumer's awareness, however, these practices must be proven and widely publicized – which both is expensive and time consuming. So, lacking transparency persists as a main challenge. (It should not go unnoticed that increasing distances to be covered by the transportation of material goods lead also to an increase of energy use.)

Third, it cannot be denied that everybody profits by participating in *the worldwide exchange of information, knowledge and know-how*. But from this it cannot be concluded that exchanging things of whatever kind is profitable for everybody. This is no accident: When the classic writers in economics developed the theory about international trade, arguing that each country wins when it moves its production to the niches which marked its comparative advantages (Smith 1776, p. 423, Ricardo 1951, p.136s.), they uniquely referred to trade with material goods and explicitly declared themselves against both, migration of capital and labor forces.

With the liberalization of international capital flows the diversity of funding sources increased, but from this increase only the wealthiest 20 or 30 percent of the world's population really profited. The global integration of financial markets has facilitated the emergence of a tiny financial elite scattered around the globe, but at the same time unemployment spread all over the world (Daly 1996, S.153-57).[7] Speculative financial transactions are almost completely disconnected from the real economy, and the repeated financial crises during the last fifteen years showed with incontrovertible clarity the huge risks they entail. J. Baghwati (2004, Kap. 13) is right in saying that financial markets don't follow the rules of real markets and therefore should not be called "markets". But he has not been right, when he proclaimed in 2004, that the risks of coarse debacles due to Wild West capitalism have now been overcome.[8] All in all, we have to deal with a double challenge, first to reduce and integrate the financial "markets" into the real economy, and second to redirect economy towards sustainability. Yet, the rules which govern the world market are unsuitable for helping us to carry out these tasks.

It is a real paradox of globalization that for non-living capital it is much easier to overcome national borders than it is for human beings (the World Bank refers to as "human capital"), willing to work abroad. The different ways how living and non living capital is treated, when crossing borders, has something obscene, even if we disregard the tragedies which daily occur at the border between Mexico and US or in the Mediterranean between Africa and Europe and which cost the life of thousands of migrants every year.[9] Undeniably, excessive cross-border migration of human beings should be reduced for ecological reasons, but this can only be done in a humanitarian way, if international capital movements are drastically reduced as well, if regional markets are

[7] „National production for the national market should be the dog, and international trade its tail. But the globalist free traders want to tie the dogs' tails together so tightly that the international knot will wag the national dogs" (Daly 1996, p.157).

[8] "By now, the IMF has abandoned its excessive pre-crises enthusiasm for free capital mobility. It has learned the role of prudence in opening domestic financial markets to global integration, and the need to strengthen banking structures and practices prior to the opening. It has informally accepted the possible wisdom of measures such as tax on incoming capital flows (an innovation of Chile) if they get too large. Finally, it has painfully learned the need for diversity of responses and conditionalities should crises erupt despite the prudence and safeguards. In short, while a watchful eye over the Wall Street-Treasury complex remains a necessity, *the days of gung-ho international financial capitalism are probably past*." Jagdish Bhagwati: In Defense of Globalization. NY: Oxford Univ. Press 2004, p.207 (italics: tk).

[9] In October 2010, the EU has made an agreement with the Libyan autocrat Muammar Qaddafi and given him the order to watch over the Libyan coast for hindering people to cross the Mediterranean and imigrate Europe. The EU interior Commissioner Cecilia Malmström has offered Qaddafi 50 million euros for this job, but Qaddafi requested 5 billion. In this negotiation the EU did neither care about genuine refugees nor take any account of Quaddafi's refusal to sign the Geneva Convention.

strengthened and if local markets in peripheral regions are given the opportunity to grow sufficiently for allowing people to live freely from absolute poverty.

3. International Law

Under the reigning world order people located at the bottom of the poverty gap are condemned to suffer a further burden of disadvantage, which often entails the violation of their human rights. International law allows, e.g., bans and high import duties for products coming from developing countries.[10] Foreign multinational corporations eager to dominate the international market of bottled water, are allowed to purchase fresh water springs;[11] and foreign companies are allowed to purchase land from poor countries. In September 2010 World Bank identified "464 land acquisitions that were in various stages of development between October 2008 and August 2009." Lester Brown, from whom this citation stems (Brown 2011, p.68), warns that in the next years countries subject to "land grabbing" might be particularly exposed to disturbances and uprisings.

International Law includes some old-fashioned rules that strengthen and perpetuate harmful practices that commonly are attributed to outdated local traditions. Thomas Pogge, who has done research on this topic, criticizes primarily the "resource privilege" and "borrowing privilege" (Pogge, 2010, pp. 47ss.; 2007, p.125-129):

The *"resource privilege"* refers to a rule which concedes to a government all important decisions about resource exploitation. This rule applies indifferently to dictators and coup plotters. It declares them to be entitled to sell mining and resource property rights to whom they want to and to determine how the revenues are used. - Indeed, "a remarkable feature of our world order" (Pogge 2007, p.125).

The *"borrowing privilege"* grants governments the right to take all necessary decisions concerning public loans from foreign donors. Again, it doesn't matter whether the government is headed by a dictator, or not. Often the head of a state uses loans predominantly to consolidate his power. In countries where liberty of opinion and freedom of press are lacking, substantial portions of these loans are misappropriated and transferred to foreign bank accounts. If during a government change a country is indebted, the new government crew is usually obliged to maintain debt service and has its hands tied until the "odious debts" are refunded. Under these circumstances social reformsare doomed to be neglected.

In countries without democratic traditions the credit and resource privileges provide strong incentives for coups, and in the reverse they motivate heads of state to fight against stepping down, when they have lost an election (as was the case with Jonas Savimbi in Angola, Robert Mughabe in Zimbabwe and Laurent Gbagbo in Ivory Coast).

IV. Developmental Policy and the Limits to Growth

Another causal determinant connecting people in affluent countries as actors with people in the poorest countries as victims became apparent only recently – the greenhouse effect. Even if we succeed in limiting

[10] According to Nick Stern, former chief economist of the World Bank, in 2002 the rich countries invested more than $ 300 billion in export subsidies for agricultural products, "roughly six times their development aid". A cow is subsidized with 900 U.S. $ per year in Europe and with 2700 U.S. $ in Japan, an amount by far above the annual earnings of most human beings. Stern also mentioned the so-called escalation tariffs, duties that are lowest for unprocessed materials and increase with each step of processing. These duties make it difficult, or even impossible, to developing countries to build up an industrial production (Pogge 2010, p.206 note 25 and 2007, p.106s. n.21).

[11] In March 2009, the five largest conglomerates which commercialize bottled water held an international water conference in Istanbul and invited many influential persons from poor countries. At this conference it became public that these conglomerates intended to buy up an impressive number of freshwater springs in different parts of the world, especially in Africa. http://www.iusf.org.tr/index.php/EN/organization and http://www.alliancesud.ch/de/ep/wasser/weltwasserforum-in-istanbul (both accessed 03/08/2011).

global warming to two degrees, the average temperature will in the near future rise by two degrees.[12] But global warming will be uneven, namely much lower over the oceans and higher over the continents, where temperature differences possibly will reach three or four degrees. As a consequence, in most countries precipitations will probably be more intensive and produce more soil erosion, flooding and landslides. But apart from these general effects, different regions will be affected by adverse impacts of different types, such as accelerated loss of biodiversity, rising sea level, increased rock fall due to permafrost thawing and temporary drying up of rivers that are no longer fed from glaciers.

Global warming, however, may not cause exclusively harm. Some countries are likely to benefit from climate change, particularly countries in higher latitudes, where former frozen soils may be put under the plow. If the Gulf Stream collapses, Western Europe is likely to cool down quite a bit, and the Alps may become the only skiing paradise worldwide. Other regions, especially in the subtropics and tropics, risk to increasingly lose their soil fertility due to more intense drought and flooding. The different effects of global warming on different regions mainly depend on random geographic and meteorological circumstances (IPCC, Fourth Assessment Report, 2007, chap. 3). For this intricacy nobody can be accounted for. Yet, this does not apply to the causes of climate change as such. In this regard responsibility is a question which really matters.

1. Justice problem I: violation of the 'polluter pays' principle

All in all, there will probably be winners and losers. From an ethical perspective, this is no problem, unless the winners are precisely the societies which have most contributed to the causes of climate change, and the losers, or at least some of them, societies that don't bear any responsibility for the greenhouse effect. It is, however, extremely unlikely that this double condition will apply, since the regions particularly affected by climate change are supposed to be Latin America, Africa and India (Cline 2007, p. 2) besides, in a minor degree, the south of US and Australia. Hurricanes, too, will probably hit less often the highly developed than the developing countries (Central America, Southeast Asia, Oceania). An exception is again the southeastern part of US, of which Hurricane Katrina has given example.

Apart from the Maldives and other groups of small islands, Bangladesh will be among the pure losers: With its more than 1100 inhabitants per square kilometer, it is one of the countries with the highest population density. Although its amounts of greenhouse gas emissions always were minimal, it belongs to the countries most immediately threatened by Sea level rise. To hope that in compensation to lost areas, larger territories, such as Greenland, Newfoundland or Alaska, will be suitable for being inhabited after the glaciers' melting seems unrealistic: Until these territories are covered by forest and humus, it will take centuries, if not millenniums.

So we should not wonder if nations, that haven't contributed much to the causes of climate change, will be affected dramatically and inescapably by its consequences, while others, that bear a large responsibility for the predictable havoc, may enjoy a more balanced ratio between profit and loss. This means that besides the worldwide poverty gap another gap will divide global society - that between "actor nations" and "victim nations". The more the consequences of global warming will become visible, the more this gap will be

[12] The goal to limit global warming *to two degrees Celsius* necessarily conceals a couple of important facts: (1) Even if we succeed in reducing greenhouse gas emissions by 80% until the year 2050, there is no guarantee, that global warming will stop at two degrees. There is only a probability of more than 65% that this will happen. (2) Many estimations of the last IPCC report have turned out to be too optimistic, as e.g. those concerning Sea level rise to be expected due to a global warming of 2 degrees. (3) The two-degree-mark is an average value. Over dry land temperatures may rise by 3 or 4 degrees, while over the oceans they may remain roughly unchanged. (4) Even if the two-degree goal is reached, global warming will still produce dramatic consequences, since average temperature will increase nearly three times more than it did since 1750, when industrialization began (0.75 degrees). This increase would be enough for making glaciers in the Alps, the Andes an in Himalaya shrink continuously.

accentuated. This adds a new dimension to the prevailing justice imbalance on the international level, a dimension which has not yet been discussed in philosophical ethics.

To illustrate the current situation, it is worthwhile to look for a suitable allegory. Michel Serres' image of the sailors does definitely not cover the complexity of the given situation. Another image may perhaps better illustrate the opposition between "actor" and "victim nations" in a scarcity scenario – that of a coal mine with different companies involved in coal exploitation. Some of these companies are working with heavy modern machines (driven by electric power from coal-fueled power plants!) that perform all the hard stuff, such as digging galleries, separating the coal from the rock and unloading the coal in self-directed trains. Others are operating with explosives, simple tunnel wagons and primitive elevators. Still other groups – even the majority – are digging with hammers, chisels, shovels, carrying rocks and coal in simple baskets. The coal in the mine is limited, but long before it runs completely out, the risk of collapse reaches a critical mark. The miners working with the most primitive instruments lack the means for securing their galleries against collapse and therefore are most exposed to their crumbling – particularly when other companies blast the rocks or when heavy, strongly vibrating machines shake and destabilize the galleries.

2. Justice problem II: How the burdens related to the lowering of greenhouse gas emissions should be shared in an equitable way?

Climate change confronts us with a further challenge, strictly related to global justice, but not reducible to the actor-victim problem: How much the different countries should contribute to the reduction of greenhouse gases? What a fair burden share would look like? It's doubtful whether a response to this question can simply be negotiated without clear criteria. In search of criteria, it may be useful to divide all nations into three groups:

(1) those which have CO_2 emissions per person far above the 1 or 1.5 tons permitted in the long term.

(2) those which surmount just slightly this threshold, and

(3) those which remain below this threshold (in African countries south of the Sahara emissions are almost zero).

In most nations of the third group the standard of living is very poor. For the sake of poverty reduction these countries must be allowed to increase considerably their greenhouse gas emissions (and their access to resources). This, however, necessitates that the countries of the first group reduce their emissions by more than 80%, namely by roughly 90 or 95%.

3. Justice and Sustainability

If we consider the two major challenges of international justice, *world poverty* and *global warming*, as just two aspects of a single process – globalization, then the connected challenges at first sight seem to be far more complex than if both problems were considered separately. In a world where social inequality is moderate, the implementation of compelling measures against climate change would be easier than in a world where affluence and misery coexist side by side. On the other hand, it would be less difficult to reduce the poverty gap, if we did not at the same time need to mitigate greenhouse effect.

Nevertheless, if we succeed in identifying correctly the causal factors that are essential for both problems, the complexity of the whole issue may considerably diminish. These factors are of course *population growth* and the *increasing level of material claims*. The latter depend particularly on the degree of a country's industrialization and economic development. – In the following paragraphs these factors are further scrutinized.

4. Lowering greenhouse gases: The question of burden sharing. In search of criteria

In the northern hemisphere population growth is often considered to be the impediment number one for establishing a global ecological equilibrium. Indeed, in the last two hundred years population dynamics has profoundly changed the living conditions on our planet:

„World population grew from 2.5 billion in 1950 to 6.1 billion in 2000. The growth during those 50 years exceeded that during the 4 million years since we emerged as a distinct species." (Brown: 2003, p.6)

Despite rampant AIDS epidemic, annual birth figures exceed death figures on a global scale by about 77 million. So the people added to world population each year corresponds to the population of Iran or to a quarter of the US population or ten times the Swiss population.

But it is true also that during the last decades, material demands have grown much more steeply than world population itself. For example, between 1950 and 2000, incomes worldwide have tripled and the number of cars has increased almost twenty-fold by 2010, whereas world population has roughly doubled (Brown, 2003, p. 6). That's why it is doubtful whether the global population growth is really the key problem of our era.

In what follows, both factors, the demographic dynamics and the basis of living standard, are compared. In a further step the effects of these factors are brought together into a synoptic view (see table 2 on p.16, which refers to some selected countries. The figures in the last column represent the weights of the "ecological backpacks" worn by their citizens).

(1) The demographic dynamics. Population size changes with a different pace in different groups of countries. In 60 countries fertility rate (the average number of children per woman) is not higher than 2, in 28 countries it is 1.5 or below. In Western Europe, the population would shrink if there were no immigration (since 1990 population is really shrinking in Bulgaria, Romania, the Baltic States, Georgia, and more recently also in Russia). In 35 countries, however, the fertility rate remains still at 4 or above, in three countries (namely Afghanistan, Niger, East Timor) even at 6 or above. In other words, fertility rates differ extremely between nations. In some countries ten couples rear in the average 10 or 11 children, in others 60-70. In some countries, especially (but not exclusively) in sub-Saharan Africa, the population continues growing by 3 to 3.5% a year,[13] what means that it doubles within 23 years and would grow twenty-fold within a century, if it remained constant. Yet, in these countries life expectancy diverges significantly, too. Usually, fertility rates are highest where life expectancy is lowest.

In most nations birth rates dropped quickly during the last decades and in some they have halved within no more than seven or eight years (Brown 2011, p. 159s.). Other nations needed two or three decades to obtain the same result. Nevertheless, in most countries population continues increasing, since in the last few decades the number of families grew more quickly than the number of children per family shrank. Population growth stops when death numbers equal birth numbers, and this happens only when in three successive generations fertility rate never oversteps 2.1 (the number which marks the conservation of the population size).

Efforts in family planning should be particularly strengthened in the poor societies (see, e.g., the demographic factor of Bolivia, in table p.17). In some Arab states which ten or fifteen years ago had large families, fertility rate has rapidly fallen in the last decade (see e.g. Saudi Arabia, Egypt, and Syria).

In most poor countries (the majority of which are situated in Africa) the very high firtility rate goes hand in hand with a still high infant mortality. In some countries (especially Afghanistan and East Timor) it is related to prolonged war turmoil. Lowering the child death rate and a peace-keeping or peace-promoting policy should therefore be primary objectives of international policy. Last but not least, a high number of African countries with particularly elevated birth numbers are scourged by an alarmingly high HIV infection rate. From Kenya, for example, it is reported that teachers and police officers die at a faster pace than young people can be trained for their substitution.

[13] All figures: Human Development Report 2010, table 11.

This makes clear that the fertility rate is not the only significant factor in population statistics. Life expectancy is significant, too. People who enjoy the privilege to live 83 or 82 years (in the national average), as in Japan and Switzerland, have twice as much time to benefit from the Earth's resources, as people whose life expectancy barely exceeds 40 years do, as in some African countries or East Timor. That is why an assessment of a county's "demographic burden" should consider life expectancy, too.[14] In the table 2, life expectancy is accounted for 1, when it equals the global average,[15] and for more or less than 1, when it is above or below the average.

(2) The dimension of the material claims (living standard): To lower material claims is more urgent than to reduce fertility rate, since the former were and still are growing considerably faster than world population. Apart from this, the majority of the so called developing nations have more quickly succeeded in lowering demographic growth than the wealthiest nations did in lowering material and energy consumption.

Prosperity depends on material and structural conditions such as access to physical resources and energy on the one hand, a political and legal order and social infrastructure, on the other. Prosperity, however, does not only rise, when resources and energy use are growing. It rises, too, when criminality declines or when mobility is reduced, e.g. because people decide to live closer to their job location and prefer using public transport instead of private cars.

The political and legal order and social infrastructure rely on the people's ethical attitudes, knowledge, cognitive competences, and manual skills. Many non-material activities, such as arts, theater, dance, music, reading, and most kinds of study and intellectual training, are likely to promote human happiness without much stretching the material base. As we have seen before, in the affluent societies increasing consumption of material resources and energy does generally no longer raise the quality of life.

Effective means to regulate material claims would be the complete removal of subsidizing resource exploitation, internalizing the ecological costs of fossil energy use and resource consumption, and a change in the tax system: When fossil energy use and resource consumption is taxed instead of labor, then both, waste of resources and unemployment will decrease.

The ecological weight of a given living standard can be expressed as „Ecological Footprint" – the surface (in hectare) needed for the production of all resources necessary for covering a person's needs and claims, such as nutrition, clothing, housing, mobility, hobbies etc.;[16] the "Ecological Footprint" combines the aspects of environmental strain and greenhouse gas emissions.[17] Country-specific footprints range from 0.6 ha (Afghanistan, Haiti) up to 10.7 ha (United Arab Emirates). The average footprint on a global scale is 2.7 hectares per person, which is 1 hectare above the conditions of sustainable yield (= 1.7 hectares), given that world population now reaches nearly 7 billion.

The US is frequently praised for stimulating the world market by its tendency to import a huge proportion of its consumer goods. From an ecological point of view, however, this praise is highly ambiguous. A country's footprint should reflect the average of what its inhabitants consume, but not what they produce for export. Otherwise, nations which import a big proportion of their consumer goods would be relieved at the expense of

[14] A population where fertility rate does not exceed 2.1 during more than one generation can nevertheless increase, namely when immigration exceeds emigration or when life expectancy rises, causing a decline of death numbers during the transition period.
[15] Figures concerning global average life expectancy differ considerably between different sources. The indications of the *Human Development-Report* 2010 (69.3 years) and CIA (66.12 years) differ considerably.
[16] See *Global Footprint Network* (The Ecological Footprint Atlas 2008); or the Interactive Footprint calculations which the *WWF* (Worldwide Fund for Nature) offers online. See also *Human Development Report* 2010.
[17] Figures concerning national average footprints differ slightly between different sources. See [1] *Global Footprint Network* (The Ecological Footprint Atlas 2008), [2] *WWF* (Worldwide Fund for Nature) and [3] *Human Development-Report* 2010. There are no differences in trend forecasts.

the countries where these goods are produced. To eliminate the confusion between the impact of production and consumption is a matter of justice.

For similar reasons, trading with emission allowances is as well highly ambiguous. It leads to a dilution of the footprint calculus and distracts national policies from focusing on the real priorities – the implementation of the necessary changes at home.

Another confusion occurring frequently is that between the *average* greenhouse gas emissions and the *accumulated* emissions. China is often criticized, given that its accumulated CO_2–emissions have become higher than those in US. What counts, when the ecological burdens of different countries are compared, however, are the average emissions *per person*. The ratio of emissions per capita between US and China is still above 4 : 1 (and, apart from this, China has much less toxic emissions). China counts 1.3 billion people – more than four times the US population. If the aggregated instead of the average CO_2–emissions were compared, countries with a small population, such as Andorra, Liechtenstein, Luxembourg and Switzerland, could be tempted to refrain from strengthening their efforts to further reduce their emissions.

It would be useful to take into account past levels of resource exploitation and greenhouse gas emissions, too. In the emerging markets the per capita emissions started growing more than one century after this had happened in the industrialized countries. The United Arab Emirates for instance - the country where CO_2 emissions per person are nowadays the highest at a global scale - has conquered its dubious status as a world champion only recently. (Since considering the emissions of the past would raise significantly the complexity of the calculus, they are not accounted for in this table.)

How to read table 2 - Example United States: The relevant figures for the Demographic Weight are FR: 2.0, LE: 79.6, ratio with global average LE (69.3): 1.15. 2.0 x 1.15 = 2.3. The figure for the material claims is: 7.99 (EF, column 5). This figure is 4.7 times above the maximum size of global average footprint under sustainable conditions (column 4). The figure in column 7 (10.8) represents the multiplication of the "demographic burden" (2.3) with the figure in column 6.

Table 2: Demographic Weight and Ecological Burden ("footprint") in some selected countries (all figures UNDP 2010):

Fertility Rate: FR; Life Expectancy: LE; Ecological Footprint: EF

Column 1 **Country**	**Column 2** **FR [I]**	**Column 3** **LE**	**Column 4** **Ratio between LE and 69,3 (= LE global Ø**	**Column 5** **EF (in ha per capita) 2007 / 2006 [II]**	**Column 6** **Ratio between EF and 1.7 [III]**	**Column 7** **Burden on environment (p. person) [4]**
United Arab Emirates	1,9 / 3,9	77,7	1,12	10,7 / 10,3 / 10,2	6,29	**13,38**

USA	2,0	79,6	1,15	7,99 / 9,0 / 8,0	4,7	**10,8**
Canada	1,6	81	1,17	5,8 /?/ 6,5	3,41	**6,38**
France	1,9	81,6	1,177	5,0 /?/ 4,6	2,49	**5,57**
Switzerland	1,47	82,2	1,186	5,01 / 5,6 / 5,0	2,94	**5,12**
Germany	1,3	80,2	1,157	5,09 /?/ 4,0	3	**4,51**
Bolivia	3,1 / 4,8	66,3	0,956	2,57 /?/ 2,4	1,51	**4,475**
Japan	1,3	83,2	1,2	4,71 /?/ 4,1	2,76	**4,3**
South Korea	1,3 / 1,7	79,8	1,15	4,87 /?/ 3,7	2,86	**4,275**
Mexico	2,0 / 3,2	76,7	1,10	2,99 /?/ 3,2	1,76	**3,87**
Russia (Federation)	1,5 / 1,6	67,2	0,97	4,4 /?/ 4,4	2,588	**3,765**
Brazil	1,7 / 2,6	72,9	1,05	2,9 / ? / 2,7	1,7	**3,03**
Kenya	4,5 / 5,6	55,6	0,80	1,18 /? / 1,2	0,694	**2,49**
China	1,8 / 2,0	73,5	1,06	2,21 /?/ 1,8	1,3	**2,48**
Southafrika	2,4 / 3,3	52	0,75	2,3 /?/ 2,7	1,35	**2,43**
Saudi Arabia	2,8 / 5.5	73,3	1,05	3,5 /? / 5,1	2.05	**2,17**
Angola	5,3 / 7,1	48,1	0,69	1,0 /?/ 0,9	0,59	**1,70**
Sri Lanka	2,2 / 2,5	74,4	1,07	1,22 /?/ 0,9	0,717	**1,68**
Mozambique	4,6 / 6,1	48,4	0,7	0,78/ ? / 0,8	0,46	**1,48**
Afghanistan	6,3 / 8	44,6	0,643	0,62/ ? / 0,6	0,63	**1,46**
India	2,5 / 3,9	64,4	0,93	0,91 /?/ 0,8	0,53	**1,323**
Haiti	3,2 / 5,2	61,7	0,89	0,67 /?/ 0,5	0,39	**1,11**
Syria	2.9 / 4.9	74,6	1.08	1,6 /? / 1,5	0,94	**1,01**
Egypt	2.7./ 3.9	70,5	1,02	1,4 / ? / 1,6	0,82	**0,83**
Bangladesh	2,2 / 4,0	66,9	0,965	0,62 ? / 0,6	0,36	**0,77**
Global average	*2,3 / 3.1*	*69,3*	*1*	*2,7* [2]	*1,58*	***3,6***

[I]) Figures in left column: 2010-15; right column: 1990-95 (UNDP 2010, Table 11)

[II]) 1st Column: UNDP 2010; 2nd column: WWF; 3rd column: Global Footprint Network

[III]) Total ecological burden (per capita): Multiplication of figures from column 2 (FR 2010-2015), column 4 (Ratio between country specific LE and LE in the global average) and column 6 (Ratio between country specific Ecological Footprint size and maximal size of global average footprint under sustainable conditions [column. 5, figures at the left or, if these are lacking, figures at right]).

Finally, it should be noted that the maximum average size a person's footprint can be allowed to have, decreases with the ongoing growth of the world population. As soon as 8 billion are reached, the allowed maximum footprint size will be 12.5% lower than the size which refers to a world population of 7 billion. With 7 billion, this size is 1.7 hectares, while with 8 billion it shrinks to 1.48 hectares (or 87.5% of the previous value).

IV. Conclusion

The sharp wealth disparities that shape the age of globalization raises serious questions concerning international justice. These questions relate to both, the social and environmental dimensions of globalization. As we are now reaching the limits to growth, the entrenched conviction that poverty reduction necessitates continuous economic growth, has become unsuitable. Reducing the ecological footprints in the welfare paradi-

ses is at least as important as continuing the fight against poverty. One thing does not exclude the other, because first, the constraint for diminishing the ecological footprints is likely to trigger a technological revolution which includes the prospect of job creation. Second, a true "ecological reversal" requires a tax reform, a decentralization of power and a revitalization of regional markets, which again foster the creation of jobs, notably, but not uniquely, in the so-called "developing countries". Third, further economic growth should be limited to the poor countries and mainly to those belonging to the "bottom billion" (Collier 2008). These countries should as soon as possible be enabled to overcome the poverty threshold. The additional greenhouse gas emissions due to this step are to be compensated by an equal amount of emission reductions in the affluent countries.

If we consider the *magnitude of world poverty* and the *omnipresence of environmental problems* as different features of a single process, then we overlook all the elements necessary to determine what the political priorities should be. It will become apparent that it is up to the highly developed nations rather than to the so-called "developing countries", to make the first and most important step towards sustainability. The countries that are ahead of others in terms of pollution must be the first to reverse this habit. The more a nation is distant from the sustainability threshold, the more urgently it must change and develop… This message may be unpleasant. But if we ignore it, the consequences will be by far more unpleasant.

IV. Literature / References

Charles Beitz (1985): Justice and International Relations. In: Ch.R.Beitz et al. (Eds.): International Ethics. A Philosophy and Public Affairs Reader. Princeton: Princeton Univ. Press.

Hans Christoph Binswanger (1992): *Geld und Natur. Das wirtschaftliche Wachstum im Spannungsfeld zwischen Ökonomie und Ökologie.* Edition Weitbrecht, Stuttgart/Vienna.

Jagdish N. Bhagwati (2004): *In Defense of Globalization.* Oxford University Press.

Deborah Brautigam (2009): The Dragon's Gift. The Real Story of China in Africa. Oxford: Oxford Univ. Press.

Lester R. Brown (2003): Plan B. Rescuing a Planet under Stress and Civilization in Trouble. N.Y.: W.W. Norten & Comp. 2003.

Lester Brown: World on the Edge. N.Y.: W.W. Norten & Comp. 2011.

William Cline (2007): Global Warming and Agriculture. New Country Estimates Show Developing Countries Face Declines in Agriculture Productivity. Washington: Center for Global Development. Peterson Institute for International Economics.

William Cline (2008): Global Warming and Agriculture. Finance and Development. A quarterly magazine of the IMF. March 08, vol. 45/1;

William Cline: http://www.imf.org/external/pubs/ft/fandd/2008/03/cline.htm

Paul Collier (2008): The Bottom Billion. Why the poorest countries are failing and what can be done about it. New York: Oxford University Pr. 2007.

Paul Collier (2009): Wars, Guns, and Votes. Democracy in Dangerous Places. New York/London: Harper Collins/The Bodley Head 2009.

Herman E.Daly: Beyond Growth (1996). The Economics of Sustainable Development. Boston: Beacon Press.

James B. Davies (ed.; 2008): Personal Wealth from a Global Perspective, Oxford University Press.

Jared Diamond (1998): Germs, Guns and Steel. The Fates of Human Societies. W.W. Norton 1997.

James B. Davies (2005): Collapse. How Societies choose to Fail or Succeed. Viking Press. Dt.: Kollaps. Warum Gesellschaften überleben oder untergehen. Frankfurt: Fischer.

Wuppertal Institut (2005): Fair Future. Ein Report des Wuppertal Instituts. Begrenzte Ressourcen und globale Gerechtigkeit. Editited by the Wuppertal Institut für Klima, Umwelt, Energie. Munich: Beck.

Johan Galtung (1972): Eine strukturelle Theorie des Imperialismus. In: D.Senghaas (Hg.): Imperialismus und strukturelle Gewalt. Analysen über abhängige Reproduktion. Frankfurt: Suhrkamp, S.29-104.

Vittorio Hösle (1995): Soll Entwicklung sein? Und wenn ja, welche Entwicklung? In: Klaus Michael Leisinger / Vittorio Hösle (Eds.): Entwicklung mit menschlichem Antlitz. Die Dritte und die Erste Welt im Gespräch. Munich: Beck.

Tony Judt (2010): Ill Fares the Land. New York: Penguin Press.

Immanuel Kant (1785): Grundlegung zur Metaphysik der Sitten. In: Kant, Werke in zehn Bänden. Ed. by Wilhelm Weischedel. Frankfurt: Insel 1960-64; Suhrkamp 1978, vol. 7.

Charles Karelis (2007): The Persistence of Powerty. Why the Economics of the Well-off can't help the poor. Yale Univ. Press.

Thomas Kesselring (2003): Ethik der Entwicklungspolitik. Gerechtigkeit im Zeitalter der Globalisierung. Munich: Beck.

David Landes (1999): Wohlstand und Armut der Nationen. Warum die einen reich und die anderen arm sind. Berlin.

John Locke (1690): Essay Concerning the True Original Extent and End of Civil Government.

Blaise Pascal (1952): Pensées. In: Great Books of the World, Mortimer Adrer Editor in Chief. Ed. Encyclopedia Britannica, Chicago (Reprint 1990), Vol. 30: Pascal, p.171-352.

Thomas Pogge (2007): Anerkannt und doch verletzt durch internationales Recht: Die Menschenrechte der Armen. In: Barbara Bleisch/Peter Schaber (Hrsg.): Weltarmut und Ethik. Paderborn: Mentis, pp.95-138.

Thomas Pogge (2010): Politics as Usual. What Lies Behind the Pro-Poor Rhetoric. London/NY: Oxford Univ. Press.

Thomas Pogge (2010a): What is Global Justice? In: Th.Pogge 2010, p.10-25.

John Rawls (1971): A Theory of Justice. Cambridge/London: Harvard Univ. Pr.

John Rawls (1993): The Law of Peoples. In: On Human Rights: The Amnesty Lectures of 1993. Edited by Stephen Shute and Susan Hurley. New York: Basic Books.

David Ricardo (1951): Principles of Political Economy and Taxation. Sraffa Edition, Cambridge [Engld].

Jeffrey Sachs (2005): The End of Poverty: Economic Possibilities for Our Time. New York: Penguin Press.

Michel Serres (1995): The Natural Contract. Ann Arbor: The University of Michigan Press. Orig. Paris: Ed. François Bourin 1992.

Peter Singer (1984): Praktical Ethics. New York: Cambridge Univ.Pr.

Peter Singer (2002): One World. The Ethics of Globalisation. New Haven: Yale University Press.

Adam Smith (1776): An Inquiry into the Nature and Causes of the Wealth of Nations. New York: Random House, 1971.

Joseph Stiglitz (2003): Globalization and its Discontents. New York: Norton.

UNDP (2010) Human Development Report. United Nations Development Program (UNDP) 2010.

Ernst Ulrich von Weizsäcker /A.B.Lovins / L.H. Lovins (1995): Faktor Vier. Doppelter Wohlstand – halbierter Naturverbrauch. Der neue Bericht an den Club of Rome. München: Droemer Knaur.

Ernst Ulrich von Weizsäcker / Karlson Hargroves / Michael Smith (2010): Faktor Fünf. Die Formel für nachhaltiges Wachstum. München: Droemer.

Worldbank (2006): World Development Report 2006: Chancengerechtigkeit und Entwicklung/ Equity and Development. Washington: The World Bank.

Worldbank (2007): World Development Report 2007: Washington: The World Bank.

World Commission on Environment and Development (1987): Our Common Future. Oxford, NY: Oxford Univ. Press

Internet Literature

James B. Davies / Susanna Sandtrom/ Anthony Shorrocks / Edward N.Wolff (2006): The World Distribution of Household Wealth, WIDER,5.Dezember 2006, www.wider.unu.edu [last acess: 02.08.2011].

IPCC, Fourth Assessment Report (2007): Climate Change 2007. Synthesis Report. http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf

David Lucas (2003): World Population Growth. In: David Lucas et al.: Beginning Australian Population Studies. ADSRI/ The Australian Demographic & Social Research Institute, chap. 3: http://adsri.anu.edu.au/pubs/BAPS/index.php

Peter Vitousek et al: http://www.nau.edu/~envsci/ENV330website/ENV330/downloads/VitousekHumanDomination.pdf