

# **Who Should Pay for Climate Protection?**

## **Another Side of the Same Coin of Burden Sharing**

Back to Legal Principles

For the project „Financial Mechanism for the Post 2012  
Regime: Another Side of the Same Coin of Burden Sharing“

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## Abstract

International negotiation has often been explained by political scientists as a result of conflict and compromise by state actors motivated primarily by self-interest (e.g. March and Olsen 1998). Climate negotiation is no exception. In order to minimise interest and bargaining power-driven negotiations, it is essential to develop a number of formulae to bring about burden sharing, based on norms that would be acceptable as fair.

This paper attempts to examine whether legal principles can function as norms to provide a basis for fair decisions on burden sharing, focussing on the discussions concerning who is obliged to pay for climate protection based on two legal principles: the “Polluter Pays Principle” and the “Common But Differentiate Responsibility” principle.

The paper concludes that PPP and CBDR contribute towards restricting options on who should pay for the climate protection into two. One option is defining industrialised countries whose GHG emissions per capita have exceeded the threshold and have more capacity to pay as contributors, close to the definition of Annex II Parties in the Kyoto Protocol, whereas the second option is that states with historical responsibility and the capacity to pay should contribute regardless of whether they are industrialised countries or developing countries. In order to specify which countries should pay for climate protection, however, the ratio between historical responsibility and the capacity to pay must first be set, since having two criteria can sometimes lead to contradictory conclusions. After setting the ratio, the relationship between mitigation commitments and cost sharing for mitigation commitments in developing countries has to be determined. As burden sharing means not only those who should pay for achieving mitigation commitments but also those who take mitigation commitments and the same principles can be applied to the both mitigation commitments and cost sharing for mitigation, different conclusions can be drawn if and how mitigation commitments and cost sharing are combined. Considering that mitigation actions of developing countries are vital to address the climate change issue in time and that the Bali Action Plan established a link between mitigation commitments and financial support but that non-polluters should bear at least part of the cost in case of mitigation due to benefits provided by preventing pollution, such as an improvement of air quality and energy efficiency, a more detailed classification is necessary to determine those who take mitigation commitments and pay for achieving mitigation commitments in their own countries and in developing countries, those who take mitigation commitments and pay for achieving mitigation commitments in their own countries, those who take mitigation commitments but be at least partly paid for achieving their own mitigation commitments, and those who do not take mitigation commitments.

## 1. Introduction

International negotiation has often been explained by political scientists as a result of conflict and compromise by state actors motivated primarily by self-interest (e.g. March and Olsen 1998). Climate negotiation is no exception. Since their outset, international climate negotiations have provoked conflict between industrialised and developing countries and between industrialised countries regarding who should take action, when such action should be taken, and the extent of such action. Divisions have hampered progress on achieving protection of common assets, i.e. the global climate, in time.

In order to minimise interest and bargaining power-driven negotiations, the necessity to develop a number of formulae to bring about burden sharing, based on norms that would be acceptable as fair has already been called upon during negotiations under the Ad-hoc Group on Berlin Mandate (AGBM), the negotiation body for the Kyoto Protocol (e.g. Ringius 1997, Ringius 2002). The necessity to develop these formulae has been stressed more emphatically in negotiations concerning the post-2012 regime. This is due to the fact that it is widely acknowledged that the mitigation commitments under the Kyoto Protocol reflect differences in bargaining power, in particular those of the US, the EU and Japan, although it also reflects fairness to some extent by distinguishing developing and industrialised countries, and former western economies and former centrally planned economies (economy in transition countries) (e.g. Ringius 2002). Hundreds of articles on potential formulae and specific numerical commitments for each country, calculated on a formulae basis, have been published (Kameyama 2004).

The importance and urgency of norm-oriented negotiations on burden sharing have increased since the adoption of the Bali action plan at the 13<sup>th</sup> meeting of the Conference of the Parties and the 3<sup>rd</sup> meeting of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP 13 / CMP 3) held in December 2007 in Bali. Besides establishing an “Ad-hoc working group on Long-Term Cooperative Action under the Convention” (AWG-LCA),<sup>1</sup> the Action Plan explicitly describes the mandate to negotiate “commitments of developing countries” for the first time for climate negotiations. The decision calls for “nationally appropriate mitigation actions by developing country Parties in the context of sustainable development,” on the condition that it is “supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner.”

This provision alters the meaning of burden sharing. Burden sharing originally includes sharing mitigation commitments, cost sharing to achieve mitigation commitments, and cost sharing to recover damages (adaptation). In the past, however, the meaning of

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<sup>1</sup> Decision-/CP.13, Bali Action Plan (advance unedited version), para., 1.

burden sharing was centred on mitigation commitments. Since mitigation commitments were only imposed on industrialised countries, it was taken for granted that each country should pay for the cost of achieving its mitigation commitment. Since the adoption of the Bali Action Plan, Parties have become more consciously aware of the distinction between mitigation commitments and cost sharing for achieving the mitigation commitments. And it has been recognised that not only decisions on mitigation commitments but also on the other side of the burden sharing coin, i.e. a transfer of financial resources, should be made on a basis of norms that would be acceptable as fair.

Developing countries have called upon the transfer of financial resources from industrialised countries in order for them to engage in mitigation and adaptation action since the outset of international climate negotiations. Article 4.3 of the Convention and Article 11 of the Kyoto Protocol mandate Annex II parties<sup>2</sup> to provide new and additional financial resources to developing countries in support of national communications development, capacity-building, development and transfer of technologies, support for adaptation, support for economic diversification, support for mitigation, and so on (Articles 4.3, 4.4, 4.5 and 11 of the Convention, Article 11 of the Protocol). Nonetheless, sufficient financial resources have not yet been provided (UNFCCC 2007). The paper prepared by the UNFCCC Secretariat pointed out the necessity to increase financial flows to 130 billion USD for mitigation activities in developing countries in 2030 for preventing dangerous climate change, while the current financial resources provided by industrialised countries amount to approx. 25 billion USD per year (UNFCCC 2007, Wuppertal Institute 2008).

For this reason, it is vital to drastically scale up the amount of funds available over the next 20 years. Considering the necessity, a number of multilateral and bilateral funds are being established. For example, the World Bank has already established the Clean Technology Fund and Strategic Climate Fund/Pilot Programme for Climate Resilience. Several bilateral funds have also been established, including Cool Earth Partnership by Japan and the MDF Fund by Spain. The resources provided by the new funds are marginal, however. The lack of sufficient financial resources results from a lack of a basis that determines who is obliged to pay for climate protection, in particular, mitigation activities in developing countries. This is due to the fact that, at present, burden sharing for the GEF trust fund, one of the main public funds for climate change, is determined on the basis of the GEF basic shares that was derived from the GEF 1 replenishment. As contributions calculated on the basis of the GEF basic shares were not sufficient to provide the budget necessary for the GEF third and fourth replenishment, donors have provided supplementary contributions on a voluntary basis.

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<sup>2</sup> Annex II Parties are Annex I industrialised Parties minus Economy in Transition countries.

## FINANCIAL FLOWS

all figures in billion US dollar



Wuppertal Institute for Climate, Environment and Energy. 2008.

Several scholars have been paying attention to legal principles, in particular those stipulated in Article 3 of the UNFCCC as norms to provide a basis for fair decisions. In recent decades, attention towards the role of principles has also been increasing on the part of international law scholars.

This article, recognising the importance of seeking norms that can be acceptable as fair as a basis for determining who is obliged to pay for climate protection, explores the role of two principles that are most relevant to determining burden sharing, namely the “Polluter Pays Principle” (PPP) and the “Common But Differentiated Responsibility” (CBDR).

The remainder of this paper is structured as follows. Section 2 undertakes a detailed examination of the function of legal principles. Section 3 examines the origins, definitions and different interpretations of the two selected principles. Based on Section 3, Section 4 attempts to explore the impact of principles on financial mechanisms negotiations, by explaining how differently who is obliged to pay for climate protection is determined based on different interpretations of the elements of principles. Section 5 summarises the findings of this study and identifies the remaining tasks for future research.

## 2. Function and Role of Principles in International Environmental Law

The legal status of principles is subject to dispute. It is very difficult, if not impossible, to agree on a general definition of the nature, status and role of principles in international environmental law. Although the term ‘principle’ appears to signify a high level of legal authority, the notion embraces a variety of legal tenets and norms of a differing nature and normative authority. Some are already established rules of customary international law, while others are emerging rules, and yet others have a lesser normative status. They may be guiding interpretative standards or merely aspirational norms (Paradell-Trius 2000, Rajamani 2000, Sadeleer 2002, Sands 2003).

One of the factors influencing the legal status of principles is the position in a legal text where they are located. The role of principles is generally considered different when they are stipulated in a preamble or an operative provision of the conventions. A principle merely interprets the more precise norms contained in the conventions when it is proclaimed in a preamble, while a principle is binding for the conventions that affirm it in an operative provision. This distinction helps us to define the role of principles to a certain extent. Even if a principle is stipulated in an operative provision, however, a principle is general by nature and allows for a wide range of interpretations so that it can serve as a basis for establishing more specific and differentiated rules in specific legal areas, cases and situations applicable in all circumstances ? *word missing?* than clear, precise, specific and detailed legal rules.

Reflecting the above feature of principles, some scholars present views to negate the role of principles in providing a basis for taking fair decisions and to restrict negotiations based on bargaining powers. For example, Stone describes “a certain momentum is thus building, notwithstanding the charge that this so-called principle” is neither necessary nor “helpful...because there is no agreement on what it means” and “no agreement on when it applies” (Stone 2004).

By contrast, Paradell-Trius points out a number of good reasons for principles to be general (Paradell-Trius 2000). First, addressing global environmental issues requires consideration of the social, economic and environmental matters in an interdependent manner. General norms, namely principles that may allow for a wide range of interpretations, are necessary in order to do so. This is particularly the case when considering the potential for environmental regulation to affect economic and social development and to overcome the correlative difficulty in reaching an agreement on environmental rules between States at widely disparate stages of development and with

widely different economic interests. Second, the world's perception of the environmental crisis has developed very quickly, and the necessity to find solutions is extremely urgent. Principles are useful for responding to necessity. This is because States may agree more readily on general standards, objectives, and principles, due to their flexibility and adaptability, enabling them to overcome the difficulties involved in treaty negotiations and ratifications, while leaving more detailed rules for future elaboration. And third, principles are particularly well suited to face the scientific uncertainty surrounding various environmental problems, including specific climate change issues. States may be reluctant to act on environmental issues if their specific effects are difficult to predict. Due to their general feature, principles can operate adequately in the dynamic and evolutionary regulatory regime required to address the issue as science evolves.

Different views on principles were illuminated in the negotiations concerning Article 3 of the UNFCCC. Most industrialised countries opposed the inclusion of Article 3 in the text of the FCCC, as it could potentially introduce a note of uncertainty into the context of the FCCC obligations. In particular, the US was concerned that this article could create specific commitments beyond those set out in Article 4, and introduced various amendments to circumscribe the legal potential of Article 3 and to forestall that the principles in Article 3 are part of customary international law and bind States generally (Bodansky 1993). First, a chapeau was added, specifying that the principles were to "guide" the parties in their actions under the FCCC. Second, the term "States" was replaced by "Parties." Third, the term "inter alia" was added to the chapeau to indicate that the parties may take into account principles other than those listed in Article 3 in implementing the FCCC. Fourth, the US also removed any reference to the term "principles" in the FCCC. As a result, the term appears only in the title of Article 3. And fifth, again at the suggestion of the US, a footnote was added stating that titles of articles are included solely to assist the reader (e.g. Bodansky 1993, Oberthür and Ott 1999, Yamin and Depledge 2004). With these arrangements, the principles in the FCCC are guiding rather than prescriptive, and apply only to Parties and only in relation to the FCCC, not as general law. They are not legally binding and are not recognised as customary laws. However, they are still significant forces within the climate regime and will be binding along with the evolution of the regime.

## **3. History, Definition, and Different interpretations of Selected Principles**

### **3.1. “Polluter Pays Principle”**

#### **3.1.1. The Origin and Legal Status in International Law**

The “polluter pays principle” is an economic rule of cost allocation, the source of which lies in the economic theory of externalities. It requires polluters to take responsibility for the external costs arising from his/her pollution. Internalisation is theoretically complete when polluters take responsibility for all costs arising from pollution. It is incomplete when part of the cost is shifted to the community. In all cases, the principle involves intervention by public authorities.

PPP was first adopted by the OECD Council in 1972 as a guiding principle in national environmental policy (OECD 1972). It was followed by a 1974 recommendation on the implementation of the principle. The Council recommends member countries not to assist polluters in bearing the costs of pollution control whether “by means of subsidies, tax or advantages”.

While the principle aimed at abolishing state aid for polluters, it was not intended to eliminate all forms of pollution. According to both recommendations, polluters should only bear the cost of carrying out the measures decided by public authorities to ensure that the environment is in an acceptable state. PPP thus guaranteed only partial internalisation of environmental costs and did not intend to oblige polluters to assume the full consequences of their acts.

Since then, reference to PPP has been found in a number of regional and international treaties and conventions. Over time, PPP has changed from a theory to an essential conceptual basis for a range of legal instruments at the core of environmental legislation, and an element of interpretation by the courts.

PPP was revived within the OECD when the Council decided in a 1989 recommendation on the Application of PPP to Accidental Pollution that the principle would no longer be limited to chronic pollution (OECD 1989). It recommends that the cost of measures to prevent and combat acts of accidental pollution should be charged



to all potential agents, regardless of their actual contribution to the pollution. Obliging potential polluters to cover the expense of remedying accidental pollution was a significant step. However, internalisation of the cost of accidental pollution was not yet complete. Polluters were only required to bear the cost of reasonable measures taken by the authorities.

The OECD Council took a further step forward in 1991 by adopting its Recommendation on the Uses of Economic Instruments in Environmental Policy (OECD 1991). This recommendation makes polluters not only take responsibility for measures to prevent and control pollution but also the associated administrative costs.

Besides having been adopted by the OECD, PPP has been expressly recognised in a number of multilateral conventions.

PPP is found in the preambles of the 1980 Athens protocol for the protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities, the 1990 OPRC convention, the 1992 Helsinki Convention on the Transboundary Effects of Industrial Accidents, the 1993 Lugano Convention on Civil Liability for Damage Resulting From Activities Dangerous to the Environment, and the 2000 London Protocol on Preparedness, Response, and Co-Operation to Pollution Incidents by Hazardous and Noxious Substances.

PPP is found in the operative provisions of the 1985 ASEAN Agreement on the Conservation of Nature and Natural Resources, the 1991 Convention on the Protection of the Alps, the 1992 Porto Agreement to establish the European Economic Area, the 1992 OSPAR Convention, the 1992 Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes, the 1992 Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area, the 1994 Agreements concerning the Protection of the Sheldt and Meuse Rivers, the 1994 Convention on Co-operation for the Protection and Sustainable Use of the Danube River, the 1976 Barcelona Convention for the Protection of the Mediterranean Sea against Pollution, the 1996 London Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, and the 1999 Bern Convention on the Protection of the Rhine.

Besides the specific conventions, the principle was also incorporated into Agenda 21 and Principle 16 of the Rio Declaration on Environment and Development. Principle 16 states that national authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

This definition is aspirational rather than obligatory, and is therefore much less progressive than those definitions previously set out by the OECD and the EC or

contained in the 1992 Helsinki Convention, OSPAR Convention. Moreover, Principle 16 depends upon economic requirements for its application. It may not distort international trade and investment and is only applicable in a national context by reference to national authorities.

An examination of the development process of PPP confirms the general function and role of principles in international environmental law, explained in section 2. PPP is one of the oldest principles, and certainly constitutes established rule of law at the national, regional and OECD level. However, it is still under development in the sphere of international environmental law, and whether or not it functions as customary law very much depends on the descriptions of each law.

### **3.1.2. Definitions**

In the following section, the possible interpretations of the elements of PPP relevant to discussions concerning who should pay for climate protection are summarised on the basis of existing literature and definitions used at the national, regional, and OECD level.

#### *3.1.2.1. What is pollution?*

Pollution is defined by the kinds of substances which are relevant to pollution, the kinds of environmental effects it brings about, and the level of such effects. It often includes the condition of certain harmful effects, and therefore implies a certain threshold.

Regarding climate change issues, it was questioned in the past whether greenhouse gas (GHG) is a substance that has a harmful effect on the environment. Despite the argument that the benefits provided by climate change may exceed the costs incurred by climate change in several countries, there is almost a consensus that the overall impact of climate change is negative rather than positive. For example, Stern (2006) pointed out that the costs of preventing climate change are significantly lower than the projected damage. For this reason, GHG is deemed to be substances that have a harmful effect on the environment, i.e. “pollution”.

#### *3.1.2.2. Who is the polluter? Who is to pay?*

As explained, pollution is defined only when substances are discharged above the threshold. As a consequence, only those discharging the pollutant above the threshold are requested to pay to prevent or compensate effects. By contrast, those discharging below the threshold are not classified as “the polluter. For this reason, it is necessary to define the threshold for GHG emissions.

With regards to the climate change issue, the threshold is calculated on the basis of cumulative (historical) emissions per capita. It is calculated on the basis of cumulative emissions because global warming results from accumulated emissions of GHGs. Moreover, current generations have benefited from the actions of their ancestors in borrowing from the earth’s environmental assimilative capacity; they must logically be held responsible for the consequent liabilities as well. It is calculated on the basis of per capita for the following reason. The polluter is the natural or legal person who carries out the polluting activity. The definition is sufficiently clear in many instances at the national/regional level. When a factory emits polluting substances into the air or water, the factory or the company that owns the factory is the polluter. In international climate law, however, a state, as an organisation consisting of factories and individuals discharging GHG emissions, is considered to be “the polluter”.

Considering the lack of availability of the latest GHG data, cumulative CO<sub>2</sub>/capita can also be used as an alternative (e.g. Ott et. al 2004). Since the gas dominating the largest amount of emissions is different according to the economic structure of the respective country, and since CH<sub>4</sub> often covers most emissions in agriculture-oriented countries, however, it is more precise to base this measure on GHG emissions. Cumulative emissions also change depending on the base year from when they have been calculated. There is no consensus on the selection of the year at international negotiations. However, this study contends that 1990 is an appropriate year to be used as a base year for calculation because countries recognised the impact of polluting the atmosphere following the IPCC’s first assessment report published in 1990. The selection also avoids “punishing” countries that started the industrialisation process early.

On the basis of the above two points, theoretically speaking, there are three options regarding who is to pay.

Global threshold: Global emission limits have not yet been agreed upon. The reasons for this are that a) the long-term concentration stabilisation level has not yet been agreed upon and b) the same long-term concentration stabilisation level can be achieved with a number of global emission pathways (den Elzen and Hoehne 2008). Therefore, it cannot be concluded that a collective body of states has already exceeded the global threshold, although several studies assume an overshoot in the concentration targets 400-550 ppm CO<sub>2</sub> eq. (e.g. den Elzen and Meinhausen 2006, den Elzen et al. 2008). With this definition, therefore, a polluter is not determined by PPP but rather by political negotiations or other principles, including CBDR, which will be explained later.

Thresholds for industrialised countries and developing countries: If countries are divided into two groups – industrialised and developing countries – no studies deny that the former must reduce emissions relative to 1990. It can therefore be concluded that the former has already exceeded its threshold. Hence, the group of industrialised countries is the polluter. Of course, there are several definitions of “industrialised countries”. It may be simple to use the UNFCCC definition of Annex I Parties and Non-Annex I Parties.

Thresholds for states: If the threshold is determined state by state, states that have exceeded their thresholds are categorized into the group of “polluters.” The responsibility of each state is determined on a basis of cumulative GHG emissions/capita, or alternatively CO<sub>2</sub> emissions/capita.

### *3.1.2.3. What is to be paid for?*

In either definition of “threshold” explained in the above to define “the polluters” it is necessary to determine whether “the polluters” must cover the whole or part of the costs. Under PPP, it may be easier to conclude that costs of recovery, i.e. adaptation, should be borne by the polluters. Regarding the costs of prevention, i.e. mitigation, it could be concluded that non-polluters (victims) should bear at least part of the cost, since prevention provides other benefits, such as an improvement of air quality and energy efficiency.

## **3.2 Common But Differentiated Responsibility (UNFCCC Article 3.1)**

### **3.2.1. The origin**

Common But Differentiated Responsibility developed from the application of equity in general international law (Sands 2003). It appeared as early as prior to the Rio Convention held in 1992, but was clearly enunciated as a principle for the first time in Principle 7 of the Rio Declaration on Environment and Development. It stipulates that “States shall co-operate in a spirit of global partnership to conserve, protect, and restore the health and integrity of the Earth’s ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility they bear in the international pursuit of sustainable development in view of the pressures their

societies place on the global environment and of the technologies and financial resources they command.”

The principle is more explicitly expressed in Article 3.1 of the United Nations Framework Convention on Climate Change (UNFCCC), stipulating that “the Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities”. Accordingly, developed country Parties should take the lead in combating climate change and the adverse effects thereof. Moreover, the chapeau to Article 4 also obliges Parties to take into account their common but differentiated responsibilities in fulfilling the commitments under the Convention.

### **3.2.2. Definitions**

As explained in the previous subsection, CBDR is rather new and its elements and legal nature in international environmental law are not yet fully clarified, even compared to PPP. This is partly because CBDR is exclusively used in the sphere of international law and definitions can therefore not be developed on the basis of national or regional cases. Nevertheless, the following section attempts to summarise the possible interpretations of the elements of CBDR on the basis of the existing literature.

CBDR contains two elements. First, it establishes the “common responsibility” of states to protect the global environment (Sands 2003, Stone 2004, Rajamani 2006). Besides the acknowledgement of the effects of several substances, most notably GHG emissions that appear independently of the source points of the emissions, and an increasing economic interdependence between States, the globalization of environmental concerns is also increasing. In addressing these concerns, countries share the responsibility for maintaining the planet. Second, it contains “differentiated responsibilities,” which derives from both the differing historical contributions of States to global environment and the differing capacities of States to take remedial and preventive measures.

#### ***Two notions of equity: Historical responsibilities and capacity***

Rajamani traced historical responsibilities and capacity to two notions of equity (Rajamani 2000). The first notion, argued by Henry Sue (1999), is when a Party has in the past taken unfair advantage of others by imposing costs upon them without their consent; those who have been unilaterally disadvantaged are entitled in future to demand that the Party who have benefited most from the process that led to the creation of the problem bear an unequally large burden in addressing the problem. It is this

equity that the measure of historical responsibility within the principle of Common But Differentiated Responsibility aims to achieve. CBDR is based on PPP, but may underline a larger responsibility of industrialised countries than PPP. In terms of climate change issues, the accumulated scientific evidence shows that industrialised countries have benefited disproportionately from the industrialisation process that led to the accumulation of GHGs in the atmosphere and therefore must bear an unequally large reduction in preventing dangerous climate change. Otherwise the costs are borne by all community members, since the damage is universal.

The second notion of equity, tabled by E.I. Kimenex de Arechaga in an individual opinion in the Tunisia-Libya Case, is that all of the relevant circumstances of each individual case are to be considered and balanced when resorting to equity, so as to render justice. This is to be achieved through the adaptation and adjustment of principles, rules and formal legal concepts to the facts, realities and circumstances of each case, rather than through their rigid application. Equity in this sense would require that the characteristics of developing countries, the inequalities in the international community, divergences in levels of economic development and unequal capacities to tackle a given problem be taken into account in determining levels of commitments for different States. It is in this context that the principle of CBDR adds the measures of the capability to solve the environmental problem to the measures of historical contribution.

Prior to the Rio Conference, differential treatment for developing countries was based essentially on capacity. In the process leading up to Rio, in particular in the climate negotiations, there was a growing acknowledgement of industrial countries' historical responsibility for the global environmental issue and it is used in such a manner (historical interpretation of differentiated responsibilities) for two reasons. For example, the second paragraph of Principle 7 of the Rio declaration requests the leadership role of industrialised countries in combating global climate change issues. Under this leadership notion, industrialised countries must agree to GHG emission stabilisation before developing countries are requested to do the same, in order to set an example. Similarly, industrialised countries must also transfer funds and technology to developing nations in order to facilitate their efforts to reduce GHG emissions. This dichotomisation of responsibilities can be thought of as differential norms of contribution; nations are asked to contribute resources to the global effort to reduce GHGs based on their status as industrialised or developing countries.

However, the historical interpretation of differentiated responsibilities of CBDR allows developing countries to continue discharging detrimental amounts of GHGs and does not contribute to addressing the climate change issue in time. Based on the two sets of notions explained above, CBDR was originally not meant to form the basis of differentiation between developing and industrialised countries, however. The fact that industrialised countries must contribute more than developing countries, due to their historical responsibility and capacity to pay, does not mean that developing countries should always be free from meeting adequate emission mitigation targets.

First, in order to address the climate change issue in time, industrialised and developing countries alike must have strict and adequate emission mitigation targets (IPCC 2007, den Elzen and Hoehne 2008), since emissions (not cumulative) discharged from developing countries surpassed those from industrialised countries in 2005 (IEA 2008), and will account for more than 60% of global GHG emissions in most scenarios by 2020 (den Elzen and Höhne 2008). Second, such targets will encourage the economies of developing countries to grow in a less environmentally burdensome direction, obviating the necessity of readdressing this problem in the future (Weisslitz 2003). Moreover, even in terms of capacity to pay, some developing countries have more capacity to bear the cost of implementing climate policies and measures than some industrialised countries. The necessity to modify the interpretation of differentiated responsibilities of CBDR has been increasingly recognised so that countries are truly differentiated based on their historical responsibility and capacity, regardless of whether they are industrialised or developing countries (modified interpretation of differentiated responsibilities).

## 4. Who is obliged to pay for climate protection – based on PPP and CBDR

This section puts forward several options on who is obliged to pay for climate protection, based on the definitions of the principles identified in section 3.

Article 4.3 of the UNFCCC and Article 11 of the Kyoto Protocol mandate Annex II Parties to provide new and additional financial resources to developing countries.

Theoretically, the countries obliged to provide financial resources are determined by the definition of polluters under PPP, which depends on the definitions of the threshold and the differentiated responsibilities of CBDR.

As explained in section 3, there are three interpretations of the polluter of PPP and two interpretations of the differentiated responsibilities of CBDR.

<The threshold>

PPP 1. Global threshold: Global emission limits have not yet been set. This definition therefore does not determine “the polluters” separately. It is rather determined by political negotiations or other principles, including CBDR.

PPP 2. Thresholds for industrialised countries and developing countries: Based on this definition, a group of industrialised countries is “the polluter”.

PPP 3. Thresholds for states: According to this definition, polluters are the states whose cumulative GHG emissions/capita are beyond the threshold regardless of whether they belong to industrialised countries or developing countries.

<Differentiated responsibilities.

CBDR 1. Historical approach: Only industrialised countries are obliged to take commitments to address the climate change issue because they enjoyed economic benefits by discharging disproportionate amounts of GHG emissions in the past. Industrialised countries with historical responsibility and the capacity to pay are therefore obliged to contribute towards providing financial resources.



CBDR 2. Modified approach: Considering that the emissions from developing countries already surpassed those from industrialised countries in 2005 (IEA 2008), and will account for more than 60% of global GHG emissions in most scenarios by 2020 (den Elzen and Höhne 2008), commitments from developing countries are vital to addressing the climate change issue in time. States with historical responsibilities and capacities are therefore obliged to contribute towards providing financial resources, regardless of whether they belong to the industrialised countries or developing countries.

If the conclusions regarding who is obliged to pay for climate change are drawn on the basis of combinations of the definition of the threshold of PPP and differentiated responsibilities of CBDR, the following six different options theoretically exist.

### **1. Global emissions limits (PPP 1) and historical approach (CBDR 1)**

Global emission limits do not provide any guidance on determining “the polluters.” Therefore, the polluters are determined only by CBDR. Based on the historical approach of CBDR that stresses the leadership role of industrialised countries (CBDR 1), only industrialised countries with historical responsibility and the capacity to pay are “the polluters.” This combination draws the same conclusion as the fifth option.

### **2. Global emissions limits (PPP 1) and modified approach (CBDR 2)**

Based on the modified approach of CBDR, which admits industrialised countries must contribute more than developing countries due to their historical responsibility and capacity to contribute, but which also requests developing countries to take appropriate action based on their responsibility and capacity, responsible and capable industrialised and developing countries are “the polluters.” This combination draws the same conclusion as the sixth option.

### **3. Industrialised countries vs. developing countries (PPP2) and CBDR1**

In the definition of threshold based on industrialised countries vs. developing countries, only industrialised countries are categorized as “the polluters.” The historical approach of CBDR limits polluters to industrialised countries that have both responsibility and the capacity to contribute. This option draws the same conclusion as the fifth option.

#### 4. Industrialised countries vs. developing countries (PPP2) and CBDR2

In the definition of threshold based on industrialised countries vs. developing countries, only industrialised countries are categorized as “the polluters.” Like the historical approach of CBDR, the modified approach of CBDR limits polluters to industrialised countries that have both responsibility and the capacity to contribute. Therefore, this option draws the same conclusion as the fifth option.

#### 5. Definition based on states (PPP 3) and CBDR 1

The definition of the threshold based on cumulative GHG emissions per capita draws the conclusion that the states that have exceeded the threshold are “the polluters.” The historical definition of CBDR limits polluters to industrialised countries that have exceeded thresholds and that have the capacity to contribute. This option provides a basis for the current climate regime that limits contributors to industrialised countries whose GHG emissions per capita have exceeded the threshold and have more capacity to pay.

#### 6. Definition based on states (PPP 3) and CBDR 2

This combination draws the conclusion that the states whose GHG emissions per capita have exceeded the threshold and have more capacity to pay are “the polluters”, regardless of whether they are industrialised countries or developing countries.

Contributors =Countries that are obliged to provide financial resources

PPP CBDR	1. Global threshold	2. Annex I and Non-Annex I division	3. State by state
The historical definition	Industrialised countries that have exceeded a certain level of GHG emissions per capita and have the capacity to pay (- Annex II Parties, Kyoto approach)	Industrialised countries that have exceeded a certain level of GHG emissions per capita and have the capacity to contribute (=Annex II Parties, Kyoto approach)	Industrialised countries that have exceeded a certain level of GHG emissions per capita and have the capacity to contribute (=Annex II Parties, Kyoto approach)
The modified	States that have	Industrialised countries that	States that have exceeded

definition	exceeded a certain level of GHG emissions per capita and have the capacity to pay, regardless of whether they belong to industrialised countries or developing countries (Global approach)	have exceeded a certain level of GHG emissions per capita and have the capacity to contribute (=Annex II Parties, Kyoto approach)	a certain level of GHG emissions per capita and have the capacity to pay, regardless of whether they belong to industrialised countries or developing countries (Global approach)
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In practice, however, there are only two options: industrialised countries that have historical responsibility and the capacity to pay (Kyoto approach), and states that have historical responsibility and the capacity to pay regardless of whether they belong to industrialised countries or developing countries (Global approach). Therefore, if negotiations are based on a combination of PPP and CBDR, the contributors must be defined as either option. Any other option is not justified on the basis of PPP and CBDR. Two options are already very contradictory, though.

Defining the difference between the two options in the real world, however, requires at least two tasks. First, the specific classification of countries as polluters requires a decision to be made on the ratio between the country's capacity to pay and its historical responsibility, since the two criteria sometimes draw contradictory conclusions. The indicator for historical responsibilities is GHG emissions per capita, or alternatively CO<sub>2</sub> emissions per capita, as explained in the threshold of PPP. There are several indicators to determine the capacity to pay, such as the gross domestic product on the basis of purchasing power parities per capita (GDP-PPP) or the Human Development Indicator of UNDP (e.g. Ott et. al 2004).

Second, and more importantly, as burden sharing means not only those who should pay for achieving mitigation commitments but also those who take mitigation commitments, and the same principles can be applied to the both mitigation commitments and cost sharing for mitigation. Different conclusions can be drawn on if and how mitigation commitments and cost sharing are combined. Considering that mitigation actions of developing countries are vital to address the climate change issue in time and that the Bali Action Plan established a link between mitigation commitments and financial support but that non-polluters should bear at least part of the cost in case of mitigation due to benefits provided by preventing pollution, such as an improvement to air quality and energy efficiency, a more detailed classification is necessary to determine those who take mitigation commitments and pay for achieving mitigation commitments in their own countries and in developing countries, those who take mitigation commitments and pay for achieving mitigation commitments in their own countries, those who take mitigation commitments but are at least partly paid for achieving their own mitigation commitments, and those who do not take mitigation commitments.

## 5. Conclusions

This paper attempts to examine whether principles can work as norms to provide a basis for fair decisions on burden sharing, focussing on the discussions concerning who is obliged to pay for climate protection based on two legal principles: the “Polluter Pays Principle” and the “Common But Differentiate Responsibility” principle.

Principles are general by nature and allow a wide range of interpretations in international law. Despite this limitation, the principles developed in international law contribute towards restricting the conclusions to a few options and to minimising interests and bargaining power-oriented negotiations.

PPP and CBDR certainly contribute towards restricting the interpretations of contributors to two options. One option is defining industrialised countries whose GHG emissions per capita have exceeded the threshold and have more capacity to pay, close to the definition of Annex II Parties in the Kyoto Protocol, as contributors, and the second option is for states whose GHG emissions per capita have exceeded the threshold and have more capacity to pay. In order to specify which countries should pay for climate protection, however, the ratio between historical responsibility and the capacity to pay must first be set, since having two criteria can sometimes lead to contradictory conclusions. After setting the ratio, the relationship between mitigation commitments and cost sharing for mitigation commitments in developing countries has to be determined. As burden sharing means not only those who should pay for achieving mitigation commitments but also those who take mitigation commitments, and the same principles can be applied to the both mitigation commitments and cost sharing for mitigation, different conclusions can be drawn on if and how mitigation commitments and cost sharing are combined. Considering that mitigation actions of developing countries are vital to address the climate change issue in time and that the Bali Action Plan established a link between mitigation commitments and financial support but that non-polluters should bear at least part of the cost in case of mitigation due to benefits provided by preventing pollution, such as an improvement of air quality and energy efficiency, a more detailed classification is necessary to determine those who take mitigation commitments and pay for achieving mitigation commitments in their own countries and in developing countries, those who take mitigation commitments and pay for achieving mitigation commitments in their own countries, those who take mitigation commitments but are at least partly paid for achieving their own mitigation commitments, and those who do not take mitigation commitments.

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