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# Common ground for effort sharing? Preferred principles for distributing climate mitigation efforts

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# Common ground for effort sharing? Preferred principles for distributing climate mitigation efforts

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*Abstract*
This paper fills a gap in the current academic and policy literature concerning how parties to the United Nations Framework Convention on Climate Change find common ground when distributing commitments and responsibilities to curb climate change. Preferred principles for sharing the effort to mitigate greenhouse gas emissions are compared among 170 delegates and more than 300 observers attending the UN Climate Conference in Copenhagen in December 2009. Respondents were asked to indicate their degree of support for eight effort-sharing principles for mitigation action. The survey results are analysed according to geographical region and party coalition affiliation. The results indicate that voluntary contribution, indicated as willingness to contribute, was the least preferred principle among both negotiators and observers. This could be seen as ironic, given that voluntary contribution is the guiding principle of the Copenhagen Accord. Across regions and party coalitions, agreement was strongest for basing a country's mitigation level on its capacity to pay in terms of GDP per capita and on its historic greenhouse gas emissions since 1990.

*Keywords*: burden sharing; equity; climate change mitigation; Copenhagen; negotiating capacity/process; post-2012 negotiations

*JEL:* Q54, R5

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## Introduction

A cornerstone of any international agreement is the ongoing effort of specifying how obligations and commitments to reach an agreed-on goal should be distributed among the parties. Simply stated, who should make the effort and why? The greater the number of political areas, disparate interests, and differences in expressions of power and influence an agreement must encompass, the more difficult it is to reach agreement on how responsibilities are to be distributed.

Seen from this perspective, climate change negotiations are particularly challenging. They concern over 80% of all energy production, involve states in conflict over other issues, and encompass states with uneven access to energy security and great disparities in income and livelihood security (IEA, 2010; UNDP, 2010). Furthermore, the consequences of climate change are predicated to be most severe in states that have contributed the least to climate change in the first place, and that lack the financial resources and capacity to respond.

Accordingly, it is reasonable to argue that the distribution of efforts and responsibilities being negotiated must be recognized as legitimate by most of the parties to the process and, furthermore, be in line with the consensus mode of decision making, simultaneously be in and balancing the interests of the parties. How should the efforts associated with climate change mitigation be distributed? The survey aims to capture what effort-sharing principle or principles, according to the

key negotiating parties, should be operative when allocating the costs for climate change mitigation and adaptation.

As early as 1992, Article 3.1 of the United Nations Framework Convention on Climate Change (UNFCCC) had already adopted the principle of "common but differentiated responsibilities" (henceforth, the CDR principle). The CDR principle is based on two sub-principles: (1) countries with comprehensive emission track records and (2) countries with high financial and technological capacities are given greater responsibility to contribute to the goals of the Convention (UNFCCC, 1992). These two sub-principles resulted in the division of countries into Annex I, Annex II, and non-Annex countries, specifying which countries should mitigate emissions and which were obliged to provide support to other countries. The CDR principle was useful in distributing the efforts agreed on in the Kyoto Protocol. However, the protocol was less successful in achieving ambitious goals in terms of establishing adequate mitigation targets and securing global sustainable development. Since 2005, a follow-up to the Kyoto Protocol's first commitment period, ending in 2012, has been formally negotiated. In discussions of more ambitious emission targets, it is again disputed how countries should contribute, not only to substantive emission reductions, but also to financing adaptation to climate change and securing sustainable development objectives.

The COP-15/MOP-5 in Copenhagen was yet another COP that ended without achieving binding targets. Instead, there was an outcome on the side of formal negotiations the 'Copenhagen Accord', a political declaration in the form of a pledge

and review system rather than legally binding targets (Copenhagen Accord, 2010). The Accord calls for countries to mitigate their emissions by reporting their emissions reductions until 2020. As of July 2010, 138 countries have associated themselves with the Accord, expressed support, or submitted voluntary emissions reductions. Together, these countries represent the vast majority (86%) of global emissions. Eight countries have explicitly stated that they will not support the accord and, consequently, not make any contributions (www.usclimatenetwork.org/policy/copenhagen-accord-commitments). Although the CDR principle still stands as a core principle of the Convention, it has been difficult to agree on its implementation, given the many additional or alternative principles proposed by various groups according to their more specific interpretations of CDR.

Generally, the literature on effort sharing seems to agree that no single principle will gain support from all parties participating in the climate negotiations (Ringius et al., 2002; Lange et al., 2007). Insufficient equity concerns, one aspect of the obligation allocation puzzle, has been proposed as a major reason for the climate negotiation gridlock (Dellink et al., 2009). One stream of past research focused on philosophical reasoning to conceptualize the main ethical or moral roots of various mitigation allocation proposals (e.g. Wesley, 1999; Ringius et al., 2002; Ikeme, 2003; Okereke and Dooley, 2010; Bhatti et al., 2010). Most current studies deal with mitigation, though the literature on principles for allocating responsibility for adaptation has grown significantly since 2006 (Paavola and Adger, 2006; Jagers and Duss-Otteström, 2008; Dellink et al., 2009; Grasso, 2010). Some mitigation-related studies

identify the preferences of selected countries for one or more of these principles, based on statements and proposals made in negotiations, and calculate the economic cost distributed across the parties.

Less attention has been paid to the preferences of climate negotiation delegates and others participating in intergovernmental climate change policy-making. To the knowledge of the authors, only a few studies – for example, Lange et al. (2007) and Dannenberg et al. (2010) – have explicitly studied the degree of support for various principles expressed by negotiators and government representatives. Both these studies collected data by e-mail from a sample of COP participants, but achieved low response rates.

Using survey data, the overall objective of the present paper is to examine COP-15 participants' levels of support for and opposition to eight proposals for mitigation allocation. The paper argues that analysing participants' views of distributional principles may not only help in understanding differences and current locked-in positions, but may also suggest a way forward in the negotiations. For this purpose, the following questions will be considered:

- How do levels of (a) support and (b) opposition differ across the eight effort-sharing principles for mitigation?
- How do support for and opposition to certain principles vary across major party coalitions?

The results are discussed in light of current proposals made in the climate change negotiations, particularly references to CDR. The degree to which the preferred effort-sharing principles examined here match the 2009 Copenhagen Accord and the 2010 Cancún COP-16/MOP-6 agreement is also discussed.

The data used to answer these questions were collected in person from 500 of the 24,000 participants at COP-15/MOP-5 in Copenhagen (UNFCCC, 2010a). More than 170 delegates, 33 representatives of UN and intergovernmental organizations (IGO), and 300 observer organization representatives were surveyed at COP-15.

The paper is organized as follows. Section 2 introduces the various studied effort-sharing principles, and section 3 describes the study design. Section 4 presents the major results, while section 5 discusses the consequences for the multilateral negotiations.

**Principles for distributing obligations and commitments**

Rights, obligations, and responsibilities are often discussed in the literature on climate ethics as arguments underlying principles. However, the focus has often been on consequentialist principles, stating that the goodness of an action is determined by how well its consequences result in ends considered as morally ‘good’ (e.g. welfare and equality). This ‘ends-justify-means’ approach implies that moral disputes mainly concern what future ends should be achieved, for example, what kind of justice.

Instead of letting ends justify means, deontological principles of rights, obligations, and responsibilities can be used to constrain the means used. What does this imply in practice when measuring the moral worth of actions, such as emission mitigation? First, the moral worth of a right is not forward-looking, i.e. determined by the outcome, but is somehow determined by the principle itself. The location of the moral worth is in the action chosen today, and not in the future ends that it achieves.

Second, moral disputes are less about the outcomes and distributions of costs and benefits, and more about what rights and responsibilities must not be violated along the way, regardless of the preferred ends and when or whether they are achieved.

This study considers eight principles of rights, obligations, and responsibilities:

- four principles of rights, based on a country's rights to current emission levels, specific carbon needs, and sovereignty
- two principles of obligation, based on convergence to equal emissions per capita and on capacity to pay
- two historic principles of responsibility, taking into account responsibility since preindustrial times and since 1990

Overall, the principles selected represent the main categories covered in the academic literature. Principles that are partial in coverage or serve mainly to limit other principles were not included. Note that this categorization does not touch on respondent motives for preferring specific principles, which can legitimately be

favoured because of, for example, economic/political effectiveness or appearing to be reasonable compromises.

## Principles of rights

Several rights-based principles have been proposed and discussed in the climate negotiations. The most common are needs-based rights suggesting that poor countries have rights to meet their need to develop, even though this will increase greenhouse gas emissions. Four rights-based principles are examined here.

The proportional mitigation principle stresses that a country should have a right to its current share of total emissions. In a mitigation effort, a country with high current emissions should mitigate its emissions more in absolute terms. However, the country still has a right to its current share of global emissions and hence no obligation to mitigate emissions more, in proportional terms, than any other country. As the grandfathering principle applied in allocating tradable permits, this principle favours countries with high current emissions.

The right to development principle asserts that low-income countries (or non-Annex I countries) should be allocated an increasing share of total emissions. The argument is that the right to development agreed on in the CDR requires that non-Annex I countries be allotted a larger share of total emissions than they account for today. In addition, a larger share is required if a non-Annex I country is exempted from

obligations to fulfil basic human needs. Overall, Lange et al. (2007) found moderate support for the 'poor exempt' principle and for needs-based approaches, the most notable support being found in developing countries.

There has been discussion of whether the right to account for specific carbon needs should be included in the criteria determining a country's level of mitigation. The needs exempt principle states that a country's mitigation should also increase with its specific carbon needs due to, for example, heating or transport. If that is the case, specific needs are exempted as a relevant criterion.

The voluntary principle deals with a country's right to independent authority and administrative control, often referred to as the sovereignty principle in scholarly literature. A country should therefore not be forced or exposed to sanctions, but agree voluntarily to pledges, for example, in the Copenhagen Accord pledge and review system, even though this may lead to more emissions and/or a less fair distribution of efforts.

### Principles of obligation

While rights-based principles are kinds of constraints imposed on actions, obligations or duties are imperatives to choose specific actions in specific situations, in some cases regardless of their consequences. Large capacities to act and equal treatment have sometimes been cited as reasons to act in the literature.

The capacity to pay principle states that a country's greater capacity to afford mitigation actions implies an obligation to commit to a greater mitigation effort. Capacity to pay is usually measured by GDP per capita (Raymond, 2006). Ikeme (2003) found high respondent support for the capacity to pay principle, whereas Lange et al. (2007) found less support in developed than in developing countries.

The convergence to equal per capita emission shares principle suggests that a high-emitting country should be obliged to let other countries attain the same per capita emissions. The most prominent proposal is the per capita GHG emission right, holding that a country's emission level should be determined by its share of world population (Raymond, 2006; Baer et al., 2008). Support for egalitarian principles in general was evenly spread around the world (Lange et al., 2007), particularly among developing countries (Ikeme, 2003).

### Principles of historic responsibility

The previous principles captured rights and obligations in principles dealing with the present as opposed to consequential principles dealing with the future. Historic principles rely on past relevant events that have led to the current state, in line with the expression 'you broke it, you fix it'. Historic responsibility states that a country's mitigation action should be determined by its share of cumulative GHG emissions since a particular date. Ikeme (2003) observed that, at that time of writing, support for historic principles was mainly concentrated in countries in the Global South. At a

conceptual level, Friman (forthcoming) argues that the historic responsibility principle is also supported by countries in the Global North.

The present paper first tests the principle of whether a country's mitigation should increase with its historic emissions since preindustrial times, taking into account all causal effects its past emissions have had and will have on the climate; for example, the 'Brazilian proposal' suggests that historic attribution should determine mitigation obligations in Kyoto negotiations (UNFCCC, 1997; Friman and Linnér, 2008). The proposal can be understood not only as blaming the industrial countries, but also as motivated by the unequal global economic exchange. Richer countries have used the bulk of the global carbon space for their industrialization, so developing countries should be able to enter at a later stage in emission reductions, since they have not had this opportunity. Historic responsibility draws on two motivations: damage caused by emissions and/or emissions contributing to an unequal exchange; the latter motive sides with a needs-based approach.

However, two millennia ago Aristotle had already suggested limiting responsibility (or 'blame') when ignorance or circumstances beyond an agent's control are present. The second historic principle therefore tests whether a country's mitigation should increase with its historic emissions since 1990. The relationship between GHG emissions and climate change was not widely known before 1990, so there cannot be intention in a strict sense.

In summary, the eight principles cover a majority of the most prominent proposals in the run-up to COP-15/MOP-5 in Copenhagen. The eight principles are summarized in Table 1.

[Insert Table 1 about here]

**Study design and data**

The data used here stem from a two-page survey administered at COP-15 (the full survey is available from the authors on request). A total of 507 surveys were administered in person to COP participants at the conference venue, mostly in the first part of week two because of time spent queuing and restricted access of observer organizations (128 in week 1 and 379 in week 2) (Fisher, 2010). A total of 480 responses were obtained to an item asking respondents to indicate their preferences regarding eight allocation principles as a basis for determining a country's level of mitigation action. The sample was stratified, dividing participants into two major categories: *delegates*, i.e. negotiators and government agency representatives, and *observers*, i.e. environmental and development NGO representatives, researchers, business representatives, trade union representatives, indigenous peoples, media representatives, and representatives of the UN and other IGOs. The primary roles and geographical composition of the COP-15 respondents are presented in Table 2.

As can be seen, most geographical regions and party groupings are well represented in the sample. The main limitations of the data are the small number of respondents from Oceania, and the fact that many delegates from North America declined to

complete the questionnaire, meaning that only three responses were retrieved from them. The latter is a severe limitation, given the significance of the US position for the climate negotiations. However, 44 observers from the USA did respond to the questionnaire.

[Insert Table 2 about here]

Respondents rated the eight principles on a seven-point Lickert scale, ranging from disagree strongly to agree strongly. Dummy variables were constructed for supporters, opponents, and indifferent respondents. A response of 6 or 7 was categorized as indicating a supporter, a response of 1 or 2 an opponent, and a 4 or no answer an indifferent respondent.

**Results**

This section examines whether and how the COP-15 participants' preference varied for the eight principles of obligation and allocation of responsibility for mitigation action. The aim here is to answer the specific question as to which principles are currently recognized as having high potential to promote agreement in the negotiations, captured by a combination of high support, low opposition, and low indifference across party coalitions and geographic regions. Section 4.1 discusses the general degree of preference for the principles, i.e. aggregated for both delegates and observers. However, the degree of preference could differ between delegates and observers, so section 4.2 controls for the smaller number of delegates for those principles for which the degree of preference differed significantly between respondents in a certain region. Furthermore, section 4.2 presents the support for and

opposition to the principles only on the part of delegates, divided into the major coalitions in the climate negotiations.

## General degree of recognition of principles

To serve as a workable principle in an intergovernmental agreement, it is not sufficient to be recognized by many as a good principle; in addition, only a few parties can oppose the principle. Table 3 presents the supporter, opponent, and indifferent shares for the eight principles for allocating a country's level of mitigation.

[Insert Table 3 about here]

Based on a high share of supporters, two principles were the most widely recognized: historic 1990 and capacity to pay, followed by the historic preindustrial and equal per capita emissions principles. Note that there is no statistically significant difference between the historic 1990 and capacity to pay principles, using a non-parametric pr-test. However, the support shares for those principles are significantly higher than for the historic preindustrial or the equal per capita emissions principles (test results available from the authors on request). The lowest shares of support were found for the needs exempt and voluntary principles. The opponent shares for the voluntary principle are significantly higher than for the other principles, as determined using a non-parametric pr-test (test results available from the authors on request). In contrast,

the strongest disagreement was found for the voluntary principle. Four principles displayed similar moderate degrees of disagreement: the two principles based on current emissions, the needs exempt principle, and the historic preindustrial principle. In descending order, only about ten per cent of the respondents were categorized as opponents of the historic 1990, equal per capita emissions, and capacity to pay principles.

Based on the supporter and opponent measures, the survey suggests that the capacity principle has the greatest potential to serve as a basis for agreement in negotiations on allocating mitigation commitments. Its potential for forming common ground is indicated by support from almost half of the respondents, and opposition from only one in 15 (just one in 25 strongly disagreed). The second best potential for agreement was found for the historic 1990 principle. While this principle does not differ significantly from the capacity principle in terms of support, opposition to the capacity principle is significantly lower than opposition to the historic 1990 principle, which nevertheless still has a low opponent share.

Similar degrees of support and opposition were found for the equal per capita emissions and historic preindustrial principles. The equal per capita emissions principle displays a slightly lower opponent share than does the historic preindustrial principle. Interestingly, one quarter of all respondents agreed strongly with using the *historic preindustrial* principle as a basis for determining a country's mitigation level; this was the highest share of all eight principles examined in the survey. In this sense, the *historic preindustrial emissions* principle is unique.

The by far lowest potential for agreement, based on support and opposition levels, was found for the voluntary principle. Only one quarter of the respondents indicated support for this principle and almost one third were classified as opponents. A relatively low potential for agreement was also found for the needs exempt principle.

These were the overall degrees of recognition of these eight principles. Taking a closer look at the potential for agreement calls for comparison of the degrees of support for each principle across geographical regions and party groupings.

## Preferences according to geographical region and major party coalition affiliation

Figures 1a and 1b present the calculated supporter and opponent shares for six geographical regions. The checked boxes indicate where delegate and observer ratings differed and the box size represents the size of the difference. The averages for North America are not presented in the figure, as only four Party representatives from North America responded. Compared with EU observers, however, North American observers indicated stronger support for both principles based on current emissions and less opposition to the needs exempt principle. Respondents who did not indicate geographic belonging were put in a separate category labelled ‘N/A’.

Based on differences between supporter and opponent shares, three of the four principles for allocating mitigation commitments were recognized widely across the major geographical regions: historic 1990, capacity to pay, and equal per capita emissions. The difference was never below 25 percentage units, and the opponent share never exceeded 16%. Recognition of the historic 1990 principle is characterized by very high support shares and very low to low opponent shares in the regions studied. In turn, the capacity to pay and equal per capita emissions principles are characterized by high support shares and very low opponent shares. Since the study was unable to obtain sufficient data for North America, the policy implications of these findings should be interpreted with caution. Four of the principles were found to have either a higher share of opponents than supporters or be the worst of the eight principles in at least two of the geographical regions; these four were the proportional reduction, current emissions reducing Annex 1 share, needs exempt, and voluntary principles.

[Insert Figure 1a about here]

[Insert Figure 1b about here]

To serve as a basis for intergovernmental agreements, a principle evidently needs to be widely recognized across the major party coalitions. Accordingly, the delegates' preferences for mitigation principles were broken down into party coalition sub-categories (Figure 2). Low numbers of responding delegates from the Environmental Integrity Group (EIG, four respondents) and Umbrella (13 respondents) coalitions make it difficult to establish any statistically significant difference. However, to

illustrate the increasing complexity, the Umbrella coalition results were included in Figure 2. Respondents who did not indicate geographic belonging were put in a separate category labelled N/A.

Delegates representing particular party coalition displayed significant differences compared with the average delegate respondent. For example, EU delegates displayed lower than average support for the historic preindustrial principle, and the difference is statistically significant (compared with delegates from other party coalitions). The G77 and Chinese delegates displayed stronger than average support (the difference is statistically significant) for the needs exempt and voluntary principles, as well as slightly lower, although not statistically significant, support for the capacity to pay principle. The results for the Umbrella group delegates should be interpreted with great caution due to the small number of respondents. However, only one of thirteen responding Umbrella delegates expressed strong support for the *h*istoric preindustrial, needs exempt, and voluntary principles, and five of them were categorized as strong supporters of the proportional reduction and historic 1990 principles. None of the responding Umbrella delegates opposed the capacity and current emissions reducing Annex 1 share of total emissions principles.

Interestingly, the responses of the 26 delegates who did not wish to report their geographic belonging or party grouping differed from those of delegates from other categories. In general, these respondents indicated lower support and higher opposition than did respondents who did indicate their party coalition affiliation. The

most notable difference among these delegates was dramatically higher support for the historic preindustrial principle, and significantly higher support for the voluntary and current emissions reducing Annex 1 countries share of total emissions principles. They also lacked support for the equal per capita emissions and proportional reduction principles.

[Insert Figure 2 about here]

**Conclusions**

When judging these eight principles for allocating mitigation action, it must be acknowledged that this is a complicated area, both philosophically and in a more limited technical sense. Actually understanding what a particular principle implies for a given country – not to mention what it implies for all countries – is more complex than first appears. By introspection and from other studies, it is argued that the cognitive load implied in analysing the consequences of the various principles is very high. Furthermore, the various principles are only briefly explained; in some cases, two or more principles may have similar implications for a given country, though they usually have different implications for other countries. Bearing in mind that, when the survey was administered, the time for reflection was brief and few details were provided, it must be understood that the survey items measure spontaneous responses that probably represent ‘gut feelings’ about a principle. Considerable scholarly evidence, however, indicates that such gut feelings may be important. It is against this background that we should interpret the fact that many principles can be supported to similar extents; it should come as no surprise that it was impossible to abstract any clear or unique preference from the survey responses.

This paper aimed to examine COP-15 participants' support for and opposition to eight principles for allocating mitigation action. The core argument was that analysing various participants' views on distributional principles may both help us better understand differences and current locked-in positions, and suggest a way forward in the negotiations. Initial inspection suggests that four principles have particular potential to foster agreement: capacity to pay, historic 1990, equal per capita emissions, and historic preindustrial principles. High support and low opponent shares overall are not sufficient to establish the potential of a principle to serve as a basis for intergovernmental negotiations on allocating mitigation commitments; however, they do provide an indication of possible common ground.

Regarding these four principles, more detailed scrutiny of opinions across geographical regions and the major party coalitions in the climate negotiations, paying particular attention to negotiators' opinions, revealed lower variability in support for two of them, i.e. historic 1990 and capacity to pay, both characterized by high levels of support and very low to low levels of opposition throughout. Historic 1990 is characterized by the biggest difference between the support and opposition shares of the four emission-based principles among negotiators from all geographical regions analysed, indicating good potential for agreement. The capacity to pay principle garners slightly weaker support from Umbrella negotiators, but otherwise has a high difference between supporter and opponent shares. These results should be interpreted with caution, since too few responding Umbrella delegates were

included in the sample, and it was precisely these delegates who might be expected to express a lower degree of support.

The survey responses clearly indicate that the voluntary, or willingness to contribute, principle was the least preferred principle overall for most regions and party groupings. This is a very interesting result, as the voluntary principle bears the closest resemblance to the most strongly emphasized position in the Copenhagen Accord, according to which each country simply selects its own target. The Bali Action plan allowed voluntary contributions, not only for non-Annex I countries through the mechanism of Nationally Appropriate Mitigation Actions by developing countries, but also for developed countries through 'nationally appropriate mitigation commitments or actions' (UNFCCC, 2007: 1bi, ii). Currently, the only figures for emissions reductions on the table are voluntary. However, the last negotiation note prepared by the Chair of the Ad Hoc Working Group for Long-term Cooperative Action (AWG-LCA) under the Convention includes suggestions for reducing global emissions by 50% from 1990 levels, where developed country parties should implement reductions f at least 85% to more than 95% (UNFCCC, 2010b). These figures were not, however, included in the Cancùn agreement (UNFCCC, 2010c), but will likely be the subject of intense negotiations in coming years. It will be extremely difficult to meet such a target via voluntary contributions, at least judging from current mitigation commitments. The voluntary contributions listed in the Annex to the Copenhagen Accord and communicated after Cancún in an information document by the AWG-LCA (UNFCCC, 2010c) fall significantly short of the target to limit global warming to 2°C.

The survey found a low degree of support for the voluntary principle in most categories of participants and in all subcategories of delegates, except among Asian delegates and delegates who did not indicate their nationality.

Ironically, all delegates ended up with their least preferred alternative, by not persuading the other parties to recognize their preferred principle. This is in fact the classical dilemma of collective action. From game theory economics and political science it is known that strong collective action requires definitive commitments – public goods are not provided voluntarily, at least not sufficiently. Yet, when countries are sovereign, stakes are high, and time is of the essence, negotiations still end up in the famous Nash equilibrium, in which no involved parties gain from changing their positions in isolation.

Finally, what main policy implications can be derived from our findings? As suspected, there is great variance in support for and opposition to the various distributional principles. Certain relevant patterns have nevertheless been found. First, both the historic 1990 and capacity to pay principles are strongly supported by most parties, while simultaneously having very low to low opponent shares. At first glance, this result may suggest that the negotiating parties should approach these two principles more energetically. However, the principles indicated as preferred in the survey and the principles that make for a politically workable agreement often differ.

Interestingly, the study found large support for the *historic emissions since preindustrial times* principle at the Copenhagen meeting. Despite this, the principle of historic responsibility has never been referred to in COP decisions, and it was officially taken off the COP agenda after COP-5 in 1999 (Friman and Linnér, 2008). Therefore, the large support among Copenhagen delegates was not obvious. A year later, in the Cancún decision on the LCA text, historic responsibility was officially recognized in a COP decision for the first time in the history of the Climate Convention: 'Acknowledging that the largest share of historic global emissions of greenhouse gases originated in developed countries and that, owing to this historic responsibility, developed country Parties must take the lead in combating climate change and the adverse effects thereof' (UNFCCC, 2010c: 6). Since there are no agreed-on emission reduction targets, it remains to be seen how recognizing the principle of historic responsibility will play out.

The present results and the Cancún outcome indicate that negotiations on distributional principles have a role to play in the ongoing negotiations. This survey regarding distributional principles can point toward possible support for allocating the burden sharing of commitments in negations to come.

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**Table 1** Effort-sharing principles

| Principle | Captured in the survey by the item:<br>'A country's level of mitigation should increase with …' |
|---|---|
| Principles of rights | |
| Current share or proportional mitigation | Its current emissions, conserving its share of total emissions |
| Right to development | Its current emissions, reducing Annex 1 countries' share of total emissions |
| Needs exempt | Its specific carbon needs (e.g. heating and transport) |
| Voluntary | Its willingness to contribute |
| Principles of obligation | |
| Convergence to equal greenhouse gas emissions | Its obligation to converge to equal emissions per capita |
| Capacity to pay | Its capacity to pay in terms of GDP per capita |
| Principles of responsibility | |
| Historic responsibility | Its historic emissions since preindustrial time<br>Its historic emissions since 1990 |

**Table 2** Primary roles, geographical composition, and party groupings of all respondents who responded to the allocation principle item

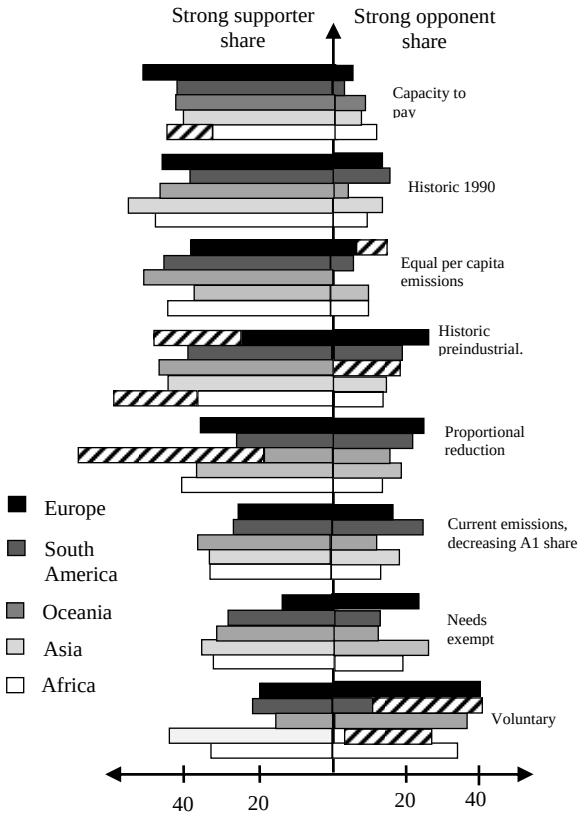
| Primary role | | Party grouping | | Geographical region | |
|---|---|---|---|---|---|
| Negotiator | 97 | EIG | 15 | Africa | 72 |
| Government | 70 | EU | 130 | Asia | 72 |
| Local government | 16 | G77/ China | 165 | Europe | 153 |
| NGO | 171 | Umbrella | 88 | North America | 60 |
| Research | 54 | No | 11 | South and Latin America | 34 |
| Business | 40 | N/A | 71 | Oceania | 26 |
| UN and IGO | 23 | | | N/A | 63 |
| Media | 16 | | | | |
| Indigenous peoples | 4 | | | | |
| Other | 11 | | | | |
| All | 480 | | 480 | | 480 |

Note: Some respondents indicated more than one primary role, making the total sum greater than 480. Respondents indicating ‘Other’ were students, youth, women, and technical staff.

**Table 3** Eight principles for allocating mitigation according to degree of support, opposition, and indifference, % (*n* = 480)

| | Supporter share | Opponent share | Indifferent share |
|---|---|---|---|
| Current emissions, conserving its share of total emissions (proportional reduction) | 36 | 20 | 22 |
| Current emissions, reducing Annex 1 countries' share of total emissions | 33 | 16 | 32 |
| Historic emissions since preindustrial time | 41 | 17 | 23 |
| Historic emissions since 1990 | 46 | 12 | 23 |
| Capacity to pay in terms of GDP per capita | 45 | 7 | 25 |
| Obligation to converge to equal emissions per capita | 40 | 9 | 30 |
| Specific carbon needs (e.g. heating and transport) | 22 | 16 | 36 |
| Willingness to contribute (voluntary) | 25 | 31 | 26 |

**Figure 1a** Calculated strong support and opponent shares for the eight principles according to respondents from five geographical regions, %. Indicated by the striped boxes, Delegate and Observer shares are presented for those regions where the preferences significantly differed.[1]




[1] These are as follows: for Africa – *historic preindustrial* (stronger support) and *capacity to pay* (stronger support); Asia – *voluntary* (stronger opposition); Europe – *historic preindustrial* (stronger support and opposition), *equal per capita emissions*; North America – *historic preindustrial* (stronger opposition), *capacity to pay* (stronger support), *equal per capita emissions* (stronger support); Oceania – *proportional reduction* (stronger support), *historic preindustrial* (stronger opposition); and South America – *voluntary* (stronger opposition). Significance is determined using a non-parametric $Chi^2$ test, and the results are available from the authors on request.

**Figure 1b** Calculated strong supporter and opponent shares for the eight principles according to respondents from five geographical regions, %.

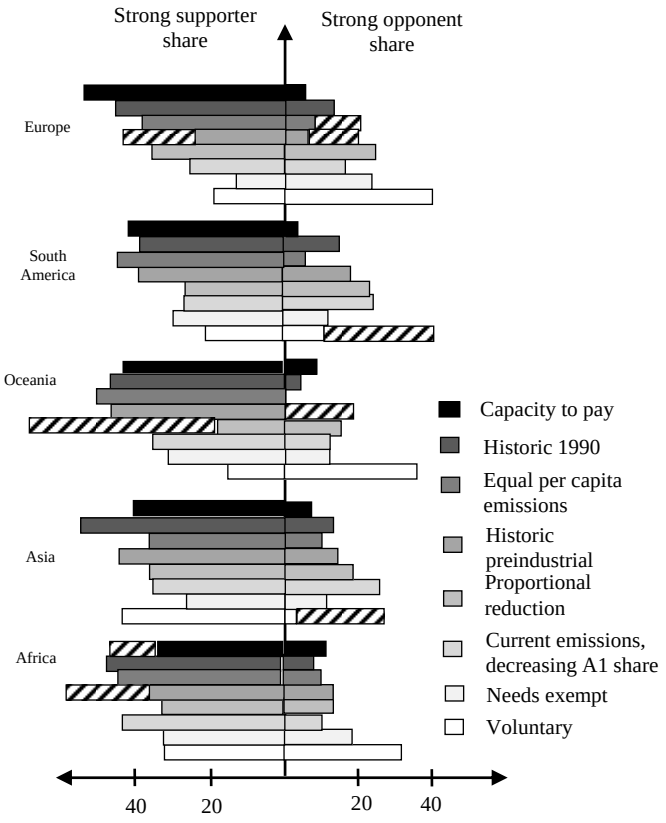


**Figure 2** Differences between the supporter and opponent shares for the eight principles according to selected party coalition affiliation, %.