

Redefining success in the climate change negotiations: what we consider a breakthrough

John Byrne
Distinguished Professor Energy and Climate
Policy

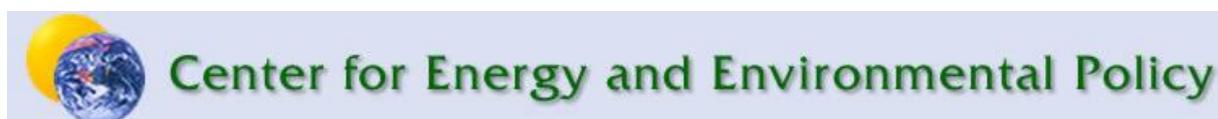
Job Taminiou
Research Associate
PhD. Student at CEEP

Center for Energy and Environmental Policy,
University of Delaware

Position paper prepared for
UNFCCC COP-17
Durban, South Africa
28 November – 11 December 2011

Abstract:

The concluding document of the climate change negotiation round in Durban, the Durban Agreement, has been hailed as a 'historic breakthrough document. This appraisal is primarily based on the fact that the document outlines a negotiation process that realizes a climate regime in which all negotiating Parties are to participate. However, we argue, realizing the prominence of the commodity-based paradigm in climate change policy and the bifurcation in perspective between developing and developed countries, that the current formulation of 'success' is misguided and is incapable of realizing an international agreement that can be described as equitable, sustainable, and just. The current formulation of success is incapable of achieving the required system restructuring towards a low-carbon, sustainable, and equitable society. As such, we propose a reformulation of success away from emission reduction targets, realized through market-based policies and instruments, towards a prioritization of developing country context-specific sustainable development objectives, priorities, and needs. The integration of bottom-up processes within the international community allows for an architecture in line with developing countries' goals and, therefore, is more likely to realize ambitious commitment by the developing countries. This increased mobilization further weakens the developed countries' negotiation position as it eliminates one of their core arguments for inaction. We argue that the developed countries need to take responsibility in domestic climate change action, while simultaneously supporting developing countries' sustainable development efforts.



INTRODUCTION

After the failure of ‘Copenhagen’¹ (2009, COP-15) and the modest success in ‘Cancun’ (2010, COP-16), expectations for ‘Durban’ (2011, COP-17) to realize a comprehensive, legally binding agreement were low. As such, the tasks of the Durban negotiation round were essentially limited to two main objectives. First, to maintain momentum in the negotiation process towards an agreement that is comprehensive and legally binding. Second, to resuscitate the Kyoto Protocol through the establishment of a second commitment period and, as such, prevent a climate change action commitment gap (Taminiau, 2011). Considering that the Durban Agreement successfully achieved both objectives of the negotiation round, and that all negotiating Parties agreed to the negotiation process outlined in the Durban Agreement, some have hailed the document as a ‘historic breakthrough’ document.²

The acknowledgement of the Durban Agreement as a ‘historic breakthrough’ document is based on a specific formulation of success. The current formulation of success to address climate change is in terms of quantitative emission reduction targets to be largely realized through market-based mechanisms. Within this formulation of success, we recognize the prominence of the commodity-based paradigm in climate change mitigation activities and the bifurcation in perspective between developing and developed countries. From this recognition, we position significant arguments to counteract the acknowledgment of the Durban Agreement as a ‘historic breakthrough’ document. In fact, these arguments show that the current formulation of what constitutes ‘success’ in the international negotiation process on climate change is antithetical to the objectives and needs of the international community in light of the principles of sustainability and equity. We therefore come to the realization that the current formulation of success is misguided and incapable of realizing an international agreement that can be described as equitable and just.

This paper explores the critical need for a reformulation of what is termed ‘success’ away from emission reduction targets that are achieved through market-based policies and instruments and towards a prioritization of country context specific sustainable development objectives, priorities, and needs. We argue that such a prioritization, in line with developing countries’ objectives, will increase ambitious climate change commitment by the developing countries. A critical component of the proposed reformulation of success is that the developed countries take their responsibility in domestic climate change mitigation action while simultaneously supporting developing countries’ sustainable development efforts. The increased developing country participation eliminates one of the core arguments in the developed country negotiation position of inaction and, thus, forces the developed countries to take responsibility in domestic climate change action.

At the basis of such a reformulation of success, we position three developments in the international community:

¹ The annual COP conferences are commonly referred to by the location at which the conference was held. In this case (COP-15): Copenhagen, Denmark.

² See e.g. European Commission Memo/11/895 : Durban Conference Delivers Breakthrough for Climate. Date: 11/12/2011. Available at: <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/895&format=HTML&aged=0&language=EN&guiLanguage=fr> accessed 13 February 2012.

- a) the recently introduced platform in the negotiations in the form of the pledge-and-review approach;
- b) newly introduced or updated processes and mechanisms within the international negotiations that can serve as the active components of the prioritization of sustainable development; and
- c) the momentum provided for reformulation in the form of the ongoing discourse on sustainable development, specifically in the form of the Rio+20 conference scheduled to be held in June 2012.

These three developments are used as building blocks for a strategy that prioritizes sustainable development and emphasizes bottom-up decision making.

OVERVIEW OF THE COP PROCESS

For two decades, through the United Nations the international community has aimed to address the issue of climate change. The main negotiating platform for the international community to come together on the issue of climate change is the annual Conference of the Parties (COP) of which COP-17 or 'Durban' was the seventeenth and most recent installment. During the two decades of international negotiation and cooperation on climate change, this process has resulted in a range of international policy agreements. The decisions taken at the various COPs elaborate on the level of agreement among negotiating Parties on ways to address the issue of climate change and the extent of action to which the negotiating Parties are willing to commit. An increasing scientific understanding of the socio-economic, technical, and environmental risks of climate change throughout this period informed the decision-making and negotiation process. Despite the international agreements and efforts, the international community is yet to realize significant emission reductions of greenhouse gases (GHG). For instance, the Intergovernmental Panel on Climate Change (IPCC) has outlined that the emissions of annual fossil carbon dioxide are increasing, with an increase of 70 percent between 1970 and 2004 (IPCC, 2007).

The United Nations Framework Convention on Climate Change (UNFCCC)³ reflects a voluntary and least-resistance commitment by the negotiating Parties to stabilize GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system (UNFCCC, 1992). Further important decisions were made since then and we identify several milestones: the Kyoto Protocol, the 2001 Marrakech Accords, the 2009 Copenhagen Accord, the 2010 Cancun Agreements and the most recent 2011 Durban Agreement.

The incapability of the UNFCCC text to mandate emission reductions led to the creation of the Kyoto Protocol at the core of which is a GHG emission reduction target for industrialized countries (the 'Annex B' countries) of at least 5 percent below 1990 levels within the 2008 to 2012 commitment period. Further deliberation on methodological and governance elements of the Kyoto Protocol at COP-4 (Buenos Aires) and COP-5 (Bonn) fleshed out the details on a range of market-based policy instruments, known as the 'flexibility mechanisms'. These flexibility mechanisms are the Clean Development Mechanism (CDM), Joint Implementation (JI), and emissions trading. Also, the 2001

³ Established at the 3-14 June 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil.

Marrakech Accords articulated rules that reflected the significant compromises necessary to secure Kyoto Protocol ratification by key countries to bring the Protocol into force.

Two key arguments are at the core of the Kyoto Protocol's lack of environmental integrity. First, ambition in terms of significant GHG emission reduction commitments is perceived to result in economic harm. Second, the Kyoto Protocol maintains a strong distinction along the lines of the principle of 'common but differentiated responsibilities' between industrialized countries with quantified commitments and developing countries without such commitments. For instance, the United States has consistently refused to take responsibility for its GHG emissions and refuses to commit itself to a global governance structure along the lines of the Kyoto Protocol based on these arguments of economic harm and parallelism.

In order to realize more comprehensive participation and coverage of GHG emissions, a two-track negotiation process was initiated to create a post-Kyoto climate policy regime. The Bali plan of action⁴ placed considerable emphasis on the COP-15 (Copenhagen) of December 2009 as the summit where Parties would realize a Kyoto Protocol follow-up framework. However, the COP-15 ended with a disappointing result: the major outcome of the COP, the Copenhagen Accord, only outlined a framework in which negotiating Parties could commit to voluntary pledges and actions. Moreover, due to opposition to the COP's negotiation dynamics, the Copenhagen Accord was not adopted as an official UN document but was merely 'taken note of' by the COP.

The disappointing Copenhagen summit led to an ongoing debate about the validity, viability and importance of the Copenhagen Accord and the capability of the COP process to produce meaningful and comprehensive results (Taminiau, 2010a). The following COP (Cancun) realized a result that was widely recognized as a success which re-positioned the UN as the main body to address climate change and the COP as the main platform to articulate global action (Taminiau, 2010b). The Cancun Agreements reiterate and reinforce the main elements of the Copenhagen Accord. Several key elements of the Cancun Agreements are:

- a) the acknowledgement for the first time in a U.N. document of the need to keep global average temperature rise below 2 °C;
- b) the Cancun' pledges for climate change action from industrialized and developing countries are officially recognized under the multi-lateral COP process;
- c) USD 30 billion in fast-start finance up to 2012 and an annual USD 100 billion by 2020 was pledged by the industrialized countries to support climate adaptation in the developing world;
- d) a Cancun Adaptation Framework was established to allow better planning and implementation of adaptation projects; and
- e) the Cancun Agreements provided for future consideration of new carbon market mechanisms going beyond a project-based approach and strengthened the CDM (Taminiau, 2010b).

Although progress was made at Copenhagen and Cancun on smaller components such as finance, technology, and adaptation, no complete architecture for a post-2012 climate policy regime was

⁴ The 2007 COP-13 adopted the Bali Plan of Action which outlined a process to "reach an agreement on long-term cooperative action up to and beyond 2012" (Decision 1/CP.13)

established. The most recent installment of the COP process, COP-17 in Durban, South Africa, concluded in December 2011. Among other decisions, the Durban negotiation round agreed on two main components. First, the Durban Agreement includes the decision to establish a second commitment period of the Kyoto Protocol.⁵ While the specifics are yet to be negotiated, the aim is to ensure aggregated reductions in emissions of 25-40 % below 1990 levels by 2020. However, actual 'commitment' in the proposed second commitment period is limited. For instance, the dwindling political importance of the Kyoto Protocol is indicated by the unwillingness of Canada, Russia, and Japan to participate in a second commitment period. Moreover, the second commitment period still needs to be inscribed with new reduction targets for the participating nations and a decision still needs to be reached on how to address the banked allowances of the first commitment period. A decision on this 'hot air' is crucial as it can severely undermine the remaining commitment to emission reductions. All the second commitment period appears to achieve for now is to realize continuity for climate action and the market-based mechanisms of CDM and JI.

The second main component is the agreement on a negotiation process which is to result in a "protocol, or legal instrument, or agreed outcome with legal force" which covers all negotiating Parties⁶ and which is to come into effect in 2020. The Ad-Hoc Working Group on the Durban Platform for Enhanced Action (AWG-DP) is to realize this outcome by 2015, and it is to be implemented in 2020. This negotiation process potentially ends the Kyoto Protocol dichotomy of Annex I Parties and non-Annex I Parties. This dichotomy was one of the principal obstacles for global agreement on climate action throughout the history of the international climate change negotiations. In that light, the Durban Agreement can be seen as an important document with potentially substantial consequences. However, the long timeline involved with the established negotiation process raises doubt as to the commitment of the negotiating Parties to ambitious climate action. In its current formulation, the negotiation process postpones multilateral action outside of the Kyoto Protocol to 2020. Also, an important consideration in this process will be to raise the level of ambition in terms of emission reductions to meet the level of emission reduction mandated by science in order to limit temperature increase to the stated objective of 2 °C (IPCC, 2007).

A BIFURCATION BETWEEN THE PERSPECTIVE OF DEVELOPED AND DEVELOPING COUNTRIES

From the overview of the COP process it becomes clear that the Annex B countries have promoted the view throughout the negotiations that the transition to a low-carbon future is largely an economic and technological question. The Annex B countries have argued that this question is best addressed (with the proper incentives and enforceable rules) in the global marketplace and, as such, introduced the Kyoto Protocol 'flexibility mechanisms'. These mechanisms aim to cost-effectively reduce GHG emissions by allowing the market to identify and act on GHG emission reduction opportunities. The Durban negotiation round further strengthened the commitment to a commodity-based paradigm by introducing carbon capture and sequestration (CCS) into the CDM, as well as the decision to consider new market-based mechanisms at future COPs. In fact, as Jonathan Pershing, Special Envoy on Climate Change for the United States put it during an Association of Climate Change

⁵ Decision CMP.7: Outcome of the work of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its sixteenth session <<http://unfccc.int/2860.php>>

⁶ Decision CP. 17 Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action <<http://unfccc.int/2860.php>>

Officers (ACCO) webinar: the COP-17 signals to the market a “clear intention by governments to continue with the market-based arrangements” (ACCO, 2012).

This shared belief in markets to guide national action on a global environmental problem reflects Annex B’s core commitment to a commodity-based paradigm of policy-making. In such a paradigm, priority is given to resolutions of environmental conflicts that are least-cost and, where possible, conducive to economic growth. Such a prioritization reduces the character of the atmosphere to a resource with important commodity values to be harvested (not unlike goods and services). In this way of thinking, climate change policy represents an opportunity to obtain optimal value for the atmospheric services. The standard of ‘good policy’ is then defined as one that contributes to a profitable result for society. In pursuit of this standard, the COP negotiations settled on a trading regime that promotes a commodity market for reducing GHGs. As such, the agreements’ operational provisions are phrased in terms of cost-effectiveness and market efficiency and utilize a commodity-based paradigm in respect of the atmosphere.

Within this commodity-based paradigm, the negotiation process has consistently aimed for a comprehensive and legally binding agreement that covers all negotiating Parties. The current formulation of success, therefore, is to realize comprehensive and legally binding agreement with mandated top-down emission reduction targets and with operational mechanisms that allow cost-effective action conducive to economic growth. The Annex B countries have upheld this approach as the only effective approach to address climate change. While ‘Copenhagen’ and ‘Cancun’ introduced a different framework for action in terms of climate commitment pledges, the negotiation process of ‘Durban’ appears to re-enforce this formulation of success and, as such, it is likely that the “protocol, or legal instrument, or outcome with legal force” will continue the pursuit of such an agreement.

However, substantial arguments can be put forward that make clear that this formulation of success restricts the opportunity for the international community to realize an agreement that can be described as equitable and socially and environmentally just. These arguments revolve around the notion that there is a dichotomy in the perspectives on climate change mitigation and adaptation between the developing and developed countries. While the developed countries appear to primarily pursue least-cost emission reductions through a commodity-based paradigm, developing countries argue a different political discourse based on economic development and poverty alleviation (Ockwell, 2010). This bifurcation between the perspective of developed countries on the one hand, and developing countries on the other hand results in two main considerations:

- a) An agreement along the current formulation of success results in undesirable consequences regarding social and environmental equity; and
- b) Due to the differences in perspective, there is tremendous difficulty in realizing an agreement that can be considered of sufficient environmental integrity.

Undesirable consequences of agreement

Similar to the unwillingness of developed countries to participate in a global governance approach along the lines of the Kyoto Protocol, the developing countries also oppose the imposition of (stringent) emission reduction targets on their economies (Shrivastava & Goel, 2010). However, where developed countries position parallelism in climate action and economic harm as the primary

arguments, the developing countries reject emission reduction targets on a different basis. Three principal concerns of the developing countries can be identified that shape their negotiation position and perspective (Sokona, Najam, & Huq, 2002; Shrivastava & Goel, 2010). First, a negotiation process and its outcome should uphold the principle of equity. Second, developing countries are concerned about the effort to minimize the burden of climate change mitigation activity on polluter industries and countries while neglecting vulnerable communities and countries. Third, developing countries argue that the focus of the international process should be on the UNFCCC original mandate of stabilization of atmospheric greenhouse gas concentrations at a safe level, instead of the current focus of the commodity-based paradigm on carbon trade. Further, solutions to climate change are often phrased in terms of technological development and Western notions of efficiency which causes difficulty for developing countries to autonomously pursue their own preferred development pathways.

The principle of equity revolves around several key considerations. First, developing countries recognize that the developed countries are historically responsible for raising atmospheric concentrations of GHGs (Byrne, Kurdgelashvili, & Hughes, 2008). In addition, issues of equity call attention to the highly uneven pattern of energy use now observed among the world's richest nations, most specifically the U.S., compared to the world's developing nations (Agarwal and Narain, 1995; Byrne et al., 2002). For instance, the U.S. presently retains a per capita CO₂-equivalent footprint of 17.7 tons annually, while China approximates 5.8 tons per capita (EIA, 2009).⁷ Next to the dichotomy in (historical) responsibility of atmospheric concentrations of GHGs, there is also a dichotomy along the developing country – developed country separation in terms of vulnerability to climate change and adaptive capacity to adverse climatic change. In this, small island states and the least-developed countries are especially vulnerable and have low adaptive capacity. This leads to the inequitable situation in which the world's major polluters, most notably the U.S., are unwilling to take responsibility for their contributions to atmospheric concentrations of GHGs and the world's poor feel the consequences. Second, the consideration commonly called the 'luxury versus survival emissions' argument positions that the GHG emissions of the developing countries originate from a desire of survival while the developed countries' GHG emissions are due to lifestyle choices (Agarwal, 1992). Finally, the developing countries prioritize issues such as poverty alleviation, sustainable development, energy poverty, and other social, economic, and environmental issues above climate change mitigation activities. Essentially, the developing countries argue that "climate change is a Northern issue, both because it is the North that is primarily interested in it, and because the North created the problem" (Grubb & Patterson, 1992, p. 297). Together, these arguments identify the responsibility of the countries of the Global North⁸ in climate change mitigation.

The commodity-based paradigm championed by the Annex B countries has resulted in an operational pursuit of climate change mitigation articulated in Western conceptualizations of market efficiency, least-cost options, cost-effectiveness, etc., and to be achieved through market-based mechanisms (Aldy, Krupnick, Newell, Parry, & Pizer, 2009). The Kyoto Protocol flexibility mechanisms therefore offer the option of trade in credits, which represent emission reductions, to allow mitigation activity to be positioned in least-cost locales. This operational pursuit is based on the notion that it doesn't

⁷ Per capita carbon dioxide emissions from the consumption of energy in metric tons.

⁸ The phrase "Global North" is used here to refer to urban communities and societies throughout the world that rely on science and technology development since the Enlightenment, along with industrial wealth, to organize economic, political, and intellectual life.

matter where, geographically, emission reductions are achieved. Considering that the developing countries have not pursued the market efficiency narrative as rigorously and as long as the developed countries, opportunities for least-cost emission reductions are located in the developing countries. In other words, the pursuit of efficiency through market-based instruments mandates the positioning of emission reduction activity in the developing countries. This situation leads to the realization that the developing countries are tasked to address a problem that has been primarily caused by the Global North. In contrast, the Global North can (to a degree) maintain their status quo by buying emission reduction credits to meet their own emission reduction targets (and potentially make a profit in doing so).

The rationale used to support this construct is that positioning emission reduction activity in developing countries actively supports their economic and sustainable development. However, experience with the flexibility mechanisms suggests that this rationale is flawed. For example, the mechanism assigned to the dual task of realizing sustainable development and cost-effective emission reductions is the CDM. Experience with this mechanisms suggests that the efficiency gains (i.e. monetary outputs) are prioritized and privileged over the contribution to sustainable development (Sutter and Parreno, 2007; Gupta et al., 2007). An important aspect related to this trade-off is that while sustainable development benefits are mandated through the Kyoto Protocol provisions on the CDM, they are not expressed in a monetary value and therefore play a limited role (Olsen, 2007; Olsen & Fenhann, 2008). Olsen (2007) concludes that, when left to market forces, the CDM does not significantly contribute to sustainable development. Moreover, due to their commodity market status, CDM project flows closely follow foreign direct investments and are therefore highly skewed towards a handful of countries. As such, due to its roots in a commodity-based paradigm and its focus on least-cost activities, the CDM doesn't serve the needs and wants of peoples equitably.

The commodity-based paradigm essentially contemplates the reconstruction of the technology-environment-relationship as a 'policy question': How to change the characteristic of the atmosphere from a commons to a commodity? (Byrne et al., 2002). The principal policy mechanism to commodify the atmosphere is the use of tradable permits. As Tietenberg (2002) notes, this policy mechanism relies on the rationing of access to the commons. In this manner, the atmospheric commons becomes available for capitalization. While some regard such a management structure as the only way to preserve a commons, others see the potential of corporate interest reflected in the established exchange structure (see e.g. Sandbag, 2011; Schreuder, 2009). Considering the power dynamics within developed countries, which are heavily reliant on industrial and transportation processes dependent on fossil fuels and adhere to the rationale of the capitalist market, this process of commodification⁹ of the atmosphere is unlikely to be driven by the need for emission reductions. Instead, it will be driven by the profit motive (Byrne & Glover, 2001). The developing countries are concerned that, due to the focus on carbon trade and its economic gains, the international community loses sight of the UNFCCC original mandate of stabilization of atmospheric GHG concentrations at a safe level (Sokona, Najam, & Huq, 2002).

⁹ The term 'commodification' is used here to refer to a social process by which phenomena (social and natural) are transformed from their intrinsic and autonomous existence into a social, political, and/or economic value. This transformation from phenomenon to value delivers a thing, person, etc. to society as a fungible object available for use and exchange.

The research, development, and implementation of low-carbon technologies will be a significant component in climate change mitigation. Next to its dual objective, the CDM is also seen as a prime medium for technology transfer of low-carbon technologies to the developing countries. The transfer of modern low-carbon technologies to developing countries has the promise to support low-carbon development. However, it is important that these technologies fit the country context and are responsive to the country circumstances (Byrne & Glover, 2001; ENTTRANS, 2008). An important aspect in this is the type and form of technology being transferred to the developing country. Considering that the social relations and mental conceptions (as in their understanding of the nature-society relationship) of peoples differ around the world, it is possible that the technology that is being transferred doesn't acknowledge this diversity and is therefore ill-suited for transfer (see e.g. Redclift, 1984; Schumacher, 1973). The imposition of modern technology transfer without explicit consideration for the country context is unlikely contribute to sustainable development and climate change mitigation (Byrne & Glover, 2001; ENTTRANS, 2008; Wilkins, 2002). This identifies the prerequisite of a clear understanding of the local socio-ecological circumstance and the associated needs and wants of the local community. Current experience with CDM and technology transfer emphasizes the importance of the enabling environment (e.g. legislations and regulations, institutional frameworks, market situations, etc.) and the removal of barriers to technology transfer (e.g. institutional, social, political, market, etc.) (Gallagher, 2006; Wilkins, 2002; Popp, 2011). For example, Gallagher (2006) notes how Chinese car companies, uninformed on available technologies, received outdated and environmentally unfriendly technology. Communities, therefore, need to have a solid understanding of the preferred development pathway, its socio-ecological effects, and the technologies and resources required to fulfill the needs and wants of the community in a sustainable, equitable, and just manner.

The understanding of what constitutes efficiency in the Western capitalist system is phrased in the form of an inputs/outputs ratio and cost/benefit analysis. This understanding of what constitutes efficient technology or an efficient knowledge system is not shared by everyone. The privileging of this understanding of efficiency and the imposition of this knowledge system reduces the value of 'inefficient' local knowledge systems and the value of certain traditional social relations (Agarwal & Narain, May-June 1997). Moreover, it is the Western scientific expertise that enables the developed countries to ensure that their interests are reflected in the research agenda and the formulation of operational provisions (Agarwal, Narain, & Sharma, 2002). This combined dynamic results in the undervaluation of the developing country' concerns and priorities compared to the Global North's interests. As such, the imposition of the Western knowledge system and its emphasis on efficiency causes difficulty for many developing countries to outline their own development pathway with their own selected set of technologies and techniques (see e.g. Alvares, 1992; Shiva, 1998). This understanding leads to the realization that it is important that developing countries have autonomy over their development pathway and can autonomously select technologies appropriate for their specific circumstances. Such autonomy would allow developing countries to select technologies in line with their development objectives, priorities, and needs.

The difficulty of realizing effective agreement in light of sustainability

The considerable negotiation difficulty evidenced by the COP history makes clear that a stringent and effective agreement with high levels of participation along the lines of the Kyoto Protocol is highly unlikely. From the outset of the negotiations, the dynamics of stringent target setting already

indicated this significant difficulty (Grubb, 1990). Essentially, there are substantial differences in the willingness to engage the issue of climate change between the negotiating Parties. In this, it is important to realize that the Parties with the most decision making power are also the countries who currently emit most of the GHGs, and who are historically responsible for raising atmospheric concentrations of GHGs (Byrne, Kurdgelashvili, & Hughes, 2008). Due to this dynamic, these are also the countries that benefit most from slow action with low ambition. This realization alone already makes an effective agreement along the lines of the Kyoto Protocol unlikely: powerful negotiating Parties can water down the stringency of an agreement, negatively affect the quality of its compliance mechanisms, or withdraw from participation, making agreement in the first place highly unlikely.

In fact, the history of the negotiations on climate change shows ample evidence that negotiating Parties are unwilling to enter into a comprehensive and legally binding agreement as is now mandated in the AWG-DP with sufficient environmental integrity. For example, recently Canada, Russia and Japan have communicated that they will not support a second commitment period of the Kyoto Protocol. Moreover, other main emitting countries, such as the U.S. and China, either have no emission reductions obligations under the commitment period (China) or have never ratified the Kyoto Protocol in the first place (the U.S.). Another example is provided by the history of the formulation of the Kyoto Protocol. Substantial flexibility, with the accompanying loss of environmental integrity, had to be introduced into the Kyoto Protocol to get Russia to ratify the Kyoto Protocol after the U.S. refusal to ratify.

A main issue remains the risk of asymmetry between actions in developed countries with commitments and emerging economies without commitments (Taminiau, 2010b). This is reflected by U.S. Special Envoy for Climate Change Todd Stern: “what we’re saying is we will do legally binding commitments only if they are symmetrical, if the emerging market countries do that also”.¹⁰ The Durban Agreement arguably opens up the possibility of a legally binding agreement that includes all negotiating Parties. However, when one considers the considerable negotiation effort invested in the formulation of the AWG-DP aim to realize a “protocol, or legal instrument, or agreed outcome with legal force”, it is not at all clear whether the different Parties have a similar understanding of what exactly is to come into effect in 2020 (Taminiau, 2011). Moreover, this wording is sufficiently ambiguous in itself to allow for multiple interpretations. As such, considering the trade-offs between participation, compliance, and stringency, it is unlikely that the climate regime that is to come into effect in 2020 will be of sufficient environmental integrity.

THE DEFINITION OF SUCCESS IS ANTITHETICAL TO OUR OBJECTIVES AND NEEDS

From the arguments presented in the previous section, we conclude that the current approach and its formulation for success fails due to its dynamics to realize sufficient emission reductions and also fails to meet the interests of all peoples and nations equitably. In sum, the current approach:

- a) Fails to provide in both sustainability and equity on a social and environmental level;
- b) Reduces developing country autonomy to select development pathways; and

¹⁰ U.S. Department of State briefing on U.N. climate change conference in Cancún December 14 2010
<<http://www.state.gov/g/oes/rls/remarks/2010/152847.htm>>

- c) Allows the developed countries to shift and evade their responsibility, through the market-based mechanisms, to the developing countries.
- d) The focus on market efficiency leaves untouched the fundamental nature-society relationship as it maintains structural relationships within society.

Therefore, we conclude that the current definition of success is antithetical to our objectives and needs. This realization raises the question: what kind of objective and output of the COP process would we consider a success of the multilateral process? Consistent with our response to preceding COP meetings, the CEEP has adopted principles of ecological justice as the basis for acting on issues of climate change (see e.g. Byrne, 1997; CEEP, 2000, 2002, 2009). For CEEP, two elements are critical in efforts to address the problem of climate change from the perspective of ecological justice. The first is the limitation of the extent of climate change impacts through decisions to limit global production of GHG, to levels consistent with the known properties of the carbon cycle. The second is the determination of country-specific emission targets in a manner that produces a democratic and equitable outcome. In CEEP's approach, ecological justice for climate action concerns the simultaneous pursuit of ecological sustainability and social justice through international policy. As such, CEEP proposes that:

- a) The international negotiation process adopts principles of ecological justice as the basis for acting on issues of climate change and for formulating what constitutes success and progress;
- b) That success for developing countries is reformulated from the imposition of emission reduction targets through market-based policies to developing country context specific sustainable development objectives, priorities, and needs. In other words, the topic of sustainable development should be prioritized in the negotiation process. In this sustainable development encompasses low-carbon development but is more comprehensive in that it specifically includes sustainability and equity; and
- c) That developed countries take their responsibility in domestic climate change mitigation support developing country sustainable development efforts.

BUILDING BLOCKS FOR A REFORMULATION OF SUCCESS

How can an approach that prioritizes sustainable development and specifically incorporates development autonomy and the principles of sustainability and equity be envisioned? Several key developments in the international community can be used as a starting point for such an approach. First, the Copenhagen Accord, the Cancun Agreements, and the Durban Agreement have built a foundation for a new approach to address climate change: the pledge-and-review approach. As we will see, we consider the current form of the pledge-and-review approach an unsuitable platform. However, with modifications, it can offer a stepping stone towards an equitable and just framework of climate action. Second, the international negotiations have provided a recent emphasis on the link between climate change mitigation and adaptation with sustainable development. The processes and mechanisms that have been spurred by this renewed emphasis can be used as initial building blocks of a new framework. Finally, the ongoing discourse on sustainable development provides renewed attention to the plight of the developing countries and the demand for international support to achieve a sustainable form of development.

The foundation for a new approach

The negotiation process outlined by the Durban Agreement potentially provides for a future climate policy regime that is to enter into force in 2020. In the meantime, climate change mitigation action by Parties outside of the second commitment period of the Kyoto Protocol will be articulated through the pledge-and-review approach. This approach outlines a bottom-up and decentralized approach to climate change (Netherlands Environmental Assessment Agency (PBL), 2010; Bodansky, Chou, & Jorge-Tresolini, 2004).

In this approach, Annex I Parties commit to implementing emission reduction pledges for 2020 and non-Annex I Parties commit to mitigation actions. The Annex-1 pledges together constitute a GHG emission reduction of 12 % to 18 % relative to 1990 levels. Currently, well over one hundred nations have submitted their pledges or Nationally Appropriate Mitigation Actions (NAMAs) (UNFCCC, 2012) with the majority of global GHG covered. For example, the United States has pledged a 17 % emission reduction below a 2005 base year (equals a 3 % emission reduction below 1990) and China has submitted a NAMA to lower emission intensity by 40-45 % by 2020 relative to 2005, a planned increase of non-fossil fuels in primary energy consumption to around 15 % by 2020, and a planned increase in forest cover by 40 million ha. (PBL, 2010; Project Catalyst, February 2010; UNFCCC¹¹). However, this is lower than the range needed as reported by the IPCC to be able to realize stabilization at 450 parts per million (ppm) CO₂eq in 2020 (PBL, 2010; den Elzen & Hohne, 2008).

While the pledge-and-review approach is substantially different from the targets-and-timetables approach (see Table 1) and some see potential for this architecture to become effective (see e.g. Stavins, 2009a, 2009b; Reinstein, 2004), it, in its current form, offers no effective approach to climate change. This realization not only stems from the notion that current pledges and actions are insufficient to realize the emission trajectory required to limit climate change to 2 °C (see e.g. Stern & Taylor, 2010; Project Catalyst, February 2010), but also finds a basis in the notion that voluntary emission reduction commitments have a historically inadequate performance record both inside and outside the climate change negotiations. This inadequate performance record of voluntary agreements is evidenced by the performance of the UNFCCC and formed the basis of the argument for mandatory reductions which culminated in the Kyoto Protocol in the first place.

TABLE 1. MAIN DIFFERENCES BETWEEN PLEDGE AND REVIEW AND KYOTO STYLE COMMITMENTS.
Source: Authors

Pledge-and-review	Targets-and-timetable
Bottom-up (country driven)	Top-down (multilateral agreement)
Continuum of stringency possible	Stringency divided in two groups (Annex I and non- Annex I)
Domestically binding	Internationally binding
Multicomponent commitments (emission reduction targets, emission intensity targets, conditional targets)	Single component commitment (quantitative emission reduction targets)
Flexible	Static

Moreover, since the pledge-and-review approach does not provide incentives for ambitious action, the level of commitment is unlikely to become sufficient. In effect, while the pledge-and-review

¹¹ See: <http://unfccc.int/home/items/5265.php>

approach was capable of increasing participation levels (it incorporates all major emitting Parties), it has done so by trading off strict compliance mechanisms and stringency. It is, in fact, a reflection of the lowest common denominator designed to appeal to the largest number of participating nations.

While we consider the pledge-and-review approach in its current form unsuitable as a platform for ambitious global climate change action, several of its characteristics can be identified that could form the foundation of a reformulation of success in the international community. First, the bottom-up method allows developing countries to indicate their potential for emission reductions and communicate these to the international community. As such, the bottom-up approach allows for a stronger link to domestic socio-ecological and economic circumstance and a reflection of local objectives, priorities, and needs. The potential of bottom-up activities to produce meaningful and ambitious climate change action is reflected in the lower levels of governance in the United States. Local and regional strategies in and beyond the U.S. have surpassed and are likely to continue to surpass, in their quantitative and qualitative goals and actions, the commitments adopted by the COP process (Byrne et al. 2007; Rabe, 2004; Rabe, 2008). This can be explained as an outgrowth of the governance opportunities that bottom up strategies offer (Byrne et al. 2007; Hughes, 2009).

The pledge-and-review approach furthermore introduces the possibility of a continuum of stringency among countries. This continuum of stringency finds its basis in the voluntary character of the agreement, allowing countries to pledge emission reduction statements based on their specific situation. As such, developing countries, under the pledge-and-review approach can outline pledges in line with their capacity and their projected development pathways. When fully aware of socio-ecological circumstance and local needs and wants, the developing countries in the proposed approach can formulate such pledges in line with their circumstance. However, instead of articulating such pledges in terms of emission reductions, we argue that such pledges should be articulated in terms of sustainable development and in line with the developing country's preferred development pathway.

The move away from single-component commitments in the form of top-down quantitative emission reduction targets to multi-component commitments opens up the possibility of multi-component commitments in terms of sustainable development. These multi-component commitments, in line with the developing country's sustainable development objectives, priorities, and needs could signal to the international community the intended development pathway of the developing country and its potential for a low-carbon development. Similar to the pledge-and-review approach, such multi-component commitments could be made conditional on international support to communicate to the international community what is achievable (in terms of both sustainable development and GHG emission reduction). In turn, the international community can then, through institutions such as the Green Climate Fund, the multi-lateral development banks, and other support structures provide the requested support. Such support can take the form of financial resources, but also includes human and technical support, information, etc.

The elements introduced into the international community in an effort to address climate change in the form of pledge-and-review can thus be used to refocus climate change into the wider context of sustainable development and, therefore, both actively support real GHG emission reductions and sustainable development. Under the proposed focus, developing countries will have autonomy to outline their desired development pathway and communicate this to the international community.

The active components of a new approach

The Copenhagen Accord, Cancun Agreements and the Durban Agreement contain a set of provisions that can be used as active components of the new approach proposed in this paper to allow the refocusing of climate change policy into the wider context of sustainable development. Until recently, the link between climate change and sustainable development was systematically ignored in the climate change operational provisions (Sokona, Najam, & Huq, 2002). However, in recent years, the issue of sustainable development has gained more prominence. This prominence is reflected in the introduction of mechanisms and processes such as NAMAs, National Adaptation Plans (NAPs), the Technology Mechanism, Low-Carbon Development Strategies (LCDS)¹², and the highly participatory Technology Needs Assessment (TNA).

For instance, the National Adaptation Plan process introduced reflects the notion that least developed countries have contributed least to climate change but have least adaptive capacity to deal with climatic change (UNFCCC 2010, paragraph 15 and 16). Furthermore, NAMAs are placed “in the context of sustainable development” (UNFCCC, 2010 para. 48). The highly participatory updated process of Technology Needs Assessments for Climate Change (UNDP, 2010) positions developing countries’ sustainable development priorities as the basis for identifying and prioritizing technologies in order to achieve both climate and sustainable development goals (see Fig 1). Importantly, a TNA is a country-driven concept with a strong participation of country stakeholders. The identified technology needs and prioritized technologies are therefore more likely to be responsive to the country-specific context. Additionally, a LCDS is a domestic strategy document that integrates national climate change policy into a broader framework of sustainable development (Clapp et al., 2010).

Stressing the link between climate change and sustainable development, Van Der Gaast & Begg (forthcoming) outline in detail a potential strategy of how these mechanisms can be used in light of refocusing climate change into the wider context of sustainable development. As Van Der Gaast & Begg (forthcoming) show, these highly participatory mechanisms can be effectively used by developing countries to identify and prioritize sustainable development actions in light of their objectives, priorities, and needs and can communicate these to the international community. In this, the outputs from the updated TNA process and LCDS can be used to formulate NAMAs and NAPs. Moreover, these outputs can become inputs to the international Technology Mechanism and Funding Bodies for resource allocation and implementation. In a sustainable development pledge-and-review style climate approach, developing countries can use these mechanisms to identify their needs and communicate these to the international community. As such, as Van Der Gaast & Begg (forthcoming) show, with TNA, LCDS, NAMAs, and NAPs, a future climate policy regime has important building blocks for supporting countries in formulating long-term pathways in line with socio-ecological and economic development objectives.

Next to technological support, financial support will be a key aspect for developing countries (Shrivastava & Goel, 2010). A wide array of financial resources on the multi-lateral, regional, and global levels are available for both sustainable development and climate change (Van Der Gaast, Begg, & Taminiau, forthcoming). Most recently, this has been evidenced by, for instance, the pledged annual USD 100 billion by 2020 in the Copenhagen Accord and reiterated in the Cancun Agreements.

¹² Also referred to in the literature as low emission development strategy (LEDS).

However, it is important to realize that the current global financial institutional framework in the form of the World Bank, the International Monetary Fund (IMF) and the World Trade Organization (WTO) actively support the processes of industrialization, economic growth, material expansion, and globalization (Schreuder, 2009). As such, reconsideration of the ‘green bank’ proposal that outlines a new global financial institution sensitive to the shortcomings of the World Bank, the IMF, and the WTO is prudent. Arguing that environmental markets are “in a class of their own” the introduction of an ‘International Bank for Environmental Settlements (IBES)’ (Chichilnisky, 1997, p. 9.; Chichilnisky, 2000) could support doing better with less instead of doing more with more.

Momentum for a reformulation of success

The momentum for a new strategy which redefines success in terms of sustainable development is, next to the ongoing COP process and civil movements for action on climate change, provided by the ongoing discourse on sustainable development. The sustainable development discourse has emerged as a key discourse to evaluate and plan our social and environmental prospects. This discourse has been going on in parallel with the discourse on climate change since 1992. More specifically, the Rio+20 conference scheduled to be held this year will provide an additional emphasis on the world’s progress towards a green economy and achievements made towards sustainable development. The worldwide review in the progress towards sustainable development is to be conducted in Rio de Janeiro this year, further emphasizes the importance of socio-ecological circumstance informed development.

PRIORITIZATION OF SUSTAINABLE DEVELOPMENT OBJECTIVES, PRIORITIES AND NEEDS

With these three developments in mind, we propose a new focus and a new formulation of success for the international climate change negotiation process. In essence, the focus we propose resembles the sustainable development policies and measures (SD-PAM) approach put forward by South Africa during the so-called Convention Dialogue in 2006. In this approach, developing countries pursue to meet their own sustainable development goals while creating significant co-benefits in terms of climate mitigation and adaptation (Republic of South Africa, 2006). The prioritization of sustainable development priorities, objectives, and needs is positioned at the core of the focus we propose. In Figure 1, the phases envisioned for the proposed focus in this paper are illustrated.

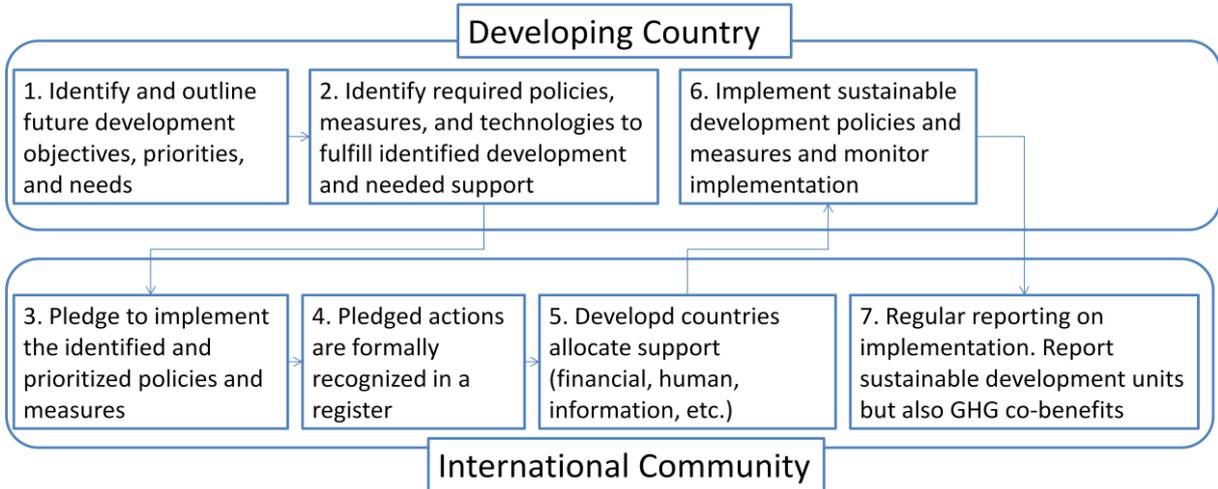


FIGURE 1. THE PHASES OF THE PROPOSED FOCUS.

Source: authors, adapted from Republic of South Africa (2006)

We envision a modification of the newly formalized platform in the form of the pledge-and-review approach towards such a prioritization of sustainable development for the developing countries. In this, Parties use the participatory mechanisms of LCDS and TNA to identify their low-carbon and sustainable development pathways in line with their objectives, priorities, and needs. Through the modified platform, they can communicate the LCDS and TNA outputs to the international community. Therefore, such a new strategy will be focused on country-specific values and will no longer be positioned within a commodity-based paradigm. Instead, the new approach will be based on a commons-based approach to (energy) development (Byrne et al., 2006a, 2009) which consciously interjects the role of democratic decision making, long-term perspectives for evaluating environmental impacts as compatible with ecological processes over decades or longer, and consideration of how choices in one location influence a range of locations elsewhere.

With regard to decision-making, citizen involvement would entail – or at least support – local, participatory and accountability-based action (Prayas Energy Group, 2001; Transnational Institute, 2003), as supported by diverse institutions and processes for agenda setting and evaluation. In turn, as regards the outcomes of such decision-making, a commons-based approach would promote greater equity of impacts along ecological dimensions, where protection of the broader life web is explicitly valued (Byrne et al., 2006b). The new focus moves away from the current economic cost-benefit approach (specifically focused on monetary least-cost activities) and instead emphasizes issues such as public health, energy poverty, poverty alleviation, etc. Livelihoods-centered energy and economic development (Agarwal and Narain, 1995, 2002; Byrne et al., 2002) and participatory governance could become hallmarks of the new approach. The new approach places shared social and environmental progress – for all communities – at the forefront of adjudicating technological choice and economic value.

This proposed strategy, that builds on principles of ecological and social justice, is fundamentally different from the current focus of the climate change policy negotiations. The proposed strategy emphasizes a bottom-up approach that specifically incorporates the principles of sustainability and equity. Allowing developing country autonomy to choose a development pathway, such an approach would turn climate from a threat into a genuine opportunity for sustainable development and could, therefore, be an important motivation for developing country action (Republic of South Africa, 2006). Such an approach reflects the priority goals of all countries (especially developing countries) and acknowledges the explicit link between emissions and the development pathway (Sathaye et al., 2007). Table 2 highlights the main differences between the current climate change focus and the reformulation of success identified in this paper.

TABLE 2. MAIN DIFFERENCES BETWEEN THE CURRENT FOCUS OF THE NEGOTIATIONS AND THE FOCUS PROPOSED IN THIS PAPER.

Source: Authors

Current focus of the negotiations	Proposed focus
Emission reduction targets	Sustainable Development objectives (poverty alleviation, energy poverty, etc.)
Ecological colonialism/imperialism	Autonomy to outline development pathway
Techno-economic rationale	Values and needs based approach
Top down approach	Bottom-up approach with international support

Static	Flexible
Commitment divided in Annex I and non-Annex I	Continuum of commitment possible
Minimal incentive to participate	Increased developing country participation
Imposed process	Ownership of process (reflects developing country priorities)

The argument of parallelism (i.e. the notion that meaningful participation by all is required) is currently used by major emitting Parties as a primary reasoning for inaction. Through increased mobilization of developing country action through a sustainable development style pledge-and-review the argument of parallelism is eliminated. Such an elimination of one of the core arguments provides considerable additional pressure on the developed countries to participate in climate change mitigation action.

In order to uphold the principle of equity, which is positioned at the core of the UNFCCC, the recognition of responsibility in climate change action has to play a critical role. Climate change action by developed countries is to be in line with their (historical) responsibility and should, therefore, be located within its own borders and without evasion of responsibility to the developing world. In this, we recognize the need for an equitable identification of responsibility of mitigation. An example of such a distribution can be found in the Brazilian proposal of 1997 (Brazil, 1997). This proposal calculated the contribution to temperature increase due to emission of greenhouse gas emissions and thus identified responsibility for mitigation. From these calculations, specific emission ceilings could be allocated amongst Annex I Parties (Werksman, 2000, pp. 228-229). Similarly, Byrne, Kurdgelashvili, & Hughes (2008) identified an equitable per capita emission target keeping in mind the share of cumulative emissions in GHG concentrations. While supporting developing countries' sustainable development pledges, developed countries can take responsibility by striving towards such an equitable level of emissions per capita.

The approach presented here entails a flexible post-Kyoto Protocol framework in which the developed countries have equitable targets that force them to take responsibility, while the developing countries formulate and uphold sustainable development commitments. As such, this framework would be consistent with the principle of 'common but differentiated responsibilities'. In addition to being bottom-up and decentralized along a continuum of stringency in line with socio-ecological circumstance and capability, such a 'policy-based approach' offers several additional advantages (PCGCC, 2007). First, the commitments made are phrased in actions instead of environmental outcomes. As such, the developing country government agrees to a specific, but autonomously selected, development pathway with the associated measures and technologies. Second, it promotes a synergy between the policy priorities within sustainable development and climate change policy: the policies selected advance national priorities. Third, such a synergy is more likely to be in line with political circumstance and allows for the re-positioning of climate change from an impediment to a contributor to development. Finally, the approach would facilitate a sharing of best practices. The diversity of commitments and approached, documented and structurally reviewed in a register, allows for a platform to assess and learn from experiences.

CONCLUDING REMARKS

In conclusion, the current formulation of success is articulated in terms of quantitative emission reduction targets within a commodity-based paradigm. The dominant means to resolve

environmental harm, the process of commodification, positions nature as a system organized and managed by human intelligence (Byrne et al., 2002). The expression of nature-society interactions in units of atmospheric greenhouse gas concentrations reduces nature's reality and reshapes it into an anthropogenic reality (Byrne et al., 2002). In such a paradigm, the reality of production and consumption of commodities is structured and motivated by the logics of technology and capital. Environmental consequences and social harm are, at best, a residual concern. Climate change action formulated in terms of market-based mechanisms and policies, allows the character of the commodification process and its hegemony over social and ecological relations to go unchallenged. We have argued that, when the final outcome of the AWG-DP process which is to lead to the "protocol, or legal instrument, or agreed outcome with legal force," follows the same formulation of success within a commodity-based paradigm, the international negotiations have lost sight of the basic questions of justice and are incapable of realizing sustainability and equity.

In contrast, we have formulated an approach which prioritizes the social and ecological relations and emphasizes an equitable distribution of capabilities to fulfill human needs and wants in a world subject to climatic change. We propose a commons-based approach to climate change that specifically incorporates sustainability, equity, and justice into the international efforts to address climate change. Through the prioritization of the operationalization of sustainable development, we identify a potential bottom-up discourse along the lines of a commons-based paradigm. The characteristics of this discourse allow for the formulation of country-specific, participatory, and autonomous low-carbon and sustainable development pathways. The inclusion of bottom-up, participatory and autonomous decision-making reflects socio-ecological circumstance and provides for local values and needs. The proposed reformulation allows for a diversification away from the Western commodity-based model and into a diversity of new models that reflect social relations, values, and needs, and are in line with the local mental conceptions about the nature-society relationship. In turn, the increased reflection of these aspects yields empowerment and ownership of the development process allowing for a more equitable societal model and a more appropriate nature-society relationship. Allowing developing countries to autonomously determine their own development pathway removes (or substantially reduces) the imposition of Western knowledge on the developing country's local and traditional knowledge systems. Unwilling to participate, the consistent argument of some of the major Parties within the UNFCCC revolved around the lack of meaningful participation by the developing countries. Increased mobilization of developing countries further weakens the negotiation position to not participate in an international agreement of these major emitting Parties. Eliminating one of their core arguments forces these countries to take their responsibility in the climate change issue.

The current market-based policy regime sacrifices principles of social equity and ecological sustainability for efficient emissions management. Therefore, in contrast to labeling the Durban Agreement a 'historic breakthrough', we would consider a reformulation of success in terms of operationalization of sustainable development and a refocusing of the international community towards this target a historic breakthrough. Such a new paradigm measures success in terms of the formulation of low-carbon and sustainable development in line with domestic priorities and objectives (identified through the use of TNA and LCDS) and how the identified mitigation and adaptation actions (in the form of NAMAs and NAPs) are intended to realize the formulated development.

Works Cited

- ACCO (2012). *Durban De-Brief: An Analysis of COP-17 in Durban and Implications for Industry*. Webcast organized by the Association of Climate Change Officers (ACCO) on 1 February 2012. [http://www.accoonline.org/event_archives.html#Durban De-Brief: An Analysis of COP-17 in Durban and Implications for Industry](http://www.accoonline.org/event_archives.html#Durban+De-Brief:+An+Analysis+of+COP-17+in+Durban+and+Implications+for+Industry) Accessed 3 February 2012.
- Agarwal, A., & Narain, S. (May-June 1997). Dying Wisdom: Decline and Revival of Traditional Water Harvesting Systems in India. *The Ecologist*, Vol. 27, No. 3 , 112-115.
- Agarwal, A., Narain, S., & Sharma, A. (2002). The Global Commons and Environmental Justice - Climate Change. In J. Byrne, L. Glover, & C. Martinez, *Environmental Justice: Discourses in International Political Economy* (pp. 171-199). New Brunswick, NJ: Transaction Publishers.
- Aldy, J., Krupnick, A., Newell, R., Parry, I., & Pizer, W. (2009). *Designing Climate Mitigation Policy*. Washington, DC: Resources for the Future.
- Alvares, C. (1992). Science, Colonialism and Violence: A Luddite View. In A. Nandy, *Science, Hegemony and Violence: A Requiem for Modernity* (pp. 68-112). New York: Oxford University Press.
- Bodansky, D., S. Chou, & C. Jorge-Tresolini, (2004). *International Climate Efforts Beyond 2012: A Survey of Approaches*. Arlington, VA: Pew Center on Global Climate Change.
- Brazil, 1997. *Proposed Elements of a Protocol to the UNFCCC*, Presented by Brazil in response to the Berlin Mandate, FCCC-AGBM-1997-Misc.1-Add.3. Bonn: UNFCCC. Document can be found at: <http://unfccc.int/cop4/resource/docs/1997/agbm/misc01a3.htm>
- Byrne, J., & Glover, L. (2001). Climate Shopping: Putting the Atmosphere up for Sale. *TELA No. 5* (Australian Conservation Foundation .
- Byrne, J., Glover, L., & Martinez, C. (2002). The Production of Unequal Nature. In J. Byrne, L. Glover, & C. Martinez, *Environmental Justice - Discourses in International Political Economy - Energy and Environmental Policy Vol. 8* (pp. 261-291). New Brunswick (USA), London (UK): Transaction Publishers.
- Byrne, J., & Toly, N., 2006a. Energy as a Social Project: Recovering a Discourse. In John Byrne, Noah Toly, and Leigh Glover (eds.). *Transforming Power: Energy, Environment, and Society in Conflict*. New Brunswick, NJ and London: Transaction Publishers, pp. 1-32.
- Byrne, J., Glover, L., & Alroe, H.F., 2006b. Globalization and sustainable development: a political ecology strategy to realize ecological justice. In Niels Halberg et al (eds.), *Global development of Organic Agriculture: Challenges and Prospects*. Oxfordshire, UK: CABI Publishing, pp. 49-74.
- Byrne, J., Hughes, K., Rickerson, W., & Kurdgelashvili, L. (2007). American Policy Conflict in the Greenhouse: Divergent Trends in Federal, Regional, State and Local Green Energy and Climate Change Policy. *Energy Policy* 35 , 4555-4573.
- Byrne, J., Kurdgelashvili, L., & Hughes, K. (2008). Undoing Atmospheric Harm. In P. Droege, *Urban Energy Transition* (pp. 27-53). Oxford, UK: Elsevier.

Center for Energy and Environmental Policy (CEEP), (2000). *Ecological Justice in the Greenhouse: A Position Paper Presented at the Sixth Session of the UNFCCC Conference of the Parties, The Hague, Netherlands*. J. Byrne, Y.-D. Wang, G. Alleng, L. Glover, V. Inniss and Y.-M. Mun. Newark, Delaware: Center for Energy and Environmental Policy (CEEP).

Center for Energy and Environmental Policy (CEEP), (2002). *Greenhouse Justice - Moving Beyond Kyoto. Position Paper Prepared for UNFCCC COP-8, New Delhi, India*. J. Byrne, L. Glover, V. Inniss, J. Kulkarni, Y.-M. Mun, N. Toly, Y.-D. Wang. Newark, Delaware: Center for Energy and Environmental Policy (CEEP).

Center for Energy and Environmental Policy (CEEP) & TC Chan Center for Building Simulation and Energy Studies, (2009). *An Urban Agenda for the New Climate. Position Paper prepared for UNFCCC COP-15, Copenhagen, Denmark*. J. Byrne, K. Hughes, C. Martinez, M.A. Hughes, A. Malkawi, G. Augenbroe. Newark, Delaware: Center for Energy and Environmental Policy (CEEP).

Chichilnisky, G., (1997). *Development and Global Finance: The Case for an International Bank for Environmental Settlements*. UNDP Discussion Paper Series. Document can be found at: http://chichilnisky.com/pdfs/books/Development_and_Global_Finance_The_Case_for_an_International_Bank_for_Environmental_Settlements.pdf

Chichilnisky, G., (2000). *Equity and Efficiency in Emission Markets: The Case for an International Bank for Environmental Settlements*. In: Environmental Markets. Columbia University Press. Chichilnisky & Heal (Eds.). Document can be found at: <http://library.northsouth.edu/Upload/Environmental%20Markets.pdf>

Chichilnisky, G., & Heal, G., (2000). *Environmental Markets*. Columbia University Press. Document can be found at: <http://library.northsouth.edu/Upload/Environmental%20Markets.pdf>

ENTTRANS. (2008). *ENTTRANS - Promoting Sustainable Energy Technology Transfers through the CDM: Converting from a Theoretical Concept to Practical Action*. Brussel, Belgium: EU 6th Framework Programme.

Energy Information Administration (EIA) (2009). World Per Capita Carbon Dioxide Emissions from the Consumption of Energy. Retrieved March 12, 2012, from: <http://www.eia.gov/countries/data.cfm#undefined>

Gaast, W. van der and K.G. Begg (forthcoming), *Challenges and Solutions for Climate Change*, Springer-Verlag.

Gaast, W. van der, Begg, K. G., & Taminiou, J. B. (forthcoming). Challenge 5: Financing Technologies and Actions for Climate and Development. In Gaast, W. van der & K.G. Begg (eds.). *Challenges and Solutions for Climate Change* (forthcoming), Springer- Verlag.

Gallagher, K. S., (2006). "Technology Transfer, Energy, and the Environment." *China Shifts Gears: Automakers, Oil, Pollution, and Development*. Cambridge, MA: The MIT Press. Pp. 93-120

Grubb, M. (1990). The Greenhouse Effect: Negotiating Targets. *International Affairs Vol. 66, No. 1*, 67-89.

Grubb, M., & Patterson, M. (1992). The International Politics of Climate Change. *International Affairs* 68 , 293-310.

Hughes, K., (2009). *The City as a Community-Based Force for Sustainability in Energy Systems*. Dissertation submitted to the University of Delaware, Newark.

IPCC. (2007). *Climate Change 2007: Synthesis Report; Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change Core Writing Team Pachauri R K & Reisinger A*. Geneva, Switzerland: IPCC.

Netherlands Environmental Assessment Agency (PBL). (2010). *Evaluation of the Copenhagen Accord: Chances and Risks for the 2⁰C Climate Goal* . Bilthoven: Netherlands Environmental Assessment Agency (PBL).

Ockwell, D. G., Haum, R., Mallet, A., Watson, J., (2010). *Intellectual Property Rights and Low Carbon Technology Transfer: Conflicting Discourses of Diffusion and Development*. *Global Environmental Change* 20: 729-738.

Olsen, K.H., (2007). The Clean Development Mechanism's Contribution to Sustainable Development: a review of the literature. *Climatic Change Vol. 84 May 24* , 59-73.

Olsen, K.H., Fenhann, J., (2008). *A Reformed CDM: Including New Mechanisms for Sustainable Development*. Roskilde: UNEP Risoe Centre.

PCGCC. (2002). *Analysis of the Bush Administration Climate Change Policy*. Retrieved November 24, 2009, from Pew Center on Global Climate Change PCGCC:
http://www.pewclimate.org/policy_center/analyses/response_bushpolicy.cfm

PCGCC, (2007). *Policy-Based Commitments in a Post-2012 Climate Framework: A Working Paper*. Document can be found at: <http://www.pewclimate.org/docUploads/Policy-Based%20Commitments%20in%20a%20Post-2012%20Climate%20Framework.pdf>

Popp, D., (2011). "International Technology Transfer, Climate Change, and the Clean Development Mechanism." *Review of Environmental Economics and Policy* 5(1): 131-152

Project Catalyst. (February, 2010). *Taking stock – the emission levels implied by the pledges to the Copenhagen Accord*. San Francisco, CA: ClimateWorks Foundation.

Prayas Energy Group, 2001. The real challenge in power sector restructuring: Instilling public control through TAP. *Energy for Sustainable Development*, 5(3), 95-102.

Rabe, B. G. (2004). *Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy*. Washington, DC: Brookings Institution Press.

Rabe, B. G. (2008). States on Steroids: The Intergovernmental Odyssey of American Climate Policy. *Review of Policy Research*, Vol. 25, No. 2 , 105-128.

Redclift, M. (1984). *Development and the Environmental Crisis: Red or Green Alternative?* New York: Methuen.

Reinstein, R. A. (2004). A possible way forward on climate change. *Mitigation and Adaptation Strategies for Global Change* 9 , 295-309.

RSA (Government of the Republic of South Africa), 2006. *Sustainable Development Policies and Measures: A Strategic Approach for Enhancing the Climate Regime Post-2012*, Presented at the 2nd Workshop of the Dialogue on Long-Term Cooperative Action to Address Climate Change by Enhancing Implementation of the Convention, Nairobi, Kenya, 15-16 November. Pretoria: Department of Environmental Affairs and Tourism.

Sandbag. (2011). *Carbon Fat Cats 2011: The Companies Profiting from the EU Emissions Trading Scheme*. London, UK: Sandbag Climate Campaign.

Sathaye, J. A. Najam, C. Cocklin, T. Heller, F. Lecocq, J. Llanes-Reguiro, J. Pan, G. Petschel-Held, S. Rayner, J. Robinson, R. Schaeffer, Y. Sokona, R. Swart, H. Winkler, 2007: Sustainable Development and Mitigation. In: *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA

Schreuder, Y. (2009). *The Corporate Greenhouse: Climate Change Policy in a Globalizing World*. New York: Zed Books Ltd.

Schumacher, E. F. (1973). *Small is Beautiful: Economics as if People Mattered*. New York: Harper and Row.

Shiva, V. (1998). Development, Ecology, and Women. In J. Dryzek, & D. Schlosberg, *Debating the Earth: the Environmental Politics Reader* (pp. 290-298). Oxford: Oxford University Press.

Shrivastava, M.K., & Goel, N., (2010). *Shaping the Architecture of Future Climate Governance: Perspectives from the South*. In: *Global Climate Governance Beyond 2012 – Architecture, Agency, and Adaptation*. Biermann, F. Pattberg, P. & Zelli, F., (eds.)

Sokona, Y., Najam, A., & Huq, S. (2002). Climate Change and Sustainable Development: Views from the South. *Opinion: International Institute for Environment and Development* , 1-4.

Stavins, R. (2009b). *A portfolio of domestic commitments: implementing common but differentiated responsibilities*. Harvard Project on International Climate Agreements.

Stavins, R. (2009a, December 20). *What Hath Copenhagen Wrought? A Preliminary Assessment of the Copenhagen Accord*. Retrieved June 17, 2010, from Belfer Center for Science and International Affairs: <http://belfercenter.ksg.harvard.edu/analysis/stavins/?p=464>

Stern, N., & Taylor, C. (2010). *What do the Appendices to the Copenhagen Accord tell us about global greenhouse gas emissions and the prospects for avoiding a rise in global average temperature of more than 2°C?* <http://www.ccep.ac.uk>: Centre for Climate Change Economics and Policy Grantham Research Institute on Climate Change and the Environment in Collaboration with the United Nations Environment Program (UNEP).

Sutter, C. & Parreño, J. C., (2007). *Does the current Clean Development Mechanism (CDM) deliver its sustainable development claim? An analysis of officially registered CDM projects*. *Climatic Change* (2007) 84: 75-90.

Taminiau, J. B. (2010a). The current state of affairs in the global climate change negotiations. *Joint Implementation Quarterly (JIQ) Vol. 16 No. 3* , 3-5.

Taminiau, J. B. (2010b). The Cancun Agreements: Main Elements, Perspectives and Future Negotiations. *Joint Implementation Quarterly (JIQ) Vol. 16 No. 4* , 5-8.

Taminiau, J. B. (2011). The Durban Agreement: A Deal to Negotiate a Deal. *Joint Implementation Quarterly (JIQ) Vol. 17 No. 4* , 2-4.

Tietenberg, T. (2002). The Tradable Permits Approach to Protecting the Commons: What have we learned? In E. Ostrom, T. Dietz, N. Dolsak, P. Stern, S. Stonich, & E. Weber, *The Drama of the Commons* (pp. 197-232). Washington, DC: National Academy Press.

Transnational Institute, 2003. Lights On! Towards equitable, sustainable, and democratic electricity policies. *Power and Society Debate Papers*, 3(2), 1-20.

WCED, W. C. (1987). *Our Common Future*. New York: Oxford University Press.

Werksman, J., (2000). *The Clean Development Mechanism: Unwrapping the "Kyoto Surprise"*. In: Environmental Markets. Chichilnisky, G., & Heal, G., (Eds.). Document can be found at: <http://library.northsouth.edu/Upload/Environmental%20Markets.pdf>

Wilkins, G. (2002). *Technology Transfer for Renewable Energy: Overcoming Barriers in Developing Countries*. London: The Royal Institute of International Affairs and Earthscan Publications Ltd.