

How to Negotiate Ambitious Global Emissions Abatement

A Statement of Key Principles and an Explanatory Note

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Statement on a Global Carbon-Price Commitment*

To strengthen national commitments to reduce global carbon emissions, we propose that countries commit to a common global carbon-price path. These commitments would:

1. Accommodate each country's combination of cap-and-trade, fossil-fuel taxes, and use of carbon-pricing revenues.
2. Implement differentiated responsibilities by rewarding poor, low-emission countries for their compliance with the common commitment.

In making this proposal, we note that the "Kyoto approach" to climate negotiations began by relying on two principles most essential for the resolution of a global problem of the commons: (1) Seek a global agreement, and (2) agree to a common commitment. Instead, the 1997 Kyoto Protocol ended up accepting individual commitments which are weak, because they depend on altruistic "political will."

In contrast, the proposed common commitment will help align national self-interests with the common welfare by eliminating contentious debates over individual national targets, and by assuring countries that their commitment will be matched by others.

* This proposal is only intended to address emissions of CO₂ and other GHGs. Separate design efforts are needed for Land Use, Land Use Change and Forestry (LULUCF) and for energy research.

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Preface

Climate change is the result of a market failure—the failure of markets to price the “external” cost of carbon emissions. But the crux of the problem is not that failure; rather it is the difficulty of international cooperation. Abating their own emissions to the globally optimal level is against the self-interest of countries acting individually, because, for example, a country that makes up one percent of the world will receive only about one percent of the climate benefit from their individual effort, with ninety-nine percent going to others.

Two ways of overcoming the problem of self-interest seem possible: (1) convince nations to act altruistically and against their self-interests, or (2) change their self-interests to align with the common good. The latter requires an international agreement. While altruism (“political will”) is helpful, it is not powerful enough to overcome the self-interests that cause the climate problem.

However, the altruistic view dominates because of a failure to realize that self-interest can be modified. Yet economies prosper and democracies succeed mainly through the alignment of self-interests with the common interest. Although the link to self-interest is not usually recognized, the point of carbon pricing (with taxes or cap-and-trade) is to modify the self-interest of individuals and corporations. But, while pricing is one of the best tools for solving a problem of the commons like climate change, the market itself cannot select the appropriate price.

Solving a public goods (commons) problem requires a public choice, so democratic voting is well suited to selecting how much to spend on such public goods as highways, toxic cleanup, parks, and national defense. Only a collective choice can properly guide the modification of self-interest. People are willing to support national taxes out of self-interest because they know those taxes will apply to everyone in their country, and they will benefit from the taxes paid by others.

A way must be found to make collective climate choices at the international level. The first step is to identify the type of target (for example, percent abatement or price) that will support the strongest commitment. As explained below, the Kyoto process correctly aimed for a self-interest-changing common commitment, but it selected the wrong type of target—one that inevitably derailed the process of collective choice. Only an informed attempt to realign self-interests can produce the strong global cooperation needed to address the world’s most difficult problem of the global commons.

Context and overview

Because climate change is a “problem of the commons,” national self-interests are necessarily at odds with the common interest. This problem must be overcome either with altruism or by realigning self-interests by using a common commitment. This paper reviews the history of the struggle over these two approaches during the early Kyoto negotiations to see why a common commitment has been largely abandoned. It then argues that this abandonment is the primary cause of Kyoto’s present problems and was unnecessary. We then suggest a path to a common commitment based on *price* rather than quantities. That would result in a more ambitious outcome. In its most basic form, this approach could be applied to an agreement starting with just the US and China or to an agreement negotiated by the full Congress of the Parties (COP).

For the Bonn Climate Change Conference, April 2013, the United States submitted a single document, which focused on its proposed approach to mitigation: “the agreement should provide for

Parties to define their own mitigation contributions.” We call this approach making “individual commitments” and argue that it relies on altruism because it cannot change the self-interests of Parties and must depend on them acting counter to their self-interest for the sake of the global community. In contrast, the EU’s submission notes that “We have made a *conditional* offer to move to a 30% reduction ... provided that other developed countries commit themselves to comparable emission reductions. ... Many of the conditions on the table from other Parties are similarly dependent on the actions of others.” This we-will-if-you-will approach changes the self-interest of “others” by using a “common commitment,” and hence this approach relies less on altruism. While headed in the right direction, these conditional offers are held back by specifying quantity targets rather than by specifying price commitments and are also held back by their limited scope. Moreover, they play a minimal role in the EU’s submission, which parallels the US submission by focussing on individual “pledges.”

Common commitments are not a nicety; they are a necessity. If climate change were not a problem of the commons, each country would control its own climate. The US and China could not harm other nations, and each would be highly motivated to save itself. Climate problems would largely vanish. Voluntary commitments fail to put the nations of the world in the same boat, and leave the essence of the problem unaffected. The result will be the same as it has been for that past 20 years. The “new” US position is to immediately lock in the essence of the failed Kyoto Protocol, an outcome that the Parties struggled mightily to avoid. Ultimately, they failed for a single reason—they believed the US story that science demanded *quantity* commitments, and early on they stopped considering *price*. Once again the US is leading, and the EU is following with some added altruism. Its altruism will only make it easier for the world to accept the tried-and-failed US position.

The crucial mistake

The original Kyoto strategy was based on two fundamental principles: (1) to seek a global agreement, and (2) to agree to a *common commitment*. A common commitment would realign self-interest; broadening the agreement causes self-interests to align more closely with the common good. This is exactly what is needed to solve the problem of the global commons known as climate change.

Unfortunately, from the start of the Kyoto negotiations (and continuing to the present), it was felt necessary to agree on a commitment to *quantities* emitted. That mistake, thoroughly diagnosed by Stiglitz (2006a, 2006b), led inevitably to a weak agreement with shrinking coverage. Worse, it caused the goal of a common commitment to degenerate into general acceptance of *individual* commitments. Such commitments cannot successfully change self-interests, and so the Kyoto agreement depends on international altruism.

The shift to a dependence on altruism caused a shift towards the now-prevalent view of the global-commons problem. This view holds that altruism, now euphemistically called “political will,” is the only way forward, because self-interest is immutable.

Political will

“Lack of political will”—an unwillingness to go beyond self-interest—is now the number-one diagnosis for the poor performance of international negotiations, and “political will” has become a euphemism for altruism.² Of course, there is a lack of political will (altruism); that is the nature of the public-goods

² “Political will” is thought of as something that can be mobilized by exhortation, rather than something resulting from self-interest: “In Doha, the UN Secretary General Ban Ki-moon announced he would convene world leaders in

(commons) *problem* described by political science and economics. But this diagnosis suggests the wrong solution.

Those who diagnose the problem as a “lack of political will” imagine that *increasing political will* is the only possible solution. But those familiar with the problem of the commons understand that *decreasing the need for political will* provides the only realistic path to a solution. This can be accomplished by realigning self-interests to coincide more closely with the public interest. In contrast, increasing altruism is a weak prescription indeed.

While altruism is helpful, those counting on political will are missing a most important concept concerning practical cooperation: Contracts, treaties, and agreements can *change* self-interest. Changing self-interest is how societies function and how public-goods problems are habitually solved. We have little self-interest in voluntarily contributing to national parks or a public highway fund, because our voluntary contribution will mainly benefit others and will have little or no impact on the contributions of others. But we will vote, out of self-interest, for a gasoline tax to build highways or for spending public funds on parks, because voting is a way to agree on a *common* commitment. And a common commitment guarantees that we will have to contribute *only if* others make comparable contributions. This is what makes it in our self-interest to vote for common contributions even though an equal individual contribution (without a common commitment) would be strongly against our self-interest. If those depending on altruism were persuaded that self-interests can be realigned, they might well embrace realignment instead of altruism.

A good start with the Kyoto process

The Kyoto process was initiated in COP 1, on April 7, 1995 with the Berlin Mandate. Initially, most nations supported “uniform” quantity targets for emissions. This meant there would be a common commitment by all nations to reduce their emissions to a certain agreed percent below their 1990 emission levels. Uniform quantity targets were supported by the EU, the US, the Group of 77 (which includes China and India), New Zealand, Canada and many smaller countries (DePledge, 2000, ¶186).³ Those that did not support uniform targets, supported various formulas for assigning “differentiated targets”—fourteen different methodologies in all (¶196). These formulas differentiated between targets for different countries based on other considerations than 1990 emission levels.

All differentiation formulas aimed to produce common commitments, just more complicated common commitments than a uniform commitment. For example, Japan wanted to allow targets based on *per-capita* emissions rather than on *total* national emissions. If a commitment formula is strengthened, say by increasing the required per-capita reductions or the required national reductions, every country will have to reduce emissions more. So any nation that favours strengthening the global target will not be left doing more on its own but will know that if it does more, all others will do more. Initially, all countries favoured a common commitment and most favoured the simplest common commitment—uniform quantity targets.

As just explained, such a common commitment changes self-interest. The Kyoto process started out trying to change self-interests in a beneficial way, not trying to promote international altruism.

2014 to *mobilize* the political will to help ensure the 2015 deadline is met.” (From the United Nations Environment Protection New Center, Dec 9, 2012.)

³ This information and the following quotes come from “Tracing the Origins of the Kyoto Protocol: An Article-by-Article Textual History” by Joanna DePledge, prepared under contract to UNFCCC.

Quantity commitment: The flaw that derailed Kyoto

Beyond “I will, if you will,” successful agreements must clear another hurdle when realigning self-interests. The agreement must “work” for all the parties: it must be in all signatories’ self-interest to keep to the agreement—provided the others do. That requirement is why the initial Kyoto approach broke down. Although the EU favoured uniformity of targets between itself and other parties, it negotiated targets for its members that ranged from “–30%” for Luxembourg to “+40%” for Portugal (¶191). But the Annex-I Parties experienced the same difficulties among themselves as did the members of the EU, with no single target working for everyone.

Those favouring quantity differentiations worked hard to find a formula that could make a common commitment work for everyone. They considered such variables as (1) population growth, (2) GDP per capita, (3) emission intensity of GDP, (4) emission intensity of exports, (5) fossil fuel intensity of exports, (6) the industrial structure of the economy (¶187), (7) emissions per capita, (8) the ratio of renewable energy to total energy, (9) the percentage of emissions resulting from industrial, and (10) relative contribution to the increases in atmospheric concentrations of greenhouse gases (¶188).

The discussions over differentiation were protracted and intense beginning in 1995, but by August 1997, “Chairman Estrada expressed the view that the only form of differentiation that he could envisage would be to *allow Parties to negotiate their own targets* (¶192 emphasis added).” In the report issued on December 9, 1997, Chairman Estrada “simply put forward differentiated targets against each Party name. ... The means for differentiation thus became, de facto and implicitly, a form of *pledging*; each Annex I Party would adopt the target it could agree to (¶200 emphasis added). ... The numbers given to each Party were based on targets already pledged by Parties, information received on latest negotiating positions, and the goal of achieving the strongest possible environmental outcome (¶212).” On December 10, “Near the end of the meeting, ... [Chairman Estrada] invited Annex I Parties to submit their revised, final, numbers to the podium. Representatives of Parties gradually approached the podium, and the submitted numbers were simply inserted by the secretariat into the blank draft annex B (¶214).” The Kyoto Protocol was adopted on December 11, 1997.

In just over two years, the firm resolve of over 100 countries to forge a *common* commitment had been broken and replaced with a resignation to accept *individual* commitments. When it approached the podium on December 10, the EU, which had favoured a 15 percent reduction under a hoped-for common commitment, accepted only an 8 percent reduction knowing that additional effort would not be matched by the other Annex I Parties. After 1997, the trend towards “differentiation” continued with the US and Australia rejecting their commitments entirely, and Russia demanding a weakened commitment. Later, Canada left the Protocol. Australia has now joined, but Japan, New Zealand and Russia have departed. After eighteen years, the fraction of GHG emissions that are covered by the Kyoto agreement has dwindled to 15%, and the EU carbon price went below \$3/ton in May 2013.

The history of the Kyoto negotiations provides strong evidence that requiring commitments to quantity targets⁴ blocks any hope of a broad common commitment. And as Stiglitz has explained (2006b), there is no reason to believe anyone will ever come up with a *quantity-based* emissions rule that is remotely acceptable to the majority of the world. More recently, the US government has come to

⁴ Quite possibly this requirement resulted from the well-known and vigorous advocacy of cap-and-trade by the American environmental community, which extrapolated erroneously from its experience with national cap-and-trade under a central government to the international arena in which there was no such enforcement agency.

the same conclusion.⁵ And of course, the developing countries have still accepted no quantity commitments at all within the Kyoto framework.

Although we have been moving in the wrong direction since 1995—away from any hint of a common commitment and towards reduced coverage of emissions—some still hope that individually selected quantity targets will cover the bulk of global emissions. This is the current position of the United States in the Bonn negotiations in May 2013.⁶ But this misses the point. As the Kyoto Protocol demonstrates, individually adopted targets do not change self-interest, at least not by enough to notice. The reason is that such agreements are not of the “We will, if you will” type. In fact several countries, including the US, Canada, New Zealand, Japan and Russian, have said “We won’t” while the others continue to say “We will.” So the Protocol is an “I will, even if you won’t” agreement. This is an agreement of nations acting altruistically—a coalition of the politically willing.⁷

Some will interpret the danger of “then I won’t”—the danger of agreement breakdown—as confirmation that the basis for agreement had to be switched to individual commitments to prevent a complete collapse of negotiations. But this is a non sequitur that assumes that a quantity commitment is the only meaningful possibility.

While a common *quantity* commitment proved infeasible, a common *price* commitment can succeed, because there is near-unanimous agreement that each country should commit to the same price. Such a common commitment makes possible the type of agreement that changes self-interests for the better: “I will commit to the common price if you will.”

The stark difference between the two commitments, price and quantity, has been overlooked in part because the two are economically equivalent in a world without uncertainty and with precisely the right set of caps. A cap induces a carbon price, and taxing carbon at that price would limit emissions to that cap. But for reaching agreements, the two targets are strategically as different as night and day.

Possible agreements based on price

This paper does not advocate abandoning the UN process or the option to use cap-and-trade. It simply argues for correcting the flaw that derailed the Kyoto process and for returning to Kyoto’s sound fundamentals. This correction could take place either under Doha’s “2015 Agreement” or in a more selective setting. What matters is that the negotiations respect what is known about solving a problem of the commons, especially since climate is the most difficult such problem ever encountered. Because self-interest has such strong negative connotations, it is important to offer the prospect of success. This requires a summary of a possible effective climate agreement that changes self-interests.

A price commitment is flexible

The insistence on quantity commitments that derailed Kyoto occurred for two reasons. First, those who advocated a price commitment also insisted on a global system of harmonized carbon taxes. That was unnecessary and upset those who favoured cap-and-trade. Second, those who insisted on quantity

⁵ In its March 11, 2013 submission, the US stated that “It is hard to imagine agreement on any formula or criteria for imposition of contributions, as this would get into the most controversial issues.”

⁶ In its March 11, 2013 submission, the US stated that “We consider that the agreement should provide for Parties to define their own mitigation contributions.”

⁷ Dion and Laurent (2012) make a similar point. “The December 2011 Durban Conference proved, once again, that the “to each their own target” approach does not work. (Dion chaired, COP 11, in Montréal in 2005.)

commitments believed they curb emissions much more effectively than price commitments. But, this is not the case (Cramton and Stoft, 2012a). In fact, quantity commitments work only through their effect on prices.

There is also concern that a price commitment will exclude national cap-and-trade policies. While taxes are indeed a simple way to meet a price commitment, a national commitment to a global price *can* be met by a national (or multinational) cap-and-trade agreement. The price uncertainty of a cap can easily be handled by a number of approaches: adjusting the number of permits as the EU has been considering, supplementing the cap with fossil fuel taxes as is universally done or trading pricing credits as we have discussed elsewhere (Stoft, 2009).⁸

Why price commitments can be stronger than quantity commitments

The crux of the climate problem is lack of international cooperation, but quantity targets have been designated as the only real form of commitment without considering their impact on cooperation. Compared to quantity targets, price commitments make strong and effective cooperation much more likely for the following reasons.

First, committing to a price is less risky. Quantity targets are favored because they supposedly remove the risk of emission and climate uncertainty and shift that risk to nations in the form of price and cost uncertainty. While their success at the former has been dismal, quantity targets do impose risks on the countries that adopt them.

Consider two worlds, one with price commitments and one with global cap and trade. Suppose both will end up with a \$30/ton price of carbon in ten years. In both worlds a certain country will emit one billion tons more carbon than expected (due to unforeseen economic changes), but other countries will emit one billion tons less than expected. In both worlds, all emissions will be abated the same amount because of the same \$30/ton price. In both worlds the high-emission country will abate more and pay more abatement costs than expected. The only difference between the two worlds will be that in the cap-and-trade world, the high-emission country must pay other countries an extra \$30 billion to buy permits for its unexpected extra one billion tons of emissions.

Quite possibly, the \$30 billion in foreign payments will exceed by far the abatement cost associated with the extra emissions. This \$30 billion is a political and economic risk that is present with quantity commitments but not with price commitments, and this discourages quantity commitments. China and Canada have experienced such unexpected emissions increases. China has refused quantity commitments and Canada has reneged on its commitment. As Stiglitz (2006b) pointed out, quantity targets are contentious because they are equivalent to money.⁹

Second, committing to a price is perceived to be fairer. Suppose India caps its emissions ten years hence at one percent less than its expected emissions without a cap—an extremely weak cap. Indians will still see this as capping emissions at a lower level per capita than Americans emissions in 1900. This is, and will continue to be, viewed as unacceptable. However, if India committed to the same carbon

⁸ Pricing credits are much like carbon credits under cap-and-trade. They allow countries that miss their target to be paid if they over-perform and to meet their commitment if they under-perform.

⁹ “Setting target levels is so contentious because allowing a country high emission levels is tantamount to giving it money—a fact that has become more obvious with the advent of carbon trading.”

price as the US, it would know it could emit the same or more as the US does today. Hence, price commitments remove what has been an insurmountable barrier to a common global commitment.

Finally, using a price commitment breaks the commitment problem into two parts, (1) agreeing on a common commitment to action and (2) agreeing on what is a fair distribution of the burden resulting from those actions. While breaking the problem apart is no guarantee of simplification, fortuitous circumstances do, in fact, provide dramatic simplifications not available with quantity commitments.

Regarding the first part (agreeing on a common commitment), while years of Kyoto negotiations have turned up nothing close to an acceptable common standard for quantity targets, there is near universal agreement on a common standard for a price commitment: all countries should commit to the same price. A uniform global price is even the goal of cap-and-trade, because it induces efficient abatement. Similarly, the second part of the problem (fairly distributing the burden) can be replaced with a widely agreed-upon objective: maximizing global climate ambition. While this would seem to ignore fairness, this is not the case when the two parts of the problem are linked together as described below. This linkage assures that maximizing the agreed global price (and hence ambition) will distribute the burden of climate action reasonably fairly while it maximizes climate ambition.

Possible agreements based on common commitments

For the reasons just explained, Dion and Laurent (2012) state that “the best international co-ordination instrument we can establish to combat climate change is a global carbon price signal.” They also propose using the Green Climate Fund to help developing countries agree to a strong price commitment. And, according to Dion, who was Chair of COP 11, all this would be put in place by a Conference of the [UNFCCC] Parties (COP). Cooper (2008) and Stiglitz (2010) also propose a global price commitment.

Either within the UNFCCC framework or outside of it, two different approaches can be used to achieve a collective agreement. Either the global carbon price can be negotiated directly or a formal voting process can be agreed first and then used to determine the target values. As an illustration of the breadth of possibilities, we will describe an example of the later approach.

Agreeing on price as the indicator of global action (the target) opens the door to a common commitment. But poorer countries like India, although unlikely to object to this common standard, will still feel that they should receive significant help with it. Fortunately, this is rather inexpensive. Since India’s carbon-pricing revenues would stay in India, pricing India’s one billion tons of emissions at \$30 per ton will have a *net* cost to India of only about \$3 billion—far less than the planned \$100B-per-year Green Climate Fund.¹⁰ This is not to suggest that India should be given an exception to the common commitment. Rather, the common commitment should include a Green Fund formula for providing assistance from richer, high-emission countries to poorer, low-emission countries. In this way, the common pricing commitment would respect the UN’s principle of “common but differentiated responsibilities.”

By committing to a uniform global price, we have confined the differentiated-responsibilities problem to the Green Fund formula. This makes possible a natural, and far-less-divisive, principle for national differentiation than any that can be applied within Kyoto’s quantity framework. The new design

¹⁰ Since the pricing revenue stays in India, the only net cost comes from abatement expenses. These will range from \$0 to \$30 a ton, and cover an abatement of perhaps 0.2 B tons, for a cost of about \$3 billion per year.

principle is to choose the Green Fund formula that maximizes global emissions abatement—maximizes ambition.

This requires a two-step design. First the Green Fund formula is selected, and second, countries nominate their highest acceptable global price target, taking the Green Fund formula into account. The second step—price nominations—is completed by selecting the highest price target agreed to by countries that cover some pre-specified percentage of global emissions (likely, something in the 60% to 90% range).¹¹ This price becomes the “global” carbon price, and only countries that have nominated at least that price would sign the global-pricing agreement and participate in the Green Fund.¹²

The linkage that solves the differentiated-responsibilities problem works as follows: The Green Fund formula links payments to (1) a generosity index and (2) to the global price level. When either is increased, Green Fund payments increase. This linkage brings about a fair differentiation of responsibilities through a natural system of checks and balances as follows. If the Green Fund formula is too generous, rich countries will hold down the global price to reduce Green Fund payments. And if the formula is too miserly, poor countries will hold down the carbon price to reduce the burden of carbon pricing. Only a compromise on generosity will lead to the highest agreed global carbon price and maximize abatement ambition. Hence, the objective of maximizing ambition leads naturally to a reasonably fair compromise on differentiation of responsibilities.

To assure that the generosity of the Green Fund formula is set objectively to maximize ambition, it will be best to rely on countries that have the least stake in Green Fund payments. Such countries will base their recommendations on climate considerations rather than on Green Fund considerations. Within such a group, the median (not the average) opinion should determine the outcome. This prevents any one country from having too much influence.¹³

When proposing individual commitments, the US argues (2013) that it is “hard to imagine that Parties would be willing to have other Parties dictate their contributions.” But the above illustrative agreement shows the US argument is irrelevant. Under such an agreement no country will ever be asked to commit to a price higher than it nominates voluntarily with full knowledge of the generosity of the Green Fund. Nothing is “dictated” by other Parties. But in spite of the completely voluntary nature of this treaty, the resulting agreement captures the “I will if you will” effect of a common commitment that modifies self-interest within the agreeing group. Hence, each country’s self-interest in naming a high price will be increased dramatically relative to the individual commitments the US is now proposing.

To expand such an agreement without reducing the price commitment, it may be necessary to use some form of trade restrictions, such as a “border carbon adjustments” both to protect insiders and to motivate outsiders to join. Such restrictions may need to develop as the agreement evolves. Yvo de Boer’s analogy with the World Trade Organization provides a good model of how such development could occur.¹⁴

¹¹ Note that the higher the coverage of global emissions, the lower the price that will be agreed to by all the countries that must be included to achieve that coverage.

¹² This initial agreement would be updated periodically with the intention of increasing its coverage and strength.

¹³ See Cramton and Stoft, 2012a or 2012b.

¹⁴ UNFCCC executive director, Yvo de Boer, has said the “the Kyoto Protocol is dead,” and “I would prefer something like the World Trade Organization. ... No country should be constrained to join the organization, but should join of its own accord.” From an interview with die Tageszeitung, 16 June 2011.

Conclusion

Aligning self-interests by using a global price agreement is vastly superior to depending on altruistic political will to overpower unmodified self-interest. Our point is not that the design just sketched is the best such agreement. The point is that it is quite possible to design a treaty to better align self-interest with the public interest. This shows the potential of a global price agreement to counteract the present discord and to greatly increase the ambition of a global abatement agreement.

No sensible treaty on sharing the climate commons will be adopted until there is an understanding of how such a treaty should work. Those who know that cooperation is the crux of the climate problem must lead the debate over how international negotiations should evolve. To this end we suggest the above set of principles which we hope will provide clear guidance to those negotiating the necessary global agreements.

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