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# **The Global Negotiating Framework for Climate Change Mitigation<sup>1</sup>**

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**Abstract:**

We present an overview of the institutional structure that led to the present global emissions reduction negotiating framework. We also discuss relevant theoretical economic literature on transnational externalities, the core, and property rights. We relate this to the earth sciences literature and the uncertainties as to the size, form, and timing of global climate change. We analyze the merits of a contingent negotiations approach in contrast to state non-contingent commitment, as well as broadened negotiation to explore burden sharing and linkage to non-emissions commitments (such as trade).

## 1. Introduction and Background

We focus on the UN negotiations on climate change mitigation and a post-Kyoto world which began in Bali in December 2007 and are scheduled to last for a further two years. These aim primarily to provide a framework for international disciplines achieving mutually agreed emissions reductions by specified dates (2020, 2050), but also look beyond towards an eventual international agreement covering adaptation, improved emissions intensity of energy production and use, and the emission-wise sustainability of growth and development around the world.

The mandate for these latest negotiations lies in the United Nations Framework Convention on Climate Change from 1991. The first steps in this process were taken in 1997 with the adoption by UN members of the Kyoto Protocol as an annex to the convention and the central issue is whether, and if so, how this can be built on for a post-Kyoto world. The Kyoto Protocol is widely viewed in academic circles as extremely weak international discipline. It has limited country coverage, commitments made under it have not been met by several countries, and it lacks enforcement mechanisms. As a result, many of those directly involved in the latest negotiations remain skeptical of the ability of this process to yield substantive and enforceable international disciplines if it only seeks to build narrowly on the Kyoto Protocol. But at the same time, it is an initial focal point of operation on which to build, even if achieving a widened and more substantive set of disciplines based on it seems elusive. What, if anything, can or should be done in this situation to provide a firmer negotiating framework for climate change negotiation is the focus of this paper.

We begin by drawing on experience with global trade negotiations. Compared to trade, global negotiations on environmental issues are in their infancy but, seemingly, experience with previous global negotiations (in trade, in military affairs, and elsewhere) is that they build sequentially on initial joint commitments evolving out of precise concerns prompting collective action in the past. Subsequent negotiations thus become heavily shaped by prior negotiations which, in effect, provide a focal point for potential agreements on further cooperation. It is worth adding in passing that economic theory provides relatively little guide as to how to proceed with subsequent cooperative bargaining, and available literature has, for now, largely focused on axiomatic bargaining solution concepts<sup>2</sup> rather than the process of sequential development of deeper commitments. This set of issues also seems little addressed by formal models of sequential bargaining<sup>3</sup>.

Global trade negotiations, first in the GATT and later in the WTO, were driven by a collective commitment after the Second World War and in the late 1940's not to allow the events of the 1929-1931 Great Depression repeat themselves. Initial attempts to negotiate a comprehensive global trade arrangement under the International Trade Organization in the immediate post war period stymied, and this led to a sub-group of 23 countries in late 1947 negotiating a temporary arrangement to record the results of a first tariff cutting conference. This took the form of a forward looking document, the General Agreement on Tariffs and Trade (GATT) which set out both broad principles and precise rules both for the conduct of trade policy by national governments and also the

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<sup>2</sup> See Nash (1951), Thomson (1981)

<sup>3</sup> See Rubinstein (1982)

framework to be used for subsequent negotiation of further and stronger disciplines. This, in turn, was to lead to a reciprocity based series of rounds of subsequent negotiation based on mutually beneficial exchanges of concessions with GATT sanctioned retaliation, if necessary, as the enforcement mechanism.

The series of negotiating rounds which followed were then shaped by key developments through time, including the formation of the EU in the 1950's, the independence of former colonial economies in the 1960's, the need for EU-US accommodation in agriculture in the 1980's, and in the 1990's, the perceived need to broaden trade disciplines to services and other areas. As a process, the negotiating framework set out in the GATT and the later WTO charter led to a system of international disciplines widely credited with keeping international markets broadly open and fueling global trade growth, and with it, wider economic growth.

However, over this period of time, global environmental negotiating remained in its infancy in part because the world as seen from the Bretton Woods Conference of 1944 only assumed interactions between national economies in terms of trade and finance, not in physical terms. Environmental policy concerns did not emerge until the 1960's, and then only as domestic issues with Rachael Carson's *Silent Spring* (1962). It was not until the 1980's that international environmental issues, in the form of ozone holes, CFCs, and early concerns over global warming began to shape the global negotiating agenda. These issues, in turn, were to lead to discussion of sustainability in developmental policies and the Brundtland Report of 1987, and the Rio Earth Summit of 1991. It was at the Rio summit that the UN Framework Convention on Climate Change was adopted which, through the joint commitment by all UN members to discuss carbon emission mitigation, was to provide the negotiating mandate for the subsequent Kyoto Protocol and, through this, the Bali conference of December 2007 and new negotiations of a Post-Kyoto world.

Trying to build on the Kyoto Protocol in this process inevitably raises key dilemmas. Its structure is in no way directly targeted at achieving the underlying economic goal of internalizing the global externalities at issue through agreements on mutually beneficial cooperative actions which are also individually in the self interest of the parties. There are central differences from the GATT/WTO experience. For instance, who is in and who is out of the negotiations is not an issue. In the GATT/ WTO case there is a clear notion of membership with accession procedures. In the environmental negotiations, there is no criteria for participation other than UN membership, The process of achieving agreement in what is to be negotiated on is a further difference. In the trade case, negotiating rounds group and define issues for the round, first through the launch to the subsequent negotiation and its conclusion. In Bali, what was to be negotiated on was unclear ex-ante, and the negotiations to follow are also poorly focused. There is open ended and unresolved discussion of negotiations on annual or cumulative emissions; reductions of levels of emissions or emissions per capita of GDP, carbon embedment in trade (who emissions belong to) and other issues as negotiations post-Bali are launched. Equally, the central principles that lie behind the disciplines to be negotiated are not agreed, nor how their sequential tightening might proceed to achieve internalization. In the trade case, bindings, MFN and national treatment are the key commitments. In the environmental case it is, for now, only commitments to ill defined concepts such as sustainable development and common yet differentiated responsibilities that are the

seeming guideposts. Concrete and negotiable commitments flowing from these are not yet evident.

In the text, we argue that while the idea of negotiating global limitations on carbon and other emissions may seem conceptually simple to economists, for now it seems elusive to negotiators. Global warming may appear to be an example of a straightforward externality in the tradition of Pigou (1920) and Coase (1960) since, because of impacts on solar reflectivity, marginal social and private benefits of using fossil fuels diverge. Seemingly, all that is needed is to get these to converge and the only remaining issue is how.

Cross-country internalization negotiations in this area seemingly inevitably involve offers to reduce emissions by countries conditional upon the actions of other countries. Once actions are mutually agreed to, joint action can proceed, either globally as a whole group or sub-globally as a subset of countries. How to deal with non-participants, how to enforce agreements, and how to provide for modification of agreements in light of change (subsequent climate change developments, new assessments of potential impact) remain as key issues. Sequential negotiation, not necessarily in formalized round form as with trade, would thus seem central. Issues of stability of coalitional formation in such negotiations and indeed whether or not the bargaining set is empty, as discussed in Shapley & Shubik (1969), also arise.

There are also sub-issues as to whether the externality is special in some way, since both Nordhaus (2007) and Stern (2006) argue that the intertemporal dimensions to the externality set it apart from conventional externality analysis, and Sinn (2007) argues that further subtleties are involved since it is the time profile of externality correcting tax rates that matter. There are also issues of both the scope and size of the effects involved and whether potentially catastrophic consequences may accompany inaction.

In what follows we first discuss the conceptual basis for sequential global environmental negotiation and relate this discussion to the pre- and post-Bali negotiating structure evolving thus far. We next set out alternative negotiating frameworks in light of this discussion, contrasting these to recent related literature on global negotiation (including Sugiyama (2005), and the Global Leadership for Climate Action (2007)). We conclude with some reflections on what form a sustaining negotiating framework for global environmental negotiation could take. Our observations are interspersed by references to both recent earth sciences literature and to economics literature.

## 2. The Conceptual Underpinnings of Global Environmental Negotiations

At first sight, the notion of negotiating globally on carbon emissions reductions seems both sensible and straightforward. Carbon emissions are viewed as impacting on the reflectivity of solar radiation by the Earth and as imposing the externality of climate change on the World's population and mitigation seems desirable. The central difficulty, however, is that global negotiations have to achieve mutual agreement on concrete actions by all affected parties which are not only in the collective interest, but also individually in the interest of participating countries. Given that for most countries, the benefits of their own emission reduction efforts accrue to residents of other countries, it is far from obvious as to how this is to be achieved. It is also not clear that the Kyoto process represents a first step along a path which will yield the desired outcome or whether other negotiating routes may prove more productive in the long run.

The 1997 Kyoto Protocol stands as an annex to the 1991 United Nations Framework Convention on Climate Change. The commitments to emissions reductions and other actions in the Kyoto have limited country coverage, have experienced incomplete implementation in several countries, and have no dispute or enforcement mechanism. As such, to some it seemingly provides only a weak basis for negotiating on a post-Kyoto World if the severity of global warming related difficulties in the rest of the century accelerates and correspond even by pale reflection to some of the worst case scenarios suggested by the earth scientists. On the other hand, establishing a focal point of cooperation in international negotiation is both difficult and time consuming and beginning again in another format seems equally unattractive.

The starting point for any assessment of negotiating options for Post-Kyoto, in our view, lies in an appraisal of the work of the earth scientists. This provides the basis for assessing the likelihood of more extreme global warming scenarios, and determines what are viewed as the benefits of slowed global warming and whether the collective of all countries are facing acceleration of the problem and potentially catastrophic events, or whether we only risk slowly developing difficulties that can be largely left for now until their physical form more clearly emerges.

Much of the work from the earth scientists is distilled in the various reports issued by the Intergovernmental Panel on Climate Change (IPCC), the recent Nobel peace prize winners and, as part of the Bali process, they have recently released a synthesis document with a full summary for policy makers of their latest (and lengthy) three volume assessment report (AR4). However, extracting a clear and unambiguous synthesis even from this short summary document is not straightforward.

The general media reaction to the summary has been to portray a growing probability of rapidly escalating global difficulties on the climate change front. The New York Times, in its commentary on it, cited a recent International Energy Agency report claiming a global warming of 6°C will likely occur by 2030. The New York Times piece also reports scientists associated with the IPCC as suggesting that computer models predicting the melting of sea ice are outdated in their predictions and do not reflect recently observed more rapid melting, and goes on to suggest that an entire melting of key polar areas could occur over this same time frame, with a sea level rise of 40 feet across the globe, causing widespread devastation.

However, these portrayals seemingly stand in somewhat alarmist contrast to what the IPCC actually say in both their report and summary document. They say that actual sea level rise has been at an average rate of 1.8 millimeters/ year since 1961 and 3.1 millimeters since 1993. This seemingly points to massive further increases in these rates being needed by 2030 to reach 40 feet. They say “it is very likely that over the past 50 years, cold days, cold nights and frosts have become less frequent over most land areas, and hot days and hot nights have become more frequent”. They also say that “average Northern Hemisphere temperatures during the second half of the 20<sup>th</sup> century were very likely higher than during any other 50-year period in the last 500 years and likely the highest in at least the past 1300 years”. They say they have “very high confidence that the net effect of human activities since 1750 has been one of warming”. Their projections of greenhouse gas emission increases from continued economic growth are between 25% and 90% between 2000 and 2030. For the next two decades, a warming of about 0.2<sup>0</sup>C per decade is their central case projection. These more measured statements stand in substantial contrast to media portrayals.

But outside of the IPCC process, some the earth scientists go much further and portray a picture of terrifying gloom over the next hundred years. They suggest that the earth is surrounded by a Gaia layer, and that we have an environmental catastrophe on our hands, partly of our own doing but also partly caused by the warming of the sun. One scenario involves Gaia, the organism of the earth, surrounding the planet with a hitherto self-regulating environmental layer which is in rapid decay and unable to regenerate itself in the same way as it has done for 3 billion years. James Lovelock, the well known British earth scientist suggests on this basis, that within 100 years, civilization as we know it will barely survive, with a few people left at the Antarctic pole. His scenario is that a temperature rise of 5<sup>0</sup>C will occur, over this time span, with major sea level rise, desertification and social disruption. He predicts a hundred thousand years will then be needed for the regeneration of our civilization.

Lovelock has been working in this area for 40 years. He is a serious scientist, a fellow of the Royal Society, and has received many international awards. His books are written with care, compassion and thought, and these are not wholly radical views among earth scientists. Other earth scientists and environmentalists share these views. They are thus opinions that should be taken seriously in focusing any international negotiations, but the uncertainty as to the likelihood of catastrophic events stands out as a central element of background to the negotiations.

Our sense is that, while it seems there is disagreement to the timing and severity of climate change difficulties ahead, even if Lovelock only has a 2% probability of being right, this set of issues will likely dominate global economic and political debate over the next 20-30 years. Hence, globally, we have to constructively think through what we do at a policy (and, hence, global negotiating) level to respond. No country alone can respond; policy cooperation and coordination is pivotal. This involves agreement on the process by which we negotiate as well as what, substantively, the negotiations are about.

The challenge we see is to negotiate globally on externality internalization in ways which build on mutual self interest and offer some hope of successful advance. And there is a critical difference from the trade case, where mutual exchanges of concessions in the form of access to each others’ markets represents the process, with agreed extensions of unilaterally agreed reductions to others through MFN. In the externality

case, while there are mutual reductions to be agreed, these reductions have spill-over benefits for all. The problems related to free riding are severe, as are the difficulties of agreeing what instruments to negotiate over and who has the rights to do what, whether compensation for restraint is involved, or threats and penalties are to be used in the case of inaction. In addition, there are difficulties in designing arrangements with enforcement mechanisms, and major issues as to whether global environmental and/or carbon reduction negotiations can realistically be delinked from global negotiations in other areas such as trade, finance, and global redistribution.

The form these negotiations take seemingly must inevitably reflect the underlying analytical structure of externalities in the classic characterizations of Pigou (1924) and Coase (1960). Pigou formalized externalities as situations where marginal private and social costs of various kinds of economic activity diverge and suggested internalization through externality-correcting taxes, since labeled 'Pigovian taxes'. Coase, in contrast, argued that in externality cases where property rights have been defined, the defining property rights themselves will initiate a bargaining process in which externalities are automatically internalized and hence, using a Pigovian tax in addition to already internalized externalities can make things worse. Coase also emphasized the arbitrariness of the assignment of property rights, suggesting that, in most externality cases, property rights assignments will proceed through legal process through the courts.

This raises the complication of how property rights are to be defined for transnational or global externality situations such as global warming. It, in turn, also highlights the nature of global environmental negotiations as different from trade negotiations. In trade negotiations there are bilateral exchanges of concessions in the form of access to each others' markets, which are subsequently multilateralized within a framework of international disciplines in the WTO, importantly including MFN. With externalities no such bilateral exchanges of concessions make sense and the framework for negotiations is unclear. There are also issues as to the quantitative magnitude of the externalities involved.

Several steps need to be agreed in developing a negotiating framework. First, there has to be agreement as to the property rights; who has the right to do what? Do developing countries, for instance, have the right to growth and development and are to be compensated through financial arrangements for environmental restraint associated with carbon emissions or do other countries have rights to not suffer changes in temperatures and climate. Effectively, the issue is whether developing countries have rights to development and poverty alleviation and hence should be allowed to emit and compensated for restraint. These property right issues are central to the global negotiating process since developing countries have been forceful in stating their rights to growth and development and their view that the emissions currently affecting global climate have been largely discharged by developed countries over the past 200 or so years.

Beyond the issue of property rights comes the issue of the format of the negotiations. In essence, a group of countries, the membership of the UN in this case, assembles and then offers are made for various reductions individually by countries, which collectively and together have to be mutually agreeable to all other countries. So individual countries will only offer to reduce emissions if they see reciprocal reductions by other countries of significant size and benefit. This generates incentives for free riding by smaller countries and even free riding by larger entities. The larger the number of



players involved and the smaller each is individually, the more difficult it is to hold emissions reduction coalitions together. It also generates the opportunity for sub-groups of countries to agree independently of others, as effectively happened in the 1997 Kyoto negotiation. In the end, these earlier negotiations effectively only involved large OECD entities, and were moved forward by the agreement of Russia to make commitments. As is well known, the commitments made in the negotiation were never taken to the US congress for ratification by the US executive branch. This issue of spillovers associated with global environmental negotiations greatly complicates the design of the negotiating structure. If anything, the parallels are less to goods trade negotiation in the WTO and more to service negotiation in the WTO and the GATS, where joint scheduling of concessions occurs in the WTO.

A further central issue is the viability of such negotiations and whether any sustainable self-interest based outcome to the negotiations is feasible. What is at stake is the size, or even the emptiness, of the joint bargaining set for the countries involved, as well as deciding how to negotiate on global environmental issues. This negotiating set, many years ago, was characterized by Edgeworth as the core of an economy, the core being the set of allocations that could not be blocked by any sub-coalition. Notions of core theory were greatly advanced in the 1960's by a paper by Debreu and Scarf (1963), which showed that, in an economy with continuous replication of economic agents who fall into distinct heterogeneous sub-groups, the core effectively collapses to the competitive equilibrium. Scarf (1970) showed, whether using conventional fixed point theorems, that the core was non-empty. These results suggest that collective bargaining solutions reached through cooperative bargaining approximate those of competitive equilibria.

Whether or not these results are applicable to global warming is the issue. With the spillovers involved there are issues as to whether the bargaining set may be empty and whether there may be an inherent instability in any bargaining across sub-groups. An important paper in this area is by Shapley and Shubik in 1969, which discusses the stability of coalitional formation and cores for economies with externalities and provides numerical examples of empty core economies with externalities. This work suggests that there may be inherent difficulties in any form of global bargaining related to emissions reduction if it is narrowly focused on emissions reductions alone.

Beyond the basic structure of negotiations there are also issues of what to negotiate on. There is the question of negotiable instruments; in the case of Kyoto, the negotiation is on reductions in emissions and on levels, by countries. The countries which have expectations of continued high growth, such as China and India, would inevitably be in a position of arguing for targets related to emission intensity relative to GDP. There are also detailed issues such as the time frame and the time-basis for such negotiations. The use of 1990 level base emissions, as in Kyoto, is something which is greatly advantageous to Russia because of the implosion of the Russian economy between 1990 and 1998 since emissions levels in Russia have still not returned to their 1990 levels.

But in some ways, the central underlying conflict is that of property rights. Property rights in these negotiations have been implicitly assigned by the phraseology adopted in the UN Framework Convention and in the Kyoto Protocol itself, which talks of 'common yet differentiated responsibilities' between developed and developing countries. In essence, the Kyoto process has divided the world into two groups: one of

developed countries who accept mutual responsibility for reduction in carbon emissions as a right of others, as something to be negotiated on, and developing countries who, in some sense, have some degree of right to growth and development over emission reduction with no precise definition of the relative weighting on each. This imprecision in property rights is perhaps in some ways the most central underlying issue in all these negotiations and is inevitably a source of great difficulty.

Another central issue is how decisions are to be reached in any negotiation. In the WTO case, this is effectively done through the granting of fast-track authority by the US congress executive branch, which is the largest trader and hence most significant negotiator, with clear understanding that termination of fast-track negotiating authority will cease should negotiations proceed beyond a specified deadline. No such similar timeframe and process exists in the case of environmental negotiations thus far in the Kyoto process. There is phraseology in the declaration for launching discussions and negotiations in Bali, of a hope of completion in two years, but the absence of a mechanism for forcing a decision seems a major impediment.

There is also the question of dispute settlement and the lack of any dispute settlement in the Kyoto protocol. This reflects the broader difficulty with compliance with any environmental treaties. One of the striking features of environmental treaties, emphasized in political science literature such as Nye (1990) is the high degree of compliance with environmental treaties despite their formal absence of compliance mechanisms. The suggestion is that the compliance mechanism involves political process, with environmental ministers in countries risking to being shamed should they fall into non-compliance and potentially losing office in the electoral process. Extend this dispute settlement mechanism to emissions reductions suggests that perhaps it can be relied on for enforcing Kyoto disciplines, but there are issues of countries' self-interest in compliance.

There has been limited literature on compliance in environmental treaties but there is a suggestion in Barrett (1987,1994), that with environmental treaties, the effective compliance mechanism (as in the Folk Theorem due to Rubenstein (1979)) is a trigger penalty mechanism. Barrett suggests that the mechanism to ensure compliance in environmental treaties is for countries to mutually agree to increase emissions in the event that certain countries violate their agreed emissions standards, and only to cut those emissions when other countries come back into compliance. The effectiveness of such a mechanism and whether it represents a feasible and sensible mechanism in these cases is unclear.

Other mechanisms would include structures going way beyond anything previously encountered in related international negotiations such as payments of cash commonly paid to a fund and the custodians of the fund having the right to confiscate fund assets in the event of a country being in non-compliance. This raises the wider issue of side payments and cash transfers in environmental treaties as part of the negotiation and compliance mechanism and moves global environmental negotiations beyond trade negotiations, since side payments are absent in the structure of the WTO.

Finally, there is the issue of the linkage of environmental negotiations to other global economic, and indeed political, issues and whether negotiations can implicitly be conducted in ways which are separate from other matters. Obtaining agreement from lower income countries to meet emissions reduction targets or putting in place

mechanisms which would facilitate burden sharing in the event of more extreme climate change scenarios such as desertification in Africa and the need to move large populations across national borders would seem to suggest that a major reorganization and realignment of global financial structure. Aid flows at the moment are less than 0.2% of GDP from the US and may need to increase steadily to finance global redistribution to allow for the opening of national borders to deal with major desertification. Linkage will almost certainly stretch into international trade and international finance, and so the issue is whether the global environmental negotiations inevitably become part of a much wider set of global negotiations, aimed at a whole new form of global architecture spanning the entire linkage between nation states, covering trade, finance, and the environment as an integrated package.

It also raises the issue of whether negotiations can realistically solely take place between nation states because of the heterogeneity within nation states by region and across individuals in terms of both their intensity of preference for environmental improvements but also the differences in impacts which will occur within countries under global warming. For instance, differences between workers in manufacturing and agricultural areas.

All of these issues suggest careful consideration of approaches toward negotiation in moving forward on global environmental negotiations for a post-Kyoto world. Many (even most) of these do not seem to have been centrally confronted by the Kyoto process.

### **3. The Current Status of Negotiations on Climate Change**

Global negotiations on climate change thus far, both in terms of process and substance, have their origins in process within the UN. They involve an evolving and changing set of UN agencies and sub groups, with a wide range of entities. The origins of the 1997 Kyoto Protocol go back to December 1988, when the General Assembly requested the World Meteorological Organization (WMO) and UNEP, the United Nations Environmental Program, through the Intergovernmental Panel on Climate Change (IPCC), to think through what the possible elements of a convention on climate change could be. UNEP, in turn, was a product of the Stockholm Conference on the environment in 1973. As such, it was a political compromise which established a programme within the UN system, rather than a specialized agency. UNEP is headquartered in Nairobi and has a secretariat and an executive director and overall responsibility which lies within a 58 member governing council which reports to ECOSOC, and through it, to the general assembly. Administering expenses for the governing council and the secretariat come from the UN general budget and all programme activities are funded by a voluntary fund within the UN system.

UNEP has no executive powers. Its mandate is to monitor, coordinate and catalyze thought over main areas of activity which derive from the functional components of the Stockholm Convention of 1973. These include global environmental assessment, environmental management and supporting measures. There has generally been a lack of political support for UNEP from governments. UNEP is an agency of moderate size, with a professional staff of around 300-400.

The World Meteorological Organization (WMO) is a specialized agency of the United Nations. It is the UN system's authoritative voice on the state and behavior of the Earth's atmosphere, its interaction with the oceans, the climate it produces and the resulting distribution of water resources. The WMO has a membership of 188 states and territories (as of 24 January 2007). It originated from the International Meteorological Organization (IMO), which was founded in 1873. Established in 1950-1951 WMO became the specialized agency of the United Nations for meteorology (weather and climate), operational hydrology and related geophysical sciences. The WMO plays a leading role in international efforts to monitor and protect the environment through its programmes. In collaboration with other UN agencies and the National Meteorological and Hydrological Services, WMO supports the implementation of a number of environmental conventions and is instrumental in providing advice and assessments to governments on related matters. These activities are to contribute towards ensuring the sustainable development and well-being of nations. The WMO is headquartered in Geneva.

The IPCC is a scientific intergovernmental body set up by the WMO and by the United Nations Environment Programme (UNEP) in 1988. It is based in the WMO headquarters in Geneva and is open to all governments already members of either the WMO or UNEP, expert scientists from numerous fields, and all interested parties from the UN itself. The IPCC was established to provide decision-makers and others interested in climate change with an objective source of information about climate change. The IPCC does not conduct any research nor does it monitor climate related data or parameters. Its role is to assess on a comprehensive, objective, open and transparent basis

the latest scientific, technical and socio-economic literature produced worldwide relevant to the understanding of the risk of human-induced climate change, its observed and projected impacts and options for adaptation and mitigation. IPCC reports are to be neutral with respect to policy, although they need to deal objectively with policy relevant scientific, technical and socio economic factors. They are to be of high scientific and technical standards, and aim to reflect a range of views, expertise and wide geographical coverage.

In December 1990, after the IPCC's First Assessment Report (FAR) was released, the UN assembly then formally established negotiations on climate change, nominally removing the task from the UNEP and the IPCC, and the Intergovernmental Negotiating Committee for the Framework Convention on Climate Change (INC/FCCC) was established.

The mandate of the INC/FCCC was to prepare an effective framework convention on climate change. It was given 18 months, beginning at the Earth Summit in 1991, to produce a convention in time for a signature at Rio and involved participation by over 150 member states. Under discussion were the difficult and contentious issues of binding commitments, targets and timetables for the reduction of carbon dioxide emissions, financial mechanisms, technology transfer, and "common but differentiated" responsibilities of developed and developing countries. The INC/FCCC sought to achieve a consensus that could be supported by a broad majority, rather than drafting a treaty that dealt with specific policies that might limit participation. The UNFCCC was the resulting treaty, which opened for signature at the UN Environment Conference in 1992 and came into force in 1994. Over a decade ago, most countries had joined the UNFCCC, which had begun to consider what could be done to reduce global warming and cope with whatever temperature increases which were viewed as inevitable. The INC/FCCC dissolved with the first Conference of the Parties (COP) for the UNFCCC (Berlin, March/April 1995), aka COP1.

The Kyoto Protocol is an addition to the treaty which contains more significant commitments. The UNFCCC supports the institutions involved in the climate change process, subsidiary bodies and their bureaus. As such, the COP is deeply involved with the negotiations which were conducted in Bali in December 2007.

The UNFCCC provides an overall framework for intergovernmental efforts on climate change, and recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emission of carbon dioxide and other greenhouse gases. The Convention enjoys near universal membership, with 191 countries having ratified it. Under the Convention, governments gather and share information on greenhouse gas emissions, national policies and best practices. They launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries, and they cooperate and prepare for the adaptation to the impacts of climate change. The Convention came into force on the 21<sup>st</sup> of March, 1994.

Since the Convention has come into force, the parties have met annually in the Conference of Parties to consider its implementation and to discuss how best to tackle climate change. Governments were aware that current commitments under the UNFCCC would not be sufficient to deal substantively with climate change. At COP1 in 1995 therefore, a decision known as the Berlin Mandate emerged, under which parties would

engage in a new round of talks to decide on stronger and more detailed commitments on climate change for industrial countries. After 2 ½ years of negotiation, the Kyoto Protocol was adopted at COP3 in Kyoto, Japan, December 11, 1997.

The complexity of these negotiations meant that there was considerable unfinished business remaining even after the Kyoto Protocol was adopted. The Convention sketched out the basic features of the Protocol's mechanisms but did not spell out how they would operate. Only 84 countries signed the Protocol in Kyoto, implying that they intended to ratify, but even many of these were reluctant to actually ratify and bring the Protocol into force before having a clearer picture of the treaty's rules. New negotiations were therefore launched to flesh out the Kyoto Protocol, conducted in parallel with negotiations on ongoing issues under the Convention, which finally culminated in late 2001 at COP7 with the adoption of the Marrakesh Accords, setting out detailed rules for the implementation of the Kyoto Protocol.

The 1997 Kyoto Protocol shares the same objectives as the UNFCCC. Its principles and institutions significantly strengthen the Convention by committing Annex 1 parties to individual legally binding targets to limit or reduce their greenhouse gas emissions. Only parties to the Convention that have also become parties to the Protocol, ie – by ratifying, accepting or sealing approval of it, are bound by these commitments. 175 parties have ratified the protocol to date. Of these, 36 countries of the EU are required to reduce greenhouse gas emissions by levels specified by each of them in the treaty. The individual targets for Annex 1 countries are listed in the Kyoto Protocol's Annex B. These add up to a total cut in greenhouse gas emissions of at least 5% from 1990 levels in the commitment period of 2008-2012.

Changes to membership or to the content of the Kyoto Protocol must be made by the Conference of the Parties (COP), the supreme body of the UNFCCC (its highest decision-making authority). The COP meets every year in Bonn, the home of the secretariat, unless a party offers to host a session. The COP presidency rotates among the countries of 5 UN regions: Africa, Asia, North America, the Caribbean, Central-Eastern Europe & Western Europe, and others, usually according to who is hosting a given COP session. The Convention has established two permanent subsidiary bodies; the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI). These bodies give advice to the COP and each have a specific mandate. They are each open to participation by any party. Governments often send representatives that are experts in their fields to these respective bodies. The SBSTA's task is to provide the COP with scientific advice on ecological matters. Two key areas of work in this regard are promoting and aiding in the transfer of environmentally friendly technologies and adapting technical work to improve the guidelines for preparing national communications and emissions inventories. The SBSTA plays an important role as a link between the scientific information coming from the expert groups, such as the IPCC on the one hand, and the policy oriented needs of the COP on the other.

The SBI gives advice to the COP on all matters pertaining to the implementation of the Convention. A particularly important task in this respect is to examine the information in the national communications of emission inventories submitted by the parties in order to assess the Convention's overall effectiveness. The SBI reviews the financial assistance given to non-Annex 1 parties and helps them implement their

convention commitments and provides advice to the COP on financial mechanisms. The SBI also advises the COP on budgetary and administrative matters.

The work of the COP and each subsidiary body is guided by a bureau elected by the parties of the Convention, usually at the start of each session of the COP. To ensure continuity, the elected bureau serves not only at sessions of the COP and its subsidiary bodies, but during intersessional periods as well. The COP bureau consists of 11 members, 2 of which are nominated for each of the 5 UN regional groups and one for representing small, underdeveloped nation states.

Developing countries usually work through the group of 77 + China to establish common negotiating positions in this process. In the group of 77 + China, there is strong resistance to possible involuntary emissions reduction targets for developing countries. But at the same time, within the G77 + China there is a discrepancy between the interests of OPEC and the AOSIS, the Alliance of Small Island States, a coalition of 43 low-lying island countries, most of which are members of the G77, and which are vulnerable to sea-level rise. They have argued alongside the EU that emission reduction targets should be based on a target percentage reduction during the negotiations for the Kyoto Protocol.

Coalitional activity in this process has been initiated. The 48 countries comprising the Least Developed Countries (LCD) in the UN system work together and have been increasingly active in climate change process, often working together. Fifteen members of the EU also meet in private to agree to common positions for negotiations. The country that holds the UN presidency, a position that rotates every 6 months, speaks for the European community.

These 15 EU states oppose the Umbrella Group, a large coalition of developed countries that formed following the adoption of the Protocol, on the issue of including carbon sinks in the Kyoto Protocol. There is no formal list but the Group usually comprises Australia, Canada, Iceland, Japan, New Zealand, Norway, the Russian Federation, Ukraine and the US. The Umbrella Group has lobbied successfully for the inclusion of forest management, cropland management, grazing land management, and revegetation as eligible sink activities. They have argued that the setting of targets should be based on differentiation and that the setting of targets should take into account differential capabilities. They have also insisted on the evolution of 3 parallel flexibility mechanisms and have opposed a proposal from the EU for quantitative restrictions on the use of these mechanisms. The Umbrella Group eventually won and as a result, the Kyoto Protocol contains no cap on supplementarity, making it theoretically possible to meet Kyoto commitments purely through the use of carbon sinks, rather than any actual cut to emissions. The Umbrella Group has sought maximum flexibility on the fulfillment of Kyoto commitments. The EU have committed, themselves, to a 15% reduction in emissions by 2010 and have promoted the idea that there should be a limit on the use of flexibility mechanisms in meeting targets. The EU saw itself as a potential broker between the G77 + China and the Umbrella Group.

The Central Group, the CG11, is a coalition which brings together most economies in transition included in Annex 1 including Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia, Slovenia, and Croatia. It was active from 2000 – 2003, when its members were acceded into the EU. Its position was almost identical to that of the EU during this time. Also, a number of countries in Asia and Europe not included in Annex 1 have come together as a group of countries in

the CACAM group (Central Asia, Caucasus, Albania and Moldova), which is largely concerned with how to define 'developing country' within the climate change context. Finally, the Environmental Integrity Group (EIG) is a recently formed coalition in this process comprising Mexico, the Republic of Korea and Switzerland. The EIG's goal is only to ensure environmental integrity in climate change negotiations, as individually, its members have little in common save for the fact that they do not fit well into any of the other coalitions that exist.

All of these coalitions operate within the COP. The proceedings of the COP and its subsidiary bodies are governed by written rules and procedures. The COP has not formally adopted rules and procedures for voting however, as there are differences in opinion over voting arrangements. Discussions continue to try to find a compromise. Because all other rules are agreed, procedures are drafted for each session except for rules on voting.

Although there is no formal voting procedure in the COP, almost all decisions are adopted on the basis of consensus. Consensus is usually taken to mean that there is no stated objection to the decision, not quite the same thing as amenity, as a party may choose not to object formally to a decision but ask for its concerns to be taken note of in the report of the session. If it proves impossible to reach a consensus, the UNFCCC text states that any amendments to said text require a  $\frac{3}{4}$  majority vote of the COP. Once an amendment has been passed, it must be ratified by  $\frac{3}{4}$  of the COP parties before it enters into force. No amendments to the UNFCCC text have yet been adopted. Also, there are no agreed procedures in the UNFCCC for the adoption of protocols. Therefore, in the absence of an agreed voting rule, these must be adopted by consensus and define their own procedures to enter into force. The Kyoto Protocol was adopted in this way at COP3.

The COP's subsidiary bodies are served by a secretariat, whose main function is to make practical arrangements for the sessions of the UNFCCC's bodies and to assist parties in implementing their support to ongoing negotiations and to coordinate with the secretariats of other relevant international bodies, notably the Global Environmental Facility and its implementing agents (UNEP and UNDP), the World Bank, the IPCC, and other relevant conventions.

After lengthy negotiations, the parties in COP11 agreed to consider long term cooperation under the UNFCCC "without prejudice to any future negotiations, commitments, process, framework or mandate under the Convention." This was to take place through a series of four workshops through to COP13. The four thematic areas to be addressed were: advancing development goals in a sustainable way; addressing action on adaptation; realizing the full potential of technology; and realizing the full potential of market-based opportunities. This dialogue on long-term cooperative action was open to all Parties and was organized by the secretariat in 2006 and 2007. The COP requested the two co-facilitators of the dialogue report on the information and diversity of views presented by Parties to the COP at its twelfth and thirteenth sessions.

The COP is currently the roadmap for new environmental agreements to be reached by 2009 and hence this is the process which is underway, post-Bali, which is seen as shaping a post-Kyoto world. The four thematic areas discussed (advancing environmental goals in a sustainable way, addressing issues on adaptation, realizing the full potential of technology, and realizing the potential of market opportunities) constitute the central elements of the new round of Earth negotiations.



Different positions have been taken by various groups. Within the Umbrella group, Australia acknowledges that no efforts to reduce emissions from the Annex 1 parties alone will be enough to fulfill the objectives of the UNFCCC in the absence of non-Annex 1 action. Effective action by all countries to limit global emissions is the central objective.

Pakistan from the group of 77 + China have emphasized the vulnerability of least developed countries, Africa and small developing countries. Portugal, for the EU, has restated the global goal: that GHG emissions should be reduced by at least 50% by 2050, to ensure that the average temperature increases no more than 2°C. Switzerland, from the Environmental Integrity Group has emphasized recent findings by the IPCC and called for strengthened mitigation and adaptation efforts. Maldives, for the LDCs, and Grenada, for the Alliance of Small Island States (AOSIS), has challenged scenarios on greenhouse gas emissions. The avoidance of climate change impacts is generally agreed as a benchmark for a post-2012 agreement.

The time frame for the negotiation is that they be concluded within two years. There was an initial 2 week period around the Bali launch, which included sessions of the parties' subsidiary bodies, a ministerial segment and other meetings. Thus far, meetings of the COP have had a high level of ministerial participation. The building blocks for future negotiations aim to build sufficient confidence to convince private investors to make investment flows (both public and private) compatible with the financing of adaptation under targets. These elements include innovative financial investment instruments, an expanded CDM, better access to development projects, more detailed work on spillover effects, a clearer delineation of the roles of both public and private finances, and others.

The process of future negotiations will thus likely be through the sessions of the COP and these will be held every year. The Kyoto Protocol was not intended to solve all the problems of climate change by the end of the first commitment period in 2012. The UN assembly envisaged a long term process of 5-year commitment periods with negotiation on targets for the second commitment period to start in 2005. The stage is thus now set for the continuous development of the climate change process, with implementation and negotiation going hand in hand. The intergovernmental process of climate change will also continue to evolve as scientific knowledge improves and political process globally changes.

#### **4. Issues and Possible Negotiating Options in Achieving Productive Global Cooperation on Climate Change Mitigation**

In this section, in light of the preceding discussion on the status of negotiations within the UN framework, we discuss a series of issues surrounding the potential negotiability of global climate change mitigation, which suggest following a different approach to that currently underway. We discuss these issues under a number of sub-headings.

##### **4.1: Is Negotiation Narrowly on Climate Change Alone Feasible?**

A central issue concerning future climate change negotiation is the feasibility of negotiation on climate change alone and reflects a sharp difference between global environmental and trade negotiations. The externalities involve large spillovers across countries and hence there needs to be negotiation producing mutual agreement to act in ways which both allow for joint internalization but in ways which are consistent with the self-interest of the parties involved. The conflict between self-interest and the communal interest in environmental treaty making has already been stressed in the limited literature on the topic. Implicitly, this was addressed in Barrett (1992), and explicitly in Carrero & Siniscalco (1995). They discuss the use of R&D tax credits as a linkage mechanism to enable environmental negotiations to proceed, although they don't associate this directly with global environmental negotiations.

The issues here can be posed in the same terms as in Shapley & Shubik (1969). Shapley & Shubik were concerned with the potential non-emptiness of the core of an economy in the presence of externalities. The core is a key solution concept for cooperative bargaining whose origins lie in Edgeworth (1881). The core is the set of allocations that cannot be blocked by any sub-coalition and hence defines the potential bargaining set associated with the mutual interest of those parties involved in the negotiation. The concept of the core was revived by Debreu & Scarf (1963), and by Scarf (1970). Debreu & Scarf showed that the core of an economy will collapse to the competitive equilibrium under a process of replication of agents/ individuals so that, in an economy with different numbers of individuals, with large numbers of individuals of different types added to the economy, the core will become progressively smaller. Debreu & Scarf showed through an asymptotic process that the core would collapse to the competitive equilibrium. This result suggested that the competitive equilibrium of a conventional economy is the only feasible bargaining outcome for a large economy, and proved that the outcome would not be blocked by any coalition. Hence, a bargained resource allocation outcome not relying on markets and prices would achieve exactly the same allocation as that represented by a competitive equilibrium. Scarf, in 1970, had provided a computational algorithm for determining the allocation within the core and had used an ingenious argument not relying on conventional fixed point theorems to show the non-emptiness of the core.

The link to environmental issues comes in the later work by Shapley & Shubik (1969), in which they discuss the issue of the potential emptiness of the core in economies with externalities. They show that if externalities are positive, (with positive benefits to the participants in a bargaining process,) then the non-emptiness of the core

established by Debreu would remain. However, where externalities involve negative effects, they showed using numerical examples that it was possible for the core to be empty. The intuition behind the Shapley-Shubik result is that, as the number of individuals becomes large, then the potential positive environmental impact of each individual's actions on themselves become small. But, compared to the costs of complying with the joint commitment to limit the externality generating activities, there is thus no private incentive to participate in collective action. Shapley & Shubik presented three separate numerical examples of externality games that were not related to global negotiations and showed that, depending on the number of players involved, the core (or the bargaining set) may be empty.

The Shapley-Shubik paper is a fundamental contribution to the theoretical discussion of externalities. Pigou in the 1920's first demonstrated the desirability of using a Pigovian tax to internalize an externality. Coase, in 1960, later argued that bargaining arrangements would automatically internalize externalities, and hence a Pigovian tax would make things worse. Shapley & Shubik's paper questions the feasibility of Coasian bargaining solutions in certain cases because the bargaining set may be empty.

If the bargaining set for global negotiations is empty, the implication is that it may be futile to begin (or continue) negotiations only on climate change mitigation as a stand alone issue, and this is a fundamental issue faced by the UN-based negotiation. There is need for a mechanism for negotiation which is compatible with the self-interest of countries participating in the negotiation. If the global negotiation framework as conceived in the UN structure is empty, in terms of the emptiness of the core, then attention seemingly has to be paid to possible changes in the negotiation format which will result in individual country interest being compatible with a positive outcome. The natural direction to take would seem to be the enlargement of the bargaining set beyond climate change; to allow other issues to enter bargaining to open up the bargaining set to feasible negotiation. It also suggests that negotiation may be feasible only between large entities such as the US, the EU, China, India and Russia. They may have joint incentives to participate and the difficulty for them will be dealing with the small countries who would be free-riders on the negotiation. Negotiations thus also inevitably faces a divided large/ small country world, and negotiation of the form initiated in the UN framework as involving all UN members on an equal basis will seemingly eventually confront these central difficulties.

## **4.2: Property Rights**

A second central issue in a negotiation is that of property rights. Who is it that has the right to do what, and will international cooperation involve compensation to countries for restraint in terms of emissions or threats of retaliation against countries that don't reduce emissions. The conflict here is centrally between developed and developing countries, and particularly between the more rapid growing developing economies who are larger in population terms, such as India or China, and the OECD. The position taken by some in the OECD is that, in effect, the global environment (global carbon sinks and the global carbon cycle) are part of the joint organic structure of the global community of the Earth. Rainforests, as carbon sinks, are in effect, part of the 'lungs' of the Earth, and as such they are collective property and there needs to be a collective commitment to

allow for global management of the global ecosystem in ways which benefit all. As such, the argument is that all countries have a mutual interest in global environmental containment, and mutual agreement to reductions in emissions and some form of retaliatory enforcement process against countries who show large growth in emissions would seem to be justified.

The position taken by lower income developing countries however, is the contrary. They argue that lower income countries should have unalienable rights to growth and development to deal with their major problem, namely poverty alleviation. They argue that the richer OECD countries have already emitted large amounts of carbon into the upper atmosphere over a period of 200 years. On a flow basis, there may now be significant emissions coming from countries such as India and China, but on a cumulative basis these emissions are relatively small. Thus, low income developing countries who show environmental restraint by reducing their carbon emissions should be compensated rather than be subjected to retaliation. In some of these countries the phraseology is of eco- or green imperialism, ie – the use of power by large OECD countries where there may be more concern over the consequences of global warming since concern over temperature changes is a luxury good and of more concern to rich countries, who are less compelled to deal with issues of poverty alleviation.

This central conflict of who has rights to do what in an externality situation and who should be compensated by whom is a central issue also highlighted by Coase in his discussion of externalities in the 1960's. Coase was discussing externalities which were internal to national economies, and Coase argued that it would fall to the courts to determine property rights. He also argued that there was an inevitable arbitrariness in the assignment of property rights. Once courts had decided who had the rights to do what, the bargaining could proceed, but the court system would be the mechanism through which property rights would be determined.

With transnational externalities, the reliance on national court structure to determine property rights as in Coase is no longer feasible and hence this remains as a central issue in the climate change case. Without a prior determination of property rights, much of the actual international negotiation is likely to center on various arguments associated with property rights related issues. As these are so fundamental to the outcome, they can dominate, frustrate, and even block the eventual conclusion of a negotiation.

### **4.3: Commitment to Do What?**

A third set of issues surround the definition of 'commitment'. For now, the global environmental commitments which have been discussed within the UN process involve firm commitments to cut emissions at certain rates by certain dates, along with associated commitments for supporting mechanisms such as emissions trading, the clean development mechanism (CDM), and others. There are however, a much wider range of commitments which are potentially negotiable in this area and it would seem prudent to consider the wider range of potential commitments.

Whether commitments should be to act unambiguously or act only in certain contingencies is one such question. It is accepted that there is substantial uncertainty over the severity of both temperature change and its consequences and potential impacts on

different countries. It may thus be prudent to negotiate now in terms of commitments which would be entered into only if certain contingencies arise; ie – contingent commitment. Hence, if temperature change reaches certain critical levels by agreed measures on certain dates, this will then trigger deeper and deeper cuts to follow. A complication here is the lag involved in the impacts of emissions reductions on temperature change: perhaps 50 years though atmospheric process. In addition, contingent commitments could be made to deal with some of the burden sharing related issues associated with climate change. These could involve sea level rise and other consequences of temperature change, more so than temperature change itself. Thus if there were to be significant temperature change which caused major problems with desertification in, say, West Africa it could potentially be the case that there would be a need to move large numbers of population across national borders of relatively small states whose borders were contiguous and running into the ocean. These are relatively poor countries who would almost certainly not be willing to make these commitments unless they received large amounts of aid flows to compensate them for the costs of dealing with the refugee and humanitarian difficulties involved. Given the complexity of such negotiations and the time frame of completing such negotiations, it might be prudent to enter into them now on a contingency basis rather than to simply leave these as events to occur. Current aid flows from the OECD to non-OECD countries for instance, have fallen in recent decades as a fraction of GDP to only small numbers and one can realistically argue that a major reshaping of global trade and finance would be involved in dealing with these issues. Other issues arise with burden sharing arrangements for the richer countries to deal with major sea level rise, which would devastate Bangladesh, with possible innovations in financial instruments such as global flooding or global warming bonds.

#### **4.4: Which Instruments to Negotiate On**

Even if there is collective agreement to negotiate on emissions reduction, issues then arise as to the choice of negotiating instruments. What are the commitments to be made on? One approach is to focus centrally on emissions reduction, as in the 1997 Kyoto Protocol. But, increasingly, there is debate as to whether this is the appropriate focus for negotiations. Countries which anticipate that they will experience rapid growth in economic activity as they further develop, particularly India and China, have argued that the focus should be on negotiations on reducing emissions intensity relative to GDP rather than emissions levels. Emissions intensity relative to GDP, according to IEA estimates, has been falling by around 2% per year and this reduction is a central part of the IPCC claims of the feasibility of meeting major emissions reductions at relatively small cost. Negotiations on accelerated reductions in emissions intensity relative to GDP has been stressed strongly by the lower income, rapidly growing economies including India and China.

The calculation of emissions by country and whether they should be related to consumption or production is another question. It has been argued by Chinese negotiators for instance, that because China exports around 35% of their total production of manufactures, that carbon emissions associated with manufacturing activity located in China should be thought of as the responsibility of consuming rather than producing

countries, many of whom are in the OECD. This notion of embedment of carbon in trade also implies that border adjustments should be taken into account in any carbon related activities. These and other issues in the choice of negotiating instrument potentially make a major difference to the feasibility of any negotiation.

In addition, issues of fine detail also arise. One, for instance, is the choice of the year for the benchmarking for emissions reductions to be used. In the Russian case, for instance, use of a 1990 base in the Kyoto Protocol turns out to have been substantially beneficial to Russia due to the implosion of Russian economic activity between 1991 and 1997. Russia will still be below its Kyoto commitments at the end of the Kyoto implementation period due to the negative growth over these years and hence, the Russian position would be to maintain the 1990 base in these negotiations because of the clear advantage to them. Thus, details in the choice of negotiating instrument will also be important.

#### **4.5: Linkage to Other Issues**

Because of the uncertainty over the feasibility of narrow negotiations on climate change mitigation, it may become important in the evolution of negotiations within the UN structure to also discuss linkage to other issues. These linkages are related to wider interactions with economic activity across national economies. As we stressed earlier in the paper, the global institutional structure we have today is our heritage from the 1940's. It sees economies as largely linked through trade or finance but not through environmental or physical interaction. The emerging global negotiations within the UN structure focused on a post-Kyoto world emphasize the additional component of physical linkage across countries. As such, the natural linkage which would occur in a climate change negotiation would be to the wider set of interactions between economies, including trade and finance. Trade concessions and even trade sanctions against countries could be used as a mechanism to achieve a package of negotiations which were collectively in the mutual interest, and also in the individual interests of economies.

There are, however, problems and difficulties in linking in this way and especially to trade. One is that the pre-existing structure of trade commitments in the WTO, which stresses MFN and non-discrimination as a central commitment would seem to run in directions which are inconsistent with the notion of using specific trade concessions for particular countries as a way of achieving forward momentum on climate change negotiation.

In addition, currently existing estimates of the potential gains to individual countries from trade negotiations would appear to be relatively small compared to the potential costs of catastrophic scenarios associated with climate change mitigation. Hence there are questions of whether or not trade sanctions would provide a quantitatively large enough set of incentives which would be used supplementary to a climate change negotiation in such a way so as to achieve completion.

Other areas of linkage involve finance and, ultimately, global redistributive policies. In trade negotiations in the WTO there are no side payments. Clearly, the potential use of side payments in a global negotiation on climate change could be a supporting mechanism to facilitate and achieve the outcome of a completed climate change negotiation. The dangers seen here are that the negotiations linked to side

payments would then generate a system which would allow low income countries to argue in favor of redistribution towards them independently of the climate change component. Hence, a global negotiation on redistribution might get underway with discussions, ultimately, of global tax and transfer/ redistributive mechanisms on a global basis rather than internally within countries, which could slow climate change negotiations. One can, however, argue that in the 21<sup>st</sup> century, this is an inevitable direction which will emerge and if triggered by climate change mitigation negotiations, would undoubtedly arise anyway.

#### **4.6: What is Needed for Successful Global Climate Change Mitigation Negotiations**

In evaluating how to proceed on these and other design issues in framing a global negotiating framework, it is important to consider what the criteria could be for successful negotiations. The most central and obvious criteria focus on negotiations which are both in the collective interest and in the mutual self-interest of countries. The UN process, as it is currently conceived, almost certainly will produce negotiating outcomes which will be hard to rationalize as in the self-interest of the individual parties unless they are broadened. The enforcement of such mechanisms and agreements is also a central issue. Trade negotiators spend a large portion of their discussions on enforcement related issues. For now, international environmental treaties have lacked enforcement provisions and have seemingly relied on political process to provide enforcement. With growing awareness and concern over environmental issues, non-compliance with international treaties and the associated shaming element for politicians and electoral outcomes not in their favor as a result seems to the enforcement mechanism that has been relied on. Formal enforcement as in a mutual structure of disciplining through dispute settlement and ultimately sanctions has yet to appear.

There is also the issue of the cumulative process involved in negotiation and how this needs to be factored in with design. In the trade negotiations area, it has been the progressive acceptance of cooperative arrangements which build the trust and credibility of the process through initially small steps that have been key. Negotiating rounds where completion of commitments occurs and generates trust and mutual confidence allows for a progressive deepening of commitments through sequential negotiation. Sequential negotiation of global climate change mitigation and how that best proceeds has yet to be discussed in any tenuous way.

#### **4.7: The Institutional Structure for Negotiation**

The discussion above indicates to us that the global negotiating framework which is evolving from the UN system for climate change negotiation is in its early stages and it is immature as yet. Generally, economists pay little attention to institutional structures since they argue that it is the incentives for mutual cooperation which point the way for cooperation to be achieved. To worry excessively about institutional structure before the incentives are understood is premature. Institutions, under this view, generally follow incentives.

Political scientists, however, typically argue things the other way around – that institutional structures are key in that they establish prior collective focal points for

cooperation. In this area, the issue which will almost certainly be faced as negotiations move forward is whether negotiations can realistically take place in a satisfactory way within the existing institutional structure (present UN organization), or whether new institutional structures are needed.

New international organizations are generally viewed now with caution because there are so many international institutions and they often seem relatively ineffective and have significant budget costs. However, the entities involved in the UN structure including IPCC, UNFCCC and its links to WMO and UNEP seem somewhat tangential to what global climate change negotiations seem to aspire to. There have been calls for an examination of possible world environmental organizations which would achieve Coasian internalization, such as in Zissimos & Whalley (2000, 2001). Such calls focus not solely on climate change but on wider environmental issues.

Undoubtedly, the institutional structure for negotiation in the climate change area will be discussed in the decades ahead, and especially so if the current round of negotiations which are to take place within the UN to consolidate the post-Kyoto process into an ongoing negotiating framework for a post-Kyoto world prove to be slow moving and even ineffective. What this new institutional structure may be is something we leave for later discussion.



## **5. Conclusion**

In this paper we discuss the global negotiating framework for climate change mitigation. We discuss the underlying conceptual issues involved as well as the negotiating structure which has evolved thus far and relate it to the Bali process for a post-Kyoto world. We suggest that global negotiations on climate change are at a relatively early stage and involve an emerging negotiating framework within the UN structure which is limited in terms of its potential impact, and may ultimately prove to be unsatisfactory in terms of its ability to deliver collective and mutually beneficial agreements which are enforceable and have satisfactory outcomes. We discuss some of the broader issues involved and, while we offer no simple resolution, this set of issues would seem to be central for future research.

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