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THE GEOPOLITICS OF CLIMATE CHANGE

by

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The essential problem with the current threat of climate change is that it is man-made and that the pace of change will challenge the adaptive capacities of all societies. Humans can mitigate the threat by containing their contribution to the accumulation of greenhouse gases. But this requires a global framework as emissions in one part of the globe affect every other part. The geopolitics of climate change is about how these efforts to mitigate the threat and adapt to it impinge on the relationships of power between political jurisdictions, which, in today's world, are basically the states who constitute the international system.

The links between climate and international relations are an important part of the classical discipline of geopolitics. But the tendency there was to treat the climate as a constant that determined each country's resource basis, particularly its capacity for feeding its population, and in, the more racist versions, the mentality of the inhabitants. This is hardly the issue today. The geopolitics of climate change is not about the static impact of climate on national vigour, as determined by armchair theorists, but about the dynamic impact of climate change on the balance of power relations and each country's perception of the threat posed and the most appropriate response.

Governments will look at the threat of climate change in terms of its impact on their primary charge, the provision of "national security" for their territory and their citizens. The implications of climate change for security can be looked at from a very broad or very narrow definition of the term "national security". If security is defined in terms of a wide concept of human security then the total impact of climate change will fall within the remit of this geopolitical analysis. It is doubtful if such a wide conception will truly help to clarify options. Hence in this paper the focus is on implications more-or-less directly connected with geographical factors. Of course even this geographical approach has to look beyond the impact on military activities conventionally defined to areas like energy security, food security, water security and similar areas where there is a clear international dimension.

A word of caution is necessary at this point. Climate change is not a security threat in any conventional sense. It is not some sudden trigger event that can precipitate violent conflict. It will take place gradually over a long period of time with the impacts building up slowly. For instance the intrusion of a rising sea level in the Ganges delta will not take place as some sudden tsunami like inundation but as a gradual loss of land to the sea inch by inch. In that sense the impacts of climate change are unlikely to provide the triggers for specific security threats. They will operate more as factors that condition the probability of trigger events and act as a threat multiplier that amplifies the impact of other threats to security. Moreover there is a great deal of uncertainty about the scale of impact and timing so that one cannot say with confidence that this particular change will take place at this time.

The impact of climate change on power relations in the international system will come from

- the way in which the international system negotiates its response, (i.e. climate diplomacy)
- the mitigation actions that the members of the international system will take unilaterally or as part of an agreed multilateral programme, and
- the impact of the changes in climate that climate actions cannot avert.

The time profile of these three sets of impacts is very different. Climate diplomacy is already under way and its impact on power relations can be observed here and now. Mitigation actions have begun but the greater part of what can be expected as countries institute programmes and policies for mitigation and adaptation is still to come. The impact of these actions on power relations will play out over the next few decades.

Leaving aside the entirely unlikely possibility of an agreement that averts all risks, some degree of climate change is unavoidable. But this change is not going to happen tomorrow, though some early harbingers of what is in store are already evident. These projected changes will take place well into this century and the impact on power relations, say from potential changes in water availability, is some decades in the future.

This staggered time profile of impacts is why this paper deals first with the geopolitics of climate diplomacy, then the geopolitical consequences of the mitigation actions it engenders and then with the longer term consequences of the changes in climate that seem likely at present.

THE GEOPOLITICS OF CLIMATE DIPLOMACY

Climate diplomacy has to rest on climate science as governments are being asked to take action before the full impact of climate change is evident.¹ However given the uncertainty

¹ The scientific consensus took time to evolve, the most contentious issue being the extent to which observed changes could be attributed to anthropogenic influences of natural forcing factors. A definitive statement that observed and likely changes were due to human actions and therefore controllable by modifying these actions did not come till the

about the causes, the magnitudes and the impacts of climate change a consensus building process that brings together scientists was necessary. This led to the establishment of the Intergovernmental Panel on Climate Change in 1988. It was a product of three factors—the emergence of ecosystem research as an influential academic discipline, the global scientific cooperation promoted by organisations like UNESCO, WMO and UNEP, and the influence of world-wide NGO networks on national and international environmental policy.

The case for immediate policy action was not as readily accepted, with the resistance coming from major emitters like the USA and the energy supplying countries, particularly the OPEC though the very influential Brundtland report (1987) had sought action on energy in a broader context that included local pollution management and resource depletion concerns.

The pressures for action came to a head at the Second World Climate Conference held in Geneva in November 1990, when the Rio Earth Summit was in the early stages of preparation. They led to the constitution of the UN negotiating process on climate change which culminated in the UN Framework Convention on Climate Change (UNFCCC) opened for signature at the UN Conference on Environment and Development (the Rio Summit) in 1992². From a geopolitical perspective what matters is the interplay of power reflected in the outcome of the negotiating process.

The Rio Earth Summit and the Climate Convention were both launched in a narrow window of opportunity when the Cold War was at an end, multilateralism was in the ascendant with the successful UN sanctioned action in 1991 to undo Iraq's invasion of Kuwait, South Africa was being liberated from apartheid and an Oslo process was under way leading to an agreement in 1993 between the PLO and Israel. But unfortunately this window of opportunity for multilateralism came at a time when the government of the largest emitter, USA, was dominated by oil and coal interests.³ This power of organised industry lobbies is also a part of the geopolitics of climate diplomacy. The Framework Convention that emerged was a compromise between European demands for immediate and strong action and US reluctance, (with many others like Japan, Canada and Australia sheltering under the US umbrella).

Though India played a major role in the negotiations⁴, most developing countries (including China) were peripheral to the main line of discussion in the negotiations which

IPCC's third assessment report issued in 2001 and was asserted forcefully only in its fourth assessment report issued in 2007.

² For the cut and thrust of these negotiations see Dasgupta (this volume).

³ The US, which hosted the first negotiating meeting for the Climate Convention, was, at this time, under a Bush administration, heavily influenced by skeptics like John Sununu, the-then White House Chief of Staff, and by powerful oil industry interests.

⁴ It is a moot question whether this reflected any serious discussion of alternatives in Delhi, which, at that time was preoccupied with the resolution of the big economic crisis at home. Fortunately for Delhi, the USA whose support was crucial for the management of the domestic economic crisis, was skeptical about the need for any action beyond data gathering and research when it came to climate change.

remained a battle between Europe and the USA. Within the G-77 interests were widely divided with small islands arguing for immediate and strong action⁵, the oil producers becoming spokesmen for the climate skeptics in order to protect their economic prospects and the large emerging economies not wanting any constraint on their development ambitions from any sort of carbon emission obligation. Despite this the G-77 remained united and insisted that the primary, almost the sole responsibility for action rested with the developed countries and that development, which would inevitably increase GHG emissions, remained the primary objective of policy for them. But already, at that stage the desire of the developed countries to bring the large developing countries within the ambit of the commitments was evident. The principle of “common but differentiated responsibility”, which was a delicate compromise, that allowed all to see what they wanted in it, was the product and has now become absolutely central to the negotiating stance of China, India and the other developing countries (See Rajamani, this volume).

The Convention that was opened for signature at Rio was merely a framework that did not impose any binding obligations on emission reductions on the parties. When it was clear that the indicative goal of holding emissions at 1990 levels by 2000 was not going to be reached the clamour for legally binding targets grew. The main demand for strong action came quite understandably from the small island countries with some support from Western Europe where a combination of North Sea Gas and nuclear power facilitated low carbon growth.

A difficult negotiation process led finally to the Kyoto Protocol in which the industrial countries accepted binding obligations on emission reductions by 2008-2012 and that also brought the developing countries indirectly into the mitigation effort through the Clean Development Mechanism (CDM). This mechanism was the product of a strange marriage between a Brazilian proposal for a Fund to help developing countries experiment with carbon saving programmes and the US demand for a flexibility mechanism that would reduce costs of compliance by allowing purchase of carbon credits from lower cost mitigation activities in developing countries.

The Kyoto protocol was not a mitigation plan worked out on the basis of goals for allowable temperature increase and related emission targets. The distribution of mitigation effort between the industrial countries was not based on worked out criteria. The more-or-less arbitrary targets were more a product of the European eagerness for any sort of agreement, the Japanese desire to ensure success for a conference held on home turf and hard ball bargaining by the USA and Russia. To cap it all with the election of a new administration, the USA backtracked on its commitment.

The Kyoto Protocol came into force on 16 February 2005, more than seven years after it was adopted. The actual performance by most of those who did ratify it is significantly short of what they had promised (UNDP, 2008). In fact only the collapse of the old economy in Russia and Eastern Europe and the dramatic fall in their energy consumption

⁵ They emerged as an organised lobby after a Commonwealth supported meeting: Small States Conference on Sea Level Rise, 14-18 November 1989, Male, the Maldives

creates the illusion of achievement and that too because they were given very generous Kyoto targets.

Towards the end of the Kyoto period a fresh round of negotiations was needed for the second commitment period beyond 2012. But by this time the geopolitics of climate diplomacy had changed substantially. The focus now is on China where the combination of rapid growth and coal dependence has led to a rapid increase in emissions. The pressure on the other emerging economies is really a consequence of this concern about Chinese emissions growth. The basic argument is that any reasonable goal for allowable temperature increase is unattainable unless the large emerging economies join in the mitigation effort. As a consequence, the G-77 is more central to the process but its unity is under serious pressure.

Another reason for this change of stance by the industrial countries is their concern that both China and India (and some of the other emerging economies) are emerging as major competitors in the global marketplace. In the nineties, Europe, with its access to low carbon gas supplies, saw no threat to its economy from any carbon restriction commitment while the USA did. The OECD countries have now made common cause in demanding action by the large developing countries on the argument that if they are free from carbon abatement obligations the consequences for industrial competitiveness would be substantial. There is even talk of compensatory trade measures. The countries have responded to this pressure with measures for carbon abatement in different forms (See, WRI, 2010).

All of these changes in the matrix within which negotiations take place were responsible for what happened at the Copenhagen meeting of the Conference of Parties to the UNFCCC in December 2009. This meeting saw the emergence of what could be called a 40:40:20 power structure in climate diplomacy. These proportions reflect the share in emissions of the countries concerned. They are a rough rather than an exact measure of influence.

The first 40% includes the two largest emitters - USA and China. Emissions in the USA, are growing faster than in most other Annex I country. China is now the world's largest emitter and their emissions are also growing at a rate higher than the average for non-Annex I countries. These two countries have a de facto veto power because their staying out of any mitigation agreement makes it a trifle pointless as a big chunk of emissions remains beyond global purview.

The second 40% consists of the EU, a 10% power, Russia, Japan and India, each of them a 5% power, and a string of 2% powers like Brazil, South Africa, Mexico, Indonesia, South Korea, Saudi Arabia, etc. The individual members of this second group, with the exception of the EU, do not matter in the way that USA and China do as their absence from an agreement does not undermine the global effort greatly. The EU is now so publicly committed to a strong global agreement that they have lost their potential power of opting out. A more positive spin would be that they are setting the bar which others have to try and reach. India is a middle level power in this structured global oligarchy and

must act without any illusions about its relative status. The last 20% covers the smaller states whose influence comes from their membership of some larger group like the Association of Small Island States or the African Group.

The end-game at Copenhagen reflected this balance of influence where an agreement between the USA and China was a necessity but not sufficient to secure a consensus outcome. Obama's wooing was directed at China and the understanding was that an agreement between them would seal the deal and the others would either have to accept that or do without a deal. This is not just a consequence of the changing power equations in climate diplomacy. It is also a product of domestic political compulsions in the USA. India, Brazil and South Africa were there at the end game because China engineered events so that it was not alone in striking a deal with the USA.

The smaller players can acquire influence only occasionally when a full global consensus is needed. At Copenhagen the big and medium players decided that what mattered was what they committed to each other and the consent of the smaller players was not crucial. But they could not ride rough shod over everybody. In the end game the worm turned and the smaller states used the consensus procedures of the UN to deny this oligarchic agreement the imprimatur of legitimacy. Yet they could not prevent it from becoming the de facto basis for cooperative global action as 142 countries communicated their acceptance of the Copenhagen Accord.

THE GEOPOLITICS OF MITIGATION ACTIONS

The Copenhagen Accord includes an agreement that the goal should be to contain the likely temperature increase to 2°C. The commitments on emissions that have been put on the table for the 2020 target date, by the Annex I countries and, as unilateral national targets by some non-Annex I countries like India and China fall well short of the time profile of emission reduction required. However inadequate these may be, it is reasonably clear that significant steps will be taken to reduce the carbon content of energy use and the intensity of energy use per unit of GDP. One can also expect some accelerated action on forestry in this medium term time frame. The geopolitical implications of these mitigation actions will be modulated through their impact on the global energy economy, the role of major forested countries in providing carbon sinks and the edge that it could give to leaders in low carbon technologies.

Energy security has always been a major geopolitical concern of all major economies, including the emerging economies of China, India and Brazil. This has generally taken the form of securing supply sources, mainly for oil, with exploration and production sharing contracts, military presence where possible and other diplomatic moves. What climate diplomacy has done is to modify the classical approach of looking at energy security largely in terms of oil demand and supply by factoring in the growing global concern about climate change.

The shift to non-carbon energy is unlikely to amount to much in the 2020 or even 2030 frame and the global dependence on the very unevenly distributed oil reserves will not be greatly affected. Most projections of world petroleum demand and supply show a growing dependence on Gulf oil as about two-thirds of the world's oil reserves lie in West Asia. The production of oil in the Gulf region will have to double by 2030 and much of this increase will be on account of rising demand from China and India (Energy Information Administration, 2006).

The mitigation actions arising from any global climate agreement is unlikely to alter the geopolitics of global energy markets. The basic features of the power play in the oil economy will remain as they are viz.

- the capacity of Saudi Arabia and other Gulf States to adjust production up and down for strategic rather than commercial reasons,
- the clout that the US enjoys because of the dependence of the Gulf States on its security umbrella,
- the potential of Iran and Iraq for tactical disruption of Saudi strategies,
- the continued stranglehold of the Western oil majors on the logistics of the global oil economy,
- the growing clout of Russia as the key supplier to Europe and to China from Siberian reserves,
- an aggressive pursuit of concessions in fringe production areas by China and, less effectively, by India.

Change may come from the attraction of gas as a transitional fuel for coal dependent India and China. They are the only viable clients for the large gas reserves in the Gulf and cultivating this market may well serve the geopolitical interests of the Gulf States. A new factor is the supply potential of the Central Asian "stans" and the power play between China, Russia and the USA in this region reflects at least partially the impact of climate geopolitics.

The world coal trade will be more significantly affected by the actions engendered by climate diplomacy. As big importers like China come under pressure to contain their carbon emissions and shift to more carbon friendly fuels like natural gas the impact will be felt by major coal exporters like Australia.

In the medium term to 2020 the main source of carbon mitigation will be policies to stimulate energy efficiency and deforestation avoided. The latter is already an important part of the REDD plus negotiations under the UNFCCC. Deforestation avoided is one of the most attractive options for carbon mitigation and is attracting substantial support from potential sources of concessional fund. The scope for big gains from this are concentrated in the countries with large areas under forest cover like Brazil and Indonesia. In the geopolitics of climate change this not only increases the leverage of these countries but also introduces a wedge between them and other large emerging economies like China and India.

Energy efficiency gains depend largely on known technologies and no particular impact on power balances is likely to arise from the central role that these technologies will play in the climate mitigation effort. In the longer run, and even in a 2030 time frame, carbon mitigation and, by implication, energy security will increasingly depend on access to renewable energy and other carbon saving technologies. This will stimulate collaboration in technology development for high cost items like carbon sequestration and nuclear energy. But it will also increase the leverage of the technology super-powers like the USA in the global game of energy security. New players like China and India can become significant global players in lower cost options like energy efficiency and solar, wind and geothermal energy. China is already a leading player in solar and wind power. But this is unlikely to give it much more than commercial leverage in energy markets.

Basically the scale of mitigation efforts in the medium term will be most likely modest in their aims. They will not alter the geopolitics of the global energy economy very substantially. The larger impacts will come over the longer term as the pace of carbon mitigation builds up to the point where fundamental shifts in energy production and consumption will be required. This is some decades into the future. But at that time what will matter are the competencies that have been built up in these new energy technologies over this transitional period. Hence the main geopolitical impact of climate mitigation actions will be the edge it will give to countries and corporations who invest now to establish their presence in this technology space of the future.

GEOPOLITICS OF CLIMATE CHANGE IMPACT

The mitigation actions that are likely to be undertaken as a part of a multilateral agreement or unilaterally will not be able to stop the momentum of climate change that has already been built up because of past emissions. Nor is there any realistic prospect of containing future increases in greenhouse gases to the point at which climate is fully stabilized. Even the stated goal of policy now involves a 2°C temperature rise. Hence some measure of climate change and, with it, a change in the geography of international relations is unavoidable. That is why the intersection of climate science and security analysis has become a growth industry (See for instance, Campbell et al, 2007; European Commission, 2008; IDSA, 2009; Halden, 2007; Maas and Tanzler, 2009).

The paradigms that underlie climate change and security analysis differ in several ways and combining the two is not easy. First the unit of analysis for climate scientists is the ecosystem, which, in the case of carbon is the earth system as a whole. International relations and security analysis tends to work with states as the unit of analysis. Second, the time horizon of analysis differs-very long term in the case of climate change and short to medium term in security studies. Third, climate analysis focuses on slowly changing processes while security analysis is specially interested in trigger events that can precipitate conflict.

Security analysis tends to look for factors that can lead to insecurity and conflict. But the links between resource shortages, environmental stress and conflict are often overstated.

In fact the causation may even run the other way with violent conflict leading to a worsening of environmental stresses. Thus famines do not cause wars; wars lead to famines. Climate change is a slow process that will affect resource availability and environmental conditions over periods measured in decades. Its geopolitical impact will be felt more through its slow impact on human security rather than through any sudden impact on physical geography.⁶

Two areas of potential tension caused by the predictable climate change impacts are frequently mentioned- the worsening of disputes over shared waters, and the movement of people displaced by worsening agricultural conditions and sea level rise.

The principal areas of concern in the case of shared waters are the Jordan River in West Asia, already the scene of some violence, the Nile Valley and some other rivers in Africa. Central Asia is served by rivers that are snow fed and glacier melt may alter the timing of flows in a manner that challenges existing agreements. This may also happen in the snow melt dependent Indus system. But much of this will be more an irritant than a *causus belli*. In fact the frequent references to water disputes as a potential cause of war between states is not borne out by the historical record and shared resources are as likely to lead to cooperation as to conflict.⁷ An outstanding example of this is the Indus Waters Treaty between India and Pakistan that has withstood several decades of confrontation between the two states.

The links between displacement and environmental stress have been recognised by many.⁸ The movement of people displaced by the impact of temperature and sea level rise on agriculture and human settlements has led to many guesstimates of the number of “environmental refugees”, a misleading term that appropriates a legal concept applicable to persons who cross national boundaries to seek asylum from persecution. Seasonal migration and longer term emigration of some family members to seek urban employment are part of the coping strategy of people who live in vulnerable environments.⁹ Whether climate change will lead to an increase in such migration is still an open question. In South Asia the most widely touted possibility is the pressure of illegal migration from Bangladesh to India as the Ganges Brahmaputra delta feels the impact of sea-level changes. The other flow that is much talked about is from Africa to Europe as agricultural conditions in the Sahel deteriorate.

⁶ ‘...climate change in itself will not be a cause of conflict. Instead, climate change will likely produce knock-on effects, which may catalyse processes leading to tensions and eroding institutions’ (Maas & Tänzler, 2009, 3).

⁷ ‘...the record of acute conflict over international water resources is historically overwhelmed by the record of cooperation’ (Wolf, 2006).

‘There are a very limited number of situations in which it would make strategic sense for a country today to wage war in order to increase its water supply’ (Podesta and Ogden, 2007, 121).

⁸ ‘...the Darfur conflict began as an ecological crisis, arising at least in part from climate change’ (Ban Ki Moon, 2007).

⁹ ‘...although environmental degradation and catastrophe may be important factors in the decision to migrate, and issues of concern in their own right, their conceptualization as a primary cause of forced displacement is unhelpful and unsound intellectually, and unnecessary in practical terms’ (Black, 2001, 1). See also Brown (2007).

Climate change matters more when strategy planning takes account of transnational threats, vulnerabilities and instabilities that can affect national options. Nowadays this includes the consideration of the implications of deepening economic interdependence and the competition for natural resources. Climate change can be viewed as a multiplier that enhances the impact of all of these factors. Some of the areas where such a threat/vulnerability multiplier effects may be seen are listed below:

- Food security will be affected by the fall in agricultural productivity in most of Africa and Asia because of the impact of climate change on precipitation and river water flows.
- Water security will be affected by the large changes in the volume and timing of river flows because of glacier melt and precipitation changes.
- Energy security will be affected by the impact of climate change in crucial supply areas like the Gulf and Central Asia and by its impact on Israel-Arab conflict.¹⁰
- Maritime security will be affected by the impact of sea level changes on coastal installations and coastal populations.
- Border security will be affected if changing sea levels and river flows open up new disputes on land and maritime border demarcation and if sea-level rise leads to illegal migration across national boundaries..
- Health security will be affected by the changes in breeding conditions for disease vectors.

From an Indian perspective the geographical changes that are more or less committed and that have a direct security implication are:

- The warming of the Himalayan-Hindu Kush-Tibetan highlands and its impact on water flows in the Indus, Ganges and Brahmaputra river systems.
- The rise in sea levels and its impact in the Ganges-Brahmaputra delta.
- The impact of both of these for the conditions for military operations in the Himalayas and in coastal seas.

There are other large scale geographic changes that are possible but are not considered probable at present. However a failure to contain temperature rise would increase the risk of these occurring. Some of these potentially huge geographical changes are listed in Annex 1. One of these, Arctic sea ice melt has moved from the realm of the possible to the probable already. This is opening up new waterways and international trade routes between North America, Europe and Asia through passages running north of Canada and Russia. It will reduce the distance between the USA and China, allow submarines to

¹⁰ 'Roughly two-thirds of the Arab world depends on sources outside their borders for water. The Jordan and Yarmuk rivers are expected to see considerable reduction in their flows affecting Israel, the Palestinian territories and Jordan. Existing tensions over access to water are almost certain to intensify in this region leading to further political instability with detrimental implications for Europe's energy security and other interests. Water supply in Israel might fall by 60% over this century. Consequently, a significant drop in crop yields is projected for an area that is already largely arid or semi-arid. Significant decreases are expected to hit Turkey, Iraq, Syria and Saudi Arabia... Central Asia is another region severely affected by climate change. An increasing shortage of water, which is both a key resource for agriculture and a strategic resource for electricity generation, is already noticeable. The glaciers in Tajikistan lost a third of their area in the second half of the 20th century alone, while Kyrgyzstan has lost over a 1000 glaciers in the last four decades.' (European Commission, 2008, 7).

come through the Bering Straits and thus alter the strategic equation between USA and China. Russia also will acquire all-weather ports on its Northern shore and that too will have significant strategic impact. In addition, the increased accessibility of the enormous hydrocarbon resources in the Arctic region is changing the geo-strategic dynamics of the region with potential consequences for international stability and European security interests. The resulting new strategic interests are illustrated by the recent planting of the Russian flag under the North Pole and other manoeuvres to stake territorial claims (Crawford et al., 2006).

The other potential tipping points listed in the Annex are not predictions but projections of what the new equilibrium of the earth system could look like when it adjusts fully to a higher temperature regime. But the extent of temperature increase required for each of these tipping points and the time frame are still speculative. However the consequences of some of the tipping points like the collapse of the monsoon or the Antarctic ice sheet would be hugely catastrophic. These speculative tipping points are reminders that the downside surprises that greatly worsen the impact of climate change are far more likely than upside surprises that reduce the threat. The tipping points identified by climate scientists are a further reason to take out insurance and act now to avert the worst of the consequences.

CONCLUSION

Climate diplomacy, climate actions and climate impacts are unlikely to change the basic features of the global power balance. The changes that can be expected in the next couple of decades are as much a product of other forces like the shift in the balance of the global economy towards Asia, the growing presence of emerging market players in the global investment and technology flows and the increase in the military capacities of countries like China and India.

The geopolitical impact of climate change in the medium term will be felt more in the form of marginal shifts in international relations. An interesting dimension to this is the argument that climate diplomacy can become a vehicle for strengthening cooperation in other areas¹¹. Some of the impacts that may be seen are:

- pressures on the transatlantic relationship because of the differences of approach between Europe and the USA¹²,
- the intrusion of a new element in the delicate balance of superpower relations between NATO and Russia, between US and China and between China and Russia,

¹¹ 'A climate policy that induces China to join the rules-based global regime for dealing with global warming—independent of the fine details of that policy—would contribute to the broader project of cementing China's commitment to the world order, which in turn could create payoffs in building a positive security relationship.' (Busby, 2007,)

¹² '...the EU will likely cement its position as the most responsible and united regional organization on the issue of climate change' (Podesta and Ogden, 2007, 131).

- regional powers like India, Brazil, South Africa and Mexico using their centrality to a climate agreement to leverage a role in superpower politics,
- a lowered salience for the “oil weapon” as the basis for the power plays of the Gulf oil states,
- the growing importance of technological competence as the key to global power.

In the longer run, looking beyond the next two decades, climate change can lead to new sources of tension and potential conflict in the Arctic region and perhaps in West Asia because of its impact on water resources. Other sources of tension induced by climatic changes may be too slow and diffused to trigger conflict. In these areas climate change is not a cause but a condition that could shape the direction taken by other potential sources of conflict. It could be a threat multiplier that pushes some disputes into the realm of active conflict. However there is so much uncertainty about the timing and scale of such long term impacts that they are hardly likely to alter strategic stances of today.

The real case for action on the threat of climate change has to rest on its impact on human security rather than on state security. In fact a geopolitical perspective hides the inequities that underlie the climate change problematique.¹³ Moreover for effective action states will have to step outside a framework where the protection of national interests is the sole basis for security and for foreign policy.¹⁴

The assessment of geopolitical implications presented here implicitly assumes that sooner rather than later the governments of the world will secure an agreement that specifies:

- The acceptable limit for the temperature increase.
- The implied time profile of global carbon dioxide and other GHG emissions.
- The distribution of allowable global emissions between countries.
- The treatment of forestry and land use changes
- The mechanisms that would allow flexibility in fulfilling commitments.
- The mechanisms that would support adaptation actions.
- The financial and technology transfer commitments

¹³ 'It is the most wealthy people in the most wealthy countries that have the most power to change the political and economic systems that sustain the problem of climate change. This more subaltern and class-based view of climate geopolitics is hidden by the popular geopolitical imaginary of climate change as a 'global' and environmental problem to be addressed by the community of states.'(Barnett, 2007,1372).

¹⁴ 'It is the job of governments to articulate the national interest. But if they do that in a narrowly conceived short-term form, finding common ground for an agreement is particularly difficult. Interest based arguments must be accompanied by a willingness to accept a science based discourse as the basis for negotiation. In addition there must some framework of values to limit the play of national interest. In essence, environmental management is about justice between polluters and victims of pollution, between early users of common property resources and new comers, between current and future generations. Justice cannot be secured with economics alone. There has to be a global ethic that cooperation is better than confrontation, that unrequited harm to another country is not justified, that sovereignty involves not just rights but responsibilities' (Desai, 2005, 12).

If an effective climate agreement is not secured in the present round of negotiations then all bets are off. Some of the tipping points listed in the Annex may become a reality and the geopolitics of climate changes drastically as the survival of hundreds of millions is threatened. This paper stops short of spelling out such a doomsday scenario in the hope that the political masters who rule our fate know and understand the consequences of inaction. What we need to manage the geopolitics of climate change is not just a consensus building process for the underlying science and a negotiating process between states for reciprocal obligations but also the evolution of a climate ethic that the common but differentiated responsibility we have accepted involves not just responsibility as culpability but also responsibility as duty to future generations.

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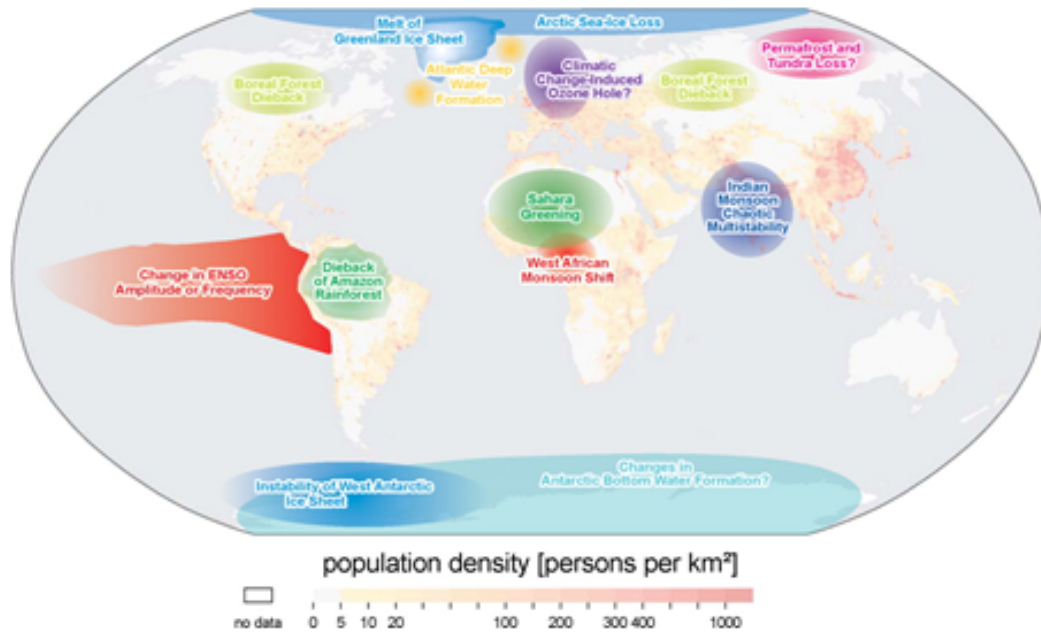
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ANNEX 1 TIPPING POINTS

Map of potential policy-relevant tipping elements in the climate system, updated from ref. 5 and overlain on global population density.



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