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International Dimensions of Climate Change

Discussion paper 6: The Ramifications of Climate Change – the security perspective

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The Ramifications of Climate Change – The Security Perspective

Perhaps the most striking aspect of 'Climate Change' is the profound manner in which is could impact upon every aspect of our lives. The potential for unabated climate change to disrupt the very essence of the way humans live their lives is a prospect if leaders chose to not address the problem with due diligence and consideration of the consequence of inaction. Climate change is an issue with no boundaries and therefore the security situations that could arise as a consequence of unabated climate change will have no respect for man-made boundaries. Without due focus on what some of these security situations will be along with understanding how to respond to such challenges governments will find themselves underprepared, slow to respond and in the worst case scenario overwhelmed by the challenges that climate change will pose.

The debate regarding climate change/environmental affairs as an issue impacting national security and foreign policy has its roots in the writings of the 1970s and 1980s. This was mainly based in the literature around unconventional security threats, writers such as George Kennan, writing in *Foreign Affairs* in 1970 spoke about the global scale of environmental issues and the requirement for them to have some international provision to monitor and understand what states were doing to impact the environment.[1] Richard Falk wrote in 1971 about the interrelated nature of nations attempting to cope with environmental degradation, and the limited amount of time that was available to cope with such serious environmental issues. In the 1980s mainstream journals such as *International Security* and *Foreign Affairs* carried articles examining the effects of environmental stresses upon security agendas. However, it was not until the early 1990s and the end of the Cold War that the debate began to gain real traction with security thinkers. The end of the Cold War gave rise to new optimism and thoughts on the potential new security issues that could be addressed in the coming years. The new Environmental Security agenda was centred around the premise that there would be increasing incidents of resource conflicts in the coming decades.[2] However, it was only at the turn of the century, as a consensus around the climate science data began emerging under the leadership of the United Nations Intergovernmental Panel on Climate Change (IPCC), that security analysts began grappling with what the security consequences of these types of change would mean for the security community.

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[1] For an excellent review of the early literature in this area read *Campbell, K. M. & Parthemore, C. (2008) "*National Security and Climate Change in Perspective", pp. 1 – 25 in *Campbell, K. M. (2008) – Climatic Cataclysm – The Foreign Policy and National Security Implications of Climate Change,* Brookings Institution Press, Washington D.C. Also read *Fetzek, S. (2007) – The Security Implications of Climate Change: A Change for Sustainability?* MA Dissertation, University of Bradford.

[2] *Ibid.*

"This [climate change] is a matter of urgency and of national security and it has to be dealt with in a serious way"[3]

Speaking in December 2008, Barack Obama outlined what he perceived to be one of the key security issues that his administration would have to face up to in the coming years of his leadership, namely the threat posed to US national security by unabated climate change. This is not the first time that this opinion has been voiced by senior security figures in the US; in April 2007, a group of senior retired US generals and admirals stated that: 'Projected climate change poses a serious threat to America's national security'[4], and in 2003 the Pentagon's Office of Net Assessment identified climate change as a threat which vastly eclipses that of terrorism. However, that a US President has, for the first time, linked climate change and the potential security implications it can pose is a demonstration of the seriousness that this administration places upon the issue of climate change. The significance of this lies in the fact that the US are currently the single greatest emitter of carbon dioxide, and it is vital that they understand the consequences of inactivity when negotiating potential emissions cuts on the global scale. The new emerging powers of India and China are also vital in this sense as their economies expand at an expediential rate, their emissions will continue to grow alongside. Amongst the think tank community within India there are the beginnings of interest in understanding what security issues will arise as a result of climate change within India and regionally.[5]

Globally, governments are now acknowledging that climate change will pose future security questions over the next 50 years. The security dimension of climate change is an area of discussion that sharpens the focus of the mitigation and adaptation debate in a way that no other area has.

When linking climate change to conceivable security situations that may arise in the decades ahead, it is important to first bear in mind that climate change can act as an additional stress factor in already fragile regions of the world, adding a potential additional driving factor which could lead to conflict. It is a fact that climate change will impact disproportionately upon those least able to cope with its effects, namely the poorest elements of the global community. The richer countries of the world will not be left unaffected by changes in the global climate, however: Hurricane Katrina demonstrated how a natural disaster can overwhelm even the most developed nations, and extreme weather events are only predicted to increase both in severity and frequency in the coming years. Indeed, if unwilling to make the transition to convert to a low carbon economy, industrialised nations will not only have to assist poorer

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[3] Barak Obama quoted in *Holland S. (2008)* – "Obama says climate change a matter of national security", *Reuters,* 3rd December. Available online: http://www.reuters.com/article/newsOne/idUSTRE4B86R920081210

[4] *Zinni, A et al (2007), National Security and the Threat of Climate Change,* The CNA Corporation, Washington.

[5] *Institute for Defence and Security Studies (2009), Security Implications of Climate Change for India.* Academic Foundation, New Delhi.

nations in responding to climate driven emergencies, but could well see increasingly severe impacts felt on their own shores.

The 2007 report findings of the Intergovernmental Panel on Climate Change (IPCC) provided a scientific consensus on the potential impacts that climate change could have. Broadly defined these can be categorised into four key areas:

1) Temperature Change – By 2100, we can expect global-mean temperature rises of between 2 and 6 degrees Celsius. This is obviously dependent upon how global emissions are controlled during the next 50 years, temperature rises at the lower end of these ranges can create droughts, subsequent food shortages, water scarcity, facilitate the spread of disease, and hasten the melting of the ice sheets endangering coastal regions with the subsequent sea-level rise.
2) Sea Level Rise – By 2100 there could be a sea level rise of up to 88 centimetres. However, this could be higher depending upon the level of ice-sheet melt that takes place during that time, as current IPCC models do not take this into account. The indicators are that the Arctic Ice Sheet is melting at an accelerated rate and that if temperatures rise by a global mean of 1.5 per cent the Greenland Ice Sheet will begin to melt at an accelerated rate, which contains enough water to contribute about seven metres to global sea levels.[6]
3) Extreme Weather Events – It is projected that there will be an increase in extreme weather events. Droughts, flash floods, heat waves, and wildfires are all projected to become more frequent and more intense.
4) Precipitation Change – It is predicted that, globally, precipitation will increase by approximately by 5.5% by 2090. However, some areas will experience substantially decreased precipitation, which will lead to high levels of drought in certain regions. In some regions an increased intensity of rain levels could lead to increase flooding risk and damage to land.[7]

These findings were a wake-up call for the global community but what is becoming even more concerning is that many from the scientific community are suggesting that those estimates are conservative in their estimation of the impacts that climate change will have in the coming years.[8]

The impact that these changes will have upon key dynamics such as food production and water scarcity is key to understanding the national security implications that climate change will have. The pressure placed upon scarcity of basic resources by climate change has the potential to raise levels of public protest, cross-border conflicts and mass migration as individuals look to move

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[6] *Witze, A. (2008)* – "Climate Change – Losing Greenland", *Nature,* Vol. 452, No. 7189, pp. 798-802.
[7] Intergovernmental Panel on Climate Change (2007) – *Climate Change 2007: Synthesis Report.*
[8] *Adam, D. (2009)* – "Scientists fear worst on global warming", *The Guardian,* 14th April. Available online: http://www.guardian.co.uk/environment/2009/apr/14/scientists-global-warming-conference-poll

from areas of scarce basic resources, or regions which have been ravaged by the impacts of climate change. The tempo at which climate driven impacts occur can have the capacity to erode a government's ability to govern by overloading already stressed emergency response capabilities, health provision and security mechanisms.

> *"A hungry man is an angry man"*[9]

During the past two years there have been vast food price spikes which have contributed directly to civil disturbances during 2007/08 in countries such as Peru, Yemen, Burkina Faso, Bolivia, Mexico, Bangladesh and Uzbekistan. These riots have turned deadly in countries such as Egypt, where there were seven fatalities during food riots, and in Cameroon where 40 people died during food related unrest. This level of unrest can lead to a leadership change, as was demonstrated in Haiti. During 2008 the price of basic foods such as rice, beans, condensed milk and fruit rose by more than 50% within a short time frame. These rises were unsustainable for one of the world's poorest populations, where 80% of the population exist on less than £1.00 per day. In April 2008 demonstrators attempted to storm the presidential palace in Port-au-Prince, demanding the resignation of President Rene Preval and had to be driven back by a contingent of Brazilian United Nations peacekeepers using tear gas and rubber bullets. Four people died in the riot. By the 12th April 2008 the Prime Minister of Haiti had been sacked by the Senate in a deliberate snub to the President over his handling of the riot.

The cause of these food price increases is not directly attributable to climate change, more so to diversion away from traditional crop provision for the food markets, to produce bio-fuels, rising energy costs and growing demand from the swelling 'middle classes' of Brazil, India and China. However, the pressure on food production levels will only increase with predicted climate change impacts such as increased temperatures, fresh water supplies and increased occurrences of extreme weather events, which could lead the trend of civil disturbances to continue, and placing strains upon global disaster response capabilities.

> *"Water is linked to the crises of climate change, energy and food supplies and prices, and troubled financial markets. Unless their links with water are addressed and water crises around the world are resolved, these other crises may intensify and local water crises may worsen, converging into a global water crisis and leading to political insecurity and conflict at various levels."*[10]

Access to fresh water is a resource related issue that could lead to conflict if left unmanaged. UN projections suggest that by the year 2050 seven billion people in sixty countries will suffer from water scarcity in the worst case, and even under the lowest projection, just under two billion people in forty-eight

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[9] Brenda Barton quoted in *Roughneen, S. (2008)* – "The Global Food Fight", *ISN Security Watch,* 14th April, Zurich.

[10] United Nations (2009) – *The 3rd United Nations World Water Development Report: Water in a Changing World.*

countries will struggle against water scarcity in 2050. Hence the UN World Water Development Report concludes that the world is facing a dramatic and escalating water crisis.[11] Already today, water scarcity has reached alarming dimensions in several arid and semi-arid regions of the South, including parts of the Middle East, Central Asia, the Indian sub-continent and especially Africa. Within Africa there are frequent reports of localised clashes over access to water. In early 2006, during the severe drought in East Africa, there were numerous clashes between members of the Marehan and Majereteen factions of the Darod clan on the Somali/Ethiopian border leading to multiple fatalities due to fighting. Prior to the drought the two factions had lived in relative peace prior to the shortage of water resources.[12] The potentiality of 'water conflict' lies, primarily, on the fact that there are so many trans-boundary river courses. Nature does not respect man-made political borders, there are more than 260 rivers in the world that transcend international boundaries and that are used jointly by two or more states. 40 percent of the world's population live in those shared river basins. It is hence easy to imagine the number of potential international sub-state conflicts that could take place as climate change places additional stress on access to fresh water supplies.

The IPCC report in 2007 estimated that sea level rise could be up to 88 cm by 2100; as previously discussed, this is perceived to be a highly optimistic prediction. It is predicted that by 2050, out of a population of approximately nine billion, almost three billion will live in coastal regions, exposing them to the impacts of rising sea levels, increased extreme weather events and other natural hazards. Furthermore, the economic infrastructure that is concentrated on coasts will also come under direct threat from these impacts also. This gives governments difficulties in their emergency planning preparations, building and infrastructure programmes and contingency planning as they try and understand how these impacts will develop over time and how they should plan and respond.

The potential movement of large numbers of people from coastal areas that have been flooded due to rising sea levels, are suffering from scarce food and resource supply to areas of plenty, or from areas that have been ravaged by the impacts of climate change to those that have not, would put an increasing strain upon the social cohesion of the regions being moved to, and could even lead to the tighter, more forceful control of such movement by security services.

This is a phenomena that was found on a micro scale during field work conducted in Belize. Belize City floods on an almost annual basis. The total population of the country is only 300,000, however, Belize City incorporates 60,000 of those people. When flooded a high percentage of the inhabitants of the city move to Belmopan, the capital city, which has a population of 10,000 and is situated inland. With this large population swell comes problems. In talking to members of the Belize Defence Force it was discovered that they

[11] *Ibid.*
[12] BBC, 'Somalis clash over scarce water', *BBC online,* 17 February 2006. Available online at: http://news.bbc.co.uk/1/hi/world/africa/4723008.stm

have to conduct far more operations around Belmopan during this time. The social cohesion of Belmopan is upset, due to the increasing pressure placed upon its services. It was also pointed out that there were different classes of people who live in Belmopan, i.e. higher class and that the lower classes bought more crime with them. This became situation exacerbated when the BDF was already responding to flooding in the other parts of the country. This combined with the fact that Belize is a poor nation led to resource shortages due to the multiplicity of events that they were having to respond to which in some cases inhibited their ability to respond. [13]

When combinations of these climate impacts occur in sequence or concurrently and exacerbate existing problems within a state, there is the potential to overwhelm a government's ability to maintain order at the state level, as well as communities becoming strained and potentially violent as they struggle to cope with the direct impacts. Sometimes the sheer scale of just one natural disaster has that potential outcome, as was shown during Hurricane Katrina, whereby law and order broke down in New Orleans and criminal activity filled the 'power vacuum' that was left. What would be the implications if the frequency of such large scale events increased in line with climate impacts predictions? One country in Central America begins to give us a window into what this future could potentially look like; Guatemala.

Guatemala is a country which has a developing economy, characterized by wide income disparities. Violent criminal activity continues to be a problem in Guatemala, including murder, rape, and armed assaults. The police force is inexperienced and under-funded, and the judicial system is weak, overworked, and inefficient. Well-armed criminals know there is little chance they will be caught or punished. Having only come out of a state of civil war in 1996, Guatemala still suffers a number of security problems. The potential that climate change could facilitate or quicken the establishment of ungovernable spaces given the right climatic and security circumstances was exemplified in Guatemala. In the north of the country during late 2008 extensive flooding in Petén had made the region almost unreachable by Government security forces. This in combination with the displaced criminal gangs, who due to the US military and financial assistance to the Mexican and Colombian Governments have been successful in removing a proportion of those criminal activities. These were working were working out of southern Mexico, as well as Columbia, have now begun, to move into northern Guatemala whereby they have more freedom in their activities. They are also using bribery and corruption to keep the local population on-side with them. Therefore, combined with the increasing frequency of flooding in the region, the Guatemalan Government is finding it increasingly difficult to govern this region of their country. Due to the number and tempo of events that the security forces have to respond to, this leads to a lack of ability to respond adequately to such disasters.[14]

[13] Observations based on field work conducted by the author within Belize October 2008 & June 2009.
[14] Observations based on field work conducted by author within Guatemala in October 2008.

"…creative thinking offers some options for action, despite significant unknowns in climate prediction. Addressing security risks within their social and political contexts and identifying 'no-regrets' or 'low-regrets' adaptation strategies, while also assessing the security dynamics of adaptation measures, can inform decision-making…"[15]

By understanding and discussing climate change as a 'security' issue global leaders are recognising the importance and urgency behind the climate change agenda. No longer should the issue be considered solely in the realms of scientific and environmental policy, but as an issue that crosses all policy and academic boundaries, because without this comprehensive approach sufficiently innovative responses and solutions will not be discovered. The strongest policies will simultaneously address problems in multiple domains. Policies should address climate security challenges but could also help reduce gas emissions, shore up energy security, or provide economic benefits. It is imperative that global leaders understand that there is a consequence to inactivity not only in terms of making the necessary decisions around global carbon emissions cuts, but also in terms of policy decisions they can make now to mitigate the impacts of climate change. Using creative 'no regrets' adaptation policy decisions, i.e. those that it would not regret having pursued even if the consequences of climate change prove less severe than feared, which will enhance the resilience of their nations regardless of the severity of climate change impacts of the future, leaders can safeguard against the most severe and unwanted outcomes that climate change impacts could bring.

What are the consequences for the Defence and Security sector? What can these actors do to help in preparation for climate change, and what role do they have in mitigating the impacts of climate change?

Firstly, military planners need to seriously consider the changing nature of operations that they may have to face in the future. Conventional threats are unlikely to diminish, and therefore, traditional war-fighting capabilities will continue to be needed, but under harsher environmental conditions and with limited fossil fuels. The tempo of operations in a climate-stressed future is likely to be continually high. The emphasis will be on delivering lower-order strategic effects, preventing crises, setting secure and stable conditions to bring situations under control, and actively restraining the spread, duration and influence of climate-induced crises. Defence has to optimise its adaptive capacity by developing the ability to adjust to climate change, including climate vulnerability and extremes, to moderate damage. This will require:

- Sustainable infrastructure that is resilient to climate extremes.
- Manpower that is equipped and trained appropriately for future military tasks.
- Logistics support that is less reliant on fossil fuels.

[15] *Fetzek, S.* (2008) – "Preparing for Uncertain Climate Change", *RUSI Journal,* June, Vol. 153, No.3 pp. 92-93.

- Organisations agile enough to pre-empt climate impacts and take timely decisions.
- Equipment designed for operation in extreme climates, with sufficient platforms to maintain presence and deliver lower-order strategic effects.
- Rapid conceptual and doctrinal development that represents the most up to date climate risk assessments.

The defence/security community are particularly good at examining the 'worst-case scenario'. This is integral to their planning and preparations. In this regard they are ideally placed to assist in helping us understand what the potential implications of unmitigated climate change will be. In this sense they will be adding weight to the discussions over global mitigation.

If, as predicted, climate change becomes a core issue impacting upon how we live as humans on the planet, and consequently such a potentially fractious issue in years ahead, then it is imperative that governments begin assessing their preparations and responses to the issue. In a report that the Royal United Services Institute (RUSI) released in 2008 it was concluded that: The international response to climate security threats so far has been 'slow and inadequate' and nations need to integrate climate change into their security policy to prepare for worst case scenarios.[16]

It stated that a failure to acknowledge climate change security threats is as dangerous as neglecting the risks of terrorism or nuclear weapons proliferation. The report called for 'dramatically increased investment' - in line with counter-terrorist spending - to reduce the 'hard security threats' driven by climate change which cannot be solved by traditional 'hard security solutions'. But the report starkly warned that if a 'crash response' were needed to react to 'extreme climate change', spending would be required on a similar scale to NASA's Apollo programme.[17] The report also urged intelligence agencies and the military to 'not just prepare to respond to the security challenges of climate change; they must also be part of the solution'.[18]

Climate change presents the global community with a significant opportunity to cooperate towards creating a more stable future for the planet, however, if we have a crisis of 'imagination' and 'inactivity' in understanding and preparing for the security consequences the planet faces then we could be overwhelmed when trying to respond to these problems in the future.

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[16] *Mabey, N. (2008), Delivering Climate Security: International Responses to a Climate Changed World.* RUSI Whitehall Paper No. 69, Routledge, London.
[17] *Ibid*
[18] *Ibid*