

# AN UNCERTAIN FUTURE

## LAW ENFORCEMENT, NATIONAL SECURITY AND CLIMATE CHANGE

**Chris Abbott**



Published by Oxford Research Group (ORG), January 2008

**Oxford Research Group**

Development House  
56-64 Leonard Street  
London EC2A 4LT  
United Kingdom

Copyright © Oxford Research Group, 2008

Some rights reserved. This paper is licensed under a Creative Commons licence that allows copy and distribution for non-profit use, provided the author and ORG are attributed properly and the work is not altered in any way. See <http://creativecommons.org/licenses/by-nc-nd/3.0/> for full details. Please contact Oxford Research Group if you would like to translate this report.

**About the Author**

Chris Abbott is the Programme Coordinator and Researcher at Oxford Research Group and an Honorary Research Fellow of the Centre for Governance and International Affairs at the University of Bristol. He is the lead author of *Beyond Terror: The Truth About the Real Threats to Our World* (Random House, 2007), and his articles on global security issues have appeared in various publications, both in the UK and abroad.

**About this paper**

This paper is based on a briefing given by the author to the Australian Federal Police and other law enforcement and defence agencies in Canberra, November 2007. It is published in its current form by Oxford Research Group, and is also available in Spanish from the Fundación para las Relaciones Internacionales y el Diálogo Exterior (FRIDE), [www.fride.org](http://www.fride.org).

**Acknowledgements**

Oxford Research Group gratefully acknowledges the support of the Joseph Rowntree Charitable Trust, the Polden-Puckham Charitable Foundation and our many supporters and sustainers for making the publication of this report possible. The author would like to thank Professor Paul Rogers at the University of Bradford, Dr. Mariano Aguirre at FRIDE and Paul Ingram at the British American Security Information Council for their feedback and advice. He would also like to thank Kayte Rath, Dan Spacie and Laura Fletcher for their assistance in producing this report.

[www.oxfordresearchgroup.org.uk](http://www.oxfordresearchgroup.org.uk)

# **AN UNCERTAIN FUTURE**

## **LAW ENFORCEMENT, NATIONAL SECURITY AND CLIMATE CHANGE**

**Chris Abbott**

January 2008

# Contents

<b>Executive Summary</b>	<b>3</b>
<b>1   Introduction: A Climate of Change</b>	<b>4</b>
<b>2   Climate Change</b>	<b>5</b>
Global average temperature increase	5
Rise in sea levels	5
Altered weather patterns	5
<b>3   Socio-economic Impacts</b>	<b>6</b>
Loss of infrastructure	6
Resource scarcity	6
Mass displacement of peoples	7
<b>4   Security Consequences</b>	<b>7</b>
Civil unrest	7
Intercommunal violence	8
International instability	8
<b>5   Implications for Law Enforcement and the Police</b>	<b>9</b>
<b>6   Implications for National Security and the Military</b>	<b>10</b>
<b>7   Conclusion: An Uncertain Future</b>	<b>11</b>
<b>Notes and References</b>	<b>13</b>
<b>Further Reading</b>	<b>16</b>

## Executive Summary

Climate change is riding high on both domestic and international political agendas as countries face up to the huge environmental challenges the world now faces. Whilst this attention is welcome, less energy is being focused on the inevitable impact climate change will have on global and domestic security issues and the related policy implications.

Climate change can no longer be considered solely as an environmental issue. The well-documented physical effects of climate change (global average temperature increase, rise in sea levels and altered weather patterns) will have knock-on socio-economic impacts (loss of infrastructure, resource scarcity and the mass displacement of peoples). These in turn could produce serious security consequences (civil unrest, intercommunal violence, and international instability) that will present new challenges to governments trying to maintain domestic stability.

Those agencies tasked with protecting and sustaining national security will need to adapt to better cope with a changing global environment. Major areas of potential strain for the police and security services are likely to include:

- 1 | **Demands for greater border security**
- 2 | **Changes in rates and types of crime**
- 3 | **Policing new legislation**
- 4 | **Responding to natural disasters**

At the same time, there will be important operational and strategic concerns that military planners will need to consider over the coming decades:

- 1 | **Difficulties maintaining military capability**
- 2 | **Loss of strategic defence assets**
- 3 | **Greater calls for peacetime deployments**
- 4 | **Instability in strategically important regions**

*“Traditional attempts to maintain the status quo and control insecurity will ultimately fail.”*

However, each link – from climate change, to socio-economic impacts, to security consequences – represents an opportunity; an opportunity for prevention, mitigation and adaptation, meaning that these security consequences are by no means certain – provided national governments, regional organisations and international institutions can rapidly put in place the necessary policies.

It must be understood, though, that if governments simply respond with traditional attempts to maintain the status quo and control insecurity they will ultimately fail. In today’s globalised world, using military force to secure resources overseas, while attempting to create a fortress state at home, will not work – despite the potential attraction of such policies for governments faced with such an uncertain future.

Instead, the risks of climate change demand a rethink of current approaches to security and the development of cooperative and sustainable ways of achieving that security, with an emphasis on preventative rather than reactive strategies.

# 1 | Introduction: A Climate of Change



In April 2007, the UN Security Council held its first ever debate on the impact of climate change on international peace and security.<sup>1</sup> That this was the first time the Council had debated the issue shows just how recently political attention has begun to focus on the potential links between climate change and insecurity.

This development can be linked to three key trends over recent years:

- 1 | **Climate change:** The first of these is the now widespread acceptance of the scientific evidence that climate change is real, that it is caused by human activity, and that it will have devastating consequences for all countries, including rich industrialised nations.
- 2 | **Energy security:** The second trend relates to the importance of energy security and the fact that both developed and rapidly industrialising nations are becoming increasingly dependent on imported oil and gas, often reliant on supplies from already unstable parts of the world.
- 3 | **Non-traditional threats:** Thirdly, there is a growing awareness in the post-9/11 context of the non-traditional threats to security arising from various social, environmental and political factors that do not necessarily fall under conventional notions of defence.

This is such a new area of exploration, though, that unfortunately some of the analysis currently available is fairly unsophisticated. The fact that climate change may have security consequences is generally accepted, but some analysts can be rather vague about the precise nature of those consequences.

Debate within government often focuses on the issue of energy security or on 'hard security' issues, including an assumption that climate change will somehow lead to an increase in international terrorism. Though there are some notable exceptions, discussion within think tanks is often little better: focusing on climate change, with 'security' simply tagged on the end. And while the analysis from the academic community is usually more advanced, it is all too often divorced from policy.

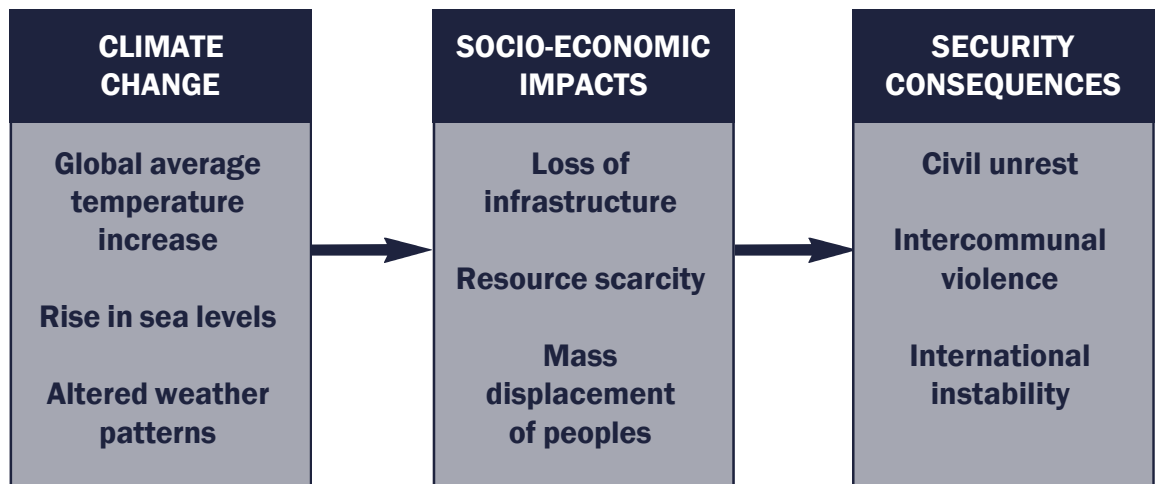
The difficulty is that analysts are not just examining the direct physical effects of climate change – which are themselves hard enough to predict with certainty – but trying to assess the likely social, political and economic consequences of those physical effects, and how they might in turn interact with each other and with existing tensions to create insecurity and conflict.

It is outside the remit of this report to explore the indisputable science behind climate change, which is covered in-depth elsewhere by the Intergovernmental Panel on Climate Change (IPCC).<sup>2</sup> Instead, this report attempts to do two things: (1) outline a more nuanced model of how climate change may impact on security over the next few decades, and (2) concentrate on those areas of that analysis that will be of most interest to policy-makers, law enforcement professionals and military planners.

The first part of this paper will demonstrate that climate change will have socio-economic impacts, which may in turn have security consequences (see summary diagram opposite), but it is worth starting by briefly outlining what is meant by 'climate change'.

*“There is a growing awareness of the non-traditional threats to security.”*

The potential relationship between climate change and insecurity



## 2 | Climate Change



### a. Global average temperature increase

Put simply, human activity is creating an increased concentration of greenhouse gasses in the earth's atmosphere, particularly carbon dioxide (CO<sub>2</sub>) from fossil fuel use. As this stops more and more of the sun's energy being radiated back into space, there is likely to be a global average temperature increase of between 2 and 4 °C, or even as high as 6 °C, by the end of the century (relative to 1980-99 levels).<sup>3</sup>

### b. Rise in sea levels

As the oceans absorb more of this heat, seawater expands (thermal expansion) and causes a rise in sea levels. Once the full effects of glacial and ice sheet melting are also taken into account, some suggest that the average rise in sea levels could be significantly higher than the conservative IPCC predictions, potentially a metre or more by end of century.<sup>4</sup>

Just to put this in context, in Bangladesh for example, over 17 million people live at an elevation of less than one metre above sea level.<sup>5</sup>

### c. Altered weather patterns

Discussion of climate change often tends to focus on these averages of global temperature increase and rise in sea level, but there will be significant regional variations, and many of the most damaging consequences will be associated with the extremes, and with altered weather patterns in particular.

Although the impacts of global warming on extreme weather events are still difficult to assess, the IPCC are predicting warmer days and nights and more intense heat waves, with obvious implications for disease patterns and human health. Changes in wind patterns are likely to lead to more intense tropical storms and storm surges, which in conjunction with sea level rises will cause more severe flooding. They are also predicting more heavy rainfall over most land masses – except for tropical and sub-tropical regions, which are likely to dry out.<sup>6</sup>



### 3 | **Socio-economic Impacts**



While devastating in their own right, it is when these environmental changes impact on human habitats that they will result in the socio-economic damage that is so concerning.

#### **a. Loss of infrastructure**

With most of the world's cities, and of course ports, located on coasts or river deltas, there is a clear threat from these rising sea levels and extreme weather events to human life and property and other key infrastructure such as communication, transport and energy supply networks. Even those countries not directly affected in this way, will have commercial and military assets overseas and citizens living abroad that may come under threat.

The economic impact alone of such losses could be enormous. In fact, *The Stern Review* published by the British Treasury at the end of 2006 concluded that if the more dramatic predictions come to pass, then inaction on climate change could cost the world economy more than 20% of global GDP each year (whereas the costs of effective action could be limited to just 1% of global GDP each year).<sup>7</sup>

#### **b. Resource scarcity**

At the same time, in the environmentally constrained but more populous world that can be expected over the course of this century, there will be greater scarcity of three essential resources: food, water and energy.

There may be difficulties in feeding growing populations as land degradation as a result of flooding, drought, soil erosion and poor land management practices will lead to a loss of arable land, and there will also be a decline or geographical shift in other food sources such as global fish stocks.<sup>8</sup> Those countries not directly affected by such degradation may still experience crop damage due to changing pest patterns or see a rise in the cost of imported food because of the international links in the supply chain. There may be further problems if more and more land is diverted from food production to growing crops solely for use in biofuels.

Water shortages already create tension in some regions of the world where several countries rely on the same water source – for example, the Nile River in North Africa, the River Jordan in the Middle East and the Mekong River in South East Asia. The IPCC predicts that freshwater availability will decrease in many regions and, ironically, more water in the form of storm surges and heavy rainfall might actually contaminate available supplies.<sup>9</sup> So genuine concerns are being raised about the possibility of water wars being fought in the future. At the very least, it is likely that water scarcity will exacerbate existing tensions and be used as a ‘tool’ within interstate conflict that has started as a result of other factors.<sup>10</sup>

*“Genuine concerns are being raised about the possibility of water wars being fought in the future.”*

Although not related to climate change in exactly the same way, the issue of energy security is one that Western governments and rapidly industrialising nations are particularly focussed on. In a changing world, with many nations increasingly dependent on imported oil and gas, achieving security of supply will be a key national priority as domestic demand continues to increase. With nearly two-thirds of all proven oil reserves located in the Middle East,<sup>11</sup> this unstable region will continue to remain of strategic importance. In response, some states may expand the use of nuclear power in an attempt to both provide secure energy supplies and mitigate climate change. However, this will create serious safety, environmental, security and proliferation concerns, while doing little to reduce carbon emissions.<sup>12</sup>

Demand for all three resources – food, water and energy – is already beyond that which can be sustained at current levels. Once population growth and the effects of climate change are factored in, it is clear that greater competition for such resources should be expected, both within and between countries, leading in extreme cases to conflict.



*“Major problems can be expected where there are large, poor populations adjacent to small, rich populations.”*

### **c. Mass displacement of peoples**

This scarcity will be occurring in a world where the global population is expected to increase from today's six and a half billion to over nine billion by 2050.<sup>13</sup> It is almost certain then that drought, food shortages and flooding will lead to the mass movement of peoples, with perhaps up to 200 million environmental refugees by the middle of the century.<sup>14</sup> Such refugees may bring the total number displaced due to natural disasters, conflict and large development projects to one billion people by 2050.<sup>15</sup>

In particular, major problems can be expected where there are large, poor populations adjacent to small, rich populations – most notably, Mexico and the United States, North Africa and Southern Europe, and South East Asia and Australia.

However, it is important to note that immigration itself should not be addressed in terms of threat. These people will be refugees, having been forced from their homes. They will need support and protection, and immigration will need to be managed, not simply controlled. Furthermore, the focus should not just be on immigration; for many countries there will also be issues of internal migration and outward emigration – as those who are able to do so move as their immediate environment becomes less habitable.

## **4 | Security Consequences**



The factors outlined so far will interact with each other and with existing tensions. This has wide-ranging implications, but there are three general areas that are worth concentrating on in relation to the security consequences of climate change.

### **a. Civil unrest**

Firstly, most analysts see the threat to national security for developed countries as coming from the outside, from massive immigration. But there are other security concerns that governments should take into account in relation to their own populations.

For example, if responses to the aftermath of natural disasters are inadequate, then people may begin to lose confidence in the government's ability to protect them. At the same time, there will undoubtedly be resistance to some of the very measures that will be necessary to protect and provide for people. This may create resentment towards the government and possibly lead to a breakdown in trust between the police and general public if draconian measures need to be enforced; particularly if the police and security services are seen to be primarily protecting the interests of the political and financial elites within society.

For others, the government will not be going far enough, and a rise in protests aimed at governments over inadequate policy changes or aimed at corporations over environmental damage can probably be expected. While social and environmental movements have a long history of peaceful protest and non-violent direct action, on the fringes of such movements there are always those who will resort to violence and sabotage. In the extreme, there may even be a rise in groups using terrorist tactics to further their otherwise legitimate agendas.<sup>16</sup> In the US, the FBI has observed worrying signs of an escalation in violent rhetoric and tactics amongst a small minority of environmental extremists, and they currently consider 'eco-terrorism' to be one of the most serious domestic terrorism threats.<sup>17</sup>

*“People may begin to lose confidence in the government's ability to protect them.”*

*“Climate-related factors could play an important part in triggering or prolonging conflict.”*

### **b. Intercommunal violence**

At the national and even regional levels, competition over resources and mass migration have the potential to lead to intercommunal and interethnic conflict in some parts of the world.

For example, there is already some evidence that the current conflict in Darfur is partly due to increased desertification and drought and the resultant lack of water supplies and arable land. In what some are calling, perhaps prematurely, the world’s first climate change war, there have been repeated clashes between African farmers and Arab pastoralists that threaten to spread as these nomadic herders are pushed into other territories by drought.<sup>18</sup>

Although it is a gross oversimplification to say that climate change has caused the conflict in Darfur, it is clear that the ecological crisis there has exacerbated a diverse range of social and political causes and demonstrates how climate-related factors could play an important part in triggering or prolonging conflict in the future.

Of course, it is unlikely that conflict of this sort will occur in regions such as Europe and North America, which have a far greater capacity to adapt to rapid climate changes, but even in such places there may well be a risk of intercommunal violence in the form of right-wing protests and racially motivated attacks against immigrant communities.

### **c. International instability**

Climate change-related issues also have the potential to cause international legal disputes as the world map is redrawn. As coastlines retreat due to erosion and flooding, then maritime borders and the associated exclusive economic zones might also have to change, as a country’s ocean territory is legally determined by its land territory. Another possibility is that the evacuation or even physical disappearance of low-lying small island states – such as Tuvalu in the South Pacific – could result in challenges to sovereignty as the current qualifications defining the existence of a state include a permanent population and a defined territory.<sup>19</sup>

Further disputes might also be expected as ice melting opens up viable shipping routes through the Arctic – for example the Northwest Passage, where there are already military tensions between Canada and the United States.<sup>20</sup>

*“Climate change is becoming an increasingly important part of international relations.”*

Climate change is, therefore, becoming an increasingly important part of international relations. However, one problem is the, perhaps justified, resentment that those who will be worse affected by climate change feel towards the industrialised nations that have been responsible for the vast majority of greenhouse gas emission to date. For example, on several occasions President Museveni of Uganda has called climate change an act of aggression by the rich against the poor.<sup>21</sup>

Other related problems may arise as emerging powers such as China and India are put under increasing pressure to cut back on emissions by Western countries whose economies have already been able to develop while being high emitters.

*“There is genuine concern over whether the international governance system will be able to cope.”*

There are two further issues that need to be considered. Firstly, many of the countries that will be worst affected by the physical effects of climate change are weak and fragile states. By their very nature, these countries have a reduced capacity to respond effectively, meaning that they are also likely to be greatly affected by the socio-economic and security consequences outlined in this report. The knock-on deterioration of state capacities and functions could, in extreme cases, lead to state failure. Secondly, this means that greater demands will be placed on donor countries to provide funding for climate change mitigation and adaptation mechanisms in their foreign aid programmes. Such a shift in funding may lead to a reduction in real terms of the long-term development aid that many countries rely on for capacity building.

There is genuine concern over whether the international governance system will be able to cope with these new geo-political challenges, particularly if national governments are being undermined at the same time. If international institutions, such as the United Nations, are weakened or fail, then countries under pressure may turn away from the norms of diplomacy and resort to armed conflict to settle such disputes.

## 5 | Implications for Law Enforcement and the Police



This framework is useful for governments to use when assessing the whole spectrum of policies that are going to be needed at every level in order to cope with the demands of climate change. It also has operational importance that is worth exploring in more detail, firstly for law enforcement and the police and then in relation to national security and the military.

Although climate change and security is a young area of analysis, and the specific implications for the police and other law enforcement agencies are not yet clear, there are perhaps four key areas that should be considered.

- 1 | **Demands for greater border security:** Demanding enhanced and more aggressive border security is likely to be the knee-jerk reaction from some politicians and sections of the general public. While such measures are unlikely to succeed in the long-term, the protection of national and maritime borders and the detention of illegal immigrants is likely to become an increasing priority for the police and coastguard.
- 2 | **Changes in rates and types of crime:** It is likely that a rapid rise in immigration will also lead to a change in the rates and types of crime that police forces will have to deal with, as there are clear differences in cultural attitudes towards certain offences, such as drink driving or knife crime.<sup>22</sup> Related to this will be a greater need for a wide-range of interpreters, sensitive community liaison programmes and better cooperation between the police and various embassies and consulates.
- 3 | **Policing new legislation:** Policy responses to climate change and the need to reduce carbon emissions will undoubtedly require new legal mechanisms that will need rigorous policing. For example, enforcing regulations in carbon trading and investigating corruption or fraud in such a system is something that police forces are likely to play a role in.<sup>23</sup> Other potential areas of investigation may include breaches of increasingly strict environmental regulations and fraud within the voluntary greenhouse-gas offset markets.

*“Such events place massive demands on the police to both maintain security and provide emergency response.”*

- 4 | **Responding to natural disasters:** As already mentioned, flooding, wildfires and extreme weather events will increasingly impact on population centres. One only needs to remember the impact of Hurricane Katrina on New Orleans in 2005 to understand the massive demands such events place on the police to both maintain security and provide emergency response and disaster management, including evacuation. Police forces will need to develop far greater planning integration with other local emergency services and federal disaster response agencies, and factor the likely effects of climate change into existing disaster management plans.

As new data becomes available and climate models continue to develop, our understanding of the consequences of climate change and the potential ramifications for law enforcement and the police will improve. However, in the meantime, it is important that planning – and the associated funding – remains flexible, adapting existing procedures where possible and developing new ones where appropriate, taking into account lessons learned from related case studies and scenario planning exercises.

## 6 | Implications for National Security and the Military



From a military perspective, climate change is something that the British Ministry of Defence (MoD) is taking very seriously, and their Development, Concepts and Doctrine Centre has long identified climate change as a key strategic trend.<sup>24</sup> In September 2007, the MoD awarded a £12 million (€16m or \$24m) research contract to the UK Met Office Hadley Centre that aims to identify those regions of the world where global warming could spark conflict and security threats, as well as predict the likely conditions in which British forces may have to deploy in the future.<sup>25</sup>

In the United States, a report commissioned in 2003 by the Pentagon’s Office of Net Assessment identified climate change as a threat which vastly eclipses that of terrorism, and argued that abrupt climate change must be considered a national security concern.<sup>26</sup> This was reiterated by a CNA Corporation study by a panel of retired senior admirals and generals in April 2007, which argued that climate change can act as a “threat multiplier for instability”.<sup>27</sup> At around the same time, the Global Climate Change Security Oversight Act was introduced in Congress. The bill calls for a National Intelligence Estimate to assess the climate change risks and national security implications for the United States. Although only in the first stage of the legislative process, if passed the Act also authorises the Secretary of Defense to carry out additional research on the military impact of global climate change.<sup>28</sup>

In the absence of such detailed analysis at present, it is worth focussing here on four key operational and strategic concerns that military planners will need to take into account over the next few decades:

- 1 | **Difficulties maintaining military capability:** Operating equipment and weapons systems in extreme environmental conditions will increase maintenance requirements and reduce service life. There will also be obvious health issues for personnel deployed in such environments. Maintaining military capability in the changed climatic conditions of the future will therefore be a central concern, particularly as the security environment is likely to require a high state of readiness.
- 2 | **Loss of strategic defence assets:** Some military bases and other strategic defence assets on coastlines and low-lying islands – for example Diego Garcia in the Indian Ocean – will be vulnerable to rising sea levels and extreme weather events that could damage or destroy essential infrastructure. Such installations need to be identified and, although costly, measures are needed to strengthen or relocate them where possible.

*“The military will face greater calls for peacetime troop deployments to provide disaster relief.”*

- 3 | **Greater calls for peacetime deployments:** As the frequency and intensity of natural disasters increases, the military will face greater calls for peacetime troop deployments to provide disaster relief, humanitarian assistance and engagement in stability operations and capacity building. This will often be at very short notice and the increase in mission tempo will likely require more frequent use of Reserve and National Guard units, particularly for domestic relief operations.<sup>29</sup>
- 4 | **Instability in strategically important regions:** There may be further calls for deployment as environmental stresses interact with other instability factors and potentially result in conflict or even state failure in strategically important parts of the world, such as the Horn of Africa or the Persian Gulf. There needs to be a mapping of those areas where climate change is likely to act as a threat multiplier,<sup>30</sup> and early-warning mechanisms and local conflict prevention measures put in place.

While this analysis indicates that there are likely to be greater demands placed on the military, planners need to be aware that what may ultimately be necessary is a shift in funding from traditional military spending to funding for the non-military elements of security – including, for example, conflict prevention and disaster relief – as well as a shift in government spending on military R&D to civilian programmes such as renewable energy projects. This will have obvious implications for military budgets, but may be necessary if this new security threat is to be confronted effectively as governments work with limited resources. Potential savings may be made, however, if forces are reconfigured as large, expensive defence projects such as new nuclear weapon systems, massive aircraft carriers and missile defence shields prove ill-suited to responding to the potential threats outlined in this report.

*“What may ultimately be necessary is a shift in funding from traditional military spending to funding for the non-military elements of security.”*

## 7 | Conclusion: An Uncertain Future



At each stage of the chain – from climate change, to socio-economic impacts, to security consequences – the conclusions drawn become less certain. But each link also represents an opportunity; an opportunity for prevention, mitigation and adaptation, meaning that the security consequences outlined in this report are by no means certain – provided national governments, regional organisations and international institutions can rapidly put in place the necessary policies.

Such policies might take into account the following five recommendations for the short-term:

- 1 | There should be extensive building programmes for flood defences and other natural disaster protection measures, with a particular focus on protecting essential supply network infrastructure.
- 2 | Massive and sustained funding and government R&D support should be allocated to the development of local renewable energy sources and resource conservation projects.
- 3 | International consensus and regional agreements must be rapidly reached on the status, protection and management of environmental refugees, and research is needed to identify likely migration flows.
- 4 | Conflict prevention, sustainable development and foreign aid programmes need to take into account the likely effects of climate change and build in a range of adaptation measures – but aid must not simply be diverted from these programmes in order to address climate change.
- 5 | Further research needs to be carried out into the specific areas that are likely to directly experience climate-related changes and have other instability factors that may lead to conflict.



*“Using military force to secure resources overseas, while attempting to create a fortress state at home, will not work.”*

It does need to be understood, though, that climate change is unlikely to operate in isolation to cause conflict: it is one of a whole host of factors that will interact to create insecurity – including issues of poverty, marginalisation, population growth and poor governance. Many of those other social, economic and political factors are well understood, and some of the necessary conflict prevention tools are already available – they just need to be funded and implemented properly.

While there are clear operational concerns, it must also be understood that if governments simply respond with traditional attempts to maintain the status quo and control insecurity they will ultimately fail. In today’s globalised world, using military force to secure resources overseas, while attempting to create a fortress state at home, will not work – despite the potential attraction of such policies for governments faced with such an uncertain future. In any case, as this report has shown, the security consequences of climate change will not just manifest themselves ‘over there’; there will be domestic security concerns for both developed and developing nations alike. Leadership within the police, security services and military will need to use their considerable influence to make this clear to policy-makers and impress upon them the importance of taking steps now to prevent and manage climate change, rather than relying on force to try and control the insecurity later.

In the long-term, the risks of climate change demand a rethink of current approaches to security and the development of cooperative and sustainable ways of achieving that security, with an emphasis on preventative rather than reactive strategies.<sup>31</sup> This will require global leadership and whole-of-government approaches, beyond that which are currently being attempted, and the inclusion of a wide range of non-governmental stakeholders from the environment, development and peace and security communities. While this may seem like a huge task, the seriousness of the threat means that it is wholly necessary, and must be started now.

*“The risks of climate change demand a rethink of approaches to security.”*



## Notes and References

- <sup>1</sup> Security Council 5663rd Meeting, *Security Council holds first ever debate on impact of climate change on peace, security, hearing over 50 speakers* (United Nations, 17 April 2007), <http://www.un.org/News/Press/docs/2007/sc9000.doc.htm>.
- <sup>2</sup> Intergovernmental Panel on Climate Change, [www.ipcc.ch](http://www.ipcc.ch).
- <sup>3</sup> *Climate Change 2007: The Physical Science Basis. Contribution of Working Group 1 to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC, 2007), p.13, [http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1\\_Print\\_SPM.pdf](http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1_Print_SPM.pdf).
- <sup>4</sup> *The IPCC sea level numbers* (RealClimate, March 2007), [http://www.realclimate.org/index.php/archives/2007/03/the-ipcc-sea-level-numbers/#bottom\\_line](http://www.realclimate.org/index.php/archives/2007/03/the-ipcc-sea-level-numbers/#bottom_line); and Eelco Rohling et al, "High Rates of Sea-level Rise During the last Interglacial Period", *Nature Geoscience*, Vol. 1, No. 1 (December 2007), pp.33-37, <http://www.nature.com/ngeo/journal/v1/n1/full/ngeo.2007.28.html>.
- <sup>5</sup> *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* (Arctic Council and the International Arctic Science Committee, November 2004), <http://www.acia.uaf.edu/pages/overview.html>.
- <sup>6</sup> IPCC, op. cit.
- <sup>7</sup> Nicolas Stern, *The Stern Review: The Economics of Climate Change* (HM Treasury, October 2006), [www.sternreview.org.uk](http://www.sternreview.org.uk).
- <sup>8</sup> *Our Seas: Why Climate Change Matters* (WWF, June 2007), [http://www.panda.org/about\\_wwf/what\\_we\\_do/marine/publications/index.cfm?uNewsID=107020](http://www.panda.org/about_wwf/what_we_do/marine/publications/index.cfm?uNewsID=107020).
- <sup>9</sup> *Intergovernmental Panel on Climate Change Fourth Assessment Report* (IPCC, November 2007), <http://www.ipcc.ch/ipccreports/ar4-syr.htm>.
- <sup>10</sup> Joint Doctrine and Concepts Centre, *Strategic Trends: Methodology, Key Findings and Shocks* (Ministry of Defence, 2003).
- <sup>11</sup> *Statistical Review of World Energy 2007* (BP, 2007), <http://www.bp.com/productlanding.do?categoryId=6848&contentId=7033471>.
- <sup>12</sup> Frank Barnaby and James Kemp (Eds.), *Secure Energy? Civil Nuclear Power, Security and Global Warming* (Oxford Research Group, March 2007); and Frank Barnaby and James Kemp, *Too Hot to Handle? The Future of Civil Nuclear Power* (Oxford Research Group, July 2007), [http://www.oxfordresearchgroup.org.uk/work/global\\_security/energy.php](http://www.oxfordresearchgroup.org.uk/work/global_security/energy.php).
- <sup>13</sup> *World Population Prospects: The 2006 Revision* (UN Department of Economic and Social Affairs, 2006), <http://www.un.org/esa/population/publications/wpp2006/wpp2006.htm>.
- <sup>14</sup> Norman Myers, "Environmental Refugees: A Growing Phenomenon of the 21st Century", *Philosophical Transactions: Biological Sciences*, Vol. 357, No. 1420 (April 2002), pp.609-613, <http://tinyurl.com/2jd5gc>.

- <sup>15</sup> *Human Tide: The Real Migration Crisis* (Christian Aid, May 2007), [http://www.christianaid.org.uk/stoppoverty/climatechange/resources/human\\_tide.aspx](http://www.christianaid.org.uk/stoppoverty/climatechange/resources/human_tide.aspx).
- <sup>16</sup> The MIPT Terrorism Knowledge Base currently lists nine violent groups with environmental ideologies, <http://www.tkb.org/Group.jsp?groupID=41>.
- <sup>17</sup> Section Chief James Jarboe, *The Threat of Eco-terrorism*, Testimony Before the House Resources Committee, Subcommittee on Forests and Forest Health (February 2002), <http://www.fbi.gov/congress/congress02/jarboe021202.htm> and Deputy Assistant Director John Lewis, Statement Before the Senate Committee on Environment and Public Works (May 2005), <http://www.fbi.gov/congress/congress05/lewis051805.htm>.
- <sup>18</sup> Julian Borger, "Scorched", *The Guardian* (28 April 2007), <http://www.guardian.co.uk/sudan/story/0,,2067637,00.html>.
- <sup>19</sup> Cleo Paskal, *How Climate Change is Pushing the Boundaries of Security and Foreign Policy* (Chatham House, June 2007), p.5, <http://tinyurl.com/2mmm6p>.
- <sup>20</sup> *Ibid.* p.6.
- <sup>21</sup> Ehsan Masood, "Africans and Climate Change", *OpenDemocracy* (7 February 2007), [http://www.opendemocracy.net/globalization/climate\\_africa\\_4328.jsp](http://www.opendemocracy.net/globalization/climate_africa_4328.jsp).
- <sup>22</sup> "Police Chief Fears Migrant Impact", *BBC News* (19 September 2007), <http://news.bbc.co.uk/1/hi/uk/7001768.stm>.
- <sup>23</sup> Commissioner Mick Keelty, *Inaugural Ray Whitrod Oration* (Adelaide, September 2007), <http://tinyurl.com/2mndhl>.
- <sup>24</sup> Development, Concepts and Doctrine Centre, *The DCDC Strategic Global Trends Programme, 2007-2036* (Ministry of Defence, December 2006), [www.dcdc-strategictrends.org.uk](http://www.dcdc-strategictrends.org.uk).
- <sup>25</sup> "Met Office climate change study could help identify future security threats", *Defence News* (11 September 2007), <http://tinyurl.com/3yrsqe>.
- <sup>26</sup> Peter Schwartz and Doug Randall, *An Abrupt Climate Change Scenario and its Implications for United States National Security* (Global Business Network, October 2003), <http://www.gbn.com/ArticleDisplayServlet.srv?aid=26231>.
- <sup>27</sup> *National Security and the Threat of Climate Change* (CNA Corporation, April 2007), p.6, <http://securityandclimate.cna.org>.
- <sup>28</sup> S. 1018: Global Climate Change Security Oversight Act, <http://www.govtrack.us/congress/bill.xpd?bill=s110-1018>.
- <sup>29</sup> Anthony Bergin and Jacob Townsend, *A Change in Climate for the Australian Defence Force* (Australian Strategic Policy Institute, July 2007), [http://www.aspi.org.au/publications/publication\\_details.aspx?ContentID=133&pubtype=10](http://www.aspi.org.au/publications/publication_details.aspx?ContentID=133&pubtype=10).

<sup>30</sup> See, for example, Dan Smith and Janani Vivekananda, *A Climate of Conflict: The Links Between Climate Change, Peace and War* (International Alert, November 2007), pp.18-19, <http://www.international-alert.org/publications/322.php>.

<sup>31</sup> Chris Abbott, Paul Rogers and John Sloboda, *Beyond Terror: The Truth About the Real Threats to Our World* (Random House, 2007), <http://www.oxfordresearchgroup.org.uk/publications/books/beyondterror.php>.

## Photo Credits

**Cover** | Copyright © Austrian Ministry of Defence, 2006.

**Page 4** | Copyright © Jim Watson/AFP/Getty Images, 2005.

**Page 5** | No copyright information available.

**Page 6** | Copyright © US Department of Defense, 2006.

**Page 7** | Copyright © New York Times, 2001.

**Page 9** | Copyright © Crown Copyright, 2005.

**Page 10** | Copyright © US Department of Defense, 2006.

**Page 11** | Copyright © Austrian Ministry of Defence, 2006.

## Further Reading

### **Beyond Terror: The Truth About the Real Threats to Our World**

Chris Abbott, Paul Rogers and John Sloboda (Random House, 2007)  
<http://www.randomhouse.co.uk/minisites/beyondterror>.

### **Security and Climate Change**

Jon Barnett (Tyndall Centre for Climate Change Research, October 2001)  
[http://www.tyndall.ac.uk/publications/working\\_papers/wp7.pdf](http://www.tyndall.ac.uk/publications/working_papers/wp7.pdf).

### **The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change**

Kurt M. Campbell et al. (CSIS and CNAS, November 2007)  
<http://www.cnas.org/climatechange>.

### **The DCDC Strategic Global Trends Programme, 2007-2036**

Development, Concepts and Doctrine Centre (Ministry of Defence, December 2006)  
<http://www.dcdc-strategictrends.org.uk>.

### **National Security and the Threat of Climate Change**

Military Advisory Board (CNA Corporation, April 2007)  
<http://securityandclimate.cna.org>.

### **How Climate Change is Pushing the Boundaries of Security and Foreign Policy**

Cleo Paskal (Chatham House, June 2007)  
<http://www.chathamhouse.org.uk/research/eedp/papers/view/-/id/499>.

### **An Abrupt Climate Change Scenario and its Implications for United States National Security**

Peter Schwartz and Doug Randall (Global Business Network, October 2003)  
<http://www.gbn.com/ArticleDisplayServlet.srv?aid=26231>.

### **Climate Change as a Security Risk**

Renate Schubert et al. (German Advisory Council on Global Change, January 2008)  
[http://www.wbgu.de/wbgu\\_jg2007\\_engl.html](http://www.wbgu.de/wbgu_jg2007_engl.html).

### **A Climate of Conflict: The Links Between Climate Change, Peace and War**

Dan Smith and Janani Vivekananda (International Alert, November 2007)  
<http://www.international-alert.org/publications/322.php>.

## **Also Available from Oxford Research Group**

### **Towards Sustainable Security: ORG International Security Report 2007**

Paul Rogers (Pluto Press, October 2007).

### **Conflict, Economic Closure and Human Security in Gaza**

Justin Alexander (October 2007).

### **Secure Energy: Are the Risks of New Nuclear Power too Great?**

James Kemp and Charlotte Smith (August 2007).

### **Too Hot to Handle? The Future of Civil Nuclear Power**

James Kemp and Frank Barnaby (July 2007).

### **A Standing Conference Table: A Process for Sustainable Peace in the Palestinian-Israeli Conflict**

Gabrielle Rifkind (July 2007).

### **Mission Accomplished? A Way Forward for the UK in Iraq**

Chris Abbott (June 2007).

### **Iran's Nuclear Programme and Regional Security**

Farhang Jahanpour (April 2007).

### **Beyond Terror: The Truth About the Real Threats to Our World**

Chris Abbott, Paul Rogers and John Sloboda (Random House, April 2007).

### **Secure Energy? Civil Nuclear Power, Security and Global Warming**

Frank Barnaby and James Kemp (March 2007).

### **Would Air Strikes Work? Understanding Iran's Nuclear Programme and the Possible Consequences of a Military Strike**

Frank Barnaby (March 2007).

### **Voices of Aggression: Exploring Israeli-Iranian Rhetoric**

Farhang Jahanpour (March 2007).

### **What Would Military Security Look Like Through a Human Security Lens?**

Wendy Conway Lamb et al. (January 2007).

For a full list of publications please see [www.oxfordresearchgroup.org.uk](http://www.oxfordresearchgroup.org.uk)



## **OxfordResearchGroup**

Oxford Research Group (ORG) is an independent non-governmental organisation which seeks to bring about positive change on issues of national and international security. Established in 1982, it is now considered to be one of the UK's leading global security think tanks. ORG is a registered charity and uses a combination of innovative publications, expert roundtables, residential consultations, and engagement with opinion-formers and government, to develop and promote sustainable global security strategies. In 2003, Oxford Research Group was awarded the Niwano Peace Prize, and in 2005 *The Independent* newspaper named ORG as one of the top twenty think tanks in the UK.

## **An Uncertain Future**

### **Law Enforcement, National Security and Climate Change**

Climate change will have serious environmental, socio-economic and security consequences for both developed and developing nations alike. This report explores these consequences and demonstrates that they will present new challenges to governments trying to maintain domestic stability. Those agencies tasked with protecting and sustaining national security will need to adapt to better cope with a changing global environment. However, if governments simply respond with traditional attempts to maintain the status quo and control insecurity they will ultimately fail. As this report shows, the risks of climate change demand a rethink of current approaches to security and the development of sustainable ways of achieving that security, with an emphasis on preventative rather than reactive strategies.

### **Oxford Research Group**

Development House  
56-64 Leonard Street  
London EC2A 4LT  
United Kingdom

**T** +44 (0)20 7549 0298

**F** +44 (0)20 7681 1668

**E** [org@oxfordresearchgroup.org.uk](mailto:org@oxfordresearchgroup.org.uk)

**[www.oxfordresearchgroup.org.uk](http://www.oxfordresearchgroup.org.uk)**

Registered Charity No. 299436