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Foreword

It is my pleasure to contribute a foreword to this volume of the Hexagon Book Series, which has arguably become one of the most important resources on climate change, human security and violent conflict.

Over the years, the issue of human security has tended to be conceptualized in terms of external security of protection against physical violence, death and bodily harm, physical attack, or physical incapacity. Thus, providing for human security tended to go hand in hand with providing for state and/or government security by strengthening the military and paramilitary arsenal of the state.

Human security, as it affects people, has a lot more to do with the totality of the welfare and well-being of the citizens than military or police protection which is more the protection and security of the state or the government. While that must not be ignored to ensure the integrity of the state, the human security aspect of the citizens, which buoys up internal state security and government stability, is essential. A citizen without adequate education and skills is basically handicapped in the ability to provide adequately for self, family, community and nation. Consequently, the human security of such a citizen as an effective contributor to the internal peace, progress and cohesion of the community and society becomes impaired.

A citizen debilitated with malaria, chronic disease, or avoidable epidemic is equally human security deficient and he, his family and society suffer the same consequences as the uneducated, ill-educated and unskilled.

A child who is malnourished, poorly developed and stunted in growth - physical and mental development - as a result of inadequate provision of balanced food and nutrition and inadequate healthcare as he grows, will suffer human security deficit throughout his entire life and, rather than being an asset to himself, his community and society, may become a liability.

But, more importantly and more threatening today is the danger posed by unemployed youth who are in three categories. The first group are those with little or no education or skills who have dropped out of school or are prevented by lack of finance from continuing their education. They are mainly street boys who sleep in makeshift places, eking out a living from crimes and nonconformity. I call them ‘area boys’. The second group are those who have basic education, some up to secondary and early tertiary levels, and have access to the Internet. They eke out their living from scams using the Internet and other ICT facilities. They are mostly otherwise unemployed. These I call ‘yahoo boys’. The last group of unemployed youth are what I call ‘blackberry boys’. They have good education and are mostly equipped with good skills but they are unemployed. They even have access to smartphones and such devices as Blackberry and iPad.
The greatest danger I see for Africa including my own country of Nigeria is the coming together of these groups of unemployed youth as a result of their unfulfilled and unsatisfied human security, and this has both a direct and indirect bearing on their fundamental human rights. The rise and coming together of such unemployed youth in Africa would be worse in consequence than the so-called ‘Arab Spring’.

But it can be prevented. Indeed, it should be prevented. If the human security aspect, in terms of employment for young men and women in Africa is given local, national, regional and global attention, the danger would be averted. Violence and conflict spearheaded by African youth in Africa will have adverse ramifications globally.

If our modest experience in medium-sized but thriving agribusiness, offering direct and indirect employment for thousands of youth in Nigeria and a few African countries, is a basis for affirmation, I believe that agribusiness will largely fit the bill by providing a full, correct and adequate solution to the issue of human security as far as employment is concerned in Africa, particularly for the youth. But what is the future of agribusiness in the context of climate change?

Oke-Mosan, Abeokuta, Ogun State, Nigeria, July 2011

Olusegun Obasanjo
Former President of Nigeria (1999-2007)
Founder of the Centre for Human Security
Foreword

The consequences of climate change for human security need greater attention from policymakers and the scientific research community. What we are seeing is that, as well as posing a threat in its own right, climate change is multiplying other threats and exacerbating existing tensions and instability.

The dire situation in the Horn of Africa over recent months is a vivid and tragic illustration of these consequences for human security. Because of climate change, droughts in the region are getting worse and more frequent. Now the most serious drought in decades threatens millions of children and adults with starvation and is leading to mass migration. This disaster has been aggravated by the conflict in Somalia, high food prices, population growth, and deadly competition over resources.

Reduction of arable land, widespread shortage of water, diminishing food and fish stocks, increased flooding, and prolonged droughts are already happening in many parts of the world. In 2010 the UN’s Office for the Coordination of Humanitarian Affairs (OCHA) has calculated that drought affected more than one hundred million people, and more than 38 million others were forcibly displaced by climate-related events, mainly floods and storms.

All this is happening with global warming of around 0.8°C above pre-industrial levels. As temperatures continue to climb, the human and economic impacts of climate change will become more severe still.

The international community has recognized the scientific case for keeping the global temperature rise below 2°C; there is much evidence that an increase beyond that level would greatly heighten the risk of irreversible and potentially catastrophic global changes. But the reductions in greenhouse gas emissions pledged by developed and developing countries so far are, collectively, not enough to keep us below the 2°C ceiling.

Without more ambitious commitments the world is headed for warming of 3°C or even more, and that will pose serious security risks. It will fuel existing conflicts over limited resources and land, and worsen tension over energy supplies. Rising sea levels threaten coastal regions which are home to about one in five of the world’s population. Some small island states even risk disappearing completely. In a worst-case scenario major environmental changes, for example the release of huge volumes of methane gas as the Arctic tundra melts, could cause runaway climate change that would become impossible to control.

The consequences of climate change for human security are rightly receiving increasing attention from the world’s governments. In July 2011, the UN Security Council debated climate change and its security implications for the second time, at the initiative of Germany and the European Union. This work on security must proceed in tandem with actions both to reduce the emissions that are at the root of the problem and to adapt to the impacts of climate change that are already unavoidable.
Further scientific research and analysis of climate change and its security implications is crucial for underpinning the comprehensive global agreement on climate change that the world badly needs. Publications such as this one which highlight the links between climate change, human security and violent conflict, make an important contribution to this process.

Brussels, November 2011  
Connie Hedegaard  
European Commissioner for  
Climate Action  
European Commission, European Union
Foreword

The title of this book, “Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability” points to an emerging reality that must be taken very seriously: climate change as a potential driver of violent conflict and forced migration. The book looks very concretely at which groups of people in which parts of the world are already being affected by the steady rise in the number and severity of extreme weather events. And it looks at what this means for peoples’ livelihoods, what the security-related implications are, and what the policy responses need to be. Policymakers across the government spectrum would do well to study these examples as a matter of urgency.

The academic world is clearly coming to grips with the new realities that climate change is bringing, but it is not alone. Military establishments around the globe are also starting to assess the impacts of climate change. Security chiefs have a keen eye for looming threats and have begun adjusting their strategies, priorities, and budgets to factor in climate change impacts. But while the military establishments of the globe can and must plan ahead, they and their governments also need to exert their political and societal influence to make their populations more aware of the consequences of climate change and how best to deal with them.

Clearly, the only way to create a world which is more resilient to this challenge lies in drastically reducing the greenhouse gas emissions which drive climate change and providing populations, particularly the poor and vulnerable, with the assistance they need to adapt to climate change. This in turn requires urgent investment in environmentally sound technologies, especially renewable energies, as well as increased efforts to adapt economies and societies to the inevitable impacts which are already on the way. And it requires developing the right, coordinated policies at the regional, national, and international levels.

At the end of 2010, in Cancun, Mexico, the international community provided a renewed foundation for more ambitious action by adopting the Cancun Agreements on climate change. Governments agreed on a comprehensive set of new climate institutions, including an international committee to coordinate work on adaptation, a technology mechanism to promote environmentally sound technologies, and a new fund to channel the billions of dollars developing countries require to respond to climate change in a sustainable way. Governments also sent the clearest signal yet that they are moving collectively towards a global, low-carbon society by agreeing to prevent average global temperatures from rising more than two degrees Celsius and pledging to review the adequacy of this goal against actual progress in the near future.

This international response to the challenge of rising greenhouse gas concentrations in the atmosphere was the most significant yet, but it still falls short of ambition. The sum of national emission reduction pledges so far made by the international community amounts to only 60% of what science says is required to have the best chance of limiting the global temperature to the agreed two degrees.
In order to rise to the challenge, governments must undertake much steeper cuts in their greenhouse emissions, with industrialised countries taking the lead to bridge that gap. This year, at the UN Climate Change Conference in Durban, the world needs to push forward with the further development of a global framework to limit and reduce greenhouse gas emissions in line with the known scientific milestones. At the same time, the institutions agreed in Cancun must be speedily completed, so that they can begin concrete work to stimulate the financial, technology, and adaptation support which developing countries urgently need.

It is in the best interests of all parts of society to press for swift action, including the military establishments whose core responsibility it is to protect their populations from major threats. In climate change, tackling the root cause of the problem by reducing greenhouse gas emissions directly lives up to that responsibility in an altogether peaceful way that may yet secure us all a peaceful future.

Finally, I would like to express my gratitude towards the authors of this book for providing valuable academic inputs to the design of policies which can help societies adapt to climate change and take the necessary steps to reduce emissions. And I would like to express my thanks to them for raising awareness of the explosive linkages between climate change, human security and violent conflict.

Bonn, in August 2011

Christiana Figueres
Executive Secretary,
United Nations Framework
Convention on Climate Change
Foreword

I am pleased to write the foreword for this very useful volume on Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability. The importance of this book lies in the fact that while the physical sciences have seen a mushrooming of literature related to climate change and its implications, we have not seen a similar scale of effort in the field of the social sciences related to climate change. The contents of this volume are particularly relevant to a range of policy initiatives. For instance, by exploring the linkages between climate change, human security, social stability and violent conflict the authors have been able to shed considerable light on those issues which arising out of climate change could cause serious disruption in the social order. Similarly, in dealing with the issue of migration in relation to climate change the authors have analysed an area of human activity in which there is likely to be a substantial increase in numbers of people who could move as a result of climate change and the serious problem that this could cause in case the world is to face unmitigated climate change in the future. Of particular interest and significance is the subject of climate change and security in the Middle East. This is a region which has hardly received interest in the context of climate change in the past even though problems of water stress, increase in summer temperatures and security dimensions related to the export of oil are all issues that need enhanced analysis and attention.

Overall, this book should stimulate considerable debate on the social, geopolitical and strategic implications of climate change and through its contents perhaps a major contribution will be made to initiating a dialogue round the world on these critical issues. I am sure the average reader would feel greatly interested in the issues covered in this volume.

New Delhi, in July 2011

R. K. Pachauri
Director General, The Energy and Resources Institute (TERI)
Chairman, Intergovernmental Panel on Climate Change (IPCC)
Peace Nobel Laureate, 2007
18.1 Introduction

This chapter argues that the process of securitization is already underway because of well funded and well founded concerns about internal state security and international terrorism. Security responses to climate induced migration are unlikely to be legitimated as climate security measures. They may be rather found under arcane programmes and conferences on protecting critical state infrastructure. The central thesis of this chapter is that a new arsenal of technologies of political control evolved in the last century. These weapons together with new military doctrines, will result in their active deployment against civilians in new public order roles, including negative human responses to climate change.

A central tenet of this chapter is that unless the environmental research community pays more attention to the broader security architecture, it will miss the flexible state security designs which will shape many policy options in this debate too. Whilst past Inter-governmental Panel on Climate Change (IPCC) meetings have provided some of the best scientific data available on the complex systems dynamics of the impact of carbon emissions on weather systems, that has proved insufficient. If eventually temperature rises of 4°C or beyond are to be anticipated then most states will be aware what that might mean in terms of negative future economic growth and the associated security implications.

This chapter explores the risk that enhanced border control and crowd control initiatives, together with the massive funding for future security technology innovations provided in the wake of 9/11, is going to be rapidly redeployed. Any such re-orientation of this security control capacity towards technically fixing the ‘problem’ of climate induced migration, requires no new legislation. Anyone leaving their borders because of climate change induced weather turbulence, failure of food, water, energy and health systems or associated conflicts has no special legal status – except as a potentially illegal migrant (see chap. 17 by Oswald Spring; chap. 15 by Biermann/Boas; chap 16 by Jakobit/Methmann in this vol.). All Western states now have well lubricated systems of preventing illegal migration, especially since many of those would-be migrants into Western Europe for example, will be non-Christian. In the current xenophobic climate, all Muslims are potentially subject to enhanced profiling associated with state security prejudice and paranoia linking that religion with a potential security risk status.

Whilst the scientific communities understand the need for sustainable solutions, recent economic, political and military crises indicate how far humankind is from achieving such governance. Poverty, water, food and fuel scarcity are part of a system of global ‘structural violence’ (Pilisuk 2008). Very poor people will bear the brunt of the consequences of climate change and they may rightly accuse their political leadership of corruption and being unmoved by the peoples fate and suffering. The convergence of such perceptions can provoke a security crisis that will despatch thousands or even hundreds of thousands of people on to the streets, as in Egypt in January 2011. Any climate induced conflicts of the future are unlikely to be pure types but consist of a complex mixed amalgam of causes and consequences (chap. 2 by Bulhau; Theisen; chap. 3 by Nardulli/Leetaru; chap. 4 by Smith/ Vivekananda; chap. 5 by Scheffran/Link/Schilling).

However, the major thesis of this chapter is that state responses to such turmoil will converge initially around broadly similar public order policing options and weapons. If and when these fail, states may be

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1 In January 2011 in the North of England, Northern Defence Industries (NDI) was organizing a conference for March 2011 covering “Future Threat – Protecting Critical National Infrastructure”.

quickly tempted to field more lethal options associated with the deployment of military force. The political control technologies discussed below have not been designed to deal specifically with either climate change induced migration or for that matter, terrorism. Politically, these are flexible response weapons often used to maintain authoritarian regimes in power against the legitimate wrath of their populations (Rappert/Wright 2000). Their key rationale is to avoid giving the impression that the authorities are using excessive force but this can quickly backfire. The point of this chapter is that this would characterize refugee movements as well, many of whom would be Muslims heading North to non-Muslim countries who have perhaps xenophobic security agendas.

How probable is this? Well what must be said is that there is no intellectual consensus on the extent to which climate change will induce migration and conflicts. Many however, including senior UN staff, identify certain conflicts like that in Darfur with climate change, because it pits farmers against pastoralists (Nordas/Gleditsch 2007). On migration, the IPCC has changed its earlier 1990 position. Raleigh, Jordan and Salehyan (2008) challenge the notion of mass migration induced by climate change, arguing most displacement so far has been internal following traditional behaviour associated with areas subjected to repetitive natural disasters. They note that people’s responses are complex and mediated by perceived vulnerability and overall levels of resilience. Such conclusions are rooted in past experiences, however. Part of the uncertainty surrounding the projected social effects of climate change, is adequately modelling catastrophic change where significant percentages of a country or region’s population are affected for prolonged periods of time, without any hope of external aid or intervention. Others have argued that the end of this century a quarter of Bangladesh will be inundated displacing over 15 million people – the equivalent of LA, New York and Chicago. What we can be sure of is that any major dislocation will bring unpredictable security issues, not just at borders, but on the streets, at food, fuel, and water distribution points; road rail and transport nodes. The accountability of the procedures made in the planning of such eventualities then becomes crucial.

If we simply allow the drift towards a militarization of future climate change response with all the social and political reductionism that entails, we will lose the opportunity to try to collectively manage the social and political consequences, as if people mattered. This chapter identifies the so called ‘revolution in military affairs’ and the need to fight asymmetrical wars with mixed populations of civilians and combatants, as a breeding ground for the weapons and systems which will face and forestall future climate induced migration. The discussion is focussed on weapons designed to be less than lethal since they will mask the level of violence actually being deployed and therefore generate less public outrage than simply deploying troops with rifles. But military supplied lethal force is always a state option if the police fail to restore order using legal means. Many of the technologies named in the discussion below, are already beyond prototype or actually being sold now on the international arms and security markets. The climate change debate has largely neglected these specific security dimensions which are traditionally associated with other agendas.

Figure 18.1: Advertising Modern Riot Control. Asia Pacific Police Expo Beijing (2008). Source: Photo taken by the author.

The danger is that as the economic and environmental crises deepen, journalists will simply be fed glossy images of hi-tech ‘humane’ control systems for pro-

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ecting critical state infrastructure like borders, ports, transport nodes and various buffer zones between other countries, where human displacement has been a problem in the past. Most will miss the reality of advanced political control systems being fielded in preparation. This prospect is likely to increase if the ongoing bureaucratic capture of EU security policy by the manufacturers of such technologies continues unchecked (Hayes 2009). This chapter attempts to cover some of these developments and their contexts and justifications as well as the under explored ethical areas. Whilst the inherent difficulties in predicting with any precision how climate change will impact on future population movements, need to be acknowledged but changes in military ideologies and technologies for controlling crowds can and should be audited and legally assessed. This is not to say that such systems will inevitably be deployed in a technologically deterministic fashion. What is clear, is that not all policing is necessarily a universal social good. The military, industrial, police, university, security complex can make significant short term profit from climate induced conflict, which may unduly sway future options and choices. This chapter highlights some of these complicating, moral, legal and ethical factors. It concludes with some suggestions and mechanisms for calling such security decision making to democratic account, including the potential role of ‘research activism’.

18.2 The Revolution in Sub-Lethal Military Affairs

Modern weapons have become more powerful, more precise and even more intelligent in seeking and destroying their targets. In certain areas, technological innovations have also started to erode traditional notions of what is permissible. Theories and ideas of what is fair, just and proportionate use of violence have diverged in the new rules of asymmetric warfare that have emerged in the terrorist attacks on New York of 9/11. Of course this works on all sides. The US has no competitor and to attempt to match it militarily on its own terms would be to use the words of one Chinese officer, “like throwing eggs at a rock” (Sorabji/Rodin 2006). Accompanying this trend has been a Hollywood inspired sanitization of weapons technology and its effects - some of which impose avoidable risks on enemy non-combatants. Public Relations spin has crept in. We now have manufacturers claiming their weapons are safer or more environmentally friendly. For example, BAe Systems (BAe), is now promoting its ‘green’ lead-reduced bullets, its ‘reduced smoke’ grenades and rockets with fewer toxins.4

A defining characteristic of these moves is that they appear to have no legal validity. Nuclear weapons have been judged illegal but continue to be presented as the ultimate non-lethal weapon since they are deemed to deter but no longer have a believable target. They are just too disproportionate, too indiscriminate.5 One of the problems is that advances in technology defy our imagination as a single H Bomb can have the equivalent explosive power to all the explosive devices exploded in all wars, by all sides, since gunpowder was invented. Who can imagine that? Conversely, can a world be imagined where the targets of deadly cluster bombs can be challenged because they were not used ethically? For example, the ancient US cluster bombs supplied to Israel for the recent conflict in Lebanon were over thirty years old and well past their ‘bomb by date’.

Can the ethics of war ever be tested unless there is a legal framework against which countries, commanders, combatants and corporates can be brought to account? Humankind used to think so but in a post 9/11 world that situation has become a little more elastic. However, as will be argued below, NGO’s such as the Academie de Droit International Humanitaire (ADH) in Geneva, have recently revisited such searching questions (Casey-Maslow 2010). Firmly fitting the deployment of each variety of weapons technology into specific treaty obligations may offer a powerful legal counterweight to any panic driven response when responding to any future mass migration. But a short history of this technology may help to clarify some of the key challenges.

A wide variety of sub-lethal capabilities have now evolved, thanks both to innovation from defence companies and solicitations from government, military, police and homeland security departments. The agencies using these tools want more, since in present day contexts, they appear to offer a growing set of utilities especially in mixed civilian/combatant contexts. And yet a wide range of informed media, public interest agencies and NGO’s like Amnesty International, remain implacably opposed.

One fear is that any future time of climate change will involve not only extensive migration, but rapidly

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4 See for details at: <http://www.timesonline.co.uk/article/0,,2087-2165516,00.html>.
5 For a discussion see papers at recent ISODARCO conferences; at: <http://www.isodarco.it/> (31 January 2011).
increased social tensions leading to insurrection and outright insurgency as the full implications of state security programmes sink in. This chapter focuses on the intersection between new technologies, human rights abuse and the rules designed to protect civilians from all military and security force violations. This focus is frequently presented as an ethical choice in itself - a magical silver bullet, a tool from a movie, like a star trek phaser, a weapon which stuns but does not kill. Anyone fleeing future climate change and associated civil unrest may be easily redefined as targets, if they threaten border security on mass. But how could they not?

Sub-lethal weapons are easier to fire since they work on the notion of pain compliance. However, if those targeted fight back, standard military operating procedures can easily kick in justifying a lethal response, or in plain English, a massacre. And yet these developments are not originally malign in intent. A modern challenge is how the human costs of war can be reduced? Much of what has been written about modern challenge is how the human costs of war can be reduced? Much of what has been written about modern challenge is how the human costs of war can be reduced? Much of what has been written about modern challenge is how the human costs of war can be reduced?

18.2.1 Evolution of Technology in Search of a New Mission: Applications, Justifications and Markets

Sub-lethal weapons started off as essentially police technologies for crowd control which had been modified from colonial policing weapons used for riot operations by military forces engaged in peacekeeping operations. The first major critique appeared in the mid 1970s by members of the British Society for Social Responsibility in Science (BSSRS) who defined the weapons as a technology of political control since it was capable of being modified to yield greater pain and damage to upgrade the power of state security forces as the political situation deteriorated (Ackroyd/Margolis/Shallice et al. 1977).

The dynamics of deploying these weapons were further explored by the Council for Science and Society who in 1978 said that the risks included both proliferation, decision drift and technological creep (Council for Science and Society (CSS) 1978; Barry Rose Publishers). These notions were taken further by Wright (1998) who examined some of the political dangers of these weapons as technical fixes with a capacity to destabilize conflicts (Wright 2006), by Amnesty International (1997, 2003) who mapped their negative impacts on human rights and by Rappert (2003), who examined their role as legitimating forces.

There is actually quite a wide variety of sub-lethal weapons now available on the market. Whilst it is difficult to generalise, their essential function is a force multiplier enabling fewer officers to control significantly larger numbers of people than they could by matching numbers alone. Whilst presented as a substitute for lethal force this is rarely the case. They usually augment it and often in situations where the use of lethal force would be illegal. In countries where citizens can bear arms such as the US, or in hostage situations, these weapons can play a significant role in ending a conflict which would otherwise end in fatalities. However, when used against large crowds, the technology can yield an advanced form of repression which can break the firewall between sub-lethal and lethal force. Not all policing is a social good, and when the security forces are so minded, these weapons can become instruments of compliance to usher unwilling crowds into harms way including coercive levels of street punishment, torture, cruel and inhuman treatment and extra-judicial execution. These dangers are enhanced when new military ideologies emerge for deploying so called ‘rheostatic’ weapons or so called ‘tunable lethality’, especially when there is a lack of clear democratic accountability. The situation changed in the early 1990s when futurologists Alvin and Heidi Toffler cooperated with Col. John Alexander, who has special forces’ expertise from the Vietnam era and science fiction writers Janet and Chris Morris. These people set about moving the debate on from sub-lethal technologies for police use to a new era of warfare, bloodless warfare where military forces shoot, but not to kill.

So called non-lethal weapons went from tactical to strategic weapons once this group had persuaded the US Department of Defense (DoD) about their military
utility (Toffler/Toffler 1993). The result was a national US initiative led by the Marine Corps at Quantico and their Joint Non-Lethal Weapons Directorate (JNLWD).8

18.2.2 Securitization of Climate Change Impacts

In discussing ‘non-lethal’ weapons and the ethics of policing the tensions arising from future climate change induced conflicts, there is the risk of conflating and confusing several different areas of the use of force, namely in law enforcement, peacekeeping, military operations other than war, combat and counter-insurgency operations. These difficulties are further compounded by the fact that the police and the military are beginning to acquire similar sub-lethal weapons - but quite often their rules of engagement are subject to different legal criteria. For example, the use of chemical irritants is permissible in domestic riot control operations but the Chemical Weapons Convention outlaws such weapons for use in war.

The US so called ‘War against Terror’ has further muddied the water since the grey areas between peace enforcement, war and counter-revolutionary operations has been combined with questioning of just how applicable are the old conventions to ‘new wars.’ In the discussion which follows, an effort is made to clarify some of the various legal and ethical norms which govern the use of these technologies; the variety of equipment on the market; the ways in which some of these weapons are used and abused; together with measures which have and can be taken to control their vertical and horizontal proliferation. The budgets here are so huge for the war in Iraq and Afghanistan (The US Congress authorized US$70 billion with at total cost of $49 billions after 2007 appropriations - roughly $230,000 per minute9) new testing grounds for alternative weaponry inevitably emerge. Paul Rogers (2002) has called this drift towards technically fixing the crisis in global security in the 21st Century as “liddism,” i.e. attempting to keep the lid on a political pressure cooker via “technical fixes”, thus fixing symptoms rather than causes and this inevitably means eventually losing control.

In many senses, the US has already evolved the required forms of border surveillance it requires to police its territory and bases on land sea and air. Initially, this was via its need to police illegal immigration along its border with Mexico, and the favoured solution was unmanned aerial drones. Then armed Predator drones were deployed on military combat missions in Iraq, Afghanistan and Pakistan. Since September 2009, in a telling example of technological drift, a decision was made to deploy these Predator Drones along the full length of the Mexican Border.11 NGO’s alarmed by these developments of an armed reductionist approach to illegal migration, see a new spectre on the horizon: that of fully autonomous armed algorithmic robots who as individuals or pre-programmed gangs can decide whom to kill and whom to spare, autonomously.12

In the meantime, the US military have gradually woken up to their coming role in climate change and entering into debate with think-tanks.13 In August 2008 National Defense Industrial Association (NDIA’s) magazine National Defence had a front cover on “Climate Wars – Violence, chaos fueled by global warming” and asked “Is the Military ready?” It’s leader concluded that climate change, national security and energy dependence are a related set of global challenges. Unfortunately what this could mean in practice, is that military forces are deployed to fix the symptoms to provide the politicians with a breathing space to find solutions to the causes, at a future time which never arrives.

A similar process is evolving in Europe, especially in the case of the UK, which enjoys several related security information sharing agreements with the USA. Several of the borders into Europe such as Turkey and Greece as well as Spain and Morocco are infested by anti-personnel landmines and already refugees from Africa are attempting to gain entry via the Canary Islands. The process of negotiating new commercial border exclusion contracts with buffer states to Europe has already begun, a notable case in point being Libya where <www.defencenews.com reported> in

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8 See the Joint Non-Lethal Weapons Programme Website at: <https://www.jlwp.com>.
11 See at: <http://www.google.com/hostednews/afp/article/ALeqMj662Zb7VFqR3TUnsAGAvB6YHkGo0w> (31 January 2011).
12 ICRC, see at: <http://www.icrc.co.cc/> (31 January 2011).
October 2010 that Libya has signed a €300 million (US$441.3 million) contract with Italy’s Finmeccanica for a border control and security system. According to the report, “the deal between Finmeccanica unit Selex Sistemi Integrati and the Libyan General People’s Committee for General Security, is split into tranches, with the first €100 million tranche of work already under way. Meanwhile, Statewatch reported that the Greek Government plans to build a 206 km long wall with its Turkish neighbour to keep out unwanted migrants based on the US and Mexico model.14

Inside the EU, new surveillance projects like INDECT are being proposed by commercial companies seeking to redefine the security agenda.15 At the border, a new €20 million Talos project is seen as the solution. Talos will develop and field test “a mobile, modular, scalable, autonomous and adaptive system for protecting European borders” using “aerial and ground unmanned vehicles, supervised by a command and control centre”. According to the project brief, specially adapted combat robots “will undertake the proper measures to stop the illegal action almost autonomously with supervision of border guard officers”.

It has to be questioned where such scenarios are coming from. Ben Hayes (2009) from Statewatch pointed to the EUROSUR programme, which is an EU wide border surveillance system. Working Group 3 of the European Commission (EC) is led by Frontex, together with Finmeccanica, which is setting up the Libyan fence, and from 2007 it has worked with another EU defence ‘prime’, Thales, on maritime management. Hayes lists a plethora of security research projects under EUROSUR including STABOSEC (Standards for Border Security Enhancement); OPERMAR (strategic research roadmap); SOCBAH (Thales, Galileo, Finmeccanica unmanned aerial surveillance project for border control) and EFFISEC (a €16 million integrated security checkpoints project). Hayes’ (2009) report NeoConOpticon analyses the way that this package is being configured with the support of satellite surveillance for border control via the European Space Agency Martitime Security Services Project (MARISS), providing monitoring capabilities for non-co-operative vessels. This has already begun and in November 2010 Statewatch noted that Frontex, the European Agency that is “fighting undocumented migration” was soliciting for surveillance drones.16

In this world of state-centred EU sponsored security research, it is impossible to expect labels to accurately describe future actual deployment scenarios. For example, in Germany, the €3 million Air Shield project is ostensibly about researching and developing “drone swarm applications for ‘airborne remote sensing for hazard inspection’”. However, Statewatch revealed that project partner Microdrone has developed a so-called Quadrocopter in conjunction with Diel BGT Defence and they have been used to monitor anti-nuclear protests in Saxonia and Lower Saxony (Topfer 2010). It is not such a big leap towards remote viewing of migration patterns towards fortified borders.

According to Statewatch, within Europe, a new system of red zones and green zones are emerging “behind integrated land, air, maritime, space and cyber surveillance systems”. Crisis management missions are emerging “which make no operational distinction between the suburbs of Basra or the Banlieue; and the increasing integration of defence and national security functions at home and abroad” (Hayes 2009). What is more worrying is Statewatch’s conclusion that because of processes of bureaucratic capture, it is now the EU security industrial complex, financed with large grants from the European Commission, that is setting the agenda of future EU border control and management processes, rather than politicians.

18.3 Future Area Denial Weapons and Systems

There is now a considerable arsenal of sub-lethal weapons covering a wide variety of technological devices and deployment mechanisms. These include conventional riot weapons including water cannon; kinetic energy rounds such as rubber and plastic bullets; tear gases including CN, CS, CR, OC & PAVA; malodorous substances including skunk rounds; narcotic guns based on animal incapacitation or anaesthetics such as fentanyl; electric shock weapons including stun batons, tasers and electric riot shields with induced lightening flowing down their surfaces.

More recently this arsenal has begun to change and now incorporates sub-lethal area denial munitions such as alternative land mines including taser mines,
rubber ball filled claymore mines, sphinx systems, metal-storm satellite guided virtual mine fields that target anyone crossing specified locations as observed from space; kill and stun electric fencing, robotic self deciding vehicles, drone mounted gas dispersal devices; electrified capture nets and so on.18

A third generation of technology is on the horizon which deliberately targets human pain receptors in either skin or brain. Some of this weaponry sound like science fiction but is already beyond prototype stage.19 It includes directed energy weapons including ultra violet lasers, which can ionise air so that it can carry an electric shock over several hundred metres (currently being fielded by US company Ionatron); Vortex Ring sound projection systems built by the Fraunhofer Institut Chemische Technologie; High powered microwave systems for paralysing humans and vehicles such as the Active Denial, Vigilant Eagle and Silent Guardian systems being developed by US missile manufacturer Raytheon20, Pulsed Energy Projectiles (based on a previously tunable kill laser); lightening projection weapons (being researched by German company Rheinmetall W&M).21 This state of the art is rapidly changing (Lewer, 2002; Davison 2009).

Other areas where new sub-lethal weapons are being spawned are in the military quest for sub-lethal

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18 For a summary see Wright (1998); and more recently: Allison, Graham and Kelley (2004); Davidson (2009); at: <http://www.cfr.org/pdf/Nonlethal_TF.pdf>.


20 See for example at: <http://technology.guardian.co.uk/week/story/0,1887156,00.html>.

21 For a commentary on new systems see: JNLWP newsletter; at: <https://www.jnlwp.com/publications.asp>.
chemicals and biological and genomic weapons to facilitate incapacitation, interrogation compliance and public order submission (Pearson/Chevrier/Wheelis 2007). Following the disastrous loss of life during the Moscow Theatre siege in 2002 when the Russian authorities used fentanyl based derivatives without proper levels of appropriate antidotes being on hand, work has continued for chemicals which facilitate mass paralysis. Schreiberová (2005) for example, working in a hospital in Prague has undertaken research on immobilizing agents mixed with their antidotes on both Macaque monkeys and children, which would never be countenanced by medical ethics committees elsewhere.

Indeed, the British Medical Association (BMA), concluded in a recent report: ‘In a tactical situation, it is not feasible to deliver the right agent in the right dose to the right individuals in a manner that is both effective and without significant lethality.’ It goes on to warn that the “use of drugs as weapons presents healthcare professionals with a unique set of ethical considerations. Using medicines and medical knowledge for purposes such as harming or incapacitating people in combat situations has significant implications for the ethics and status of medicine and how doctors are perceived by the societies in which they work.” (BMA 2007).

This is a highly sensitive area where denials operate as a routine matter of official secrecy but the very dubious ethics which govern this work include obviating existing treaties, targeting civilians and combatants with the same weapons despite the likely hood of fatalities, generating weapons beyond the pale which select effects based on racial genotypes.  

All new weapons technologies require resources, organizational co-operation and expensive research and development. In the US, funds have been made available by the DoD through the Joint Non-lethal Weapons Directorate (JNLWD), which solicits for programmes with the larger multinational primes such as BAe Systems, Thales, Raytheon and Lockheed Martin, diversifying into robotics and related border control systems (Hayes 2009). It might be thought that there would be fierce competition for new markets between Europe and America, yet both have distinctive historical markets and information is actually shared via informal gatherings at conferences such as NLW at Ettlingen, 24 or in the case of the UK, more formally via information sharing agreements.

This chapter argues that many of these developments, far from enabling a more humane form of ethical warfare, will lead to their obviation. What follows is a discussion of the claimed role of such weapons as ethical weapons, followed by a set of examples to illustrate how these weapons are used to abuse prisoners, crowds and combatants. To understand the manner in which this technology may or will be deployed against those responding to the negative impacts of climate change, it is necessary to examine and understand how they are currently used or abused.

### 18.4 Ethical Weapons?

The official definition, coined by the US Department of Defense, defines ‘non-lethal’ weapons as:

> Weapons that are explicitly designed and primarily employed so as to incapacitate personnel or materiel, while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment. Unlike conventional lethal weapons that destroy their targets principally through blast, penetration and fragmentation, non-lethal weapons employ means other than gross physical destruction to prevent the target from functioning. Non-lethal weapons are intended to have one, or both, of the following characteristics: a. they have relatively reversible effects on personnel or materiel, b. they affect objects differently within their area of influence.  

Whilst many of the technologies being touted for current and future crowd and area control duties are promoted on their alleged non-lethality, they are almost always backed up by more lethal weapons technology. Critics, such as (Wright 2002) and in the case of incapacitating chemical weapons (Loye 2010), have questioned this definition arguing that many of these weapons are actually capable of maiming or capable of being used to upgrade lethality and that the label is

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23 For details see the JNLWD website; at: <https://www.jnlwp.usmc.mil/> (7 February 2011).

24 See at: <https://www.non-lethal-weapons.com/ettlingen.html>.

but a mask to make weapons appear rather to be safe. Examples of these weapons being used either improperly or beyond the limits set by their rules of engagement are provided in section 18.5 below. Are these sub-lethal, less than lethal or even pre-lethal weapons systems? Within these elastic limits the ethics of the laws of war can also become flexible.

Harmlessness is actually a much more difficult state to achieve in any weapon, depending on a complex interaction of a number of factors including:

1. An adequate technical evaluation of the characteristics of the weapons, such as muzzle velocity, concentration of a chemical irritant, pulse dynamics of an incapacitating electroshock, heating effects of direct energy waves, accuracy, impacts on human health (both short, medium and long term).
2. Whether the assertions of non-lethality are based on absolute adherence to rules of engagement re distance to the target, avoidance of vulnerable spots etc.
3. Has the weapons system been sufficiently well designed to avoid abuse?
4. Were there sufficiently adequate quality control specifications to ensure that the weapon actually delivers technical effects as specified?
5. If a weapon is capable of delivering sub-lethal effects, are these permanently debilitating, maiming or yielding long term disablement, disease or mental impairment?
6. Are the security forces responsible for deploying the technology democratically accountable or do they have a track record of torture, grave human rights abuses and extra-judicial killings?
7. If the weapon is used in an unethical way, is there a credible legal route for seeking redress which works? (Wright 2007: 82).

The answers to these questions will determine how harmful a particular weapon system actually is. But the processes of technological, mission and decision creep should also be taken into consideration. What starts out as a relatively mundane system can gradually undergo a series of cumulative transitions into something much more sinister, which would have been rejected at the outset if it had originally appeared in that format. In the sections which follow, brief accounts

Figure 18.3: Capture Nets. Asia Pacific Police Expo Beijing (2008). Source: Photo taken by the author.
are given of specific sub-lethal technologies and the many and varied ways they can be used for delivering pain as an instrument of torture, maiming as a process of street punishment and pushing people into harms way to facilitate extra-judicial execution. There is also the vexed issue of when is a non-lethal weapon a non-lethal weapon if it isn’t really non-lethal? This is not as flippant a question as it sounds since a submachine gun wounds statistically more often than it kills - is it therefore a non-lethal weapon? It is just these issues that have persuaded the International Committee of the Red Cross (ICRC 2006) not to judge a weapon’s impact on its stated sub-lethal design objectives.

Such alleged ethical design claims will become even more important as armed robotics and self deciding algoritmic systems for border control become more prominent. Insider defenders of such developments such as John Arquilla, executive director of Information Operations Center at the Naval Postgraduate School, have been quoted as saying: “A lot of people fear artificial intelligence” but "I will stand by my artificial intelligence against your human any day of the week and tell you that my AI will pay more attention to the rules of engagement and create fewer ethical lapses than are human forces.”26 Critics like Noel Sharkey of Sheffield University respond that most robots have the intelligence of a fridge and can not differentiate between combatants and innocent children. The International Committee for Robot Arms Control (ICRAC) campaigns against the deployment of automated killing systems.27

The final sections below, explore to which extent international human rights law and treaties are actually protecting civilians and non-combatants, as the technology changes and becomes more powerful and sophisticated. Specific examples of future border control systems are used to create likely scenarios for their future deployment, which would undermine, for example, the Geneva conventions, the Chemical Weapons Convention (CWC) and the world-wide prohibition of torture.

18.5 Use and Abuse: Past, Present and Future

The first consideration in judging the ethical use of these sub-lethal weapons is their political construction and design. When rubber bullets were first introduced into Northern Ireland in the 1970’s, the wooden colonial alternative, which had been used in Hong Kong, was rejected. This was not because Irish skulls were any thinner than the Asian variety; it was because there was a different political and legal sense of what was acceptable (Ackroyd/Margolis/Shallice et al. 1977). Soldiers put batteries and razor blades in the hollow baton rounds but noone was ever disciplined. The weapons were capable of scalping, blinding and causing internal injuries and death - results which were from credible sources, surgeons dealing with casualties in Belfast hospitals. They reported their findings to the Army, who promptly stamped secret over the report, which was subsequently leaked. The lesson from this saga is that official sources can simply not be trusted. The replacement plastic baton round was even more dangerous so the authorities could not even get the technics right. But the weapons were used for street punishment when there was not even any trouble on the street - people leaving discos or restaurants entering what the authorities had deemed to be a control zone - but didn’t tell anyone.28

The Patten Commission report which looked into the policing of Northern Ireland recommended a replacement of the plastic bullet.29 It was typical of the failure of the authorities to control this technology that the British Army deployed a replacement outside of the committee’s oversight, which was even more dangerous because of high speed ricochets than all the previous baton rounds. Indeed their rational for replacement was safety of operatives rather than targets since the old system began to jam in hot weather causing backfire - opening up the authorities to prosecution under health and safety rules. There were many cases in Northern Ireland of these weapons being used outside of the official rules of engagement - making them highly dangerous potentially lethal devices – but no-one was ever prosecuted when things went wrong - the chosen method was to pay


compensation rather than bring individual security force personnel to court – leading many to suggest that a culture of impunity had evolved.\textsuperscript{30} Such indiscriminate use of crowd control weapons removes the people’s right of assembly.

These patterns have been repeated elsewhere, for example in Miami and Seattle to punish anti-world trade meeting protests. Plastic bullets were fired at the heads of protestors contrary to all the rules of engagement. The reported police attitude afterwards was to consider people in the crowd as “scurrying cockroaches”.\textsuperscript{31} These dynamics need much greater scrutiny if a trend towards the industrialization of human rights violations, as human survival niches become increasingly challenged. Zimbardo (2007) has found evidence of what he calls the ‘lucifer effect’ at work in the micro-organisation of violence during the so-called US ‘War on Terror’.

In the wrong hands, e.g. in Indonesia, where British dye filled Tactica water cannon were exported to in recent years, the marking feature was used as part of a larger capture process. Often with these weapons there is a criminal lack of imagination about how they will be actually used.\textsuperscript{32} This also applies to so-called tear gas, because in higher doses, chemical irritants cause vomiting and even death. There would be much more of a shock reaction if the newspapers said the security forces decided to use vomit gas today. It should not be forgotten that so-called tear gases were the original war gases first used to create mass casualties in WWI and more recently as the precursor to Saddam Hussein’s use of nerve gas to kill thousands of Kurds in Halabja, Iraq.

A report by the Omega Foundation (2000) to the European Parliament noted that at least six EU members (Belgium, France, Germany, Italy, Spain and the UK) have exported crowd control weapons to countries, where human rights violations have been committed with such technologies, for instance to Bahrain, Egypt, Guatemala, Indonesia, Jordan, Kenya, Nigeria, Sri Lanka, Turkey, Zambia and Zimbabwe. The report also covered episodes, where sub-lethal weapons were used along with lethal weapons - often flushing civilians into harms way.\textsuperscript{33}

When it comes to prison-use of such weaponry, there is extensive documentation of pain inducing electroshock weapons being used systematically for torture (Amnesty International 1997, 1999). Some weapons by their inherent characteristics will create permanent damage in an operational mode where they have the most severe effects. For example there is a risk of permanent ear damage when acoustic weapons are used in many of their effective ranges (Altmann 2001). Rappert (2002) has provided a more sophisticated approach to assessing what he terms affordances, i.e. perceived properties on these weapons to examine the multiple interpretations surrounding how a specific technology may be used. He provides a check list which includes nature, severity, duration, indiscriminate vs. discriminate, effects of repeated vs. single use, groups vs. individuals, reliability, gaugability and tunability, to remind the reader that assessments of features of technology are not hard and fast characteristics.

The International Committee of the Red Cross (ICRC) has attempted to further define, what constitutes an inherently abhorrent weapon, via its StiUS (Superfluous Injury and unnecessary suffering) project. Based on the ‘health effects’ of weapons, these ICRC criteria are explicitly about foreseeable effects, e.g. superfluous injury or unnecessary suffering resulting from: (i) specific diseases, specific abnormal physiological states, specific abnormal psychological states, specific disability or disfigurement; field mortality of more than 25 per cent or a hospital mortality of more than 5 per cent; grade 3 wounds as measured by Red Cross Classifications; effects for which there is no well recognized and proven treatment (ICRC 1997). Thus the use of mass paralysis chemicals such as the fentanyl compounds used in the Moscow Theatre siege of 23 October 2002, would breach these criteria since the lethality rate was comparable with battlefield casualties (Dupont 2003). Yet at that time, US research laboratories were actively researching so-called orphan pharmaceuticals for such calmatives (Lakoski/Murray/Kenny 2000), and the search goes on – though there is some suspicion that some of the research is currently being outsourced into East European states, like the Czech Republic.

\textsuperscript{30} For an extended analysis, See Omega Foundation (2003)


\textsuperscript{32} See http://www.zmag.org/content/print_article.cfm?itemID=3832&sectionID=44.

\textsuperscript{33} See at: <http://www.ljudmila.org/globala/knjiznica/Crowd%20Control%20Technologies.pdf#search=%20state-watch%20crowd%20control%20technology%22>
The *Chemical Weapons Convention* (CWC) has left considerable loopholes to enable the expansion of the law enforcement clause to allow the creation of new incapacitating technologies. Indeed two influential
CBW experts have argued that the US withheld its agreement to progress the Biological Weapons & Toxins Convention was because it wanted to pursue active new programmes to deploy these technologies. Early warnings from key scientists have already claimed emerging new paralysis weapons based on calmatives, will yield new forms of warfare. These include facilitating military ops in urban terrain, so that “access/escape routes can be block in building ... to ... channel movements through established firing zones, to protect areas from entry” (Dando 1996). Dando (2002) also highlighted the prospects of the Genome project being used to provide human targeting and exclusion by ethnic genotypes.

Some of the more advanced second and third generation of these weapons using pain induction almost lend themselves to mass abuse. For example, considerable resources have been devoted into converting taser technology into an alternative anti-personnel land mine which can operate to paralyse a victim for up to 1 hour. Given the high level of pain caused by even a few seconds of taser shocks, the consequences of many minutes of shock are truly horrific, and would most likely result in post-traumatic stress disorder if not worse. Other variants of mass paralysis using induced electric shock, laser projected plasma, microwave heating of targets are entering new ground where non-combatants are opened up to the risk of street punishment or worse since many of these mechanisms have rheostatic options – so-called ‘tunable lethality’. Worse still, is the move towards area denial via robotic systems, which are victim activated. Such algorithmic systems can bypass any tribunal who would decide that indiscriminate or disproportionate force had been applied (Landmine Action 2001). Since 2009 due to the War in Afghanistan, the Obama Administration has considerably accelerated the funding, development and deployment or remote killing drones along critical borders.

### 18.6 Legal Controls - Necessary But Insufficient

To recap, much of this technology transcends existing notions and contexts of weapons, which violate international norms, existing conventions or international human rights legislation, but some do not (Fiddler 2001). The International Committee of the Red Cross (ICRC) was one of the first NGO’s to recognize that indiscriminate use of various emergent so called ‘non-lethal’ weapons, would violate the Geneva Conventions.

#### 18.6.1 ICRC Approaches

The ICRC was particularly worried about these new weapons breaching established principles such as the clauses against weapons that: (i) cause superfluous injury or unnecessary suffering; (ii) breach the principle of distinction between civilians and combatants; and (iii) the so-called Martens Clause, which states that even when neither treaty nor customary law clearly applies, civilians and combatants remain under the protection and authority of the principles of international law derived from established custom, from the principles of humanity and from the dictates of public conscience (Coupland 1997).

Other conventions also apply to the development and deployment of this class of technology including the Ottawa Anti-Personnel Landmine Treaty of 1997, the prohibition on ‘booby traps contained in Protocol II to Convention on Restrictions on the Use of Certain Conventional Weapons of May 1996; the 1993 Chemical Weapons Conventions; the Biological and Toxins Convention of 1972; and the 1980 UN Inhuman Weapons Convention (Wallace 2002). There is considerable controversy and ICRC published an update on this question of what constitutes a prohibited weapon.

18.6.2 International Humanitarian Law Approaches

This debate on International Humanitarian Law (IHL) and emergent disabling weapons is vital if the achievements of past decisions are to be protected on what is or is not a permitted weapon. Of course a much more detailed examination of the issues is required if existing IHL is not to be eroded by the shortsighted demands of an emergent war-fighting doctrine in a tiny minority of states.

The prospects do not look good if these debates are examined in the context of recent efforts to control the proliferation of even the most medieval military supplies, such as instruments of torture. Europe is justifiably proud of its democratic traditions. It might be thought that surely we have legal frameworks sufficiently robust to resist any border technologies capable of facilitating human rights abuse. It would be comforting to think so. It still seems astonishing that even in western liberal democracies, states have failed to prevent corporate bodies supplying torture technologies, either by sale, licensed production or via brokerage. And even when a decision is made in principle to outlaw equipment of abuse, official foot dragging still enables business as usual. And yet the then UN Special Rapporteur on Torture, Theo Van Boeven, in his final report identified 15 European companies manufacturing electro-shock weapons but said a total 255 were involved in their manufacture, brokerage and distribution.

He was disappointed that rewritten regulations will not now cover brokering deals via ‘third countries’ - the weakest link will permit business-as-usual - especially if trade is regulated but not banned. Why does this matter? Well if the supply-lines of the crudest, medieval technologies cannot be controlled that are used to violate human rights, then prospects of controlling the really hi-tech third generation immobilizing weapons may defy existing political will and imagination – until it is too late. The EC regulations are necessary but still insufficient to address innovation in systems designed to induce compliance via pain. No one calls these products torture technologies. Instead jaw cracking Orwellian euphemisms are used, such as e.g. electro muscular disruption technology (EMDT; IACP 2005). Yet despite new regulations, many states just ignored them. (Amnesty International/Omega Foundation 2010).

If states are unwilling to control the grisly medieval stuff, then the prospect of humankind facing algorithmic, advanced, mass human pain inducing or rendering systems at borders, or on the streets during future military operations, may increase. Will these weapons really be legal and non-lethal – ask a lawyer to calculate what the charges would be for firing specific devices at a senior politician. Most would plump on ‘attempted murder’ rather than a charge of ‘grievous bodily harm’ (GBH).

The most exhaustive exploration of these legal issues to date has been conducted by an expert meeting of the Academie de droit international humanitaire AdH in Geneva, who examined a wide range of operational scenarios and specifically the general

38 The brutal trade in leg shackles, guillotines, gas chambers, hanging ropes, gallows and electronic shock prods is not worth much monetarily. Medieval restraints such as leg-irons, are made by just 6 European companies - at least one serviced the first slave trades. On moral grounds the need for control is a 'no brainer'. 50,000 volt pulsed shock prods symbolize human rights abuse - Amnesty International calls them the 'universal tool of the torturer'.

39 Why did the E.C. for example take from January 2003, till the summer of 2005 to agree measures controlling technologies which facilitate execution, torture and human rights abuse? Strong lobbying by NGO's pressured the Council of Ministers to belatedly approve diluted new export controls. Death penalty equipment and technologies which can be solely used for torture will be banned. Perhaps it was the fear of centralized Brussels controls? Earlier drafts giving the Commission ultimate oversight, were stripped out - policing of these regulations and whether some are banned or simply 'controlled' will now be at member states' discretion. The UK's House of Commons, European Scrutiny Committee, (2003): 'Trade in products used for capital punishment, torture etc. ESC, 11th Report, 2004/2005, Document Considered by Committee 15 March, para 11.5.
rules on the use of weapons in armed conflict; the use of specific weapons; international human rights law in relation to the right to life; freedom from torture; liberty and security; to protest; to health and the need for appropriate training of security officials in regard to sub-lethal weapons. It is the best source for environmentalists to check for key security dimensions, if climate change induces severe political and social turbulence (Casey-Maslen 2010).

18.6.3 Approaches From Security Industry Practitioners

This proposal is far from current practice. Indeed delegates at the Non-lethal Defence IV conference (March 2005) were advised by a representative from the Office of the Assistant Secretary of Defence for Public Affairs, to really go after their critics not to inform them. This has certainly been the case with Taser, whose stock took a tumble after Amnesty International said their weapon was involved in over 70 fatalities in North America (Amnesty International 2004). In March 2006 Taser sued two forensic scientists who raised safety concerns. According to The Guardian, both men, facing legal action, say they have been putting forward legitimate technical arguments “and the company is using the courts to extinguish dissent.” This is a worrying case since if successful; it introduces a precedent which could help silence future critics of the more complex technologies discussed here.

Therefore, thorough research into their effects on people, stringent training and restrictions on their transfer need to be considered (UN ECOSOC 2004). There may be some time for the law to catch up with burgeoning technological changes. A new report by Michael Crowley (2009) explicitly criticizes the Organization for the Prevention of Chemical Warfare (OPCW) for its failure to effectively monitor the implementation of the Chemical Warfare Convention for possible breaches in connection with incapacitating chemicals and riot control agents and its lack of formal mechanisms to receive or act upon information provided by the media, NGOs or academia. Already such sub-lethal weapons are being mounted on robotic platforms like MAARS, which are ideal for patrolling territorial boundaries (Markoff 2010).

18.7 Critical Human Rights Perspectives

The human rights community is currently ill equipped to deal with the ethical challenges posed by this new class of weaponry. Some of this un-preparedness is simply a matter of disbelief: could things really move this fast? A few NGOs have done pioneering work, such as the Omega Foundation that has researched for two decades such transfers through fieldwork and Statewatch who have comprehensively documented security practices, which transgress the law.

Other NGOs, like Amnesty International, have changed their mandate in recognition of the role that military security and police technologies now play in human rights violations. However, they have their hands full simply recording existing violations and attempting to call, what it terms the pain merchants, to democratic and legal account (Amnesty International 2003, 2004, 2000, 2010). How could more experts, who are aware of some of the dangers on the horizon, network their research more effectively to make a difference?

One response was the formation of the Threshold Group that was launched on 31 January 2006 at Leeds Metropolitan University in the U.K., as a group of national and international experts researching unconventional new paralyzing and incapacitating weapons technologies. These sub-lethal weapons, together with notions of a full spectrum dominance, tuneable lethality and layered defence pose a substantial threat to human well-being. Threshold recognized that civilian and military technical developments are enabling substantial capabilities for developing technologies of violence purportedly for reducing deaths and injury. In part, this is coupled with the institutionalization of weapons programmes, where ‘technical fixes’ are aggressively marketed. By incremental or radical change (such as those induced by anthropogenic climate change), this situation might lead to wide-ranging socio-political changes that redefine existing standards of cruelty, democracy, and undermine legal arrangements.

Participating experts realized that the existing oversight and control mechanisms are inadequate and

43 See at: <http://www.bradford.ac.uk/acad/nlw/research_reports/docs/BNLWRPResearchReportNo07_May05.pdf>.
45 See at: <http://www.statewatch.org/> (7 February 2011),
in urgent need of revision. But what could be done? Concerned analysts such as those brought together by the Threshold Group can only be effective if their work is part of a wider capacity-building initiative which, through efficient networking, can lead to the appropriate education, awareness and policy shifts. A network of weapons’ scientists working with climate scientists and activists could pool collective scientific and sociological expertise to make a difference to the public understanding of the political dangers posed by emergent unconventional weapons technologies. It can also provide technical expertise to decision-makers in order to properly evaluate the unanticipated affects of these technologies and facilitate appropriate public oversight and evaluation.

Of course the manufacturers together with the strategic deployers of these weapons will gain no strategic advantage of announcing their imminent or actual deployment. Therefore NGO groups such as Threshold will have a role to play in building matrices of technical questions to ascertain when or if an unconventional system has been deployed. This will become increasingly important as medical experts and pathologists are confronted with unusual injuries or symptoms. This will become apparent in regard to mass paralysis weapons using directed energy systems or the so-called whitecoat weapons, which target the bio-regulation systems of the human brain. Some Threshold members are analysing the extent to which incapacitating bio-weapons can afford the non-consensual manipulation of human physiology. But if genomics do open such weapons up to racial targeting (Dando 2002; Pearson/Chevrier/Wheelis 2007; Wheelis/Dando 2005): some time will pass until the law to catches up with such burgeoning technological changes (Rappert 2006).

18.8 Proliferation of The Techno-Politics of Exclusion

The proliferation of this technology may rapidly accelerate as new ‘homeland security’ funding emerges and the processes of procuring it become further institutionalized. Part of the challenge is getting a wider audience to understand the risks but that is an extremely slow process unless the mass media become further engaged. A key growth area will be the strengthening of border controls associated with militarizing area denial systems also in response to climate change (Martin/Wright 2006).

How should NGOs, the peace research, human rights and environmental research communities respond? Some of the challenges must be met by tracking specific technological innovations then building plausible scenarios around its use. Here is a recent example from the Guardian:

Imagine you’re at a protest - at a nuclear plant, perhaps, or a military installation. You approach the perimeter fence, carrying your placard. The loudhailers warn you to keep away. But you ignore them; this is a protest, after all. And then it happens. Your skin feels as if it’s on fire - a burning, relentless, intense pain as if you were touching a fying pan. You scream and jump back, trying to escape the sudden agony.

Such media stories have the potential to raise searching questions in the minds of a sceptical public but much more is needed to make a difference in the cynical world of security procurement in a time of terror. Much of this weaponry seems unbelievable to an audience viewing the various systems altogether for the first time or even facing the recognition that this is not science fiction but that many of these weapons are receiving significant government grants and have already reached a status beyond prototype. The strategic military plans for such ‘layered defence’ approaches to state security are far more advanced than the collective political decisions which would have been necessary to obviate military action.

But a heavily war-censored Western media has shied away from broadcasting the modern methods of close battle combat where civilians are killed on an industrial scale whether it is in Iraq, Afghanistan or Chechnya. The methods and morality of mass civilian killings are documented by NGOs but largely hidden from the general public, which fails to understand these human sacrifices, rapes, displacement, famine and disease have a deliberate design (Slim 2007).

What the environmental, the peace and disarmament movement have largely missed is the emergence of new military doctrines of urban warfare, which involve taking out or switching off urban spaces. The key insights have come from urban geographers, who show how western armies are transforming into high tech urban counter-insurgency forces with a specific agenda of frontier surveillance and control via tuneable levels of force (Graham 2016). New recruits are taught the ropes of urbicide via gaming consoles and

such detachment can and will easily be converted into future migration management and control at borders on land, sea and air.

The international arms market has been transformed by the “War on Terror” as billions of dollars in new grants have been poured in to create innovations in security technologies of all kinds and governments have bought into this paradigm. This market is already promoted as an excellent capital investment and we can anticipate that it will rapidly reorientate and adapt to the specific requirements of border exclusion and control for states wishing to reinforce their border control operations with new equipment including security fences, unmanned aerial vehicles and armed drones and eventually robotics as well as the whole array of public order technologies and weapons.48

One key area of rapid innovation is in robotics and IROBOT in the United States has already mounted taser packs on to their robotic systems. Meanwhile new algorithms have been solicited by the Pentagon to enable packs of robots ‘to hunt unco-operative humans’. Such developments could become even more sinister if these algorithms are coupled with human heart beat detection so that sensors detect, find and immobilize any human deemed to be illegal.49 Noel Sharkey has argued that terminator style robot guards could make civilian deaths more likely and that there should be some form of international debate and control regime on the ethics of using self-deciding autonomous killing machines.50 Given the vast distances covered by many state borders many of these border exclusion systems can be expected to be robotized and subject to autonomous or algorithmic, semi-intelligent control by machines.

Solicitations associated with such initiatives (either by government or because of market opportunities perceived by corporate military and security players), will accelerate deployment of the state of the art innovations. We are already seeing new kinds of human neuro-muscular incapacitation technology emerge including taser shotguns,51 and portable pain beam weapons based on infra-red lasers.52 International arms fairs and security exhibitions from Asia Police and Security in China, to FPED in Virginia are already there to service new security demands, displaying electrified fences, human capture nets, riot weapons and unmanned armed vehicles and robotics.

18.9 Conclusion – What Happens Next?

How will the countries challenged most by climate change respond to the societal tensions induced by its physical impacts? Should the securitization or even more so the militarization of the responses to climate change be observed and monitored? Bangladesh for example, is one of the worst affected with most of the country less than 20 feet below sea level and scientists estimate by 2050 about 15 million people could be displaced thus possibly bringing about more climate-induced migrants than any other country. India is taking no chances and has so far completed 1600 miles of a hi-tech 2100 border fence with Bangladesh, expected to be completed by March 2010, parts of which are electrified (Ahmed 2009).53

Graham (2010) advocates counter-geographies to de-legitimate the power of militaries to penetrate and reorder societies en masse, from afar, through war, through ‘modernization’ (or indeed demodernization) or through the violent imposition of ‘democracy’ or ‘civilization’. Thus, it is the space in-between, where climate change and research activists can most directly challenge any military and security ‘solutions’ to climate change. Of course information alone is necessary but not sufficient. Brian Martin (2007) advocates backfire techniques to cause outrage against the excesses of any official injustices. Such techniques actively use non-violent approaches including humour to pierce the profile and strength of a political opponent and mobilize mass opposition as Gandhi did against British rule in India. In the UK, important lessons were learnt in regard to halting the official arms trade to human rights violators in the 1990’s. Powerful NGOs such as Oxfam and Amnesty International waded in with well-argued demands for tighter arms control, but very little happened. Ironically, in the UK, the most powerful ground breaking challenge eventually came from a standup comedian, Mark Thomas (2006) who said brokering modern weapons, ad-

48 See ASD Reports (2009).
anced pain technology and small arms was so easy, a child could do it. He helped underline the point by enabling school children to set up an “after school arms dealing” club to prove it. When their TV programme was broadcast in 2006, the Irish Government was so shocked it promised to bring in new legislation.

In resisting a possible militarization of climate change impacts, the role of accurate information will be vital. The well funded internal security markets can reorient their focus to newly defined security threats, including the social consequences of badly managed political responses to climate change. It is important that future debates and decisions on building sustainable futures, thoroughly examine and mediate proposed security measures early on. The key is to avoid the worst case scenarios inherent in any last ditch attempt to technically fix climate change. This dimension is likely to grow very fast as the related international crisis deepens.

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54 See broadcast channel 4; 1 April 2006. The kids were able to successfully set up brokerage deals involving weapons and torture equipment even though the stated destinations were ostensibly embargoed.


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