

Heated Terror: Exploration of the Possible Impacts of Climate Change on the Causes and the Targets of Terrorism

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Climate change and terrorism are two of the most important security issues in this first decade of the 21st century. Although none of those two topics are very novel, they have been brought to the front stage relatively recently. Since 9/11, terrorism has become the main concern of the United States and many other countries, including in Europe. Climate change has also taken the center stage in the popular consciousness, especially since Al Gore's movie *An Inconvenient Truth*. Few issues, a priori, have less in common than terrorism and climate change, except maybe for the potential to kill innocent people. Yet, both phenomena are more related than previously thought. This study is the first ever, to my knowledge, to systematically analyze the potential impacts of climate change on terrorism. As Konrad Kellen once said, "*terrorists are not goldfishes in a bowl*"². They actually react to the external world. They are

¹ The author would like to thank Geoff Dabelko, Alexander T. J. Lennon, Rhea Siers, and Matthew O'Gara for their comments on early drafts of this paper. The remaining mistakes, however, are my own responsibility.

² Konrad Kellen, "Ideology and Rebellion: Terrorism in West Germany", in Walter Reich (eds), *Origins of Terrorism: Psychologies, Ideologies, Theologies, States of Mind*, Cambridge: Cambridge University Press, 1990, p. 51.

highly responsive to their environment and develop adaptive capacities to their changing environment. It is a matter of survival: a failure to adapt can lead to their decline. Therefore, given the multiple changes that are likely to occur due to climate change, it should be expected that terrorists will adapt. In fact, climate change will create new opportunities for terrorists. In his speech on the sixth anniversary of 9/11, Osama bin Laden explicitly mentioned global warming. Most experts view this comment as an anecdote, almost as a joke. I believe it is extremely interesting and worth paying attention to. Here is what he said:

“And with that, it has become clear to all that they [the major corporations] are the real tyrannical terrorists. In fact, the life of all of mankind is in danger because of the global warming resulting to a large degree from the emissions of the factories of the major corporations, yet despite that, the representative of these corporations in the White House insists on not observing the Kyoto accord, with the knowledge that the statistic speaks of the death and displacement of the millions of human beings because of that, especially in Africa. This greatest of plagues and most dangerous of threats to the lives of humans is taking place in an accelerating fashion as the world is being dominated by the democratic system, which confirms its massive failure to protect humans and their interests from the greed and avarice of the major corporations and their representatives.”¹

Naturally, one should wonder who the intended audience of this message was. It seems plausible to assume that the paragraph was essentially addressed to the elite in the Western world, but may also include the elite

¹ Osama Bin Laden, *The Solution*, Transcript of bin Laden’s 9/11/07 speech, SITE Intelligence Group, September 2007.

in the developing world.¹ Nevertheless, this message opens a new window of research for counter-terrorist and environmental experts. This paper is a first attempt to theorize the relationship between terrorism and climate change.² I do not pretend to have all the answers. Instead, I invite other scholars to elaborate on these first findings. Concerning the definition of terrorism, I will not attempt the perilous exercise of creating my own which would be pointless for this paper. I base my research on the widely cited definition of the U.S. Department of State: “*terrorism is a premeditated, politically motivated violence perpetrated against noncombatant targets by subnational groups or clandestine agents, usually intended to influence an audience.*”³

Rationality and Taxonomy of Terrorism

Terrorists are commonly described as “irrational murderers”. However, counter-terrorist experts usually agree that most terrorists resort to violence based on logic and rationality. The extent of the violence, the targets, and the duration of terror campaigns are all carefully thought out by the leadership, which is capable of evaluating its strategy and eventually modifying it when necessary. Terrorism rationality can be analyzed in

¹ Indeed, it is hard to imagine that marginalized individuals in the developing world would be very reactive to such discourse. Some surveys have shown that people living on the frontline of climate change have no or little knowledge of the phenomenon and its causes.

² For previous works related to the topic, see for instance Kent Hugues Butts, “Climate Change: Complicating the Struggle against Extremist Ideology”, in Carolyn Pumphrey (ed), *Global Climate Change: National Security Implications*, Strategic Studies Institute, May 2008, pp. 127-141; Alexander T. J. Lennon, Julianne Smith, “The Climate for Terror”, *International Herald Tribune*, 3 December 2007; or Marvin J. Cetron, Owen Davies, “55 Trends now Shaping the Future of Terrorism”, *The Proteus Trends Series*, volume 1, n°2, February 2008, pp. 111-123.

³ Available on the website of the U.S. State Department at <http://www.state.gov>

economic terms. Individuals calculate the costs and benefits of joining or not joining a terrorist organization. The costs of terrorism include: possibility of imprisonment, loss of a “normal” lifestyle, and risk of death. The benefits may include: economic retribution, spiritual achievement, and psychological satisfaction of belonging to a group.¹ The cost-benefit analysis can also be expressed in negative terms by weighting the costs and the benefits of not joining a terrorist organization. Nevertheless, the recognition of a terrorist rationality does not answer the most crucial questions: Who becomes a terrorist and why? What triggers the violence? It is important to bring some answers to those questions in order to be able to evaluate the impacts of climate change on the root causes of terrorism, and hence offer a glance at what the future might hold. To do so, I will use a taxonomy of the causes of terrorism inspired by the writings of Martha Crenshaw. I distinguish between preconditions and trigger events. The goal of the following taxonomy is less to offer a model of “predictability” than to classify the different known causes of terrorism in order to isolate distinct impacts of climate change on different levels of causation of terrorism.

Terrorism is an old phenomenon. In Judea, 2,000 years ago, Zealots already used terror tactics against Romans and Jewish collaborators.² Potentially, terrorism is also a universal phenomenon. Very few societies have been spared from terrorism. However, this is not to say that terrorism is omnipresent, but instead that there are underlying factors that trigger terrorism in different places at different times with a different magnitude.

¹ Jerrold M. Post, “Terrorist Psycho-Logic: Terrorist Behavior as a Product of Psychological Forces”, in Walter Reich (eds), *Origins of Terrorism: Psychologies, Ideologies, Theologies, States of Mind*, Cambridge: Cambridge University Press, 1990, pp. 25-40.

² Gérard Chaliand, Arnaud Blin, *Histoire du Terrorisme: de l'Antiquité à al-Qaeda*, Paris: Bayard, 2006.

Martha Crenshaw calls those underlying factors *preconditions*¹. Preconditions are the elements that set the stage for terrorism. Although preconditions are not a sufficient condition for terrorism, they are a necessary ingredient in the making of a terrorist. The more preconditions present, the more likely terrorism is. Societies lacking these preconditions are less likely to suffer from terrorism. Preconditions can be divided into two categories: *instigating causes* and *permissive factors*.²

Instigating causes are the root of terrorism. They are the deep reasons that motivate a terrorist's actions. Those reasons may be rooted in economic, social or political conditions. The prevalent argument is that terrorism needs a fertile substrate in order to develop. Instigating causes are the seeds that allow the terrorist plant to grow. Although terror needs instigating causes, these do not automatically produce terrorism. Permissive factors facilitate the use of violence. Economic, social, political, psychological or environmental conditions can ease or hinder the development of violence. Besides instigating causes, permissive factors explain why civilian violence is a phenomenon limited to certain societies. Nevertheless, it should be underscored that permissive factors are not sufficient, and maybe not even necessary. A very permissive environment is favorable to violence although it does not create it. Therefore, some societies are very permissive but face no terrorism while others are not permissive at all and still face terrorism.

A high number of instigating causes are present in many different countries, sometimes simultaneously to a very permissive environment. And yet, even in those not so rare cases (think Africa), there is no terrorism. Indeed,

¹ Martha Crenshaw, "The Causes of Terrorism", *Comparative Politics*, volume 13, n°4, 1981, pp. 379-399.

² Martha Crenshaw, *op. cit.*

violence does not come out of nothing. It needs a trigger. Martha Crenshaw calls that trigger a *precipitant event*.¹ Violence, without a trigger, will remain abstract. It will remain deep in the heart, or barely get out of the mouth. Without a spark, fire cannot ignite. However, once violence ignites, as suggested by Frantz Fanon, it can spread quickly and burn for a very long time.² The precipitant event must not be understood as the event that directly precedes a terrorist action, but instead as the final event necessary to start the process of violence. The precipitant event is the tipping point beyond which the status of violence changes from being an option to being a solution. The precipitant event can occur days, months or even years before the violence actually takes place.

The Causes of Terrorism

In this part, I present the most important causes of terrorism – although I do not pretend to be comprehensive – instead of a list limited to the causes on which climate change is likely to have an impact. There are three reasons for this: first, readers should also be aware of the causes of terrorism that climate change *will not* influence; second, it is important to understand how the different causes interact; finally, future research could discover potential impacts on causes of terrorism that were not described in this study. I found seven instigating causes of terrorism – the root causes. Some of them, especially poverty and education, have created intense debates among scholars. Therefore, I have decided to mirror the opposing arguments while offering a bridging explanation.

¹ Martha Crenshaw, *op. cit.*

² Frantz Fanon, *The Wretched of the Earth*, New York: Grove Press, 2004.

1. **Poverty** is the most commonly cited root cause of terrorism. This is almost instinctive: only poor people have a reason to rebel. However, that conclusion is generally rejected by scholars as too simplistic. Even the 2006 U.S. National Security Strategy recognized that “terrorism is not the inevitable by-product of poverty”.¹ Think al-Qaeda: Osama bin Laden is a millionaire, and most of the 9/11 hijackers came from middle or upper-class backgrounds. The apparent contradiction between the intuition and the data has sometimes been bridged by differentiating between the leadership – which generally comes from the upper-class – and the activists – who are generally deprived. However, some studies have shown that a majority of terrorists are at least from the middle-class, or even from the upper-class.² Therefore, some scholars have claimed that poverty has no impact at all on terrorism.³ The “poverty-pessimists” argue that if poverty were to cause terrorism, most of the terrorists would come from sub-Saharan Africa, which is not the case. Alan Krueger concludes that “poor economic conditions do not seem to motivate people to participate in terrorist activities. This appears to hold true at both the individual level and the societal level”⁴. The debate on the importance of poverty suffers from the lack of good data and the absence of a common definition of terrorism. Nevertheless, some arguments may help to near the opposed opinions, and maybe even to reconcile them. First,

¹ George W. Bush, *The National Security Strategy of the United States of America*, March 2006, p. 9.

² Charles A. Russell, Bowman H. Miller, “Profile of a Terrorist”, *Terrorism: An International Journal*, volume 1, n°1, 1977, pp. 17-34.

³ Alan B. Krueger, Jitka Maleckova, “The Economics and the Education of Suicide Bombers: Does Poverty Cause Terrorism?”, *The New Republic*, 24 June 2002, pp. 27-33.

⁴ Alan B. Krueger, *What Makes a Terrorist*, Princeton: Princeton University Press, 2007, p. 12.

poverty must be differentiated from “abject poverty” in Eric Hoffer’s words. Indeed, if poverty may foster resentment, abject poverty tends to annihilate any form of resentment. “Where people toil from sunrise to sunset for a bare living, they nurse no grievances and dream no dreams”¹. Second, as we will see later, the effects of poverty on terrorism can be analyzed in terms of opportunity cost or in terms of grievances. Third, it is possible that the willingness to become a terrorist is shared equally across the socioeconomic classes, but that people from the upper-class are better at passing the screening processes.² Finally, it is very likely that it is less poverty *per se* than the perception of inequalities that matters.

2. Poverty is seldom invoked by militants to justify their actions.³ Instead, they pretend to act on behalf of oppressed or marginalized groups. Inequalities matter because they produce dangerous feelings such as jealousy, envy or frustration. This is particularly important given that one of the main characteristic of the modern globalized world is the production of **inequalities** between the countries and within the countries. Jealousy, envy and frustration do not result automatically in violence. Surprisingly, Alexis de Tocqueville found in his research on the French revolution that national prosperity was increasing in the 20 years preceding 1789. “The French found their

¹ Eric Hoffer, *The True Believer: Thoughts on the Nature of Mass Movements*, New York: HarperCollins, 2002, p. 28.

² Ethan Bueno de Mesquita, “The Quality of Terror”, *American Journal of Political Science*, volume 49, n°3, 2005, pp. 515-530.

³ Ted Robert Gurr, “Economic Factors”, in Louise Richardson (eds), *The Roots of Terrorism*, New York: Routledge, 2006, p. 87.

position the more intolerable the better it became"¹. Hope can sometimes become a strong incentive for violence. This is also true when people face a rapid economic deprivation. "It is usually those whose poverty is relatively recent, the new poor, who throb with the ferment of frustration. The memory of better things is as fire in their veins"². Contrary to the common sense, terrorism is not rooted in the despair of marginalized people, but instead in their hope of a better life. Hence, the use of an indicator such as GDP growth as a predictor for terrorism is flawed as it appears from different studies.³

3. The level of **education** is often seen as an important cause of terrorism. Yet, like for poverty, results contradict intuition. Most studies found that terrorists are generally more educated than the national average.⁴ Russel and Miller found that two third of the terrorists had some form of university training.⁵ Therefore, one logically conclude that a high level of education increases the likelihood of terrorism. Different elements may explain this

¹ As quoted in Eric Hoffer, *op. cit.*, p. 29.

² Eric Hoffer, *op. cit.*, p. 26.

³ See for instance the contradictory findings between the studies of Alan B. Krueger, *What Makes a Terrorist*, *op. cit.* and Edward Miguel, "Poverty and Violence: An Overview of Recent Research and Implications for Foreign Aid", in Lael Brainard, Derek Chollet (eds), *Too Poor for Peace? Global Poverty, Conflict, and Security in the 21st Century*, Washington: Brookings Institution Press, 2007, pp. 50-59.

⁴ See for instance Alan B. Krueger, *What Makes a Terrorist*, *op. cit.*; Ted Robert Gurr, *op. cit.*; and Rex A. Hudson, *Who Becomes a Terrorist and Why*, Guilford: The Lyons Press, 2002.

⁵ Charles A. Russell, Bowman H. Miller, *op. cit.*

surprising finding. First, it is possible that results are merely flawed due to the poor data available. Second, a higher level of education in societies with high level of unemployment may increase the frustration of young individuals which can consequently turn toward violence to express their grievances. Urdal, for instance, found that an increase in tertiary education in countries with youth bulges is statistically correlated with more terrorism.¹ Third, terrorist groups may prefer smart individuals which can be seen as more able to carry out a mission. Afghanistan illustrates the importance of the selection process: a study found that Afghan suicide bombers had the lowest success rate in the world, which could be explained by the “ineptitude” of the recruits.² Furthermore, as Bueno de Mesquita discovered, educated people are better equipped to pass the interview process in countries where the supply for suicide bombers is high.³ Finally, terrorist groups have noticed their particular appeal to young students, frustrated and marginalized in high school and university campuses. They have, therefore, developed intense recruitment strategies on college campuses.⁴

¹ Henrik Urdal, “The Demographics of Political Violence: Youth Bulges, Insecurity, and Conflict”, in Lael Brainard, Derek Chollet (eds), *op. cit.*, pp.90-100.

² Brian Glyn Williams, “The Taliban Fedayeen: The World’s Worst Suicide Bomber?”, *Terrorism Monitor*, volume 5, n°14, 2007, p. 2.

³ Ethan Bueno de Mesquita, *op. cit.*

⁴ J. P. Larsson, “The Role of Religious Ideology in Modern Terrorist Recruitment”, in James J. F. Forest, *The Making of a Terrorist: Recruitment (Volume 1)*, Westport: Praeger Security International, 2006, p. 200.

4. The destabilizing effects of **demography** on societies, especially developing countries, has been actively studied.¹ The impact of demography on terrorism, however, is less known. Urdal found that youth bulges – formed when a large proportion of a country's total population is between 15 and 24 years old – are significantly related to the incidents of terrorist acts.² Youth bulges pose a great problem especially in stagnant or declining economies. As more young workers arrive on the market, there are relatively fewer jobs available to them. In short: too many young men with too little to do. This may produce frustration and eventually resentment against those who are seen as the cause of the lack of employment – generally the government. The growing frustration may lead to violence.
5. Population movements are traditionally associated with unrest. There are many kinds of **migration**: legal or illegal; desired or undesired; intrastate or transnational; etc. In some cases, migrations can result in violence.³ Sometimes, that violence can take the form of terrorism. For various reasons, migrants can become marginalized in the host society. Their economic status may force them to settle in the poorer neighborhoods, or their ethnic origin may push them toward ghettos. In both cases, migrants become marginalized, isolated from the society, and confined to their ghettos.

¹, Richard P. Cincotta, Robert Engelman, Danielle Anastasion, *The Security Demographic: Population and Civil Conflict After the Cold War*, Washington: Population Action International, 2003.

² Henrik Urdal, *op. cit.*

³ Rafael Reuveny, "Climate Change-Induced Migration and Violent Conflict", *Political Geography*, volume 26, n°6, 2007, pp. 656-673.

Marginalization generally produces grievances that can eventually be expressed through violence. The riots in France, although not terrorism, are a good illustration of such a pattern.¹

6. **Regime (in-)stability** can sometimes become a cause of terrorism. Erica Chenoweth identifies three categories of unstable regimes that appear on a continuum based on their ability to provide political goods to the people: weak states; failed states; and collapsed states.² Weak states are not able to provide some basic services. Failed states are tense, deeply-conflicted, dangerous, and contested by warring factions. They cannot assume border control, there is generally no currency, and the health and education systems are neglected. Collapsed states are characterized by an authority vacuum. Unstable regimes tend to produce grievances among the population. The more unstable the regime, the fewer political goods it can provide and the higher the level of grievances among the population. Under certain conditions, terrorism can be seen as a solution to those grievances. Another characteristic of unstable regimes is their lack of legitimacy. As the government's legitimacy diminishes, the legitimacy of other organizations – including terrorist groups – increases, especially when those organizations take over the function of the state and provide the necessary goods to the population. Similar to a system of connected valves, the

¹ International Crisis Group (ICG), “La France Face à ses Musulmans: Emeutes, Jihadisme et Dépolitisation”, *Rapport Europe*, n°172, 9 March 2006.

² Erica Chenoweth, “Instability and Opportunity: The Origins of Terrorism in Weak and Failed States”, in James J. F. Forest, *The Making of a Terrorist: Root Causes (Volume 3)*, Westport: Praeger Security International, 2006, pp. 17-30.

legitimacy lost by the government pours into the legitimacy reservoir of other groups.

7. The **regime type** can also be seen as a cause of terrorism. Indeed, unsurprisingly, authoritarian regimes often produce large grievances among a certain fringe of the population. However, as authoritarian regimes are also very good at repressing their population, these grievances may have little consequence. But this is true only to a certain extent: first, as soon as the regime diminishes its repression, violence can break out; second, individuals with grievances can migrate and express their grievances in another country. In other words, authoritarian regimes may be very good at “producing” terrorists, even if the latter carry out their actions somewhere else.¹

The permissive factors are part of the preconditions with the instigating causes. However, as their name indicates, they are exclusively permissive and, to that extent, do not create violence but simply facilitates it. Permissive factors are undoubtedly more numerous than the following. Nevertheless, I believe that the nine following factors constitute the main facilitators of political violence.

1. The division of societies into **basic cleavages** facilitates terrorism. The division can be horizontal (ethnicity, religion) or vertical (social classes). Cleavages facilitate mobilization. Indeed, it is well-known that terrorists recruit among their “equals”. Local terrorist cells are generally formed by members from a similar background: neighbors, friends, college comrades, acquaintances from the mosque, etc. Terrorist groups are networks. Hence, they naturally tend to rely and superimpose themselves upon other existing networks built by

¹ See for instance Ted Robert Gurr, *op. cit.* and Alan B. Krueger, *What Makes a Terrorist, op. cit.*

the individuals. If tensions already exist along the cleavages, terrorist can also use those in their propaganda and eventually exacerbate the existing tensions.

2. **Weak and failed states** are often described as more permissive.¹ As failed states cannot assume the minimal security on their territory, criminality and banditism can easily proliferate. In this context, the costs of terrorism shrink considerably – the risk of being arrested becomes minimal – while the potential benefits from looting in lawless areas increase astonishingly. Failed states can also look more attractive to terrorist organizations looking to grasp power. Indeed, they could be tempted to move in lawless regions in order to fill a power vacuum. Some authors, however, question the assumption that terrorists are better-off in failed states. Karin Von Hippel, for instance, found little evidence of a connection between failed states and terrorism.² Al-Qaeda's bases in Sudan and Afghanistan, she argues, were not in lawless areas but instead in zones governed by strong rulers. In those regions, al-Qaeda could enjoy the protection and support provided by those rulers. David J. Whittaker further emphasizes that failed states offer little advantage to terrorists since their strategy relies on coercion. When there is no government, there is no one to coerce.³ It can reasonably be argued that terrorist groups generally look for the protection of strong local leaders. Ideally, terrorist groups will benefit of such a protection within

¹ Erica Chenoweth, *op. cit.*

² Karin Von Hippel, "Dealing with the Roots of Terror", in James J. F. Forest, *The Making of a Terrorist: Root Causes (Volume 3)*, *op. cit.*, pp. 266-276.

³ David J. Whittaker, *The Terrorism Reader*, New York: Routledge, 2003, p. 16.

or at the border of a lawless area where it can conduct its criminal activities. If the goal of the terrorist organization is to take over power, they will prefer a failed state. If their goal is to coerce a government in order to shift a policy, they will prefer a non-failed state.

3. Some authors have concluded that **regime type** does not have an influence on terrorism.¹ This assertion is based on the fact that terrorism incidents have occurred both in democracies and in dictatorships. In other words, no regime type is immune from terrorism. In reality, it appears that terrorism is even more frequent in democracies.² One explanation might be that dictatorships have better repressive systems. Indeed, as many authors have noticed, “*repression works*”³. Another explanation would be that the lack of press freedom in authoritarian countries biases statistics and therefore no comparison would be possible at this time.
4. **Regime openness** offers great opportunities for terrorist groups. As they are authorized to speak publicly, they can reach a broader audience with their propaganda. Terrorist leaders are often very charismatic, and in countries with no culture of democracy, their populism might look very appealing. In Algeria, for instance, Islamists took advantage of the regime openness to create a political

¹ Erica Chenoweth, *op. cit.*

² Gregory F. Gause III, “Can Democracy Stop Terrorism?”, *Foreign Affairs*, volume 84, n°5, 2005, pp. 62-76.

³ Leonard Weinberg, “Democracy and Terrorism”, in Louise Richardson (eds), *op. cit.*, p. 45.

wing that attracted many voters with a more moderate discourse.¹ As more people became more familiar with the Islamist cause, it created the largest reservoir where terrorists could recruit. Transition from authoritarianism to democracy is particularly hazardous when people have a lot of grievances that they could not express previously. Dictatorships have the capacity to repress a population with high grievances, as the recent history of Iraq has demonstrated. However, as soon as repression disappears, violence may develop very quickly.

5. **Globalization** did not only create more economic inequalities in the world – hence somehow potentially fostering terrorism – but it also increased the salience of the disparities between the developed and developing worlds. The spread of the media made information accessible to a growing number of people. At the same time, the access to that information helped many to realize the extent of their deprivation. Globalization also provided terrorists with new tools. Internet, computers and phones are now part of their daily operations. Most of the terrorist organizations have an official website and many other affiliate internet sites. The terrorists have increased their power of communication throughout the world. Their coordination capacity has also increased.
6. Globalization also brought weapons to terrorists. Today, terrorists do not need America or the Soviet Union to be armed anymore. They

¹ Mohammed M. Hafez, , “Political Repression and Violent Rebellion in the Muslim World”, in James J. F. Forest, *The Making of a Terrorist: Root Causes (Volume 3)*, *op. cit.*, pp. 74-91.

can buy weapons directly from arms merchants, like Viktor Bout.¹ The **availability of weapons** is a very important permissive factor: with no arms, no violence is possible.

7. **Diasporas** may provide terrorist groups with financial, logistical or material support.² Members of the diasporas may send money voluntarily or under the threat of killing members of their family; they can provide safe havens for the leadership; and, finally, they can send weapons or technological material to the group.
8. Given that terrorism is essentially an urban phenomenon, the growing **urbanization** offers a very favorable terrain for terrorists, especially when urbanization results in the creation of slums and increases the level of grievances among the population.
9. The presence of other **forms of unrest** can facilitate terrorism as people with criminal records or other experiences of violence move more easily to terrorism. Also, when violence is already present in the society, the moral barrier toward violence is easier to jump. Finally, the existence of violent groups or cells facilitates terrorism.

Finally, the last category that I identify within the causes of terrorism – the precipitant event – is undoubtedly the most unpredictable one. Such events are so numerous and various that it would be impossible to detail them. It can be either an event that produces a high level of emotion, such as the

¹ For more information on the traffics of Viktor Bout read Douglas, Farah, “War and Terror Inc.”, *The Washington Post*, 23 September 2007.

² Atanas Gotchev, “Terrorism and Globalization”, in Louise Richardson (eds), op. cit., pp. 103-116.

killing of civilians by governmental forces; or an event that demonstrates the government's incapacity of providing some goods, such as the mismanagement of a natural disaster. Precipitant events can occur both at the global and individual levels. Historically, government repression has often acted as a catalyst for terrorism. In West Germany, for instance, the death of Benno Ohnesorg at the hands of the police contributed to the emergence of the Red Faction Army.

At the individual level, it is sometimes possible to identify one event that marks the beginning of a slippery slope toward violence. Revenge for the loss of a family member motivates sometimes terrorists.¹ The story of 15 year-old Somali Bashir Yusuf is very illustrative. He had always admired the Islamic Courts Union. However, his dream was to become a doctor, not a terrorist. His life changed when an Ethiopian missile landed on his house killing his father, his brother and two sisters. That night, he did not sleep. He took the decision to avenge his family. Within two weeks, he had joined an insurgent group that had pledged allegiance to al-Qaeda.² Precipitant events do not have to be so personal. For instance, Thamer Bouchnak, a young Frenchman of Tunisian origin decided to join the Jihad in Iraq after watching television. He did not react when Saddam Hussein was overthrown, he said. But he was “*very angry when he saw the tortures inflicted to Iraqi civilians in the prison of Abu Ghraib*”³. Those images coincided with his

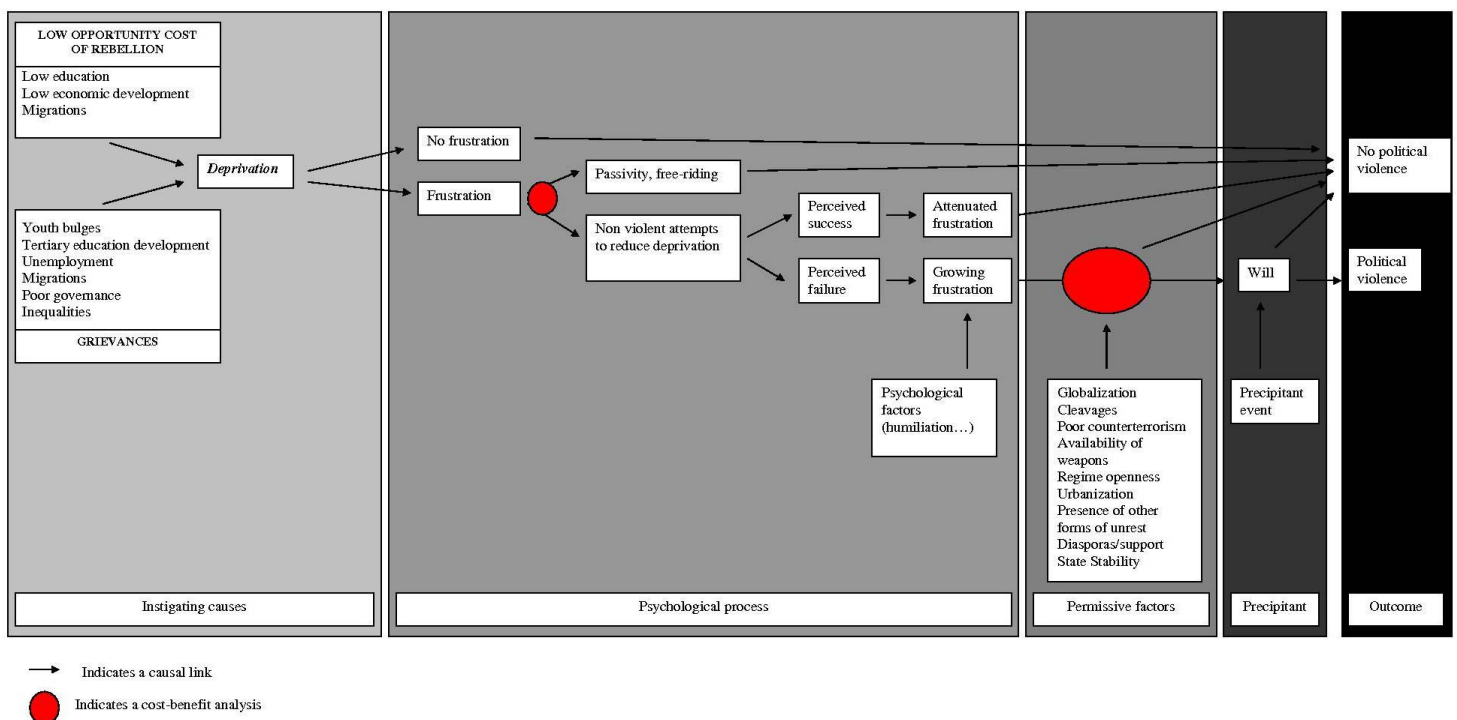
¹ Raymond H. Hamden, “Unresolved Trauma and the Thirst for Revenge: The Retributional Terrorist”, in James J. F. Forest, *The Making of a Terrorist: Recruitment (Volume I)*, op. cit., pp. 165-178.

² Abukar Albadri, “Revenge Drives Young Somali Militant”, *The Los Angeles Times*, 30 November 2007.

³ Patricia Tourancheau, “Un Ticket pour le Jihad”, *Libération*, 22 February 2005.

encounter with Farid Benyettou, an imam that preached radical Islamism in the *banlieues*. A few months later, he had planned a trip to Iraq in order to fight along Iraqis. The French authorities arrested him, though, the day before his departure.

FIGURE 1



Terrorism needs a substrate, a fertile soil to grow. This is provided by the so-called instigating causes. More numerous or more intense instigating causes create a greater sense of deprivation, which can either diminish the opportunity cost of rebelling for a group or an individual, or aggravate grievances among the population. Depending on the type of instigating cause dominating – greed or grievance –, the likelihood of terrorism will vary. The higher the grievance and the lower the opportunity cost, the higher the likelihood to engage in terrorism. Nevertheless, even high grievances and low opportunity cost do not automatically lead to terrorism. Deprivation may produce a

psychological feeling of frustration. However, it is possible that no frustration will ever be felt by deprived individuals as well. This is particularly true for the people that are so poor or so marginalized that they have no time to nourish bitterness. Their only concern is survival. Their answer to deprivation is political apathy. Frustrated individuals will proceed to an economic analysis of the costs and benefits of attempting to reduce their frustration. The result of that analysis will lead them to choose between either passivity – and eventually the hope of free-riding – or taking a non-violent action. Non-violent political action might take various forms, such as voting, becoming member of a political party, signing a petition, writing letters to newspapers, and so on. Individuals can also simply consider the peaceful options available and evaluate their potential. But in most of the cases, it appears that individuals have been consciously *exposed* to the non-violent options before eventually rejecting them. The outcome of peaceful political actions might be perceived as successful or not. Here it is important to emphasize that it is not much the outcome that matters, than the *perceived* outcome. A perceived failure will lead to growing frustration. After people have tried and failed in peaceful attempts to reduce their deprivation – or learned from the others' failed attempts –, they start a second economic analysis, more important than the first one, to evaluate the costs and benefits to join terrorism. Permissive factors play a central role in that analysis. For instance, in states with weak governments, it is less costly to opt for violence as the risk of being caught is reduced. The result of the cost-benefit analysis may lead to the will of using violence in order to resolve the deprivation problem. However, the simple will is not sufficient. Violence needs a trigger, which I call a precipitant event that will start the cycle of violence.

Motivations: Greed or Grievances?

The discussion on poverty and education in the previous chapter demonstrated how difficult it is to determine *what causes terrorism*. Many factors have been reviewed and some discrepancies were observed. As already mentioned, it is possible to avoid the apparent contradictions by focusing on the motivations of terrorists. Among the instigating causes, I differentiate between deprivation producing a low opportunity cost of rebellion and deprivation resulting in grievances. This is very important

because it means that deprivation may have a very different impact on individuals. Few authors offer a convincing explanation for the observation that many different terrorist profiles stretch from a poor and uneducated woman to an upper-class man with high education.

Ethan Bueno de Mesquita is among the few scholars who have tried to explain that variety of profiles.¹ He suggests that the willingness to become a terrorist is spread across the population, independently of the levels of income and education. However, he argues, the supply of *would-be terrorists* is so high that terrorist leaders resort to a real screening process that is very similar to a job interview. They make interviews because they want to select the most capable and skilled individuals to carry out a mission. An unstable or mentally-ill person, for instance, is not reliable because nobody can make sure he will carry out his mission correctly or that he will not denounce his comrades to the authorities. Moreover, a high rate of failure, or an ill-carried operation (mistake in timing or target, for instance) could have grave repercussions on the credibility and popularity of the group. Without surprise, people with higher education – which come most of the time from the middle and upper-classes – have a greater chance to be chosen. The work of Bueno de Mesquita relies heavily on a study of Nasra Hassan who interviewed a senior member of Hamas who said: “*Our biggest problem is the hordes of young men who beat on our doors, clamoring to be sent. It is difficult to select only a few. Those whom we turn away return again and again, pestering us, pleading to be accepted*”². Bueno de Mesquita’s argument is very compelling and probably true to a certain extent. However, there is a high chance that the leader of Hamas talking to Hassan exaggerated the number of volunteers. Moreover, not all the terrorist groups may have that many

¹ Ethan Bueno de Mesquita, *op. cit.*

² Nasra Hassan, “An Arsenal of Believers”, *The New Yorker*, 19 November 2001, pp. 36-41.

volunteers. And more importantly, he does not explain why there is a willingness to become a terrorist across all the socioeconomic groups.

I argue that poor and uneducated individuals do not have the same motivation for terrorism than rich and educated persons. People from a low socioeconomic background generally choose terrorism when they have little other options for surviving. In economic terms, it means that when the difference between current incomes and expected earnings from terrorism becomes negative, the incentives to join a terrorist group become higher. After accounting for non-economic costs – such as the risk of being arrested –, an individual is eventually tempted by the money. Abu Nawall, a former member of al-Qaeda in Iraq, said that he joined the group for the cash. He joined the group when his employer, a metal work company, ran out of business. As a terrorist, he earned as much as \$1,300 a month. *“I was out of work and needed the money,”* he said. *“How else could I support my family?”*¹

Rich and educated people tend to get involved in terrorism because they are angry. They have grievances that they want to be addressed. Some grievances may be very mundane, such as having a job. Other grievances are more consequential, such as changing the regime. Instigators and ideologues of a terrorist group are more likely to be motivated by grievances than by money. Many times, as instigating causes accumulate, both forms of deprivation can be observed simultaneously within a group as well as individually. A person may choose terrorism primarily for economic reasons, while hoping to reduce some of his grievances. Depending on the level of grievances and opportunity cost, I predict that the likelihood of terrorism will vary (see Figure 2). Individuals/societies with high grievances and low

¹ Amit R. Paley, “Iraqis joining Insurgency Less for Cause Than Cash”, *The Washington Post*, 20 November 2007.

opportunity cost are the most likely to face terrorism, while those with high opportunity cost and low grievances have little chance to have terrorism. One should not conclude from this section, however, that a low opportunity cost or high grievances will automatically lead to violence. Instead, many other factors play a role in the process leading to terrorism.

FIGURE 2

| | | | |
|------------|------|--|---|
| | | Opportunity cost | |
| | | HIGH | LOW |
| Grievances | HIGH | <p><i>Description:</i> High deprivation eventually leading to high frustration, but the decision to rebel is tempered by the high costs of rebellion.</p> <p><i>Probability:</i> MODERATE</p> | <p><i>Description:</i> Very high deprivation eventually leading to very high frustration with strong economic incentives to rebel.</p> <p><i>Probability:</i> HIGH</p> |
| | LOW | <p><i>Description:</i> Little deprivation eventually leading to frustration, but the motivation and incentives to rebel are low.</p> <p><i>Probability:</i> LOW</p> | <p><i>Description:</i> High deprivation eventually leading to high frustration, but the incentives matter more than real motivation.</p> <p><i>Probability:</i> MODERATE</p> |

Impacts of Climate Change on the Causes of Terrorism

This part analyzes the effects of climate change on the structural causes of terrorism described above (see Figure 3). The study of the impacts of climate change relies on a literature largely inspired by the work of the Intergovernmental Panel on Climate Change (IPCC), whose quality of work was widely recognized at the recent international summits on climate change.

For the sake of clarity, I follow in this chapter a similar methodology than in the precedents. I found that climate change will have four main impacts on the instigating causes of terrorism.

1. Climate change is likely to exacerbate **poverty** where it is already endemic through various mechanisms. First, the general decrease in crop productivity due to temperature rise will increase the problems related to malnutrition and increase the risk of famines, especially in Africa.¹ Although the total crop productivity may increase globally for a low increase in temperatures, the natural population growth and difficulties in food redistribution, as well as agricultural ill-policies can largely offset this trend. For higher temperature increases, the food production is likely to decrease globally. Also, due to the decrease in crop productivity, revenues from agriculture are going to dry up. As a consequence, climate change is expected to hit the hardest in regions that rely heavily on agriculture, not only in terms of food accessibility but also in terms of income.² Therefore, the impact on livelihoods, mainly in Africa, is likely to be very high. Second, water scarcity is going to further hamper agriculture through the intensification of the water cycles – longer and more intense droughts and floods. More intense water cycles will not only threaten the lives of millions due to floods or, conversely, lack of water, but it will also destroy the livelihoods of the many that rely

¹ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Impacts, Adaptation and Vulnerability. Summary for Policymakers*, IPCC Fourth Assessment Report (Working Group II), April 2007.

² United Nations Framework Convention on Climate Change (UNFCCC), *Assessing, Predicting and Managing Current and Future Climate Variability and Extreme Events, and Implications for Sustainable Development*, Background Paper, June 2007.

on fisheries for living.¹ Although the connection between poverty and terrorism is complex as underscored previously, the impoverishment of a part of the world population could substantially facilitate the work of terror recruiters. Moreover, there are already signs that al-Qaeda is trying to exploit the food crisis at its advantage. In his April 17 speech, al-Zawahiri capitalized on the bread crisis and water shortages in Egypt and Gaza: *“This corruption and theft has brought starvation to the people and a shortage of basic supplies. Those who have stolen the food of the Egyptian people are the same people who are preventing food from reaching the people of Gaza (...) The starvation of the Egyptian people and their shortages of bread and water in the Nile Delta are a part of the Zionist-American plot which seeks to humiliate our Islamic nation and most of its diaspora. The shortages of bread, the theft of the wealth of the Islamic nation, the starvation of its people, the poisoning of the air and the earth, and the spreading of general corruption, are merely symptoms of that cancer, which is spreading throughout the tissues of the nation”*².

2. Climate change is likely to increase **inequalities**. At the national level, the process is known as “*resource capture*”³. Decrease in quality and quantity of renewable resources, coupled with population growth, encourage powerful groups to shift resource distribution in their favor. As a result, poor people become even poorer and marginalized, and rich people become richer and more powerful. At

¹ Nicholas Stern, “The Economics of Climate Change”, *Stern Review*, October 2006.

² Ayman al-Zawahiri, *On the fifth Anniversary of the Invasion of Iraq*, translated by the NEFA Foundation, 17 April 2008.

³ Thomas Homer-Dixon, “Environmental scarcities and violent conflict: Evidence from cases”, *International Security*, Vol 19:1 (1994), p. 10.

the global level, it seems that developing countries, which rely the most on the environment, will be the hardest struck by climate change; while developed countries will either benefit from it, at least in the short-term, or merely adapt. This should foster al-Qaeda's propaganda, which often exploits global inequalities. Locally, some terrorist groups could also benefit from bad governance.

3. Climate change is likely to trigger more **migrations**. In a study, Rafael Reuveny found 38 cases of migrations caused by environmental factors, including: land degradation, droughts, deforestation, water scarcity, floods, storms and famines. He further found that most of those environmental migrations tended to trigger conflict in the receiving area. Reuveny also observed that migrations create a hostile atmosphere – increasing tensions along existing cleavages, or increased competition over scarce resources – that constitute a fertile ground for terrorism.¹ Europe could face a particular challenge with an increased influx of migrants from Africa and South Asia, due to a decline in food and water availability. Such influx could increase existing tensions in European countries, especially if integration policies of Muslim populations continue to fail.²

¹ Rafael Reuveny, "Climate Change-Induced Migration and Violent Conflict", *Political Geography*, volume 26, n°6, 2007, pp. 656-673.

² Kurt M. Campbell, Alexander T. J. Lennon, Julianne Smith (eds), *The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change*, A report co-edited by the Center for Strategic and International Studies (CSIS) and the Center for a New American Security (CNAS), November 2007, p. 59.

4. Climate change can trigger **state failure**, which in turn can increase the grievances of the population. Neo-Malthusians, like Thomas Homer-Dixon or Jack Goldstone, argue that population growth and resource depletion increase financial and political demands on governments. As poverty and inequalities are growing, the grievances against the ruling class are growing. Furthermore, marginalized individuals depend more and more financially on the government for food, shelter or employment. Simultaneously, the declining economic productivity restrains the available revenue of the government and thus erodes a state's administrative capacity. Eventually, the widening gap between state capacity and demands on the state leads to state failure.¹ As explained previously, the relationship between failed states and terrorism is indirect and tortuous. Indeed, terrorist groups search for stability, even in unstable environments. However, failed states and ungoverned areas offer them a formidable reservoir of deprived people, full of grievances against the government. In various places of the globe, al-Qaeda has already taken roots in ungoverned areas, such as in Somalia. This trend could accelerate in the future, as in places such as Bangladesh, for instance.

Interestingly, the four impacts of climate change on the instigating causes of terrorism will not bring anything new. Instead, they will simply exacerbate some existing trends. Poverty and inequalities will eventually grow. Migrations will continue or accelerate. The risk of state failure will increase where it is already present. In other words, climate change is a *threat multiplier*. In terms of motivation, the impact is likely to increase local and global grievances, although it could also diminish the opportunity cost of

¹ Colin Kahl, "Demography, Environment, and Civil Strife", in Lael Brainard, Derek Chollet (eds), *op. cit.*, pp. 60-72.

violence in some parts of the world. Hence, it can be said that climate change can potentially have a *growth effect* on the number of would-be terrorists, by increasing the number of deprived people around the globe. Climate change is also likely to have an impact on permissive factors. Here again, I found four main impacts, although I do not doubt that the list could be extended.

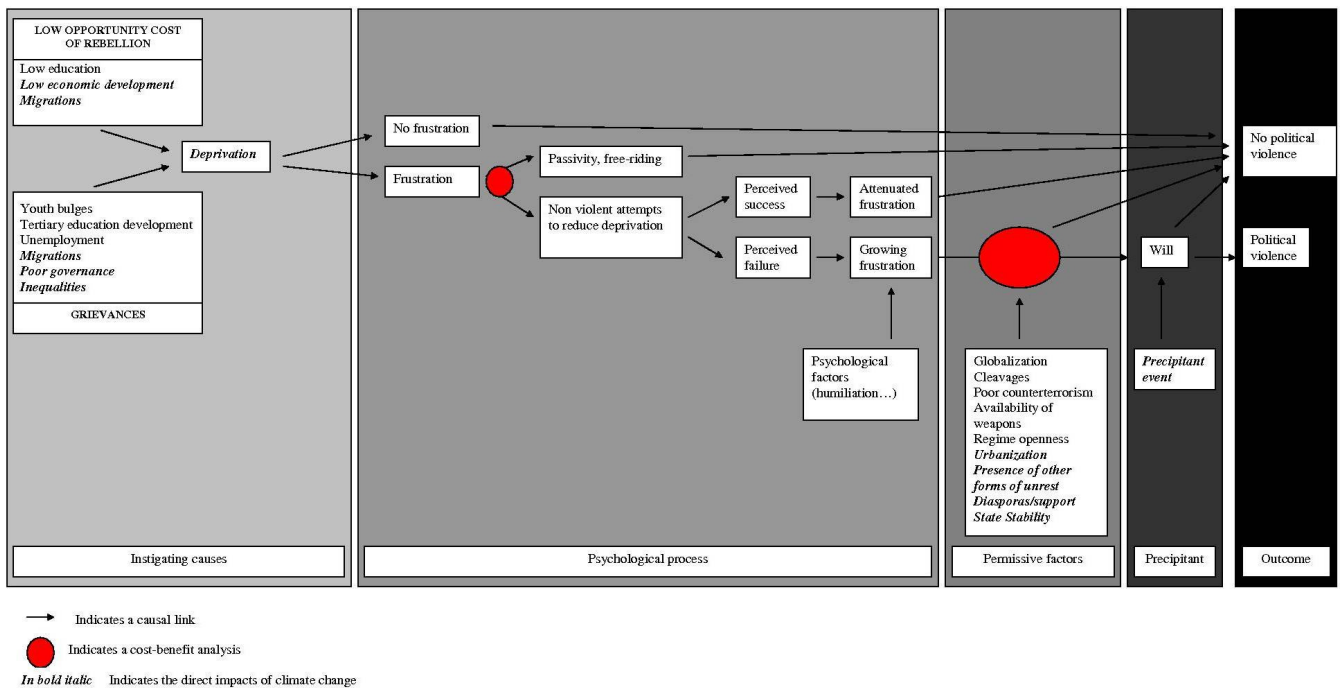


Figure 3

1. Climate change can lead to **conflict** through three main pathways.¹ First, as mentioned just above, according to neo-Malthusians,

¹ For more information on the relationship between climate change and conflict read Thomas Renard, *Climate Change and International Security: Understanding a Complex Relationship in*

climate change can lead to state failure. A high level of grievances coupled with no or little response from the state can lead toward civil strife or insurgency.¹ A second pathway from climate change to conflict is theorized through the concept of “loss of livelihoods”². Loss of livelihoods “marks a rapid transition from a previous stable condition of relative welfare into a condition of poverty or destitution”³. According to that theory, the deprivation caused by climate can push young men to look for substitute sources of income which they can find in looting or in joining militias. Finally, Reuveny has demonstrated that climate change can trigger migrations which can, in turn, lead to violence.⁴

2. Although the link between climate change and the formation of diasporas remain poorly studied, one can assume that some migrations caused by climate change – Reuveny identified 19 interstate migrations due to environmental degradation – will lead to the creation of international diasporas which could in turn support terrorism.

Order to Forecast Future Conflicts (2007-2030), Report for the Assistant Chief of Staff Strategy: Belgian Armed Forces, 31 July 2007, accessible via <http://thomasrenard.blogspot.com>.

¹ Thomas Homer-Dixon, *op. cit.*; Colin Kahl, *op. cit.*

² L. Ohlsson, *Livelihood Conflicts: Linking Poverty and Environment as Causes of Conflict*, Stockholm: Sida, 2000.

³ Luigi De Martino, *et al.*, *Environment and Security: Transforming Risks into Cooperation. Central Asia*, Geneva, 2005, p. 8.

⁴ Rafael Reuveny, *op. cit.*

3. As already mentioned, climate change can erode the **state's capacity** of functioning. Higher demands from the population as a result of environmental degradation, coupled with lower governmental incomes can lead to state failure. As a result, the government becomes less able to cope with popular uprisings and nascent terrorism. Unsurprisingly, weak or failed states have a bad record in counterterrorism policies, which can facilitate – or even encourage? – terrorism.
4. Finally, climate change could potentially accelerate **urbanization** through a rural exodus, as many people in the country cannot survive from their crops anymore. It is very likely that such urbanization will result in the creation of more slums and more ghettos, which can increase the burden on the state and eventually – in the case of an insufficient response – to increasing grievances against the government. Marginalized people living in slums have also a low cost of opportunity to join terrorist groups.

Like for the impacts on the instigating causes, climate change will not create new permissive factors. But it will exacerbate existing factors. The level of violence could increase in the world, which could create a favorable environment for terrorists. As a result of conflicts and environmental migrations, new or existing diasporas could proliferate and participate in the support – voluntarily or not – of terrorism. Ill-urbanization could also foster terrorism among deprived youth. Finally, and most importantly, climate change can affect the state capacity of governance, which is certainly the decisive factor when it comes to struggling against climate change and terrorism. Therefore, it can be said that climate change is likely to produce a more permissive environment for terrorism, although this will likely occur in places that are already vulnerable to political violence.

Finally, climate change has the potential to multiply the number of precipitant events. As precipitant events come at the very last stage of the causation model, they are likely to trigger violence only in a very limited number of cases. However, when all the conditions are fulfilled, certain events caused or exacerbated by climate change could become the spark for terrorism. Generally, nevertheless, it is the government response to natural disasters and other crises – or the absence of response – that determines whether violence will break out or not. If the government responds adequately to a crisis, it could appease some popular grievances and violence could be avoided. In the case of an ill-managed crisis, more grievances could be created, offering more legitimacy to political violence. Obviously, many natural disasters and humanitarian crises, well-managed or ill-managed do not result in creating or fostering terrorism, as demonstrated by the 2004 tsunami, the recent earthquake in China or the massive floods in Burma. However, natural disasters and environmental crises could potentially become important precipitant events for political violence in the future. Particularly:

- Climate change is likely to increase the number of people at risk of hunger and malnutrition.¹
- Droughts and floods are likely to become more severe, more frequent and strike larger regions.²
- Megacities in low-lying coastal areas, small islands and delta regions are particularly at risk due to rising sea levels, soil erosion and massive floods.¹

¹ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Impacts, Adaptation and Vulnerability. Summary for Policymakers*, *op. cit.*, p. 6.; Nicholas Stern, *op. cit.*, p. 72.

² Nicholas Stern, *op. cit.*, p. 62.

- The number of people lacking of access to water is likely to grow.²
- Storms are likely to become more intense.³
- Vector-borne diseases are likely to spread and kill more people.⁴
- Heat waves are likely to become more lethal.⁵

Impacts of Climate Change on the Targets of Terrorism

Climate change could increase the occurrence of specific forms of terrorism that have been relatively rare so far. Here, climate change does not exacerbate the causes of terrorism, but instead increase the salience and the vulnerability of the targets of terrorist attacks. First, climate change will increase the likelihood of *environmental terrorism*, a concept relatively recent and poorly studied. Environmental terrorism can be defined as an act of terrorism that uses the environment either as a tool or as a target. It must be

¹ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Synthesis Report. Summary for Policymakers*, IPCC Fourth Assessment Report, November 2007, p. 11.

² Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Impacts, Adaptation and Vulnerability. Summary for Policymakers*, *op. cit.*, p. 5.; Nicholas Stern, *op. cit.*, p. 62.

³ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: The Physical Science Basis. Summary for Policymakers*, IPCC Fourth Assessment Report (Working Group I), April 2007, p. 12.

⁴ Andrew Price-Smith, *On Climate Change and Infectious Disease: Implications for Political Destabilization and Conflict*, Testimony before the U.S. House of Representatives, Subcommittee on Investigations and Oversight, Committee on Science and Technology, September 27, 2007; Nicholas Stern, *op. cit.*

⁵ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Impacts, Adaptation and Vulnerability. Summary for Policymakers*, *op. cit.*

further differentiated from eco-terrorism that will be explained below, and from environmental warfare which is the degradation of the environment by states, generally as a collateral damage during war, but sometimes also voluntarily. In the case of a resource-as-tool attack, terrorists use the environment as a support or a conveyor. The most typical example would be terrorists pouring chemicals in a city reservoir. In the case of a resource-as-target attack, the environment *per se* becomes the target of terrorists. It should be noted that environmental terrorism has been a very rare phenomenon so far. Elizabeth Chalecki, one of the leading scholars in the field, has found very little compelling evidence of such attacks.¹ This does not mean, however, that it should be ignored. In 2003, the FBI revealed that an al-Qaeda member in detention had talked of masterminding a plot to set a series of devastating wildfires around the western United States.² Climate change could quickly increase the likelihood of environmental terrorism. Indeed, as natural resources become scarcer and more vulnerable due to global warming, they also become more valuable as targets. The pollution of a lake in Africa could threaten an entire population that depends upon that lake. The poisoning of an irrigation system could trigger starvation. The value of the environment as a target increases as well due to the growing awareness to climate change. Today, climate change and the environment are becoming very sensible topics. Natural disasters are now largely covered by the media, making the front page more often than thirty years ago. Considering that terrorists select their targets based on their deadly, media and symbolic potentials, the risk of environmental terrorism increases as the environment becomes a sensitive matter and a valuable target due to the effects of climate change.

¹ Elizabeth Chalecki, *A New Vigilance: Identifying and Reducing the Risks of Environmental Terrorism*, Pacific Institute, September 2001.

² "FBI: Al-Qaeda Detainee Spoke of Fire Plot", *USA Today*, 11 July 2003.

Second, climate change will increase the likelihood of *eco-terrorism*, which is not to be confused with environmental terrorism. Chalecki defines eco-terrorism as “*the violent destruction of property perpetrated by the radical fringes of environmental groups in the name of saving the environment from further human encroachment and destruction*”¹. In 1998, for instance, the Earth Liberation Front (ELF) purposely burned down a ski lodge in Vail, Colorado, resulting in \$12 million in property damage. The declared objective of the attack was to save the habitat of the lynx, which, they said, was threatened by the ski resort. The threat posed by eco-terrorists should not be underestimated. The FBI considers them to constitute the number one domestic terrorist threat to the United States.² Given that up to 40 percent of the world’s species could disappear by 2050 due to climate change, it is likely that eco-terrorism could increase in the future, especially if environmental militants attribute climate change to human (in-)action.³

Third, climate change could potentially, although indirectly, increase the risk of *nuclear terrorism*. As most of the world’s leaders are now convinced that climate change is happening and that they are committing their countries to take action to mitigate its effects, nuclear power is becoming more popular than ever.⁴ In the coming years, it is likely to be presented as

¹ Elizabeth Chalecki, *op. cit.*, p. 4.

² Chris Ayres, “Eco-terrorists top the FBI’s threat list after wave of arson attacks”, *The Times*, 11 March 2008.

³ Alex Kirby, “Climate Risk ‘to Million Species’”, *BBC Online*, 7 January 2004.

⁴ “Nuclear Power’s New Age”, *The Economist*, 8 September 2007.

one of the main alternatives to oil and gas. Hence, it can be expected to see a proliferation of nuclear plants, especially in non-OECD countries.¹

This proliferation presents two major risks: it increases the amount of potential targets for terrorists and it increases the probability that terrorists will obtain nuclear material. It is now known that al-Qaeda initially planned to include a nuclear plant in its targets on September 2001.² The consequences of a plane crashing on a nuclear reactor are unknown but could be catastrophic. It is also known that terrorists are trying to obtain nuclear material. Last November, for instance, Slovak police arrested three men that were trying to sell one kilogram of enriched uranium.³ The consequences of a nuclear terrorist attack are uncertain. A plane attack against a nuclear plant could produce a Chernobyl-like catastrophe, but some specialists claim that facilities could resist the crash.⁴ The probability that terrorists obtain a bomb from a rogue state or build it themselves is very low.⁵ Remains the dirty bomb scenario, which is the most likely of the three scenarios. Although the destructive power of a dirty bomb should not be overestimated, as the Tokyo metro attack demonstrated, the symbolic and emotional impacts of such attacks, especially in the US, would be enormous.

¹ Kurt M. Campbell, Alexander T. J. Lennon, Julianne Smith (eds), *op. cit.*, p. 68.

² Mark Holt, Anthony Andrews, *Nuclear Power Plants: Vulnerability to Terrorist Attacks*, CRS Report for Congress, 8 August 2007.

³ "Slovak Authorities Seize Radioactive Material", *Spiegel Online*, 29 November 2007.

⁴ Mark Holt, Anthony Andrews, *op. cit.*

⁵ John Mueller, "Radioactive Hype", *The National Interest*, September/October 2007, pp. 59-65.

Finally, climate change could increase the likelihood of a form of terrorism that I call *humanitarian terrorism*, which is a form of terrorism targeting humanitarian staff. Climate change is likely to increase the amount of military operations and humanitarian interventions abroad.¹ The UN estimates, for instance, that all but one of its emergency appeals for humanitarian aid in 2007 were climate related.² Attacks against foreign soldiers are generally not considered as terrorism. But attacks against humanitarian personnel are. Such attacks are already relatively frequent, in Afghanistan for instance. In the future, humanitarian personnel could become more often targeted by terrorist attacks. They could become targets of Islamists trying to hurt the “symbols of the West.” As they intervene in deprived regions, their supply convoys could also become more often targets of attacks to seize their contents.

A Time for Multilateralism

Climate change is expected to have a major impact on terrorism. However, climate change is relatively unlikely to trigger terrorism where tensions are nonexistent. Instead, climate change will act as a *threat multiplier*. It will exacerbate tensions where they already exist. Furthermore, it must be underscored that terrorism and other forms of political violence will appear only in few hot spots. In some places, climate change could just make things so bad that people do just not have the time, the motivation or the resources to join rebel groups. In other places, climate change could just have a reverse effect by triggering cooperation over scarce resources and, hence,

¹ Thomas Renard, *op. cit.*

² “Climate change and international security”, Paper from the High Representative and the European Commission to the European Council, 14 March 2008, p. 1.

appeasing tensions. In most cases, the government's reaction will be the key variable to determine whether violence will break out or not.

The effects of climate change will vary in intensity and frequency throughout the world. Therefore, the numerous impacts on the causes of terrorism that have been identified are unlikely to occur all simultaneously in one place. In Western Europe, climate change will increase immigration, but is likely to have no effect on urbanization. In Africa, not every state will collapse due to climate change. It is very hard to predict when and where those impacts will occur. However, according to most experts, it is very likely that most of them will happen. Moreover, *“well before glaciers melt or sea levels rise, global climate change will spur instability on a global scale, which will exacerbate many of the traditional national security challenges with which we are grappling today, including terrorism”*¹. Potential impacts of climate change have been identified on the instigating causes of terrorism, on the permissive factors, and on the precipitant events. Given that the causation model presented in this study is linear, the impacts of climate change are different depending on the level they intervene. *The impacts of climate change on the instigating causes of terrorism result in a growth effect on terrorism.* Impacts on the instigating causes increase the amount of potential terrorists. Climate change fills the reservoir of deprived people. It exacerbates grievances, and diminishes the opportunity cost of getting involved in violence. *Climate change has an exacerbating effect on the permissive factors of terrorism.* It exacerbates existing tensions. Climate change for instance accelerates an unsustainable form of urbanization, creating more slums. It also increases the risk of state failure. *Climate change has a multiplying effect on the precipitant events.* Natural disasters should become more violent and more frequent. In some cases, natural disasters could act as a trigger event for terrorism. *Finally, climate*

¹ Alexander T. J. Lennon, Julianne Smith, *op. cit.*

change increases the vulnerability and the salience of certain potential targets of terrorism. Therefore the likelihood of four forms of terrorism is likely to increase: environmental terrorism; eco-terrorism; nuclear terrorism; and humanitarian terrorism.

From these observations, it appears that terrorism and climate change should not be thought separately. This is not to say that both issues are so intermingled that they require similar remedies, but that measures taken against climate change could also have a positive impact on the fight against terrorism. Policies to mitigate the impacts of climate change should be seen as policies to mitigate terrorism as well. Obviously, policies that mitigate the effects of climate change will not be sufficient to eradicate terrorism. Hence, counter-terrorism must continue as an independent field, although I now invite counter-terrorist experts to take into account potential impacts of climate change into their policies and studies. Interestingly, both climate change and terrorism offer two similar avenues for combating them. This should help policy-makers to think about both topics in comparable terms. On one side, it is possible to mitigate climate change, which involves cutting CO₂ emissions. On the other side, it is possible to reinforce the adaptability of countries to climate change, by diminishing their vulnerability and reinforcing their resilience. Similarly, terrorism can be mitigated (war on terrorism) or societies can adapt (resilience). Climate change and terrorism have in common the fact that they cannot be mitigated in the short term. Therefore, I recommend the use of a combination of mitigation and adaptation.

Climate change and counter-terrorism have also in common the fact that they are better fought through multilateralism. Hence, the opportunities of cooperation opened by the global fight against climate change could easily benefit the global cooperation against terrorism. Multilateralism has

not only become inevitable, but it is the best available option in order to adapt to this changing world and to face the present and coming challenges.

