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# **Climate Change, the Environment and Armed Conflict**

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## Climate Change, the Environment and Armed Conflict

### A. Introduction

Climate change is a global problem. Scientists have determined that “climate change” can directly cause changes to the environment which in turn may then indirectly affect human beings in the long term.<sup>1</sup> This paper does not aim to argue that climate change directly affects and causes armed conflict but that it does so indirectly, by causing environmental changes which could potentially be a significant factor in triggering or prolonging conflict.<sup>2</sup> This is of course a potentially vicious cycle as armed conflict could, in turn, negatively affect the environment and the population, thereby leading to a new cycle of destruction.

A causal link between climate change and armed conflict was clearly explained by the United Nations Environment Programme (UNEP) in its 2007 report entitled *Sudan: Post-Conflict Environmental Assessment*<sup>3</sup> [hereafter, 2007 UNEP Report]. Using the situation in Darfur as an example, this paper examines whether the current laws are appropriate to deal with the wider and indirect effects of climate change. In particular, the

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<sup>1</sup> See generally: *Global warming must stay below 2C or world faces ruin, scientists declare*, The Times, May 28, 2009, at: <http://www.timesonline.co.uk/tol/news/environment/article6380709.ece> (last accessed 1st July 2009); David Cohen, *Climate change could kill 500,000 a year by 2030*, New Scientist, May 29, 2009, at: <http://www.newscientist.com/article/dn17218-climate-change-could-kill-500000-a-year-by-2030.html> (last accessed on 1st July 2009); *The St James Palace Memorandum: “Action for a Low Carbon and Equitable Future”*, St. James’ Palace Nobel Laureate Symposium, London, UK, 26 -28 May 2009 at: [http://www.newscientist.com/data/doc/article/dn17218/sjp\\_memorandum.pdf](http://www.newscientist.com/data/doc/article/dn17218/sjp_memorandum.pdf) (last accessed 1st July 2009).

<sup>2</sup> See generally, Robin McKie, *Climate wars threaten billions*, The Observer, Nov 4, 2007 at: <http://www.guardian.co.uk/environment/2007/nov/04/climatechange.scienceofclimatechange> (last accessed 1st July 2009).

<sup>3</sup> *Sudan: Post-Conflict Environmental Assessment*, UNEP, 2007, [hereafter, 2007 UNEP Report], at: [http://postconflict.unep.ch/publications/UNEP\\_Sudan.pdf](http://postconflict.unep.ch/publications/UNEP_Sudan.pdf) (last accessed 4th August 2009).

question is raised as to whether the international community is endowed with the legal means to prevent armed conflicts borne out of environmental degradation caused by climate change.

## B. Causal Link Between Climate Change and Armed Conflict

### i) Climate Change

In 2007, the Intergovernmental Panel on Climate Change (IPCC)<sup>4</sup> reported that warming of the climate system is unequivocal.<sup>5</sup> As one scholar aptly noted:

‘Climate change poses a long-term global threat, with significant human, national and international security implications. Its projected consequences range from weather extremes to resource depletion and exacerbation of existing social conflicts, from compounding disease epidemics through to the complete disappearance of entire nation states, particularly low-lying island states in the South Pacific.’<sup>6</sup>

The natural environment is necessary for our survival. However, with this new problem of climate change<sup>7</sup> which is affecting the environment at an accelerated rate, causing changes and degradation, combined with the exploding human population, the environment will no longer be able to effectively fulfil out needs. Thus, conflicts may

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<sup>4</sup> The IPCC was established by the World Meteorological Organization (WMO) and United Nations Environment Programme (UNEP) to improve the understanding of climate change, its potential impacts and recommendations or options for global adaptation and mitigation. The IPCC periodically publishes its scientific findings on climate change.

<sup>5</sup> Working Group I, IPCC, *Climate Change 2007: The Physical Science Basis* (IPCC Fourth Assessment Report, 2007), at: [http://www.ipcc.ch/publications\\_and\\_data/publications\\_ipcc\\_fourth\\_assessment\\_report\\_wg1\\_report\\_the\\_physical\\_science\\_basis.htm](http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg1_report_the_physical_science_basis.htm) (last accessed 12th August 2009).

<sup>6</sup> Christopher K. Penny, ‘Greening the Security Council: Climate Change as an Emerging “Threat to International Peace and Security”’, (2007) 7.35-71 *Int Environ Agreements* 35, at p. 37 [hereafter, Penny 2007].

<sup>7</sup> For the purpose of this paper, the definition of “climate change” used will be based on the definition by the United Nations Framework Convention on Climate Change (UNFCCC), Art. 1 (2) as ‘a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.’

result as the ever growing human population scrambles to compete for the decreasing resources provided by the changing environment.<sup>8</sup> ‘Security analysts and academics have warned for some time now that climate change threatens water and food security, the allocation of resources, and coastal populations, threats which in turn could increase forced migrations, raise tensions and trigger conflict.’<sup>9</sup>

The worrying issue of climate change has increasingly gained prominence in the last few decades. In fact the United Nations General Assembly indicated its concern in respect of this issue via Resolution 45/53<sup>10</sup> which clearly stated that ‘climate change is a common concern of mankind, since climate is an essential condition which sustains life on earth.’<sup>11</sup> However, in certain circumstances there is no doubt that the very real issue of climate change has been hyped up. For example, in 2003, the Pentagon commissioned two expert scenario analysts to consider the impact of abrupt climate change for international peace and security.<sup>12</sup> When this came to the attention of the media, a slew of

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<sup>8</sup> *Climate Change and Conflict – New Report Weighs the Risks and Pin Points Likely Hotspots*, Bali, 10 December 2007, UNEP Press Release, at: <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=523&ArticleID=5720&l=en> (last accessed 2<sup>nd</sup> July 2009). For an in depth analysis on climate change and international security by prominent German and Swiss academics, see the German Advisory Council on Global Change (WBGU) 2007 Risk Analysis Report, *Climate Change as a Security Risk*, UK and US: Earthscan, 2008, at: [http://www.wbgu.de/wbgu\\_jg2007\\_engl.pdf](http://www.wbgu.de/wbgu_jg2007_engl.pdf) (last accessed 2<sup>nd</sup> July 2009).

<sup>9</sup> Oli Brown, Anne Hammill and Robert McLeman, ‘Climate Change as the ‘New’ Security Threat: Implications for Africa’, (2007) 83 (6) *International Affairs* 1141 [hereafter, Brown, Hammill and McLeman 2007]. See also, Berel Rodal, ‘The environment and changing concepts of security’, *Canadian Security Intelligence Service Commentary* No. 47, August 1994, at: <http://www.csis-scrs.gc.ca/pblctns/cmmntr/cm47-eng.asp> (last accessed 5<sup>th</sup> August 2009).

<sup>10</sup> A/RES/43/53 (6 December 1988) at: <http://www.un.org/documents/ga/res/43/a43r053.htm> (last accessed 1<sup>st</sup> July 2009).

<sup>11</sup> Para. 1, A/RES/43/53, *ibid*.

<sup>12</sup> Peter Schwartz and Doug Randall, ‘An Abrupt Climate Change Scenario and Its Implications for the United States National Security’, October 2003, at: <http://www.gbn.com/articles/pdfs/Abrupt%20Climate%20Change%20February%202004.pdf> (last accessed 14<sup>th</sup> August 2009). See also, ‘US Military Engages Climate Change’, *NewScientist*, August 10, 2009, at: <http://www.newscientist.com/blogs/shortsharpscience/2009/08/us-military-declares-war-on-cl.html> (last accessed 14<sup>th</sup> August 2009).

exaggerated new stories ensued. In fact, one media story hyped it up to the point of labelling climate change as the ‘mother of all national security issues.’<sup>13</sup>

In 2004, the United Kingdom (UK) Government’s chief scientific advisor, Sir David King, stated that, ‘climate change is a far greater threat to the world than international terrorism.’<sup>14</sup> ‘Margaret Beckett, the British Foreign Secretary between May 2006 and June 2007, consciously made ‘climate security’ a central plank of British foreign policy during her short stint at the Foreign Office.’<sup>15</sup> During a foreign policy address in Berlin in October 2006, she pointed out that:

‘[w]hen people are exposed to the stresses caused by overpopulation, resource scarcity, environmental degradation, as they feel the security upon which they and their families depend progressively slipping away, so we see the slide down the spectrum from stability to instability. What should concern us here in the foreign policy community is that an unstable climate will place huge additional strain on these tensions which we spend our time trying to resolve. They are already at a breaking point and climate change has the potential to stretch them far beyond it.’<sup>16</sup>

In 2007, a panel of military advisors, consisting of eleven retired American admirals and generals gave a report<sup>17</sup> ‘arguing that climate change will act as a ‘threat multiplier’ that makes existing concerns, such as water scarcity and food insecurity, more complex and intractable and presents a tangible threat to American national security interests.’<sup>18</sup>

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<sup>13</sup> David Stipp, ‘The Pentagon’s Weather Nightmare: The climate could change radically, and fast. That would be the mother of all national security issues’, *Fortune*, February 9, 2004, at: [http://www.thewe.cc/weplanet/news/people/abrupt\\_climate\\_change\\_event.htm](http://www.thewe.cc/weplanet/news/people/abrupt_climate_change_event.htm) (last accessed 14th August 2009).

<sup>14</sup> BBC News, ‘Global warming “biggest threat”’, 9 January 2004, at: <http://news.bbc.co.uk/1/hi/sci/tech/3381425.stm> (last accessed 4th August 2009).

<sup>15</sup> Brown, Hammill and McLeman 2007, n. 9 above, at p. 1142.

<sup>16</sup> British Embassy Berlin, ‘Beckett speech on climate change and security’, 24 October 2006, at: <http://ukingermany.fco.gov.uk/en/newsroom/?view=Speech&id=4616005> (last accessed 5<sup>th</sup> August 2009).

<sup>17</sup> National Public Radio, ‘Climate Change Worries Military Advisors’, April 16, 2007, at: <http://www.npr.org/templates/story/story.php?storyId=9580815&ps=rs> (last accessed 5<sup>th</sup> August 2009).

<sup>18</sup> Brown, Hammill and McLeman 2007, n. 9 above, at p. 1142.

Further evidence of the international community's growing commitment to tackle the issue of climate change can be seen from the unprecedented debate led by the UK that was held at the United Nations (UN) Security Council on 17<sup>th</sup> April 2007 'on the impact of climate change on security.'<sup>19</sup> The debate, although greeted with enthusiasm by most of the European nations, did encounter heavy doubts from some states. For example, China, South Africa and Egypt voiced their views that the Security Council was an inappropriate venue to have such a debate. Despite stiff resistance from certain quarters, more than fifty states participated in 'the day-long debate and the majority agreed both that climate change presented a threat to international security and that the Security Council was an appropriate, albeit not the only, forum in which to discuss the issue.'<sup>20</sup>

However, it has to be borne in mind that changes in the environment alone will not be a threat to international peace and security i.e. it is not likely to be the sole reason to trigger the outbreak of armed conflict.<sup>21</sup> It is environmental changes, with the combination of existing divisions within society, be they political, economic or social in nature. Basically, climate-induced environmental changes is one of many variable factors that may trigger or exacerbate a potential conflict situation.

## ii) Nexus between Climate Change and Armed Conflict

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<sup>19</sup> United Nations Security Council Department of Public Information, 'United Nations Security Council holds first ever debate on impact of climate change on peace, security hearing over 50 speakers', UN Security 5663<sup>rd</sup> meeting, 17 April 2007, at: <http://www.un.org/News/Press/docs/2007/sc9000.doc.htm> (last accessed 5th August 2009).

<sup>20</sup> Brown, Hammill and McLeman 2007, n. 9 above at p. 1143.

<sup>21</sup> *From Conflict to Peacebuilding: The Role of Natural Resources and the Environment*, Nairobi, UNEP, February 2009, [hereafter, 2009 UNEP Natural Resources Report], at: [http://postconflict.unep.ch/publications/pcdmb\\_policy\\_01.pdf](http://postconflict.unep.ch/publications/pcdmb_policy_01.pdf), at p. 8.

A causal link between climate change and armed conflict is explained by the 2007 UNEP Report which clearly states that:

‘complex but clear linkages exist between environmental problems and the ongoing conflict. Indeed, climate change, land degradation and the resulting competition over scarce natural resources are among the root causes as well as the consequences of the violence and grave humanitarian situation in the region.’<sup>22</sup>

However, the link between climate change, environmental degradation and armed conflict is more complicated in reality. The *Implications of Climate Change for Armed Conflict* study commissioned by the World Bank for the “Social Dimensions of Climate Change” workshop [hereafter, World Bank Climate Change Study], stated that the expected implications of climate change will not cause elevated conflict risk in all societies. The study further stated that the extent to which any factors like ‘economic instability, political instability, social fragmentation, migration and inappropriate response’ pan out and increase the possibility ‘of organized violence depends crucially on country-specific and contextual figures.’<sup>23</sup>

Some scholars argue that ‘[i]t is unquestionably true that social variables must be central to any adequate explanation of human conflict, whether in rich or poor countries.’<sup>24</sup> Moreover, ‘[t]he societies most vulnerable to environmentally-induced violence are those simultaneously experiencing severe environmental scarcity and

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<sup>22</sup> 2007 UNEP Report, n. 3, at p. 22.

<sup>23</sup> Halvard Buhaug, Nils Petter Gleditsch and Ole Magnus Theisen, 2008 ‘Implications of Climate Change for Armed Conflict’, paper prepared by the Social Dimensions for Climate Change program, Washington, DC: World Bank, Social Development Department, at p. 2 [hereafter, Buhaug, Gleditsch and Theisen 2008].

<sup>24</sup> Daniel M. Schwartz, Tom Deligiannis, and Thomas F. Homer-Dixon, ‘The Environment and Violent Conflict: A Response to Gleditsch’s Critique and Some Suggestions for Future Research’, (Summer 2000) 6 Environmental Change & Security Project Report 77, at p. 81 [Schwartz, Deligiannis, and Homer-Dixon 2000].

various forms of institutional failure (especially failure of states and markets) that hinder social adaptation to scarcity. The key role of social variables must therefore be acknowledged.<sup>25</sup> Hence '[t]he resource and environmental factors in conflict must be considered in the context of a multifaceted view of armed conflict.'<sup>26</sup> I will go on to consider five primary variable factors: population growth, migration, political instability, economic instability and cultural instability.<sup>27</sup>

### Population Growth

Scholars have noted that, in general, 'one of the most robust findings in the quantitative conflict literature is that impoverished and institutionally weak countries, usually measured by low GDP per capita, have an exceptionally high risk of armed conflict and civil war.'<sup>28</sup> Thus, it has been argued that population-induced resource scarcity in particular, poses 'a security threat in developing countries with low capacity to prevent or adapt to scarcities.'<sup>29</sup>

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<sup>25</sup> *Ibid.*

<sup>26</sup> Nils Petter Gleditsch, 'Environmental Change, Security, and Conflict' in Chester A. Crocker, Fen Osler Hampson and Pamela R. Aall (Eds.), *Leashing the Dogs of War: Conflict Management in a Divided World*, Washington, D.C.: United States Institute of Peace Press, 2007, [hereafter, Gleditsch 2007], at p. 185.

<sup>27</sup> These variable factors are non-exhaustive.

<sup>28</sup> Henrik Urdal, 'Demographic Aspects of Climate Change, Environmental Degradation and Armed Conflict', United Nations Expert Group Meeting on Population Distribution, Urbanization, Internal Migration and Development, 2008 at p. 3 [hereafter, Urdal 2008]. See also generally, Håvard Hegre and Nicholas Sambanis, 'Sensitivity Analysis of Empirical Results on Civil War Onset', (2006) 50 (4) *Journal of Conflict Resolution* 508 at: <http://jcr.sagepub.com/cgi/reprint/50/4/508?ck=nck>; Paul Collier and Anke Hoefler, *Greed and Grievance in Civil War*, The World Bank Policy Research Working Paper 2355, May 2000 at: [http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2000/06/17/000094946\\_00060205420011/Rendred/PDF/multi\\_page.pdf](http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2000/06/17/000094946_00060205420011/Rendred/PDF/multi_page.pdf)

<sup>29</sup> Urdal 2008, n.28 above, at p.3. See also generally, Thomas F. Homer-Dixon, *Environment, Scarcity, and Violence*, Princeton University Press, 2001 [hereafter, Homer-Dixon 2001].

It has also been argued that although population growth rates are decreasing at a global level, developing 'low income countries particularly in parts of Asia and sub-Saharan Africa will continue to experience very significant population growth rates in the near future.'<sup>30</sup> Sub-Saharan Africa, despite HIV/AIDS mortality rates, 'is expected to have the world's fastest population growth'<sup>31</sup> and 'the world's second most populous region, exceeded only by South Asia.'<sup>32</sup> The total population in this region 'is expected to peak around year 2080 at about 1.5 billion, almost two and a half times the population in year 2000.'<sup>33</sup> These areas of predicted accelerated population growth are expected to be the most vulnerable, suffering from severe impacts of global climate change.<sup>34</sup> The African continent in particular, combined with the impacts of climate change, could arguably become a hotbed of armed conflicts. Thus, even though population and environmental pressures are not likely to be the primary cause of international warfare, scholars admit that it could trigger and exacerbate violent local conflicts.<sup>35</sup>

## Migration

Another variable to the impact of climate change is migration i.e. the interaction between climate change, forced migration and conflict. Migration in this instance would mean the movements of people to better and safer locations as a result of increasing climate

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<sup>30</sup> Urdal 2008, n.28 above, at p.3.

<sup>31</sup> Wolfgang Lutz, Warren C. Sanderson and Sergei Scherbov (Eds.), *The End of World Population Growth in the 21<sup>st</sup> Century: New Challenges for Human Capital Formation and Sustainable Development*, London and Sterling, VA: Earthscan, 2004 at p.45.

<sup>32</sup> *Ibid.*

<sup>33</sup> Urdal 2008, n.28 above, at p.3.

<sup>34</sup> *Ibid.* See also, Nicholas Herbert Stern, *The Economics of Climate Change: The Stern Review*, Cambridge: Cambridge University Press, 2007 at p. 120.

<sup>35</sup> Gleditsch 2007, n. 26 above, at p. 187; Urdal 2008, n. 28 above, at p. 6; Homer-Dixon 2001, n. 29 above, at p. 179.

variability and environmental degradation. Most migrations that occur are domestic in nature rather than international. And, any international movements of people would occur in the region of developing countries.<sup>36</sup> Migration can be a dual cause and effect issue. It can be ‘both a cause and effect of worsening environmental conditions.’<sup>37</sup> It has to be borne in mind however, that it is unlikely that people would migrate solely for environmental reasons. Other overlapping factors such as economic, political and social aspects within a particular country, would contribute towards the potential migration. Those same factors could also influence people to move to the new more attractive location.

Both, ‘the issue of “climate refugees” as a source of conflict’<sup>38</sup> and ‘the extent to which environmental change is a factor in migration decisions’<sup>39</sup> are issues of contention. Nevertheless, scholars have admitted that climate change induced migration in certain situation can lead to violent conflict.<sup>40</sup> The World Bank Climate Change Study sets out theoretical possibilities whereby ‘climate-induced migration is argued to lead to violent conflict in receiving areas.’<sup>41</sup> First, the new migrants may cause competitive scrambling over dwindling resources in the new location. Second, if the new migrants are of a different ethnicity or religion to the existing population, it may give rise to ethnic or religious tensions. ‘Third, large flows of migrants may cause mistrust between the sending and receiving state. Finally, climate-induced migration may create or exacerbate

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<sup>36</sup> Jon Barnett, ‘Security and Climate Change’, Tyndall Centre for Climate Change Research, Working Paper No. 7, October 2001, at p. 8 [hereafter, Barnett 2001]

<sup>37</sup> Buhaug, Gleditsch and Theisen 2008, n. 23 above, at p. 27.

<sup>38</sup> Urdal 2008, n. 28, at p. 5.

<sup>39</sup> Barnett 2001, n. 36 above, at p. 8.

<sup>40</sup> See for example, Barnett 2001, n. 36, at p. 8; Buhaug, Gleditsch and Theisen 2008, n. 23 above, at p. 27.

<sup>41</sup> Buhaug, Gleditsch and Theisen 2008, n. 23 above, at p. 27.

traditional fault lines, for instance when migrant pastoralists and local sedentary farmers compete over the use of land.’<sup>42</sup>

Urdal notes that ‘[t]he potential for and challenges related to migration spurred by climate change should be acknowledged, but not overemphasized.’<sup>43</sup> Some climate-induced environmental changes like extreme weather events or natural disasters may cause abrupt and substantial, but mostly temporary migration.<sup>44</sup> ‘However, the most dramatic form of change expected to affect settlements, sea-level rise, is likely to happen gradually, as are processes of soil and freshwater degradation.’<sup>45</sup> With regards to gradual climate-induced changes, better forecasting abilities and perhaps early warning systems would ‘make adaptation easier and reduce the problem of population displacements.’<sup>46</sup>

‘So, while abrupt displacements may happen, climate change is primarily expected to result in gradual migration. Furthermore, capable governments may in some cases be able to prevent or at least drastically reduce large-scale migration in the first place, and government capability is also crucial in determining the pace and conditions for the return of temporarily displaced populations.’<sup>47</sup> Thus, regardless of whether gradual or abrupt climate-induced migration occurs, a good and effective governance system is needed in the countries potentially affected.

### Political Instability

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<sup>42</sup> *Ibid.*

<sup>43</sup> Urdal 2008, n.28 above, at p. 5.

<sup>44</sup> *Ibid.*

<sup>45</sup> *Ibid.*

<sup>46</sup> *Ibid.*

<sup>47</sup> *Ibid.*

Another variable overlapping factor that may cause armed conflict is political instability. ‘While many countries have the ability to adapt to environmental change, some countries, particularly poor and institutionally weak states, are likely to be more vulnerable to environmentally related violence.’<sup>48</sup> Urdal sets forth the argument that, ‘relatively weaker states are presumably more likely to experience resource scarcity conflicts firstly because they are less capable of mitigating the effects of resource scarcity, and secondly because they are generally more likely to be militarily challenged by opposition groups.’<sup>49</sup> There is no doubt that ‘strong states’ are less likely to suffer from internal conflicts. ‘They have effective administrative hierarchies and they control the legitimate use of force, which helps manage potential internal challengers. They also have the capacity to mediate impending conflicts before they turn violent.’<sup>50</sup>

Therefore, good governance is crucial. With good and effective governance, it is likely that the country in question would be better able to weather any climate-induced environmental changes. A country does not have to specifically have a Western style democratic governance system. Both, democracies and strongly autocratic regimes would likely be able to effectively cope with climate-induced environmental stress and resource scarcities.<sup>51</sup> The former, with the ability to respond accountably and appropriately to such problems and the latter, with the ability to cope due to strict and tighter governmental control. Thus, as long as some form of effective governance exists, the state may be less vulnerable the implications of climate change.

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<sup>48</sup> Urdal 2008, n. 28 above, at p. 6; Homer-Dixon 2001, n. 30 above, p. 179.

<sup>49</sup> Urdal 2008, n. 28 above, at p. 7.

<sup>50</sup> Barnett 2001, n. 36 above, at p. 6

<sup>51</sup> Ibid.

## Economic Instability

The economic structure of a particular state also plays an important part in preventing conflict caused by climate-induced environmental degradation. 'Greater income may indicate less dependence on natural resources, and thus lower vulnerability to scarcities, as well as greater economic ability to accommodate groups affected by scarcity.'<sup>52</sup>

Gleditsch notes that, '[m]any forms of environmental degradation are primarily poverty problems....'<sup>53</sup> 'Environmental disasters that at first glance may seem to derive from poor economic conditions are frequently the result of poor economic policy decisions.'<sup>54</sup> This shows that effective and good governance is crucial. It has to be borne in mind that '[e]conomic policy cannot, on the other hand, provide a short-term cure for the poverty that is irrevocably intertwined with large-scale undernourishment and poor health. To root out these problems requires long-term economic growth and technological progress.'<sup>55</sup>

Gleditsch further argues that, '[e]conomic development also has a restraining influence on violent behaviour in environmental conflict, since wealth is negatively associated with armed conflict, interstate as well as intrastate. Wealthy individuals and groups stand to lose more if war breaks out. If the wealth is widespread, it is likely to act as a general deterrent to participation in major violence.'<sup>56</sup>

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<sup>52</sup> Clionadh Raleigh and Henrik Urdal, 'Climate Change, Environmental Degradation and Armed Conflict', Paper presented to the 47<sup>th</sup> Annual Convention of the International Studies Association, San Diego, CA, 22-25 March 2006, at p. 10 [hereafter, Raleigh and Urdal 2006].

<sup>53</sup> Gleditsch 2007, at p. 184.

<sup>54</sup> Ibid.

<sup>55</sup> Ibid.

<sup>56</sup> Ibid.

## Social Instability

Social instability includes cultural clashes between divided ethnic and religious groups which could also lead to conflict. This could be an underlying cause of violent conflict that is exacerbated by environmental problems, climate change induced or otherwise.<sup>57</sup>

Another cause of current conflict is a society that already has a history of conflict.<sup>58</sup> A history of armed conflict could cause damage and destruction to the environment, which in turn could cause resource scarcity. The war torn country, in the aftermath of war may end up in a vicious cycle of poverty, poor governance, environmental degradation, and a relapse into violence.<sup>59</sup>

In respect of the variable factors discussed above, Raleigh and Urdal sums it up by stating that, '[g]enerally, we expect that the capacity to avoid violent conflict over scarce resources increases with higher income, stronger democratic or autocratic institutional features and with greater cultural homogeneity.'<sup>60</sup> Thus, leaving developing, poorer, less effectively governed states to be the most vulnerable to climate-induced environmental degradation and resource scarcity.

The 2006 study conducted by Raleigh and Urdal which had the objective of predicting 'future risks of violent conflict under different climate change scenarios'<sup>61</sup> using environmental data stemming 'from several sources, and include indicators of

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<sup>57</sup> Gleditsch 2007, n. 26 above, at p. 187.

<sup>58</sup> Ibid; see also generally, Arvid Raknerud and Håvard Hegre, 'The Hazard of War: Reassessing the Evidence for the Democratic Peace', (1997) 34(4) *Journal of Peace Research* 385.

<sup>59</sup> Gleditsch 2007, n. 26 above, at p. 187.

<sup>60</sup> Raleigh and Urdal 2006, n. 52 above, at p. 10.

<sup>61</sup> Ibid, at p. 3.

freshwater scarcity, productivity of land, and population growth and density',<sup>62</sup> presented the suggested results: 'that water scarcity positively and significantly<sup>63</sup> related to conflict and the relationship between water and conflict is strengthened in territorial conflicts. Higher level of soil degradation are associated with increased risks of conflict, although less so in relation to territorial conflict. Population density and growth are positively associated with conflict, with density having a smaller and population growth having a greater impact on territorial conflicts. Ethnic fractionalization is consistently positively correlated with all types of conflicts. Consistent with previous studies of civil war, we find that areas in countries with higher levels of per capita income are less susceptible to conflict.'<sup>64</sup> Hence, it is arguable that the added problem of accelerated climate change could cause serious problems

iii) Darfur

I will go on to consider the situation in Darfur as an example. Although many see climate change as a potential future threat in respect of armed conflict, some argue that it has already had an impact in reality.<sup>65</sup> For instance, as mentioned earlier, in the 2007 UNEP Report, it was suggested that climate change and environmental degradation did have a

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<sup>62</sup> Ibid at p. 3.

<sup>63</sup> 'The level of significance is set to  $p < 0.05$ .'

<sup>64</sup> Raleigh and Urdal 2006, n. 52 above, at pp. 16-17.

<sup>65</sup> Ibid, at p. 7; Shirley V. Scott, 'Climate Change and Peak Oils as Threats to International Peace and Security: Is it Time for the Security Council to Legislate?', (2008) 9(2) *Melbourne Journal of International Law* 495, at p. 504; see also generally, Michael Byers and Nick Dragojlovic, 'Darfur: A Climate Change-Induced Humanitarian Crisis?', (October 2004) *Human Security Bulletin*, at: [http://hsbcms.liucentre.ubc.ca/October\\_2004/Editorials/en/index.php](http://hsbcms.liucentre.ubc.ca/October_2004/Editorials/en/index.php) (last accessed on 18<sup>th</sup> August 2009).

part to play in the conflict in Darfur.<sup>66</sup> The report claimed a strong causal link between climate-induced land degradation, desertification and violent conflict in Darfur.<sup>67</sup>

Darfur, although being the largest region in west of Sudan, is geographically isolated, resulting in it being virtually ignored by the central Sudanese government in Khartoum.<sup>68</sup> The conflict in Darfur was caused by various factors.<sup>69</sup> It was initiated by natural ecological adversity which was exasperated by serious mismanagement of the problems by the government. In northern Darfur rain has decreased by a third over the last 80 years<sup>70</sup> and it has been suggested that the declining rainfall is attributed to some degree to global warming.<sup>71</sup>

As correctly noted by UN secretary-general, Ban Ki-Moon, ‘Almost invariably, we discuss Darfur in a convenient military and political shorthand - an ethnic conflict pitting Arab militias against black rebels and farmers. Look to its roots, though, and you discover a more complex dynamic. Amid the diverse social and political causes, the Darfur conflict began as an ecological crisis, arising at least in part from climate change.’<sup>72</sup> Violence in Darfur erupted during the drought as a result of a combination of these factors. Once the rain stopped, there was no longer enough food and water for the population. Thus, fighting and conflict broke out when local groups rebelled, triggering

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<sup>66</sup> 2007 UNEP Report, n. 3 above, at p. 22

<sup>67</sup> Ibid.

<sup>68</sup> Leilani.F. Battiste, ‘The Case for Intervention in the Humanitarian Crisis in Sudan’, (2005) 11 Annual Survey of International and Comparative Law 49, at p. 51.

<sup>69</sup> Kate Johnston, ‘Climate Change: A Cause for Conflict?’, Global Politics Magazine, January 2008 at: <http://www.globalpolicy.org/component/content/article/198/40388.html#author> (last accessed 1<sup>st</sup> July 2009).

<sup>70</sup> 2007 UNEP Report, n. 3 above, at p. 60; Lydia Polgreen, *New Depths: A Godsend for Darfur, or a Curse?*, 22 July 2007, The New York Times, at: <http://www.nytimes.com/2007/07/22/weekinreview/22polgreen.html?ex=1342756800&en=a7889020c08d20b6&ei=5088&partner> (last accessed 7<sup>th</sup> April 2009).

<sup>71</sup> Ban Ki Moon, *A Climate Culprit in Darfur*, Washington Post, June 16 2007; A15, at: [http://www.washingtonpost.com/wp-dyn/content/article/2007/06/15/AR2007061501857\\_pf.html](http://www.washingtonpost.com/wp-dyn/content/article/2007/06/15/AR2007061501857_pf.html) (last accessed 7<sup>th</sup> April 2009).

<sup>72</sup> Ibid.

counter attacks by the Khartoum controlled Sudanese central army and government backed Arab militias, the Janjaweed. By 2003 this escalated into the tragedy we observe today. Nearly four years of armed conflict has killed around 200,000 people and more than five million people have been displaced.<sup>73</sup> Some 200,000 Darfurians have also sought refuge in neighbouring Chad. Furthermore, the ongoing civil war also included instances of destruction against natural resources e.g. various water resources and systems within Sudan became military tools and targets.<sup>74</sup>

Although violence erupted during the drought primarily as a result of diverse political and social problems with a combination of food and water insecurity and the lack of arable land to go around, tensions in Darfur were simmering just below the surface, years before the drought over water, land and grazing rights between the mostly nomadic Arabs and farmers from local African tribal communities. The question is, whether appropriate preventive measures or a preventive stance taken by the international community would have been able to avert such disaster or at least diffuse some of the violence.

Nevertheless, conflicts do not occur simply because of environmental damage and degradation. Indeed, ‘an environmental catastrophe cannot become a violent

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<sup>73</sup> *Sudan ‘Accepts UN Darfur Force’*, BBC news, 23 December 2006, at: <http://news.bbc.co.uk/go/pr/fr/-/2/hi/africa/6204489.stm> (last accessed 7th April 2009). This report, as known at the end of 2006, stated that more than 2 million people were displaced. However, more current reports state that more than five million people have been displaced internally as well as refugees in Sudan. See also *Environmental Degradation Triggering Tensions and Conflict in Sudan*, UNEP Press Release, 22 June 2007, at: <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=512&ArticleID=5621&l=en> (last accessed 7th April 2009).

<sup>74</sup> ‘In 2003, villagers from around Tina said that bombings had destroyed water wells. In Khasan Basao they alleged that water wells were poisoned. In 2004, wells in Darfur were intentionally contaminated as a part of strategy and harassment against displaced populations.’ Peter H. Gleick, *Pacific Institute’s Water Conflict Chronology*, (updated November 2008), at p. 29, at <http://www.worldwater.org/conflictchronology.pdf> (last accessed 25th August 2009).

cataclysm without a powerful human hand to guide it in that direction.’<sup>75</sup> Whilst this is true, there is no doubt that in this situation, ecological factors, in this case, lack of arable land and drought, played a major part in instigating conflict. The UNEP Sudan Post-Conflict Environmental Assessment report points to an overall spread of deserts by an average of 100km in the last four decades, a loss of almost 12% of forest cover in the last 15 years and overgrazing of fragile soil.<sup>76</sup> Unfortunately, the conflict in turn, owing to the displaced Darfurians, is further exasperating the spread of deserts and deforestation, potentially threatening to raise future ethnic tensions.

iv) Africa

The World Bank Climate Change Study stated that, ‘[a]rmed conflicts are increasingly concentrated in the poorest and most vulnerable portion of the world’s countries. Future environmental changes will place further strains on these countries, possibility reducing the prospects for conflict resolution and sustained economic growth.’<sup>77</sup> And, there is no doubt that some of the world’s poorest and most vulnerable countries will be within the African continent. As some scholars have noted, ‘[c]limate change is now being recast as a threat to international peace and security; and the region seen as most likely to suffer its

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<sup>75</sup> Polgreen, n. 70 above.

<sup>76</sup> 2007 UNEP Report, n. 3 above, at pp. 58-68; see also *Environmental Degradation Triggering Tensions and Conflict in Sudan*, UNEP Press Release, June 2007, at: <http://www.unep.org/Documents.Multilingual/Default.sp?DocumentID=512&ArticleID=5621&l=en> (last accessed on 7<sup>th</sup> April 2009).

<sup>77</sup> Buhaug, Gleditsch and Theisen 2008, n. 23 above, at p. 15.

worst effects is Africa.’<sup>78</sup> As it is, ‘[m]ost of the world’s armed conflicts now take place in sub-Saharan Africa...’<sup>79</sup>

The Intergovernmental Panel on Climate Change (IPCC) in its 2007 assessment noted that ‘Africa is one of the most vulnerable continents to climate change and climate variability, a situation aggravated by the interaction of “multiple stresses”, occurring at various levels, and low adaptive capacity.’<sup>80</sup> The IPCC goes on to state that:

‘Africa’s major economic sectors are vulnerable to current climate sensitivity, with huge economic impacts, and this vulnerability is exacerbated by existing developmental challenges such as endemic poverty, complex governance and institutional dimensions; limited access to capital, including markets, infrastructure and technology, ecosystem degradation; and complex disasters and conflicts. These in turn have contributed to Africa’s weak adaptive capacity, increasing the continent’s vulnerability to projected climate change.’<sup>81</sup>

There are a number of factors that make the African region particularly vulnerable to the implications of climate change. First, by virtue of the fact that Africa already has a warm climate, which is likely to get warmer and drier this century as well as being exposed to unpredictable rainfall patterns across the continent.<sup>82</sup> Two, particularly since the vast majority of the population have a close dependency on natural resources, this change in

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<sup>78</sup> Brown, Hammill and McLeman 2007, n. 9 above at p. 1141.

<sup>79</sup> Oli Brown and Alec Crawford, ‘Climate Change and Security in Africa: A Study for the Nordic-African Foreign Ministers Meeting’, Canada: International Institute for Sustainable Development (IISD), 2009, [hereafter, Brown and Crawford 2009] at p. 5.

<sup>80</sup> M Boko, I Niang, A Nyong, C Vogel, A Githeko, M Medany, B Osman-Elasha, R Tabo and P Yanda, ‘Africa. Climate Change 2007: Impacts, Adaptation and Vulnerability’ in ML Parry, OF Canziani, JP Palutikof, PJ van der Linden and CE Hanson (Eds.), *Climate Change 2007: Impacts, Adaptation and Vulnerability*, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Cambridge: Cambridge University Press, 2007), pp. 433-67, at: <http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter9.pdf> (last accessed 6th August 2009) [Boko et al., 2007] at p. 435.

<sup>81</sup> Ibid.

<sup>82</sup> See Brown, Hammill and McLeman 2007, n. 9 above, at p. 1145; Brown and Crawford 2009, n. 80 above, at p. 12.

climate will have significant effects ‘on the day-to-day economic development for Africa, particularly for the agricultural and water-resources sectors, at regional, local and household scales’,<sup>83</sup> potentially causing serious problems for food insecurity in the region.<sup>84</sup> Third, climate change could cause extreme weather events, which ‘[f]or many African countries, natural disasters involve too much or too little rain.’<sup>85</sup> The region could experience severe droughts or flooding as a result of predicted inconsistent rains.<sup>86</sup> Fourth, predicted rising sea-levels will significantly affect many of Africa’s densely populated low-lying coastal areas.<sup>87</sup> Fifth is the complex combination and interaction of socio-economic factors: ‘the lack of good governance; persistent and widespread poverty; poor economic and social infrastructure; conflicts and limited human, institutional and financial capacities means that as a continent, Africa is least able to adapt to the effects of climate change.’<sup>88</sup> Thus, ‘[t]he covariant mix of climate stresses and other factors in Africa means that for many in Africa adaptation is not an option but a necessity.’<sup>89</sup>

v) Problems Linking Climate Change, Environmental Degradation and Armed Conflict

‘The scientific basis for climate change is increasingly well established, and there is continuous growth in the amount of research being done on the biophysical impacts of climate change in terms of raised sea

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<sup>83</sup> Boko et al., 2007, n. 80 above, at p. 436.

<sup>84</sup> Brown, Hammill and McLeman 2007, n. 9 above, at p. 1146.

<sup>85</sup> Brown and Crawford 2009, n. 79 above, at p. 10.

<sup>86</sup> See Brown, Hammill and McLeman 2007, n. 9 above, at p. 1146; Brown and Crawford 2009, n. 79 above, at p. 10.

<sup>87</sup> Ibid.

<sup>88</sup> Brown and Crawford 2009, n. 79 above, at p. 12; see also, Boko et al., 2007, n. 80 above, at p. 440.

<sup>89</sup> Boko et al., n. 80, at p. 441.

levels, altered precipitation patterns, and more frequent and fierce storms, and the likely consequences of all these effects for human well-being.<sup>90</sup>

Despite the massive media attention and claims that indicated a strong link between climate change and armed conflict, academic research on this subject appears to be controversial. The conclusion that at present time there exists very limited empirical evidence as well as concrete and robust research for a direct *causal* link between climate change and violent conflict, has been put forward by numerous scholars.<sup>91</sup> This is not surprising due to the complexities involved in the science of climate change. And, as Brown and Crawford pointed out, this is ‘even before considering its impact on societies with widely differing resources and varied capacities to adapt to external shocks.’<sup>92</sup>

Academic views and research on this subject of climate change and conflict has been varied and controversial. For example, researchers like Homer-Dixon (2001),<sup>93</sup> Schwartz and Randall (2003)<sup>94</sup> argued that there is a direct link between environmental conditions, resource scarcity and the outbreak of violent conflict, particularly in developing regions. However, Homer-Dixon did warn that in general, environmental stress is likely to cause conflict only in combination with other socio-economic risk factors. Barnett (2001)<sup>95</sup> concluded that climate change may be a security threat to some states and societies, but that due to insufficient evidence from current environment-conflict research, it is difficult to make a robust claim on the impact of climate-induced

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<sup>90</sup> Brown, Hammill and McLeman 2007, n. 9 above, at p. 1147.

<sup>91</sup> See e.g. Brown, Hammill and McLeman 2007, n. 9 above, at p. 1147; Penny, n. 6 above, at pp. 39-40; Gleditsch 2007, n. 26 above, at p. 181; Buhaug, Gleditsch and Theisen 2008, n. 23 above, at p. 40; Brown and Crawford 2009, n. 79 above, at p. 6.

<sup>92</sup> Brown and Crawford 2009, n. 79 above, at p. 6.

<sup>93</sup> See generally, Homer-Dixon 2001, n. 29 above.

<sup>94</sup> See Schwartz and Randall 2003, n. 12 above.

<sup>95</sup> See Barnett 2001, n. 36 above.

environmental change on armed conflict. Gleditsch (2007)<sup>96</sup> also admitted that resources and environmental issues do have a role in conflict, but that these issues and violent conflict are influenced by other political, economic and social factors already in play. Raleigh and Urdal (2006)<sup>97</sup> concluded a link between climate-induced environmental changes and violent conflict in the context of local level demographic variable like land degradation, water scarcity, low GDP and population density. Buhaug, Gleditsch and Theisen (2008) find that prevailing research shows no evidence of a direct link between the environment and conflict, but that this could be due to the flaws and limitations inherent in existing research. They go on to conclude that despite the lack of systematic link between climate change and armed conflict, there is a possibility that a link may emerge in the near future. Lee (2009)<sup>98</sup> finds that the road leading from climate change to conflict will be an indirect one, being susceptible to ‘sustained [climate change] trends, intervening variables, and the need for conflict triggers.’<sup>99</sup> Brown, Hammill and McLeman (2007)<sup>100</sup> and Brown and Crawford (2009)<sup>101</sup> concludes that climate change is a ‘threat multiplier’ that intensifies existing problems and vulnerabilities, including environmental stress, with a specific focus on Africa.

Overall, evidenced by the lack of robust finding of the climate change-conflict nexus, academics have concluded that ‘much further research is required before making confident predictions about climate change and violent conflict. A research programme looking to empirically investigate climate-conflict linkages in greater detail would be

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<sup>96</sup> See Gleditsch 2007, n. 26 above.

<sup>97</sup> See Raleigh and Urdal 2006, n. 52 above.

<sup>98</sup> See James R. Lee, *Climate Change and Armed Conflict: Hot and Cold Wars*, Oxon: Routledge, 2009.

<sup>99</sup> Ibid, at p. 3.

<sup>100</sup> See Brown, Hammill and McLeman 2007, n. 9 above.

<sup>101</sup> See Brown and Crawford 2009, n. 79 above.

most effectively targeted at the sub-state level, in weak states or states in economic transition where levels of inequality are high, and areas where renewable environmental resources are highly sensitive to climate change.<sup>102</sup>

### C. Laws Affecting Climate Change

#### i) General International Law and Climate Change

Growing global awareness concerning climate change began in the 1970s<sup>103</sup> when the international community realised that extensive comprehensive scientific information was required to gain better understanding of the phenomenon as well as to coordinate a remedial system for it. This led to the 1972 UN Conference on the Human Environment in Stockholm, its subsequent Declaration<sup>104</sup> as well as the establishment of a specialized UN environmental agency, UNEP.<sup>105</sup> In 1988, the IPCC was specifically established to provide scientific evidence regarding global climate change.<sup>106</sup>

There is no doubt that the international community since then, has strived to make significant efforts to address the causes of climate change. Almost all states are parties to the United Nations Framework Convention on Climate Change of 1992 (UNFCCC),<sup>107</sup> which recognises in its Preamble that the human-induced greenhouse gases that cause

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<sup>102</sup> For example, see Barnett 2001, n. 36 above, at p. 9; Gleditsch 2007, n. 26 above, at pp. 181-183; Buhaug, Gleditsch and Theisen 2008, n. 23 above, at pp. 41-42.

<sup>103</sup> Penny 2007, n. 6 above, at p. 38.

<sup>104</sup> Declaration of the United Nations Conference on the Human Environment, A/CONF.84/14 (1972).

<sup>105</sup> UN General Assembly Resolution 2997 (XXVII) (15 December 1972).

<sup>106</sup> See n. 4 above.

<sup>107</sup> United Nations Framework Convention on Climate Change (UNFCCC) (New York, 9 May 1992), (1992) 31 ILM 849. As of May 24, 2004, 189 states are parties to the Framework Convention. See, e.g., UNFCCC: Status of Ratification, at:

[http://unfccc.int/files/essential\\_background/convention/status\\_of\\_ratification/application/pdf/ratlist.pdf](http://unfccc.int/files/essential_background/convention/status_of_ratification/application/pdf/ratlist.pdf).

global warming ‘may adversely affect natural ecosystems and humankind.’<sup>108</sup> The UNFCCC was formulated with the objective of being a set of ‘guiding principles’<sup>109</sup> and thus, ‘outlined non-binding emissions stabilization principles and information-gathering mechanisms rather than imposing specific binding emissions reduction standards upon individual states.’<sup>110</sup>

Thereafter, building upon the general principles set out in the UNFCCC, the 1997 Kyoto Protocol<sup>111</sup> was set out to establish ‘specific targets for the reduction of greenhouse gas production by individual states.’<sup>112</sup> The legally binding Kyoto Protocol entered into force in February 2005. Nevertheless, as one scholar noted, while Kyoto was a crucial milestone in the ongoing process of combating climate change, it was never meant to be, not is it in fact, the ultimate solution to the causes and consequences of this phenomenon.<sup>113</sup> Moreover, the treaty has not been ratified or acceded to by all nations, including Australia and the US, both themselves major greenhouse gas producers.<sup>114</sup> Furthermore, being Party to Kyoto itself is not indicative of actual compliance. Nevertheless, global ‘efforts to strengthen this regime continue, most recently with major multilateral conferences in Montreal,<sup>115</sup> in late 2005, and Bonn,<sup>116</sup> in May 2006.’<sup>117</sup> And, the international community’s continuing commitment to climate change is evidenced by

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<sup>108</sup> Preamble, UNFCCC, *ibid.*

<sup>109</sup> Penny 2007, n. 6 above, at p. 41.

<sup>110</sup> *Ibid.*

<sup>111</sup> Kyoto Protocol to the UNFCCC (Kyoto, 11 December 1997), (1997) 38 ILM 22.

<sup>112</sup> Penny 2007, n. 6 above, at p. 42.

<sup>113</sup> *Ibid.*

<sup>114</sup> Kyoto Protocol: Status Ratification, at

[http://unfccc.int/files/essential\\_background/kyoto\\_protocol/application/pdf/kpstats.pdf](http://unfccc.int/files/essential_background/kyoto_protocol/application/pdf/kpstats.pdf) (last accessed 21<sup>st</sup> August 2009)

<sup>115</sup> [The 11<sup>th</sup> Conference of Parties to the Framework Convention and the 1<sup>st</sup> Conference of Parties/Meeting of Parties to Kyoto Protocol.](#)

<sup>116</sup> [The 24<sup>th</sup> session of the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation of the Framework Convention.](#)

<sup>117</sup> Penny 2007, n. 6 above, at p. 42.

the expectation that a hundred and eighty-seven nations will be represented at the UN Climate Change Conference held in Copenhagen this December, in an attempt to come to ‘a new international agreement, to take effect after the Kyoto Protocol expires in 2012.’<sup>118</sup>

Despite global efforts in coordinating multilateral remedial action<sup>119</sup> existing scientific predictions indicate that climate change has already begun and will continue in the foreseeable future. All these international efforts are considered to be a significant advancement, which perhaps may be able to minimise the causes and consequences of climate change in the foreseeable future, but they will not be able to erase them. Critics have also commented that ‘if measured in terms of global reductions in greenhouse gas emissions or an improving climate prognosis,’<sup>120</sup> the international law intended to govern the responses to climate change have so far failed to live up to expectations.<sup>121</sup> On the other hand, some argue that, ‘[f]rom the perspective of poor and vulnerable communities, who are often marginalised in policy-making processes, the climate change process is also by far the most open and dynamic multilateral process in town – with powerful lobbies in developed countries and increasingly in developing countries emerging to

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<sup>118</sup> Paulo Wrobel, ‘Climate Change and Renewable Energy: Brazil’, *The World Today*, Vol. 65 No. 5, May 2009 at p. 11.

<sup>119</sup> While the UNFCCC and its Kyoto Protocol are two major treaties that specifically address climate change, there are numerous other multilateral environmental agreements which address some aspects of global climate change. These include, for example: the Montreal Protocol on Substances that Deplete the Ozone Layer, September 16, 1987 (1987), 26 I.L.M. 1550; the Basel Convention on Transboundary Movement of Hazardous Wastes and Their Disposal (1989), 28 I.L.M. 687; and, the Cartagena Protocol on Biosafety to the Biodiversity Convention (2000) 39 I.L.M. 1027.

<sup>120</sup> Scott 2008, n. 66 above, at p. 496.

<sup>121</sup> E.g., *ibid*, at p. 500; Penny 2007, n. 6 above, at p. 36.

catalyse progressive change across a wide spectrum of actors, such as coalitions of marginalised countries supported by NGOs and civil society.<sup>122</sup>

Despite the differing views on this subject, there is no doubt that addressing the causes of climate change is extremely important. However, with the knowledge that climate change is already upon us, addressing the implications of climate change is just as crucial. It has already been established that despite the limited, complex and empirically tenuous climate change-violent conflict link, conflict is arguably a distinct possibility as a result of climate change implications. The question is, looking at general international law in relation to climate change, do we have an adequate regime to prevent armed conflicts borne out of climate-induced environmental change?

ii) Prevention: Laws & Methods for Climate Change Induced Conflict

From the discussion and findings above, arguably there is a link (albeit a vague and tenuous one) between climate change and armed conflict. Certainly, there is no question that further comprehensive research is required in order to ascertain a more concrete *causal* link, particularly in order for researchers and policymakers to formulate better laws and strategies to combat the implications of climate change. This is certainly necessary in relation to creating and improving the laws and strategies aimed at preventing armed conflict as a result of climate-induced environmental changes.

From the research literature reviewed, a repeated assertion seems to be that there is limited systematic research to conclusively state that there is a climate change and

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<sup>122</sup> Farhana Yamin, Atiq Rahman and Saleemul Huq, 'Vulnerability, Adaptation and Climate Disasters', (October 2005) 36(4) IDS Bulletin 1, at p.10.

armed conflict link. Therefore, as varying academics hold differing views on these issues, it is probably best to use the ‘precautionary principle’ in dealing with the implications of climate change as it would be the case of ‘too little too late’ once concrete scientific affirmation is found.

The precautionary principle is based on the idea that it is preferable to prevent damage or destruction to the environment beforehand despite the lack of scientific information, rather than subsequently trying to deal with the damage or pollution after it has occurred. As recognised by the Rio Declaration on Environment and Development<sup>123</sup> ‘[i]n order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.’<sup>124</sup> Likewise, Article 3.3 of the UNFCCC<sup>125</sup> states that:

‘The Parties should take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost.’

As the science of climate change, its causes, implications let alone how to deal with the consequences are extremely complex and for the most part necessarily speculative,

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<sup>123</sup> Rio Declaration on Environment and Development, U.N. Conference on Environment and Development, U.N. Doc. A/CONF.151/5/Rev.1 [hereinafter Rio Declaration], reprinted in 31 ILM 874 (1992).

<sup>124</sup> Ibid, Principle 15.

<sup>125</sup> See n. 108 above.

‘analysts urge decision-makers to apply the “Precautionary Principle”.’<sup>126</sup> It has been argued that ‘the overall security threat posed by climate change is no less real for this uncertainty. Climate change is a reality, and projections indicate that this threat will continue in the foreseeable future. That its causes and consequences have not yet been adequately identified only heightens its inevitable long-term negative security implications.’<sup>127</sup> As pointed out by some researchers, ‘uncertainty should not be an excuse for failure to act.’<sup>128</sup> Therefore, while significant global efforts to reduce the anthropocentric causes of climate change proceed, the international community should simultaneously develop and implement effective responses to the consequences.<sup>129</sup>

Thus, the reality of climate change means that its implications are already being felt. Implications which, already has<sup>130</sup> or could in the future indirectly lead to or exacerbate violent conflict.<sup>131</sup> Hence, in relation to armed conflict, international efforts to prevent it should probably be channelled to be more region or country specific.

#### (ii.a) Laws: Region or Country Specific

As discussed above, the countries most susceptible to climate change and potential conflict are developing countries saddled with other variables such as low economic,

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<sup>126</sup> Janet Abramovitz, Tariq Banuri, Pascal O. Girot, Brett Orlando, Norry Schneider, Erika Spanger-Siegfried, Jason Switzer and Anne Hammill, ‘Adapting to Climate Change: Natural Resource Management and Vulnerability Reduction’, Background Paper to the Task Force on Climate Change, Adaptation and Vulnerable Communities, 2002, [hereafter, Abramovitz, et al., 2002] at p. 7, at: [http://www.iisd.org/pdf/2002/envsec\\_cc\\_bkgd\\_paper.pdf](http://www.iisd.org/pdf/2002/envsec_cc_bkgd_paper.pdf).

<sup>127</sup> Penny 2007, n. 6 above, at p. 43.

<sup>128</sup> Abramovitz, et al., 2002, n. 126 above, at p. 7.

<sup>129</sup> Ibid.

<sup>130</sup> As mentioned above, it has already been indicated that there is a climate change-conflict link in the Darfur situation. See, 2007 UNEP Report, n. 3 above, at pp. 79-88.

<sup>131</sup> For potential future expectations of the impact of climate change, particularly in terms of armed conflict, see Buhaug, Gleditsch and Theisen 2008, n. 23 above, at p. 6.

political and social ability to address the implications of this unavoidable phenomenon. However, due to the fact that certain regions, states or societies are more prone to outbreaks of conflict than others, global efforts in addressing the implications of climate change should perhaps prioritize the most vulnerable areas. It has been argued that,

‘[t]here is substantial spatial overlap between today’s conflict-prone societies and the areas expected to be hit most adversely by future climate change. The East-Central parts of Africa, the Middle East, and Central and East Asia, which already suffer disproportionately from instability and violence, face a double security challenge through additional climate-imposed strains on human health and livelihood. This is likely to exacerbate the differences between those who are able to adapt to a changing environment and those who are caught in the ‘conflict trap’.’<sup>132</sup>

In addition, climate-induced environmental changes are unlikely to occur equally across a country. In reality, ‘...severe forms of environmental change are often confined to smaller areas than entire countries....’<sup>133</sup> and ‘[s]imilarly, violent political conflicts seldom affect all parts of the country equally.’<sup>134</sup> Simply put, any links between climate change and armed conflict is actually smaller in scale than any exaggerated prediction of climate change causing all out war or violent conflict as people scramble over increasingly dwindling resources.

In Darfur, for example, conflict occurred between nomadic herders and settled pastoralists over arable land. Fighting broke out in one part of the country that was suffering from severe environmental degradation as a result of lack of rainfall, rapid desertification and land degradation. Of course, conflict did not implode solely over the lack of arable land as a result of climate-induced environmental degradation. It was a

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<sup>132</sup> Buhaug, Gleditsch and Theisen 2008, n. 23 above, at p. 42.

<sup>133</sup> Raleigh and Urdal, n. 52 above, at p. 3.

<sup>134</sup> Ibid.

combination of that and overlapping pre-existing social and political factors. The key point here is that environmental degradation exacerbated by climate change alone did not cause the outbreak of violence.

Therefore, as countries most susceptible to climate change suffer from some form of socio-economic instability and the additional fact that the impact of such environmental changes would be felt unequally, global efforts of laws and methods regarding this subject, including conflict prevention, should be geared more specifically towards these most vulnerable societies, particularly within Africa. With respect to the other variables such as political, economic and cultural instability, arguably the first step for these countries would be to concentrate on achieving some form of good governance.

### Good Governance

Research has ‘increasingly demonstrated the links between successful socioeconomic development, sound economic and social policies and government capacity coupled with political will. These findings have been incorporated into reform agendas under the broad rubric of ‘good governance’. Because of the expansive nature of the term, good governance can be defined in various ways. In general, governance concerns how a society organizes to solve public problems, set policies, allocate resources and produce public goods.’<sup>135</sup> Elements of good governance which are considered to be widely accepted include the following components: effective rule of law, transparency and free

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<sup>135</sup> Peter Glasbergen, ‘Setting the scene: the partnership paradigm in the making’ in Pieter Glasbergen, Frank Biermann and Arthur P.J. Mol (eds.), *Partnerships Governance and Sustainable Development: Reflection on Theory and Practice*, Cheltenham, UK: Edward Elgar Publishing, 2007 [hereafter, Glasbergen 2007] at p. 97.

flow of information, accountability, effective management of public resources, control of corruption, citizen participation.<sup>136</sup>

Good governance is extremely crucial in relation to conflict prevention and the knowledge that Africa, predicted to be one of the most vulnerable regions to climate change, requires assistance in achieving good governance is not new. The use of the term “governance” surfaced in the World Bank’s 1989 *World Development Report*<sup>137</sup> which categorically declared that, ‘[u]nderlying the litany of Africa’s developmental problems is the crisis of governance.’<sup>138</sup> From here onwards, it became entrenched in the minds of the international community that lack of ‘good governance’ is the root of hindered economic and social development. And, in society today, an obstacle to environmental development as well. Thus, in relation to coping with the implications of climate change, ‘weaker states’ should attempt to improve themselves in order to be able to cope.

An example of effective good governance in preventing conflict would be, say Palestine and Israel. Thus far neither territory has gone to war over shared water resources. The reason could be because these countries have effective riparian agreements in place. In fact, according to some academics, ‘water wars’ are unlikely because water as a resource is too important to waste fighting over.<sup>139</sup> Gleditsch also

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<sup>136</sup> Ibid at p.99; see, Principle 6, New Delhi Declaration; see also, ‘What is Good Governance?’ by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), at: <http://www.unescap.org/pdd/prs/ProjectActivities/Ongoing/gg/governance.asp> (last accessed on 19th August 2009).

<sup>137</sup> See World Bank, *Sub-Saharan Africa: From Crisis to Sustainable Growth* (1989) [hereinafter World Bank, *Africa*].

<sup>138</sup> See Thandika Mkandawire, *The Itinerary of and Idea*, 1 October 2004, at: [http://www.unrisd.org/unrisd/website/newsview.nsf/\(httpNews\)/2C5859E012A29D06C12570220036B48A?OpenDocument](http://www.unrisd.org/unrisd/website/newsview.nsf/(httpNews)/2C5859E012A29D06C12570220036B48A?OpenDocument). Also in D + C Development and Cooperation, Volume 31, Number 10, October 2004.

<sup>139</sup> See Nils Petter Gleditsch and Henrik Urdal, ‘Roots of Conflict: Don’t Blame Environmental Decay for the Next War’, *The New York Times*, November 22, 2004, at: [http://www.nytimes.com/2004/11/22/opinion/22iht-ednils\\_ed3.html](http://www.nytimes.com/2004/11/22/opinion/22iht-ednils_ed3.html) (last accessed on 12th August 2009); Jerome Delli Priscoli and Aaron T. Wolf, *Managing and Transforming Water Conflicts*, Cambridge: Cambridge University Press, 2009.

argues that countries with shared water resources are more likely to cooperate with each other to gain access to this precious resource.<sup>140</sup> This boils down to the principle of good governance.

On the other hand, it could be argued that such cooperation would only exist between countries that have some form of political, economic and social stability. Therefore, any laws linking climate change to armed conflict has to look at the principle of good governance. Arguably, the more accountable the political regime of a country, the more likely the state in question is able to weather the environmental changes wrought by global warming. Hence, vulnerable countries should attempt to achieve good governance themselves. However, if this is not possible, then the international community should step in to help. As discovered above, without effective good governance, weak states will be unable to cope with the implications of climate change and thus, may be more likely to descend into violent conflict.<sup>141</sup> As some analysts pointed out based on the predictions in the 2007 UNEP Report,<sup>142</sup> ‘[u]ltimately the extent to which climate change triggers “a succession of new wars” in Africa, . . . . depends more on governments and governance than on the strength of the climate ‘signal’ itself.’<sup>143</sup>

### Resource Management

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<sup>140</sup> Nils Petter Gleditsch, ‘Conflict Over Resources’, Human Security Research in Norway: Perspectives and Possibilities, University of Oslo, (16 March 2006), at: <http://www.gechs.org/downloads/reception/gleditsch.pdf> (last accessed on 12th August 2009).

<sup>141</sup> Raleigh and Urdal 2006, n. 52 above, at pp. 3-4.

<sup>142</sup> See generally, n. 3 above.

<sup>143</sup> Brown and Crawford, n. 79 above, at p. 22.

The next important factor to consider is natural resource management. As discussed above, climate change could potentially contribute to the scarcity of resources.<sup>144</sup> Resource scarcity, which in turn may trigger or exacerbate conflict within societies most susceptible to it.<sup>145</sup> For instance, UNEP reports that ‘[s]ince 1990, at least eighteen violent conflicts have been fuelled by the exploitation of natural resources.’<sup>146</sup> Taking Darfur as an example, conflict was over fertile land and water.<sup>147</sup> Here, ‘[w]ith rapidly increasing human and livestock populations,<sup>148</sup> the weaknesses of institutions governing access to land and water have become more apparent, and some groups have been particularly disadvantaged.’<sup>149,150</sup> Thus, magnifying the fact that natural resource management is crucial, especially within the more vulnerable regions.

There appears to be a degree of consensus amongst researchers that socio-economic factors ‘determine how countries handle resource scarcity. Economically, politically and socially robust countries are probably more capable both to adapt to resource scarcity and to mitigate conflict.’<sup>151</sup> Therefore, this goes back to the need for good governance, which is necessary in order to achieve natural resource management (including more equal distribution of resources) to avoid potential conflict. Moreover, some scholars have concluded that ‘... natural resource mismanagement contributes to

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<sup>144</sup> Penny 2007, n. 6 above, at p. 39.

<sup>145</sup> A number of researchers support the argument that resource scarcities can lead to or magnify conflict. See Penny 2007, n. 6 above, at p. 40; see also Homer-Dixon 2001, n. 29 above, at p. 226; Raleigh and Urdal 2006, n. 52 above, at pp. 3-4.

<sup>146</sup> *From Conflict to Peacebuilding: The Role of Natural Resources and the Environment*, Nairobi, UNEP, February 2009 [UNEP Natural Resources Report], at p. 8.

<sup>147</sup> *Ibid*, at p. 8.

<sup>148</sup> ‘Darfur’s population has grown six-fold since the 1950s.’ 2007 UNEP Report, see n. 3 above.

<sup>149</sup> 2007 UNEP Report, n. 3 above.

<sup>150</sup> UNEP Natural Resources Report, n. 146 above, at p. 9

<sup>151</sup> Raleigh and Urdal 2006, n. 52 above, at p. 2

the vulnerability of human systems to climatic hazards, and enhanced management can provide a tool for vulnerability reduction<sup>152</sup> in many countries, particularly in Africa.

At present, there does not seem to be an adequate global regime to govern natural resources. Nor does it seem likely to be established in the foreseeable future. The reason being that it would be very difficult to globally attempt to govern each state's resources as sovereignty issues would come into play. Thus, each state would have the responsibility of managing its own resources. Of course, in reality, this may prove problematic as there are a many countries that are too vulnerable or 'weak' to proceed on their own. Numerous states, particularly in Africa, 'currently face developmental challenges relating to the unsustainable use of natural resources and the allocation of natural wealth.'<sup>153</sup>

These vulnerable states should seek assistance from other more developed countries in improving their resource management. However, in the event that the conflict-prone state does not attempt to improve its resource management, perhaps the international community could try to assist, through local and international NGOs and other UN bodies, for example, to prevent the state in question from become even more vulnerable to climate-induced environmental changes. As pointed out by UNEP, '[t]his changing security landscape requires a radical shift in the way the international community engages in conflict management. From conflict prevention and early warning to peacemaking, peacekeeping and peacebuilding, the potential role of natural resources and the environment must be taken into consideration at the onset.'<sup>154</sup>

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<sup>152</sup> Abramovitz, et al., 2002, n. 126 above, at p. 8.

<sup>153</sup> UNEP Natural Resources Report, n. 146 above, at p. 8.

<sup>154</sup> *Ibid*, at p. 6.

In practice, more research has to be done as to how to improve resource management in vulnerable areas. As for other improvements, the UNEP Natural Resources Report,<sup>155</sup> though focusing on the post-conflict to peacebuilding stage, does make some salient points with regards to natural resource management. Recommendations, that are just as important in the preventive stage i.e. to prevent conflict arising from climate-induced resource scarcity. For example, that the UN system needs to improve ‘its capacity to deliver early warning and early action in countries that are vulnerable to conflicts over natural resources.’<sup>156</sup> Early warning systems could be strengthened by co-operation within the international community, between for example, the UN system, states themselves, NGOs both international and local to the vulnerable region to indicate potential ‘hot-spots’. Early action includes amongst others, prioritising ‘capacity-building for dispute resolution, environmental governance and land administration in states that are vulnerable to conflicts over natural resources and the environment.’<sup>157</sup> The report went on to recommend the wealth-sharing of natural resources, such as mineral, land, water, timber for example, during the peacemaking process. This recommendation could perhaps be attempted at the prevention stage. Before conflict breaks out, perhaps in vulnerable states, the international community could suggest and assist these states to distribute their natural resources more equally. This could perhaps be done by setting up regional agreements and bringing this up in global climate change gatherings.

Simply put, natural resource management is crucial to reduce the vulnerability of states and societies to climate-induced environmental changes. States should endeavour

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<sup>155</sup> UNEP Natural Resources Report, n. 146 above.

<sup>156</sup> *Ibid*, at p. 28.

<sup>157</sup> *Ibid*.

to do so on their own. However, as indicated above, certain weak and vulnerable states have the inability ‘to resolve resource-based tensions peacefully and equitably. Indeed, conflict over natural resources and the environment is largely the failure of governance, or lack of capacity.’<sup>158</sup> Therefore, if these states are unable to help themselves, the international community should step in to assist in ensuring targeted natural resource management.

### Adaptation

In the context of climate change, the international community has already made significant efforts in relation to mitigation i.e. combating the build-up of greenhouse gas emissions. However, as we are now aware, some climate changes are irreversible. And, due to the uncertainty as to the exact nature of the impacts of climate change, using the precautionary principle, the global community, particularly in the most vulnerable areas, need to concentrate more on adaptation i.e. ‘the process of adjusting in response to, or in anticipation of, climate change.’<sup>159</sup>

Klein has distinguished between two types of adaptation in relation to climate change. ‘Reactive adaptation occurs after the initial impacts of climate change have become manifest, while anticipatory (or proactive) adaptation takes place before impacts are apparent’<sup>160</sup> i.e. it ‘involves preventive planning and decision making before impacts

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<sup>158</sup> Ibid, at p. 11.

<sup>159</sup> Abramovitz, et al., 2002, n. 126 above, at p. 10.

<sup>160</sup> Richard JT Klein, ‘Adaptation to Climate Variability and Change: What is Optimal and Appropriate?’, in Carlo Giupponi and Mordechai Schechter (eds.), *Climate Change and the Mediterranean: Socio-Economics of Impacts, Vulnerability and Adaptation* (UK: Edward Elgar Publishing, 2002) at p. 34.

occur.<sup>161</sup> In respect of the challenges of climate change, there is no doubt that the global community has to be prepared for both. Another term to take note of, is ‘adaptive capacity’, which ‘is the potential or ability of a system, region, or community to adapt to the effects or impacts of climate change.’<sup>162</sup> And scholars have agreed that the ‘first and most logical response to the complex threat of climate change’<sup>163</sup> is adaptive capacity.

In respect of the climate change regime, the question would be whether there are adequate laws regarding adaptation to the consequences of climate change. Some scholars have argued that, ‘[g]enerally, the law on adaptation is still in its infancy, mostly because the international climate regime has mainly been concerned with preventing dangerous anthropogenic climate change to achieve the objective of the UNFCCC (Article 2).’<sup>164</sup> Nevertheless, the UNFCCC recognises the international community’s commitment and cooperation in addressing the implications of climate change.<sup>165</sup> Most notably, Articles 4.1, 4.4, 4.8 and 4.9. For instance, in relation to adaptation, Article 4.1, sets out that Parties to the UNFCCC, ‘taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives, and circumstances’, are committed to:

- ‘(b) Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing [...] measures to facilitate adequate adaptation to climate change [...]
- (e) Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture,

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<sup>161</sup> Roda Verheyen, ‘Adaptation to the Impacts of Anthropogenic Climate Change – The International Legal Framework’, (2002) 11(2) RECIEL 129, at p. 130.

<sup>162</sup> IPCC 2001, *Climate Change 2001: Impacts, Adaptation and Vulnerability*, Technical Summary, Report of the Working Group II of the IPCC: Geneva/UNCCC, at: <http://www.ipcc.ch/ipccreports/tar/wg2/index.php?idp=643> (last accessed 25<sup>th</sup> August 2009).

<sup>163</sup> Abramovitz, et al., 2002, n. 126 above, at p. 15.

<sup>164</sup> Roda Verheyen, ‘Adaptation to the Impacts of Anthropogenic Climate Change – The International Legal Framework’, (2002) 11(2) RECIEL 129, at p. 129.

<sup>165</sup> See n. 107 above.

- and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods;
- (f) Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions [...] with a view to minimising adverse effects [...] of projects of measures undertaken by them to mitigate or adapt to climate change; [...]

In fact, under Article 4.4 wealthier developed countries are required to financially assist vulnerable developing nations to adapt to the ‘adverse effects of climate change...’<sup>166</sup> The international community’s further commitment to assist developing countries to adapt to climate change is evidenced by the creation of three global funds: the Special Climate Change Fund, the Least Developed Countries Fund, and the Kyoto Protocol Adaptation Fund.<sup>167</sup> Funds, which are intended to assist states from adaptation finances to technology transfer.<sup>168</sup>

In respect as to whether or not these laws are adequate in practice remains to be seen. The fact that these provisions exist, could arguably be considered a step towards and evidence of a commitment by states to work together in dealing with the consequences of climate change. However, some scholars argue that ‘adaptation has not been adequately dealt with, even in light of the consensus that certain climate change impacts are unlikely to be averted, regardless of mitigation efforts.’<sup>169</sup> In fact, there is arguably ‘a growing need for the implementation of measures to adapt to an already-changing climate.’<sup>170</sup>

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<sup>166</sup> Article 4.4, UNFCCC.

<sup>167</sup> For more information on these funds, see Abramovitz, et al., 2002, n. 126 above, at p. 14.

<sup>168</sup> Ibid.

<sup>169</sup> Ibid, at p. 11.

<sup>170</sup> Ibid, at p. 22.

What can be done to improve adaptation, particularly for vulnerable areas to climate change? It has to be borne in mind, that all factors are interlinked i.e. the whole climate change regime, good governance, adaptive capacity, etc, are all inter-linked. For example, good governance, consisting of political, economic and social stability enables effective resource management which helps states adapt to the implications of climate change more effectively. After all, '[a]daptation is shown to be successful and sustainable when linked to effective governance systems, civil and political rights and literacy.'<sup>171</sup> In addition, scholars have 'acknowledged that effective adaptation measures in regions and communities with the greatest vulnerability will likely depend on enhanced natural resource management, consistent with broader sustainable development planning objectives.'<sup>172</sup>

To better adapt to the challenges of climate change, the international community, in co-operation with each other, should strive to improve predictions and thus, better integrated early warning systems, regarding potential climate-induced environmental changes or disasters that may lead to conflict in weak countries. More research tailored specifically to particularly vulnerable regions, countries or societies, as to how best to adapt to the implications of climate change, is required. This of course, could lead to increased 'adaptive capacity'. Failing to do so, may mean more climate change related disasters, avoidable environmental degradation and resource scarcity, that could lead to conflict.

#### D. Conclusion

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<sup>171</sup> Boko et al., 2007, n. 80 above, at p. 452.

<sup>172</sup> Abramovitz, et al., 2002, n. 126 above, at p. 22.

In conclusion, increased robust research regarding the causal link between environmental problems and conflict, let alone climate-induced environmental changes and conflict is needed. More research is required in order to create and improve the laws and strategies addressing the implications of climate change i.e. adequate measures to deal with and adapt to a climate that is already changing and is expected to continue at an accelerated rate in the future. This is of particular importance given the potential links of climate change induced environmental degradation and armed conflict.

Although there are existing laws and methods regarding adaptation to climate change, they are insufficient. This is particularly so in relation to the most vulnerable societies, countries or regions, especially those prone to conflict, which have limited adaptive capacity in the face of climate change. With respects to existing laws however, it is a question of the international community being willing to robustly implement them and perhaps improve their current laws and methods or come up with new laws to keep up with accelerated climate change. The international community has a long way to go.

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