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INTRODUCTION

This short paper introduces the reader to the notion of environmental threats to global peace and security, so called "eco-threats", and looks into shortcomings of environmental protection during hostilities under the Law of Armed Conflict (LOAC).

ECO THREATS AS THREATS TO GLOBAL SECURITY: CHALLENGES TO ENVIRONMENTAL SECURITY

Environmental issues – referring to the human impact on the environment, also referred to as the anthropogenic impact on the environment – can amount to threats to global security (E Brennan, "Population, Urbanization, Environment, and Security: A Summary of the Issues," Number 22, Woodrow Wilson International Center for Scholars, Washington DC 1999) when constituting present challenges to "environmental security" (K Hulme, "Environmental Security", in OK Fauchald, D Hunter, W Xi (Editors-in-Chief), *Yearbook of International Environmental Law,* vol 19 (Oxford: OUP, 2008).

If such environmental threats have a nexus to interstate state conflict, they can turn into threats to world peace and security. Examples of environmental issues affecting global security are:

- *issues of water scarcity* (P Gleick, "Water and Conflicts: Fresh Water Resources and International Security", *International Security,* vol 18, no 1, Summer 1993, pp 79-112; A T Wolf, "A Long Term View of Water and Security: International Waters, National Issues, and Regional Tensions", WBGU-Expertise, Berlin: 2006 http://rosecitydesigns.com/portfolio_pieces/gm2/readings/reader/Section%20IV-1.pdf); *resource scarcity* (TF Homer-Dixon "Environmental Scarcities and Violent Conflict: Evidence from Cases", *International Security,* volume 19, no 1, 1994);
- *extreme weather effects caused by climate change* (German Advisory Council on Global Change (WBGU), "Climate Change as a Security Risk," Earthscan London and Sterling, Virginia 2008, p 158) ;
- *other environmental catastrophes such as spring floods.*

The above are all major environmental threats, which warrant a comprehensive and joint response.

The United Nations (UN) recognised the importance of such environmental issues and their future security implications in 2009, and the United Nations Environment Programme's (UNEP) Executive Director Achim Steiner reflected on the issue in the Report of the Secretary General of the United Nations on climate change and its possible security implications (A Steiner, in NATO (ed), Environment as a Peace Policy, 2009, http://www.nato.int/docu/review/2009/NATO_Change/Environment_PeacePolicy/EN/).

> *"The first dimension is resource scarcity. With water, food, and energy security at stake, communities will struggle to manage increasingly scarce resources and protect their access to them. Struggles and tensions could mount (. . .).*
>
> *The relationship between climate change and these [. . .] security dimensions is neither straightforward nor deterministic. In other words, the severity of impacts depends in large part on states' capacity to respond to security risks."*

In 1982 the Palme Commission on Disarmament and Security addressed the topic of ecological responsibility in their concept of security (Independent commission on Disarmament and Security Issues (ed), "Common Security. A Blueprint for Survival", with a Prologue by Cyrus Vance (New York: Simon &

Schuster: 1982); Renner, "Environmental security: the policy agenda", *Conflict, Security & Development* 4 (2004), 313-34).

This was followed by the work of the World Commission on Environment and Development (World Commission on Environment and Development (WCED) (ed), "Our Common Future", (1987), p 19). Now called the Brundtland Commission, this recommended in 1987 to extend the scope of the term "security" and to include environmental issues as a primary causation for conflicts by extending the meaning of "conventional security" (which referred until then to political and military threats to national security alone) by recognising the growing impact of environmental issues.

The UN recognised the correlation between eco threats and global security when drawing on findings from the report of the UN Environmental programme (UNEP) called *Understanding environment, conflict and cooperation* (UNEP (ed), *Understanding Environment, Conflict, and Cooperation, Nairobi* 2004, http://www.unep.org/pdf/ecc.pdf) of 2004; (UN (ed), *Report of the UN Secretary General´s High level-Panel on Threats, Challenges and Change: A more secured world:* Our shared responsibility, New York 2004). In 2004 the UN Security Council discussed the security implications of environmental threats and issues.

Such environmental security threats can come in a broad variety and form. In 2000 a UN report entitled *Environmental Security* – UN Doctrine for Managing Environmental Issues in Military Action (JB Sills, JC Glenn, TJ Gordon and R Perelet, Army Environmental Policy Institute (AEPI) IFP 0700A, July 2000) identified a total of 32 environmental issues, including:

- global climate change;
- oil spill and pollution;
- natural disasters;
- food security;
- water scarcity.

These threats reiterate some earlier findings by NATO ("Environment & Security in an International Context (NATO (ed)", *Report on Environment & Security in an International Context*, Report No 232 (1999), Bonn/Germany.) which identified four environmental security threats:

- ethno-political conflicts;
- migration conflicts;
- international resource conflicts;
- environmental conflicts.

In 2010, NATO adopted its *Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organisation* (NATO (ed). This contained clear descriptions of a new scenario of threats (see §§ 7-15: http://www.nato.int/lisbon2010/strategic-concept-2010-eng.pdf.) identified as challenges to NATO's security environment in the future, and included environmental issues such as:

- resource scarcity;
- the risk of new environmental damage;
- climate change and water shortages.

The analysis shows their increasing prioritisation as threatening challenges (M Hatzigeorgopoulos, in Isis Europe (ed), "The EU, NATO and Emerging Security Challenges in 2012", *European Security Review,* May 2012). Consequently NATO created in the summer of 2010 a new division tasked with tackling these so-called "emerging security challenges" (ESCs), and in particular "terrorism, proliferation of weapons of mass destruction, cyber-attacks, piracy, and energy and environmental security". In order to facilitate a coherent approach to energy security at its organisational level, in 2012 NATO founded the Centre for Excellence on Energy Security (NATO ENSEC COE), which is located in Vilnius, Lithuania (see http://www.enseccoe.org/).

THE LEGAL PROTECTION OF THE ENVIRONMENT DURING HOSTILITIES

The first part of this section looks at the notion of 'eco threats' as potential security challenge, and is followed by a discussion of the protection of the environment during hostilities as a "victim" of war in the wider sense.

The Law of Armed Conflicts (LOAC), the *jus in bello* (as the branch of international law applicable during hostilities) contains various legal provisions on how to protect the environment during hostilities (K Hulme, "Environmental protection in armed conflict", in M Fitzmaurice, D M Ong and P Merkouris (eds), *Research Handbook on International Environmental Law,* (Cheltenham; Edward Elgar Publishing, 2010); Y Dinstein, "Protection of the Environment in International Armed Conflict," in A V Bogdandy and R Wolfrum (eds), *Max Planck Yearbook of United Nations Law,* vol 5 (2001) 526).

In the 1970s, influenced by the Vietnam war, the international community stipulated the direct obligation to protect the environment from the impact of military operations in the 1977 ENMOD Convention (Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 18 May 1977).

Article 1 provided that:

> *"Each Party to this Convention undertakes not to engage in military or any other hostile use of the environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other Party."*

Articles 35 (3) and 55 (1) of the Additional Protocol I to the Geneva Conventions of 1977 are also relevant.

The protection of the environment from being misused/manipulated for military purposes for use in combat by means of environmental modification techniques (EMTs) aims at preventing "environmental warfare". Environmental warfare can be defined as:

> *"the intentional modification or manipulation of the natural ecology, such as climate and weather, earth systems such as the ionosphere, magnetosphere, tectonic plate system, and/or the triggering of seismic events (earthquakes) to cause intentional physical, economic, and psycho-social, and physical destruction to an intended target geophysical or population location, as part of strategic or tactical war"* (M Chossudovsky, "Environmental Modification Techniques (ENMOD) and Climate Change, The manipulation of climate for military use", Global Research, December 5, 2009, http://www.globalresearch.ca/environmental-modification-techniques-enmod-and-climate-change/16413).

Article 35 (3) of the Geneva Additional Protocol I prohibits such environmental warfare:

> *"Any method or means of warfare which is planned to cause, or may be expected (albeit without the intention) to cause serious damage to the natural environment, even if this effect is incidental, are prohibited."*

Furthermore, Article 55 aims to safeguard the "protection of the natural environment" in specifying that:

> *"Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare, which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population."*

The goal of these LOAC provisions is to avoid/limit environmental damage in combat when nature and its resources are either targets of an attack or turned into weapons. The scope of these restrictions on warfare are limited due to their nature as optional LOAC treaties (AP), binding only state parties (non-state parties only in cases of the latter explicitly recognising their applicability.)

Alongside these international conventions, customary International Law (CIL) might apply (see M Roscini, "Protection of the Natural Environment in Time of Armed Conflict", in: J H Bhuiyan, L Doswald Beck and A R Chowdhury (eds), *International Humanitarian Law: An Anthology* (Nagpur: LexisNexis Butterworths, 2009). CIL consists of rules that come from "a general practice accepted as law" and that exist independently of treaty law (for details see J-M Henckaerts, in: ICRC (ed), *Customary international humanitarian law,* (Geneva 2005), http://www.icrc.org/eng/resources/documents/publication/p0860.htm). The following general LOAC principles of "military necessity", "proportionality"/"limitation", "distinction between civilian and military targets" and the "humanity", based on the Hague Convention 1907, are customary international law principles (see eg ICRC (ed) "Introduction to the Law of Armed Conflict – Basic Knowledge, Lesson 1", Geneva, June 2002, http://www.icrc.org/eng/assets/files/other/law1_final.pdf, 12 ff).

What appears missing from this list of CIL principles are explicitly environmental protection issues, such as a limitation of environmental targeting (see C Droege, M-L Tougas, "The Protection of the Natural Environment in Armed Conflict – Existing Rules and Need for Further Legal Protection", *Nordic Journal of International Law* 82 (2013), pp 21 ff.). It remains to be seen if and when the cited treaty provisions will eventually become part of CIL.

The Kuwaiti Oil Fires during the first Iraq War (Gulf War), where Iraqi forces set fire to hundreds of Kuwaiti oil wells in 1991, serves as an example of environmental warfare and its potential legal consequences (see M Okorodudu-Fubara, "Oil in the Persian Gulf War: Legal appraisal of an environmental warfare", *St Mary's Law Journal,* 123 (1992), 204–06; L Lijnzaad, GJ Tanja, "Protection of the Environment in Times of Armed Conflict: The Iraq-Kuwait War", *Netherlands International Law Review,* 40 (1993), pp. 169-99).

UN SC Resolution 687 of 3 April 1991 established Iraq's responsibility for these acts and the subsequent liability to pay reparations for such violations of international law (see http://www.uncc.ch/.):

> *"Iraq…is liable under international law for any direct loss, damage, including environmental damage and the depletion of natural resources, or injury to foreign Governments, nationals and corporations, as a result of Iraq's unlawful invasion and occupation of Kuwait"* (UN SC Res 687 (1991) of 8 April 1991, par 16).

The Iraqi compensation cases reaffirmed the principle of state responsibility for severe breaches of international humanitarian law and international law (R Rosenstock, "The United Nations Compensation Commission – A New Structure to Enforce State Responsibility", *The American Journal of International Law,* vol 87 (1993) p 144; P Sands, J Peel, A Fabra *et al, Principles of International Environmental Law* (2012) p 720). Resolution 687 also established a special organ, the Compensation Commission, for the administration enforcement of any claims brought against Iraq. As the mandate of the commission was limited to dealing with the Kuwaiti scenario only, an opportunity was perhaps missed to create a mandated mechanism for responding to future environmental damages caused by conflict and war (see A Kiss, D L Shelton, *Guide to International Environmental Law*, Leiden: Martinus Nijhoff Publishers, 2007, pp 260 ff, and the recognition of

environmental damages as a potential crime under the Rome Statute of the International Criminal Court).

As a direct consequence of these developments, one can observe in recent years a new sensibility to the problems brought by warfare on the environment (see eg R Matthew, O Brown and D Jensen, in: UNEP's Post-Conflict and Disaster Management Branch (PCDMB) (ed), "From Conflict to Peacebuilding – The Role of Natural Resources and the Environment", (Nairobi 2009), 11; D Dam, "International Law and Resource Plunder: The Protection of Natural Resources During Armed Conflict", in D Acemoglu, M Golosuvia, A Tsyvinski and P Yared, *A Dynamic Theory of Resource War* (31 December, 2010), MIT Department of Economics Working Paper No 11-1).

Environmental protection has become recognised as an element in UN Peacekeeping operations (UNEP (ed), "Greening the Blue Helmets: Environment, Natural Resources and UN Peacekeeping Operations," May 2012, http://postconflict.unep.ch/publications/UNEP_greening_blue_helmets_ES.pdf; FOI (Swedish Defence Research Agency), Greening peace operations, FOI-R-3112-SE, March 2011, http://www2.foi.se/rapp/foir3112.pdf). It could be considered in post-conflict-situations and post-conflict-nation building (UNEP (ed), "Protecting the Environment During Armed Conflict – an Inventory and Analysis of International Law", Nairobi 2009, http://postconflict.unep.ch/publications/int_law.pdf).

Furthermore, there seems to be an evolving consensus that international environmental law remains applicable in times of armed conflict (United Nations (ed), "Report of the International Law Commission, Sixty-third session" (26 April–3 June and 4 July–12 August 2011), in UN General Assembly (ed), *Official Records for the Sixty-sixth session, Supplement No 10* (A/66/10)351 (356), chapter 6, art 3, http://untreaty.un.org/ilc/reports/2011/english/chp6.pdf).

> "The existence of an armed conflict does not ipso facto terminate or suspend the operation of treaties [...].") (Center for Law and Military Operation (CLAMO) (ed), The Judge Advocate General´s Legal Center & School (ed), "Forged in the Fire – Legal Lessons Learned During Military Operations", Charlottesville/VI, 2008.

However, this development has not lead to a further development of a corpus of environmental LOAC (M Bothe, C Bruch, J Diamond and J Jensen, "International law protecting the environment during armed conflict: Gaps and opportunities", *International Review of the Red Cross*, 92.879 (2010), 569–92; H-P Gasser, "For better protection of the natural environment in armed conflict: A proposal for action", *American Journal of International Law*, 89 (1995), 637–40). In particular, a proposal for a fifth Geneva Protocol covering environmental protection during times of armed conflicts failed in 1993 (UN, "Report of the Secretary General on the Protection of the Environment in Times of Armed Conflict", UN Doc A/48/269 (1993), submitted by the UN Secretary-General to the 48th session of the General Assembly).

This temporary setback did not stop several new initiatives, for example by the International Committee for the Red Cross (International Committee of the Red Cross (ICRC) (ed), International Review of the Red Cross, 2010, no 879 – Environment, http://www.icrc.org/eng/resources/international-review/review-879-environment/index.jsp), which lead to an amendment of military handbooks. In addition, the UN International Law Commission (ILC) developed a Draft Framework Convention or a Statement of Principles and Rules on the Protection of the Environment in Times of Armed Conflict (see M G Jacobbsen "Protection of the environment in relation to armed conflicts", in: United Nations (ed), *Report of the International Law Commission, Sixty-third session* (26 April–3 June and 4 July–12 August 2011), in: UN General Assembly (ed.), Official Records for the Sixty-sixth session Supplement No 10 (A/66/10)351 (356), Annex E, http://untreaty.un.org/ilc/reports/2011/english/annex.pdf; http://untreaty.un.org/ilc/texts/instruments/english/draft%20articles/1_10_2011.pdf).

The main problem seems to be that the definitions of armed conflict still remain limited to more or less traditional conflicts with only little room for new conflict categories: as the ILC clarifies, whereas "armed conflict" means a situation in which there is resort to armed force between States or protracted resort to armed force between governmental authorities and organised armed groups." (UN (ed), *Report of the International Law Commission, Sixty-third session*).

CONCLUSION

The environment is protected during hostilities to a certain extent and as long as within the scope of an international armed conflict. Such protection is, however, still "un- and under-developed" when set in the context of non-international armed conflicts or countering eco-threats outside the scope of regular warfare. Environmental threats are a category on their own and pose a more comprehensive challenge than that of the issue of environmental protection during hostilities. Traditional legal safeguards under international law do not seem to sufficient when it comes to challenging these threats. A solution from a legal perspective should be the further development of the rules of proportionality of the use of force within the framework of the rule of law, as one integral element of customary international law.

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Both authors are part of an international research project which investigates the scope of eco-threats as part of wider "hybrid threats to global peace and security." This article is a shortened, updated and amended version of a previously published submission titled "Countering Hybrid Eco-threats to Global Security Under International Law: The Need for an Comprehensive Legal Approach" 33 (3) Liverpool Law Review 2013.