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Environmental Protection: NATO Policies and National Views

Contents

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Source[1] : UNEP, "Protecting the Environment During Armed Conflict : An inventory and Analysis of International Law"

Introduction

Dear Fellow Legal Professionals and Persons interested in NATO,

Issue 40 of the NATO Legal Gazette Environmental Protection: NATO Policies and National Views returns our practice of publishing thematically organized issues that we adopted in 2013. The intent behind publishing this issue is the same as it was with the other topics that we previously addressed: to provide the readers of the NATO Legal Gazette detailed knowledge about a subject that requires legal attention. As an international organization dedicated to the rule of law, this issue examines Environmental Protection (EP) from the perspective of international law, NATO's policies and national views.

The 1972 Stockholm Declaration, endorsed by the General Assembly of the United Nations, declared that States have "the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction."[1] The 1992 Rio Declaration in 1992[2] repeated the prevention principle which the International Court of Justice confirmed in the Gabčíkovo-Nagymaros case. The Court held, "in the field of environmental protection, vigilance and prevention are required on account of the often irreversible

[1] "Report of the United Nations Conference on the Human Environment" Stockholm Declaration (Stockholm 5-16 June 1972) UN Doc A/CONF.48/14/Rev.1, part II, Principle 21

[2] "Rio Declaration on Environment and Development" UN Conference on Environment and Development (Rio de Janeiro 3-14 June 1992) UN Doc A/CONF.151/26, vol. I, Principle 2

character of damage to the environment and of the limitations inherent in the very mechanism of reparation of this type of damage."[3] The prevention principle is now accepted as a norm of customary international law.[4] This approach underlies NATO's environmental protection policies, doctrine, and standardization agreements.

We present Issue 40 to provide legal advisors and environmental protection specialists a reference for their common use. It starts with four articles offering a comprehensive overview of the rules and policies on environmental protection a legal advisor should know when taking part in an exercise or a mission. Ms. Lisa Weihser, former NATO Legal Intern at the International Military Staff Office of the Legal Advisor, first reviews the events leading to the emergence of environmental protection during international armed conflicts and then analyses this topic through Human Rights norms. Lieutenant-Colonel David J. Burbridge, the SHAPE environmental officer, contributes an article on NATO operational responsibility for environmental protection. He reviews NATO's evolution in developing current NATO environmental protection policies, standards and regulations. Next, Lieutenant Colonel Ben Valk, the former Deputy Legal Advisor of the International Military Staff, describes how NATO mainstreams environmental protection policies. He also presents an overview of the main documents a Legal Advisor is likely to use during a mission or an operation to ensure compliance with environmental regulations. Finally, Mr. Jeroen Rottink, Head of the Quality, Occupational Safety & Health, Environmental Protection Section (QOSHEP) of the Netherlands Defence Materiel Organization, offers his perspective on *What NATO and National Legal Advisors Should Know about the Application of NATO Environmental Protection Policy, Doctrine and Standardization Agreements*.

Major Ross Franklin is an Environmental Engineer in the Joint Engineer branch, Canadian Joint Operations Command and the Canadian Head of Delegation to the NATO Environmental Protection and Petroleum Handling Equipment Working Groups. Major Franklin argues in his essay that renewed collective defence measures in Europe are revealing the many capabilities and, sometimes, limitations of the current NATO EP framework in supporting

[3] *Gabčíkovo-Nagymaros Project (HungarylSlovakia)*, 25 September 1997, International Court of Justice, Judgment, <https://www.icj-cij.org/files/case-related/92/092-19970925-JUD-01-00-EN.pdf> accessed 17 July 2019, [140].

[4] Dinah Shelton, 'Stockholm Declaration (1972) and Rio Declaration (1992)' (Max Planck Encyclopedia of Public International Law, 2008), para 42.

the spirit of the North Atlantic Treaty, the NATO SOFA, and other foundations of the Alliance.

The next two articles are an illustration of national environmental protection framework. As visiting nations have to respect the Host Country's environmental law when operating in another country, Dr. Jean Rhéaume, environmental law advisor for the Department of National Defence and Canadian Forces, presents a meticulous summary of the Canadian environmental provisions applicable to military activities taking place in Canada to familiarise legal advisors with the environmental law in Canada. Major Shane Drew, Deputy Director Environmental Governance, presents the Australian environmental legislative framework the Australian Defence Force must consider in the planning, conduct and remediation phases of combined and unilateral military exercises to minimise the impact on the environment.

This issue then focuses on specific areas of environmental protection. Colonel Jody M. Prescott, U.S. Army Judge Advocate Corps (retired) Army military attorney and lecturer at the University of Vermont, explores the links between armed conflict, gender and climate change, and addresses gender considerations issues in NATO Environmental Protection doctrine and practice. Mr. Nathaniel L Whelan, Chief of Training Support System Division, 7th Army Training Command, approaches the question of Environmental Protection from a different angle: as a hybrid threat. He describes how some entities use environmental protection and associated regulations to disrupt military operations and handicap NATO's military training capability. He also suggests a multi-faceted solution set to mitigate this threat.

This issue concludes with current observations from the 2018 Trident Juncture exercise and NATO Resolute Support mission in Afghanistan. Through her experience in NATO-exercise Trident Juncture 2018, Major Marianne R. Bø, engineering officer in the Norwegian Armed Forces posted as Staff Officer Environmental Protection at the Norwegian Joint Headquarters, shares her hands-on perspective on managing the environmental impacts resulting from such a large joint exercise. Despite an intensive preparation and engagement with the visiting countries, this article reports that 1069 cases, 49 complaints and 1020 damage cases, arose during Trident Juncture 2018. This raises the question of how to better ensure respect of environmental regulations and policies in NATO Exercises. Our last article provides insight on the environmental impacts of the NATO Resolute Support mission in Afghanistan. Mr. Chris Ingoe, the NATO Environmental Protection Staff Officer,

identifies, with words and pictures, the challenges surrounding the management of these environmental efforts to protect the force the environment and the civilian population.

We thank the eleven dedicated authors who contributed their work to the 40th issue of the NATO Legal Gazette and you, the readers, for your interest.

Best wishes to all of you from Belgium,

Lewis
Sherrod Lewis Bumgardner
Legal Advisor
ACT Staff Element Europe

5 June 1972 - Opening meeting of the United Nations Conference on the Human Environment, Stockholm, Sweden. (Photo Credit: UN Photo/Yutaka Nagata)
Source : http://legal.un.org/avl/ha/dunche/dunche.html
Available at: http://legal.un.org/avl/ha/dunche/dunche.html

The emergence of the right to a healthy environment and resulting obligations during NATO-led military operations and activities

by Ms. Lisa Weihser[1]

Introduction

The toll of warfare has far-reaching consequences beyond human suffering, displacement and destruction of or damage to homes and infrastructure. Conflicts also cause extensive harm and degradation of the environment. Such environmental damage, which often extends beyond the borders of conflict-affected regions, can threaten the lives and livelihoods of people long after peace agreements are signed. Although there were attempts to develop international environmental law in the early 19th century, it was not until the Stockholm Conference in 1972 that basic environmental health was recognized as being crucial for the free enjoyment of recognized human rights. The Conference adopted the Stockholm Declaration,

[1] Lisa Weihser is a graduate of the Graduate Institute (IHEID) Geneva, Switzerland (Master in International Law). After graduating from the Master, she worked as an External Expert in Nuclear Disarmament for the German Federal Foreign Office. During the period of September 2017 – February 2018, she was a NATO Legal Intern, assigned to the International Military Staff Office of the Legal Advisor (IMS LEGAD). The author would like to especially thank Mr Sherrod Lewis Bumgardner (ACT SEE) and Lt. Col. Ben Valk (IMS LEGAD) for reading this article and providing helpful and valuable comments. The views expressed in this article are solely those of the author and may not represent the views of NATO, ACO, ACT, their affiliated institutions, or any other institution.

consisting of three non-binding instruments.[2] The Stockholm Conference and the Rio Declaration,[3] which consists of 27 principles intended to guide States in future sustainable development, are considered important starting points in developing environmental law at the global and national level. Principle 1 of the Stockholm Declaration that links environmental protection to human rights norms, states:

> *"Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations."*[4]

In recent years, the impacts of armed conflicts on the environment have increasingly come to be seen as potential threats or violations of human rights. International concern regarding the targeting and use of the environment during wartime was first voiced during the Vietnam War (1955-1975). The use of the toxic herbicide Agent Orange by the United States military forces, and the resulting enormous deforestation and chemical contamination, lead to the creation of two new international legal instruments.[5] As a result, in 1976, the Environmental Modification Convention (ENMOD) was adopted to prohibit the use of environmental modification techniques as a means of warfare. Additional Protocol I to the Geneva Conventions (API GC), adopted in 1977, included two articles (35 and 55) prohibiting warfare that may cause "widespread, long-term and severe damage to the natural environment."[6] The idea that a safe, clean, healthy and sustainable environment is integral to the full enjoyment of a wide range of human rights has been gaining increasing acceptance. After all, without a healthy environment, individuals are unable to fulfil their desires or even live at a level commensurate with minimum standards of human dignity. It is also well-recognized that environmental protection is a *condition sine qua non* for

[2] These include a resolution on institutional and financial arrangements; a declaration containing 26 principles; and an action plan containing 109 recommendations.

[3] "Rio Declaration on Environment and Development" UN Conference on Environment and Development (Rio de Janeiro 3-14 June 1992) (14 June 1992) UN Doc A/CONF.151/26, vol. I; It includes formulations of the precautionary principle (principle 15) and of the polluter pays principle (principle 16).

[4] "Report of the United Nations Conference on the Human Environment" Stockholm Declaration (Stockholm 5-16 June 1972) UN Doc A/CONF.48/14/Rev.1, part II, Principle 1.

[5] From 1961 to 1971, the US military sprayed a range of herbicides across more than 4.5 million acres of Vietnam to destroy the forest cover and food crops used by enemy North Vietnamese and Viet Cong troops.

[6] Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (adopted 8 June 1977, entered into force 7 December 1978) (API) arts 35(3), 55(2).

human survival. In recent years, the recognition of the links between human rights and the environment has amplified even further so that several States now incorporate a right to a healthy environment in their national constitutions.[7] Despite the protection afforded by the international legal instruments mentioned above, the environment and the communities that depend on natural resources continue to bear the brunt of armed conflicts around the world. Armed conflict coupled with the collapse or weakening of State institutions directly translate into severe environmental risks, which threaten not only a community's livelihood and security, but also human health and result in impeding post-conflict peacebuilding. Despite good intentions, the adequacy of these two legal instruments was severely criticised during the 1990-1991 Gulf War. This is mainly due to the pollution caused by the intentional destruction of over 600 oil wells in Kuwait by the retreating Iraqi army. As a result, many questions about the relationship of human rights and a healthy environment remain unresolved and require further examination.

Environmental degradation is itself a serious threat to human survival that affects the living space needed for ensuring the quality of life and health.[8] While the universal human rights treaties do not refer to a specific right to a safe and healthy environment, the United Nations human rights treaty bodies all recognize the intrinsic link between the environment and the realization of a range of human rights, such as the right to life, health, food, water, and housing.[9] Nevertheless, the varying degree of environmental protection and differences in recognition of the right to a healthy environment from one country to another pose several challenges and raise questions: Does a right to a healthy environment exist in international law and does it, or should it, amount to customary law? Is NATO obliged to protect the environment, and if so which aspects of the environment? Acknowledging the principle that international organizations must respect the treaty

[7] For a review of the constitutional provisions see Ksentini Reports, UN Docs E/CN.4/1990/12, E/CN.4/1991/8, E/CN.4/1992/7, E/CN.4/1993/7 and E/CN.4/1994/9; Some of the national court cases where the right to a healthy environment was recognized include: *Fundepúblico v Mayor of Bugalagrande y otros,* Corte Constitucional, Sentencia Junio de 1992, Expediente T-101.; *Oposa et al v Fulgencio S Factoran, Jr et al* (G.R. No. 101083); *Vellore Citizens Welfare Forum v Union of India* (1996) 5 SCC 647.

[8] *Legality of the Threat or Use of Nuclear Weapons* (Advisory Opinion) 1996 <http://www.icj-cij.org/files/case-related/95/095-19960708-ADV-01-00-EN.pdf> accessed 12 February 2018, [29].

[9] ILO Convention No 169 concerning Indigenous and Tribal Peoples in Independent Countries (adopted on 27 June 1989, entered into force 5 September 1991): The Convention provides for special protection of the environment of the areas which indigenous people occupy or otherwise use. At the regional level, the African Charter on Human and People's Rights and the San Salvador Protocol to the American Convention on Human Rights recognize the right to live in a healthy or satisfactory environment.

obligations accepted by their members, how do these obligations affect NATO-led military operations and activities? Do the national environmental laws apply extraterritorially? Who should pay for the damage and under what circumstances can damage to the environment be a criminal offense? Can individuals claim compensation for the violation of their right to a healthy environment? Is the right to a healthy environment enforceable through other recognized human rights?

To answer these questions, first the legal framework applicable to environmental protection during armed conflicts will be analysed. Second, the article will examine a few selected successful court cases related to the right to a healthy environment. Lastly, the article will analyse NATO's policy on the protection of the environment and make recommendations to enhance its commitment in the future.

Environmental Protection during international armed conflicts

In 1992, the UN General Assembly's debate on the protection of the environment in times of armed conflict resulted in resolution 47/37, which urged Member States to take all measures to ensure compliance with existing international law on the protection of the environment during armed conflict.[10] It also called for States to incorporate the relevant provisions of international law into their military manuals. Also, the International Committee of the Red Cross (ICRC) delivered a set of guidelines in 1994 that summarised the existing applicable international rules for protecting the environment during armed conflict and that were meant to be incorporated into military manuals. Despite these efforts, the environment has been significantly damaged in recent years. Some examples include the bombing of dozens of industrial sites during the Kosovo conflict in 1999, leading to toxic chemical contamination at several hotspots. Moreover, during the conflict between Israel and Lebanon in 2006, an estimated 12,000 to 15,000 tons of fuel oil were released into the Mediterranean Sea following the bombing of the Jiyeh power station.

API GC prohibits attacks against the environment by reprisals[11] and demands that care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. According to Article 55(1) API, "this protection includes a prohibition of the use of

[10] UNGA Res 47/37 (25 November 1992) UN Doc A/RES/47/37.
[11] Ibid, *supra* note 6, art 55(2).

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."[12] It becomes clear that this provision emphasises the duty incumbent upon parties to at least be cautious. This is further emphasised by the rule that "precautionary measures" must be taken to avoid damage to civilians and civilian objectives.[13] Furthermore, the term 'health' is used to indicate that States should not only be concerned with acts that jeopardise the survival of the population, but also with those which could seriously prejudice health, such as congenital defects, degenerations or deformities.[14] Temporary or short-term effects are not taken into account in the prohibitions laid down in the provision.[15] Therefore, destruction of the environment not justified by military necessity violates international humanitarian law.[16] Under certain circumstances, such destruction that cannot be justified by military necessity is punishable as a grave breach of international humanitarian law (IHL).[17] The Rome Statute of 1998 establishing the International Criminal Court (ICC) makes it a war crime to cause widespread, long-term and severe damage to the environment in violation of the principle of proportionality. Other specific provisions include the prohibition to destroy agricultural land and drinking water installations in order to inflict harm on the civilian population.[18] The techniques covered by the ENMOD Convention are any that change "through the deliberate manipulation of natural processes, the dynamics, composition or structure of the Earth." The parties to the Convention undertake not to use environmental manipulation that would have "widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party". While the ENMOD Convention is confined to one single type of weaponry, namely using the environment as a weapon, Articles 35 and 55 of API protect the natural environment and the population against damage inflicted by any weapon whatsoever during an international armed conflict. This means that the first Additional Protocol protects the environment as a victim and

[12] Ibid, *supra* note 6, art 55(1).
[13] Ibid, *supra* note 6, art 57.
[14] Ibid, *supra* note 6, Commentary.
[15] Ibid.
[16] Geneva Conventions (IV) of 12 August 1949, relative to the Protection of Civilian Persons in Time of War (entered into force 12 August 1949) art 53; ibid, *supra* note 6, art 52; Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts (adopted 8 June 1977, entered into force 7 December 1978) (APII) art 14.
[17] Geneva Conventions (IV), *supra* note 16, arts 53, 147; ibid, *supra* note 6, arts 35(3), 55.
[18] APII, *supra* note 16, art 14; API, *supra* note 6, art 54.

therewith goes beyond ENMOD. API protects the environment not only against intentional or deliberate infliction of damage during war, but also against purely unintentional and accidental damage provided that it can be expected.[19] What is important to note is that API and ENMOD only apply if the attack has "widespread", "long-term" and "severe" effects. While in the ENMOD Convention the conditions are alternative, in API all three conditions must be proven for a violation to occur. This triple cumulate requirement is nearly impossible to achieve, not least because of the restrictive and imprecise definitions for the terms "widespread", "long-term" and "severe". There is also no general consensus on the exact definition of the "natural environment" and its scope. Some equate it with an "ecosystem" and include components of the natural environment, such as flora, fauna, the lithosphere and the atmosphere. Those would need to interact in a way that they may be considered parts of an interdependent and mutually influencing system of diverse components of the natural environment.[20] Others consider the natural environment to be protected by the law of armed conflict, irrespective of their interdependence with other components.[21] A common denominator, however, suggests that the "natural environment" does not cover man-made components of the environment. An ecosystem, like the Amazon River Basin for instance, would probably always qualify as "natural environment."[22]

Adding to the difficulty of not having a general definition of the term "natural environment", a number of militarily significant States are not party to API and the United States of America (USA) has explicitly stated its opposition to the language of Article 35(3) API.[23] It is also not widely recognized that the rule is customary and binds all States despite the ICRC Customary IHL Study finding that it is.[24] The International Court of Justice (ICJ) argued, however, that "States must take environmental considerations into account when assessing what is necessary and proportionate in the pursuit of legitimate military objectives. Respect for the environment is one of the elements that go to assessing whether an action is in conformity with the principles of necessity

[19] Stefan Oeter, "Methods and Means of Combat" in Dieter Fleck (ed), *The Handbook of International Humanitarian Law* (3rd edn, OUP 2013), 134.
[20] Program on Humanitarian Policy and Conflict Research at Harvard University, *Commentary on the HPCR Manual on International Law Applicable to Air and Missile Warfare* (Harvard College 2010), 205.
[21] Ibid.
[22] Ibid.
[23] William H Boothby, *The Law of Targeting* (OUP 2012), 209.
[24] J-M Henckaerts, L Doswald-Beck, *ICRC Customary IHL Study* (CUP 2005); Even if it were to amount to customary IHL, the United States could be regarded as a persistent objector to this rule.

and proportionality."[25] This argument is in line with the fact that indirect means may provide more effective protection of the environment. For instance, a certain degree of indirect protection of the environment is contained in the IHL provisions regulating the means and methods of warfare, in particular weapons and military tactics.[26] Since the environment is civilian rather than military in nature (using IHL terminology) and cannot be attacked, unless it constitutes a military objective, the principle of distinction also provides some indirect protection of the environment.[27] There is wide acceptance of the obligation to include expected environmental impact in the proportionality assessment of a proposed attack.[28] There is, thus, no doubt that commanders, planners and those who actually undertake the operations have a general responsibility to seek to protect the natural environment in conducting military operations.[29] Nevertheless, in armed conflict, some degree of damage to the environment in one form or another – as unpleasant and unplanned as that may be – is sometimes practically unavoidable. Some also say that the consideration of environmental protection during armed conflict will only be taken seriously if viewed in terms of its connectivity to other priorities and concerns, whichever they may be.[30]

When analysing the situation where Iraq set fire to Kuwaiti oil wells during the Gulf War in light of the legal framework above, it first needs to be assessed whether these oil wells constituted a military objective and consequently gave the Iraqis a military advantage. Even though they might have been considered military objectives, their neutralisation brought no

[25] Ibid, *supra* note 8, [242].

[26] These include for instance the Geneva Conventions (IV) (1949); API, II to the 1949 Geneva Conventions (1977); The Hague Regulations (1907); The Convention on Certain Conventional Weapons (CCW) (1980); the Chemical Weapons Convention (CWC) (1993); The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (BWC) (1972); The Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (1925); The Hague Convention IV (1907); The Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict and its two Protocols (1954 and 1999); International Convention for the Prevention of Pollution of the Sea by Oil (12 May 1954) 327 UNTS 3; Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (29 December 1972) 26 UST 2403, TIAS No 8165.

[27] Ibid, *supra* note 6, art 48 states: "In order to ensure respect for and protection of the civilian population and civilian objects, the Parties to the conflict shall at all times distinguish between the civilian population and combatants and between civilian objects and military objectives and accordingly shall direct their operations only against military objectives".

[28] Department of the Air Force, United States Air Force Manual 36-2234, n 76, 43.

[29] Ibid, *supra* note 19, 211.

[30] Peter J Richards and Michael N Schmitt, "Mars meets mother nature: protecting the environment during armed conflict" (1999) 28/4 Stetson Law Review, 1079; Some nations may place other interests, such as winning wars, ahead of environmental protection.

definite military advantage. Some might argue the opposite, but even if they had provided a military advantage, the principle of proportionality would most probably have been violated.[31] Indeed, the destruction of enemy property is prohibited under the Hague Regulation Article 23(g)[32] when not imperatively demanded by necessities of war. It was also a violation of Article 53 and 147 GC IV, and a war crime under Article 8(2)(a)(iv)[33] and Article 8(2)(e)(xii)[34] Rome Statute.[35] Despite Iraq being neither a State Party to the API, ENMOD[36] nor the Rome Statute, the United Nations Compensation Commission (UNCC), which was created in 1991 as a subsidiary organ of the UN Security Council (UNSC) under Security Council resolution 687(1991),[37] successfully held Iraq accountable for damages caused. This included $52.4 billion worth of compensation to approximately 1.5 million successful claimants for environmental damage.[38] The general record for holding States responsible for such eco-atrocities, however, remains poor and one cannot count on the UNSC to establish a subsidiary organ for every eco-atrocity committed during international conflicts. Thus, if significant damage were caused to the environment or natural resources, international human rights law (IHRL) would suggest that an affected person or community could seek relief with the UN and regional human rights organs, rather than rely on grave breaches of IHL and war crime proceedings because such cases involve complex legal issues of venue, jurisdiction, and choice of law. This is where the complementarity between IHL and IHRL seems to enhance protection, by strengthening the means of enforcement of the law. The following section serves to examine remedies that individuals have under international human rights law.

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[31] John H McNeill, Protection of the Environment in Time of Armed Conflict: Environmental Protection in military practice in RJ Grunawalt et al (eds), *Protection of the Environment during Armed Conflict* (69 International Law Studies 1996), 541.

[32] Article 23 of 1907 Hague Regulations: "In addition to the prohibition provided by special Conventions it is especially forbidden … (g) To destroy or seize the enemy's property, unless such destruction or seizure be imperatively demanded by the necessities of war".

[33] This provision applies to international armed conflicts.

[34] This provision applies to non-international armed conflicts.

[35] Rome Statute of the International Criminal Court (adopted on 17 July 1998, entered into force 1 July 2002) 2187 UNTS 38544, Art 8(2)(a)(iv).

[36] Iraq has signed the ENMOD Convention on 15 August 1977 but has not ratified it.

[37] UNSC Res 678 (29 November 1990) UN Doc S/RES/678.

[38] UNEP, *Protecting the Environment During Armed Conflict An Inventory and Analysis of International Law* (UNEP 2009), 51; For more information about the United Nations Compensation Commission (UNCC), see https://www.uncc.ch/.

Protecting the right to a healthy environment through other international human rights

There is an integral link between the right to a healthy environment and other human rights. Indeed, it may often be easier to address environmental concerns through other human rights than through the not globally recognized right to a healthy environment. The deterioration of the environment affects the right to life, health, work and education, among other rights. Pollution of lakes and waters in many countries has seriously affected the ability of those that rely on fishing to earn a decent living from their traditional work. Health problems caused by air and water pollution resulting from effluents of nearby and distant factories are well documented. Poisoning from lead paint, gasoline and other sources has been shown to affect children's ability to learn.

The Aarhus Convention[39] is the clearest statement in international law to date of a fundamental right to a healthy environment and is a breakthrough in environmental agreements. It links environmental protection to human rights norms, raises environmental rights to the level of other human rights and acknowledges the existence of an obligation to protect the environment for future generations.[40] Despite the Convention being merely regional in scope, its significance is global and will hopefully inspire future universal agreements. Principle 1 of the Stockholm Declaration does not proclaim a fundamental human right to a healthy environment, but implies that basic environmental health is necessary for the free enjoyment and exercise of recognized human rights.[41] Special Rapporteur, Fatma Zohra Ksentini, emphasised the recognition that human rights have an environmental dimension.[42] The right to life is explicitly protected under Article 6 of the International Covenant on Civil and Political Rights (ICCPR).[43] The Human Rights Committee has described the right to life as the "supreme right," "basic to all human rights," and it is a right from which no derogation is

[39] Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention), (adopted on 25 June 1998) (1999) 38 ILM 517, available at <www.unece.org/env/pp> accessed 12 February 2018.
[40] Ibid, Preamble paras 1–2, art 1.
[41] Dinah Shelton, "Human Rights, Environmental Rights, and the Right to Environment" (1991) 28 Stanford Journal of International Law, 112.
[42] UNHCR (Sub-Commission), "Report by Special Rapporteur Ksentini Second Progress Report", (1992) UN Doc E/CN.4/Sub.2/1993/7.
[43] International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171 (ICCPR).

permitted even in time of public emergency.[44] The Committee has also clarified that the right to life imposes an obligation on States to take positive measures for its protection, including taking measures to reduce infant mortality, malnutrition and epidemics.[45] The right to a healthy environment is specified as part of the right to life, in Article 11 of the Covenant, which states that "[e]veryone shall have the right to live in a healthy environment and to have access to basic public services."[46] Additionally, the right to adequate food in Article 11 implies the right to a healthy environment where sufficient food is available, that people have the means to access it and that is adequately meets the individual's dietary needs.[47] The term "adequate" could be read to mean an obligation to prevent contamination of foodstuffs through bad environmental hygiene or toxins. The ICESCR General Comment No. 15 defined the right to water as the right of everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses, such as drinking, food preparation and personal and household hygiene.[48] The contamination of drinking water through attacks on for instance a water treatment plant could also result in filing a complaint with the Human Rights Committee. In terms of the right to health, underlying determinants of health include adequate food and nutrition, housing, safe drinking water and adequate sanitation, and a healthy environment.[49]

It becomes clear from the above discussion that even though the international human rights treaties may not explicitly recognize the right to a healthy environment, individuals are not left without a remedy. Instead, they can file an official complaint to the United Nations Human Rights Committee established by virtue of the First Optional Protocol to the Covenant for alleged violations of their civil and political rights.[50] Also, the Committee on Economic, Social and Cultural Rights may consider individual communications alleging

[44] UN Human Rights Committee, "General Comment No 6 on article 6 (right to life)" (30 April 1982) UN Doc HRI/GEN/1/Rev.6; UN Human Rights Committee, "General Comment No 14 on article 6 (right to life)" (9 November 1984) UN Doc HRI/GEN/1/Rev.6.
[45] General Comment No 6, *supra* note 44.
[46] Ibid, *supra* note 43, art 11.
[47] International Covenant on Economic, Social and Cultural Rights (adopted 16 December 1966, entered into force 3 January 1976) 993 UNTS 3 (ICESCR), art 11.
[48] UN Committee on Economic, Social and Cultural Rights, "General Comment No 15 on the right to water on arts 11, 12" (20 January 2003) UN Doc E/C.12/2002/11.
[49] UN Committee on Economic, Social and Cultural Rights, "General Comment No 12 on the right to adequate food on art 11" (12 May 1999) UN Doc E/C.12/1999/5.
[50] The Human Rights Committee (CCPR) may consider individual communications alleging violations of the rights set forth in the International Covenant on Civil and Political Rights by States parties to the First Optional Protocol to the International Covenant on Civil and Political Rights.

violations of the ICESCR by States parties to the Optional Protocol to the Covenant. States may also use this mechanism to complain to the relevant Committee about alleged violations of a Treaty by another State party. It must be highlighted, however, that this has never happened. An example of a successful individual complaint procedure before the Committee is the Port Hope, Ontario Case, where large-scale dumping of nuclear waste had taken place within a community. A member of this community filed a complaint, claiming that the nuclear dumping was threatening life and health of present and future generations of Port Hope. Even though the complaint was declared inadmissible, "the Committee discussed the validity of the petitioner's environmental claims as a human rights concern and observed that the communication raised serious issues regarding the duty of States' parties to protect the right to life contained in Article 6(1) of the International Covenant on Civil and Political Rights."[51] This demonstrates that recourse to human rights Committees can offer an effective solution for environmental protection during armed conflicts.

In recent years, the enforcement of these human rights norms has grown significantly, as has the body of case law at the national level, which could inspire international jurisdiction in the future. At the regional level, *López-Ostra v Spain*[52] opened the door for the protection of human rights against nearly all sources of environmental pollution. The Court decided that there was a breach of Article 8 of the European Convention on Human Rights (ECHR), stating that the article creates a positive duty of regulation and protection on the part of the State, so that State tolerance of environmentally noxious activities may constitute a breach. Similarly, in *Guerra and Others v Italy*,[53] the Court held "severe environmental pollution may affect individuals' well-being and prevent them from enjoying their homes in such a way as to affect their private and family life adversely."[54] It would appear, therefore, that "although human rights and environmental protection represent separate social values, the overlapping relationship between them can be resolved in a manner which will further both sets of objectives."[55] Like human rights, environmental law touches upon various spheres of human activity. In

[51] Ibid, *supra* note 43.
[52] *López Ostra v Spain* App no 16798/90 (ECtHR, 9 December 1994).
[53] *Guerra and Others v Italy* App no 14967/89 (ECtHR, 19 February 1998).
[54] P Eleftheriadis, The Future of Environmental Rights in the European Union in P Alston (ed), *The EU and Human Rights* (OUP 1999), 529–549.
[55] Dinah Shelton, "Human Rights, Environmental Rights, and the Right to Environment" (1991) 28 Stanford Journal of International Law, 106.

this regard, human rights depend upon environmental protection, and environmental protection could be enhanced by exercising a right to a healthy environment within existing human rights.[56]

NATO policy on protection of the environment and member states commitments during armed conflict

Environmental experts have long argued that the military should adopt measures to protect the physical and natural environment from harmful and detrimental effects of its activities. Environmental degradation can cause social and economic instability and new tensions, whereas the preservation of the environment during a military operation can enhance stabilisation and foster lasting security. Hence, minimising environmental damage during training and education and throughout the planning stages of military operations is of great importance for the overall success of the mission.

As a general principle, the Host Nation's (HN) environmental laws must be respected during NATO-led military operations.[57] NATO policy states that where participating nations and/or contributing nation's environmental protection standards are more stringent than those of the HN, they should be applied as long as they do not contravene the HN's laws.[58] This is where the question of extraterritorial application of national environmental laws merits further examination. Normally, in case HN environmental laws are non-existent, applicable environmental protection standards should be agreed upon by consensus by the participating nations during the planning stages of an operation.[59] Domestic environmental statutes, more specifically, those of the USA have, however, no application abroad unless Congress expressly includes an extraterritorial provision.[60] There is a difference with international agreements, such as the Status of Forces Agreements (SOFAs).[61] This is because there is a growing trend to include environmental matters, also referred to as "sending State obligations" into NATO SOFA Supplementary

[56] Ibid.
[57] MC 469/1, NATO Military Principles and Policies for Environmental Protection (EP); Sahar Issa, Jenan Hussein, Hussein Kadhim, "Unofficial Translation of US-Iraq Troop Agreement from the Arabic Text" *McClatchy* (DC, 18 November 2008), art 8, available at <http://www.mcclatchydc.com/news/nation-world/world/article24511081.html> accessed 13 February 2018.
[58] MC 469/1, *supra* note 57, para 8(a)(1).
[59] Ibid.
[60] *EEOC v Arabian Am Oil Co* (1991) 499 US 244, 248.
[61] R Chuck Mason, "Status of Forces Agreement (SOFA): What Is It, and How Has It Been Utilized? (2012) Congressional Research Service, 3: "The issue most commonly addressed in a SOFA is the legal protection from prosecution that will be afforded U.S. personnel while present in a foreign country".

Agreements.[62] The 1951 North Atlantic Treaty regarding the Status of Their Forces,[63] commonly referred to as the "NATO SOFA," does not explicitly address HN environmental obligations, but does contain a comprehensive claim provision that encompasses environmental claims between a "receiving State" and a "sending State."[64] It can be observed to specifically incorporate HN environmental considerations as part of overseas military operations.[65] Other international agreements also follow this development. The Agenda 21, a recent international environmental agreement, addresses the management of military generated wastes.[66] It states: "[g]overnments should ascertain that their military establishments conform to their nationally applicable environmental norms in the treatment and disposal of hazardous wastes."[67] Concerning the question of State responsibility, when conducting military activities, NATO and participating nations have a collective legal responsibility for the protection of the environment. Nevertheless, each nation ultimately bears individual responsibility for the actions of its own forces.[68] Yet, should there be a conflict between operational imperatives and environmental protection principles, an operational imperative takes priority over environmental protection.

NATO Member States are aware of the environmental challenges during military operations and have hence adopted rules and regulations to protect the environment.[69] Those who plan an attack are obliged to take into

[62] Agreement of 3 August 1959, as Amended by the Agreements of 21 October 1971, 18 May 1981, and 18 March 1993, to Supplement the Agreement between the Parties to the North Atlantic Treaty regarding the Status of their Forces with respect to Foreign Forces stationed in the Federal Republic of Germany (Revised Supplementary Agreement) (effective 29 March 1998), Art 54A(1): "The sending States recognize and acknowledge the importance of environmental protection in the context of all the activities of their forces within the Federal Republic".

[63] Agreement to the Parties to the North Atlantic Treaty regarding the Status of Their Forces (adopted on 4 April 1949, entered into force 19 June 1951) 199 UNTS 67.

[64] Ibid, art VIII(5): "Claims (other than contractual claims and those to which paragraphs 6 or 7 of this Article apply) arising out of acts or omissions of members of a force or civilian component done in the performance of official duty, or out of any other act, omission or occurrence for which a force or civilian component is legally responsible, and causing damage in the territory of the receiving State to third parties, other than any of the Contracting Parties, shall be dealt with by the receiving State (…)".

[65] US-Iraq Troop Agreement, *supra* note 57.

[66] "Report of the United Nations Conference on Environment and Development" UN Conference on Environment and Development, Agenda 21 (Rio de Janeiro 3-14 June 1992) (28 September 1992), UN Doc A/CONF.151/PC/100/Add.1 available at <http://www.un.org/documents/ga/conf151/aconf15126-4.htm> accessed 13 February 2018.

[67] Ibid.

[68] MC 469/1, *supra* note 57, para 8(a)(2).

[69] NATO defines environment as "The surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelations" NATO, "Environment" (NATOTerm: The

account information on the natural environment that is reasonably available to them at the relevant time of planning.[70] NATO's measures range from safeguarding hazardous materials (including fuels and oils), treating waste water, reducing fossil fuel consumption and managing waste to putting environmental management systems in place during NATO-led activities. In line with these objectives, NATO has been facilitating the integration of environmental protection measures into all NATO-led military activities. The Military Committee document 469/1, which outlines principles and policies for environmental protection, describes the responsibilities of military commanders for environmental protection during the preparation and execution of military activities.[71] It further recognizes the need for "a harmonisation of environmental principles and policies for all NATO-led military activities." It also instructs NATO commanders to apply "best practicable and feasible environmental protection measures", thus aiming at reducing the environmental impact caused by military activity. The MC 469 has been complemented with several other NATO environmental protection Standardization Documents (STANAG)[72] and Allied Joint Environmental Protection Publications (AJEPP), all focused on protecting the environment during NATO-led military activities.[73] Currently, two dedicated NATO groups (Environmental Protection Working Group (EPWG) and the Specialist Team on Energy Efficiency and Environmental Protection (ST/EEEP)) are addressing environmental protection while promoting cooperation and standardization among NATO and partner countries, as well as among different NATO bodies and international organizations. It is important that the ongoing efforts to develop a standardized environmental practice to military activities and doctrine continue.

Official NATO Terminology Database, 31 October 2013), available at <https://nso.nato.int/natoterm/Web.mvc>, accessed on 12 February 2018; NATO, Environment – NATO's stake, available at <https://www.nato.int/cps/en/natohq/topics_91048.htm> accessed on 15 February 2018.

[70] Ibid, *supra* note 20, Rule 89.

[71] MC 469/1, NATO Military Principles and Policies for Environmental Protection (EP).

[72] See for example NATO Standardization Agreement, STANAG 7141: Joint NATO Doctrine for Environmental Protection During NATO led Military Activities (26 February 2008), available at <http://nsa.nato.int/nsa/zPublic/stanags/7141E%20EP%20 ED5%20EC.pdf> accessed on 15 February 2018.

[73] These include: STANAG 7141 Joint NATO Doctrine for Environmental Protection During NATO-led Military Activities (AJEPP-4); STANAG 2582 Environmental Protection Best Practices and Standards for Military Camps in NATO Operations (AJEPP-2); STANAG 2583 Environmental Management System in NATO Operations (AJEPP-3); STANAG 6500 NATO Camp Environmental File During NATO-led Operations; STANAG 2594 Best Environmental Protection Practices for Sustainability of Military Training Areas (AJEPP-7).

Conclusion

Even though the right to a healthy environment is not yet explicitly recognized in the international human rights treaties, the Aarhus Convention and several national constitutions lead the way in acknowledging this right and hopefully serve as a showcase for future agreements or the development of customary international law. Although individuals seeking remedies might not be able to claim compensation for a violation of their right to a healthy environment unless their national constitution has recognized it, other human rights might also be impacted by the violation. As a result, victims could seek to either apply to national or regional courts and claim a violation of the national constitution or regional agreements, or file a claim with the UN Human Rights Committees.[74] Consequently, the practice being developed within those bodies is decisive and shall bring into sharper focus the content of the right to a healthy environment, the ways and means of implementing it, and related procedural aspects. Also, NATO Member States should, first, train and educate their forces on environmental protection. Second, they should closely coordinate with other participating NATO forces, participating nations as well as the HN to establish a sound understanding of environmental protection and applicable laws. This will consequently allow NATO to contribute to stabilisation, strengthen trust and cooperation with local populations, and enhance prospects for lasting security.

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[74] Depending on the region, differences apply. For instance, some regional courts such as the European Court of Human Rights require an exhaustion of domestic remedies.

NATO "Education and training" Source: www.nato.int

Environmental Protection: An Essential NATO Operational Responsibility

by Lieutenant-Colonel David J. Burbridge[1]

Awareness and concern regarding human impacts to the environment continue to grow in significance worldwide. Defined in NATO as "the surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelations,"[2] the environment is not only the source of resources crucial to human and ecological life, it is essential to generating economic prosperity and it can have immeasurable social and cultural value. National governments and international organizations increasingly place legal and regulatory emphasis on mitigating negative environmental impacts by human activities.

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[2] NATO/NSO, 'Environment' (*NATOTerm: The Official NATO Terminology Database*, 31 October 2013), https://nso.nato.int/natoterm/Web.mvc, accessed 22 March 2019.

Military activities, in support of training and operations, can have a significant impact on the environment. These occur from the development, testing, use, and disposal of military vehicles, vessels, aircraft, munitions, and equipment. Tremendous natural resources and potential for environmental damages are associated with creating and using military installations, camps, and training areas. Operating these often requires high levels of fuel storage, power production, water production, wastewater disposal, as well as disposal of other wastes, including solid and hazardous waste. Although some environmental benefits of military activities have been recognized,[3] the overall consequences on the environment are overwhelmingly negative through the potential to result in a wide range of direct[4] and indirect[5] impacts, some temporary but many enduring, on ecosystems and biodiversity. Environmental consequences of military activities are most acute during conflict, and for several decades, some environmental advocates have even called for a fifth Geneva Convention that recognizes environmental damage as a war crime.[6]

The concept and importance of environmental protection (EP) – "the prevention or mitigation of adverse environmental impacts"[7] – does not appear in the North Atlantic Treaty,[8] NATO Status of Forces Agreement

[3] For example by creating exclusion zones such as military training areas, or a "no-man's land" such as the Korean Demilitarized Zone (Steven D. Warren, Scott W. Holbrook, Debra A. Dale, Nathaniel L. Whelan, Martin Elyn, Wolfgang Grimm, and Anke Jentsch, 'Biodiversity and the Heterogeneous Disturbance Regime on Military Training Lands' (2007) 15(4) *Restoration Ecology*, 606; Michael J. Lawrence, Holly L.J. Stemberger, Aaron J. Zolderdo, Daniel P. Struthers, and Steven J. Cooke 'The Effects of Modern War and Military Activities on Biodiversity and the Environment' (2015) 23(4) *Environmental Reviews*, 443-445).

[4] Direct environmental impacts include those resulting from military personnel, aircraft, vessels, vehicles, weapons, equipment, infrastructure and facilities, etc.

[5] For example, indirect environmental effects of military activities caused by displaced persons escaping combat areas. Particularly in areas of camps for displaced persons, environmental effects can include deforestation from large numbers of people felling trees for building shelters, cooking, or heating; waste dumping; water pollution; and land degradation.

[6] Efforts began following the 1991 Gulf War when the Iraqi military set fire to over 600 hundred oil wells during their retreat from Kuwait. The most recent call was published as an open letter supported by 24 respected scientists within a prominent scientific publication (Sarah M. Durant and José C. Brito, 'Stop Military Conflicts from Trashing Environment' (2019) 571 *Nature* 478). The UN International Law Commission has already drafted 28 principles to protect the environment during conflict (United Nations, 'Protection of the Environment in Relation to Armed Conflict' (A/CN.4/L.937, United Nations General Assembly, 6 June 2019) http://legal.un.org/docs/index.asp?symbol=A/CN.4/L.937) and will be meeting in summer 2019, during its 71st session to further discuss their content (UN International Law Commission, "Seventy-first Session (2019)" (UN International Law Commission, last modified 25 July 2019) http://legal.un.org/ilc/sessions/71/).

[7] NATO/NSO, 'Environment' (*NATOTerm: The Official NATO Terminology Database*, 31 October 2013) https://nso.nato.int/natoterm/Web.mvc, accessed 22 March 2019.

[8] However, the *North Atlantic Treaty* states the endeavour of NATO allies is to promote stability and well-being through international peace, security, justice, and rule of law, thus making negligent EP performance

(SOFA),[9] Paris Protocol, or in any past Strategic Concept or Summit Declaration.[10] Despite the fact EP was once a topic that was unrecognized or unaddressed by NATO military forces, it has now become an essential mission capability for the conduct of successful modern, comprehensive operations. EP considerations apply to all three of NATO's core tasks: collective defence, crisis management, and cooperative security. In times of war, the objectives of defeating the enemy while minimising casualties takes precedence. Thus, military necessity can limit the extent to which environmental damage can be avoided.[11] However, more and more, the judgment of Host Nations and international audiences upon what constitutes a balance between military necessity[12] and environmental protection will be scrutinised and the latitude with which commanders can invoke reasons of necessity to justify environmental damage will diminish. An increasingly important component in both conducting and assessing the success of NATO training and operations is the degree to which audiences perceive NATO forces to have maximised

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inconsistent with NATO's foundational agreement.

[9] However, because most NATO nations have implemented extensive EP regulations and other measures, NATO SOFA Article II has indirect EP requirements as it states: "It is the duty of a force and its civilian component and the members thereof as well as their dependents to respect the law of the receiving State, and to abstain from any activity inconsistent with the spirit of the present Agreement…It is also the duty of the sending State to take measures to that end." However, the requirement to "respect" the law does not require compliance if military necessity can be justifiably invoked.

[10] Although NATO's 2010 Strategic Concept (NATO, *Active Engagement, Modern Defence: Strategic Concept for the Defence and Security of Members of the North Atlantic Treaty Organization (NATO, 19 November 2010)* para 15) and both the Chicago (NATO, *Chicago Summit Declaration* (NATO, 5 September 2014) para 53) and Wales (NATO, *Wales Summit Declaration* (NATO, 5 September 2014) para 110) Declarations mentioned environmental pressures that can trigger instability and conflict, this is not a reference to the concept of environmental protection, but rather to environmental security.

[11] However, other Law of Armed Conflict principles, such as proportionality, must also be considered. For example, if total collateral damage, the calculation of which includes environmental damage, is excessive in relation to the concrete and direct military advantage anticipated, the military action should be avoided. Furthermore, Article 35(3) of Protocol I to the Geneva Conventions of 1949 states that "It is prohibited to employ methods or means of warfare that are intended, or may be expected, to cause widespread, long-term, and severe damage to the natural environment" and Article 55 states that "Care must 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 expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population."

[12] Perhaps the clearest case of environmentally disproportionate use of military force was the breaching of the Yellow River levees at Huayuankou by Chinese nationalist forces to attempt to slow the westward advance Japanese army in 1938, prior to the outbreak of World War II. It was marginally successful from a military standpoint but killed approximately 800,000 Chinese civilians, likely the greatest loss of human life resulting from a single human action. Millions of survivors were rendered homeless, millions of hectares of agricultural land were flooded, and economic damages were incalculable. See: Steven I. Dutch, 'The Largest Act of Environmental Warfare in History' (2009) XV(4) *Environmental & Engineering Geoscience* 287; and, Micah S. Muscolino, *The Ecology of War in China: Henan Province, the Yellow River, and Beyond, 1938-1950* (Cambridge University Press 2015) Chapter 2.

the integration of environmental considerations into all their actions. This will necessitate active liaison with Host Nation authorities and populations, where possible, for understanding local environmental conditions and EP regulations. It requires transparency for reporting significant environmental impacts by NATO (with due consideration for security considerations where necessary).

Over the past fifty years, NATO has gradually taken important steps toward raising its attention towards EP, with the most significant advances for achieving EP on operations being in the past two decades. Amongst other efforts, the Military Committee has issued an EP policy, working groups dedicated to the subject have been created, several standardized documents ratified, and NATO-accredited courses created. Nonetheless, is NATO doing enough to address the complex and evolving challenges related to EP? Where is NATO succeeding, and where is it in need of improvement? What areas and gaps can legal expertise assist NATO in meeting its EP requirements?

The Importance and Complexity of Environmental Protection

Effects on the environment, both intentional and incidental (including unintentional), are a factor during all types of military preparations and activities. NATO adversaries may even maliciously target the environment through both direct and hybrid[13] means. Friendly force activities that change or impact the physical environment must be undertaken with knowledge and planning prior to execution as they hold potential for adverse impacts ranging from difficult to impossible to reverse.[14]

EP has very practical operational benefits. EP helps gain and/or maintain support from Host Nation[15] and international populations. It assists positive influencing of key actors within operational areas. Strong EP practices also help avoid unnecessary responsibility and potentially lengthy legal liability claims for impacts to human health (to both NATO personnel and local populations) and the environment (e.g., remediation costs or remuneration to landowners). Furthermore, strong EP practices minimise the potential for undesired diversion of scarce operational resources (e.g.,

[13] For an example presented in this issue of the *NATO Legal Gazette*, see: Nathaniel L. Whelan, "Nature Protection as a Hybrid Threat" (2019) 40 *NATO Legal Gazette* 121.

[14] Without the proper coordination that includes consideration of possible environmental impacts, even good intentions, such as digging a well for local populations, can have negative consequences.

[15] When not addressed immediately, even EP issues that are initially easy to resolve by NATO forces can have the potential to unnecessarily expand at an exponential rate into serious public relations problems.

personnel, equipment) from intended tasks to meet environmental response requirements, or possibly needing to introduce or augment numbers of contractors on secure NATO camps. The success of NATO activities will, in part, be measured by how effectively its forces are perceived to address EP considerations while meeting its mission objectives. The goal of EP efforts is not to eliminate all damage to the environment; such a goal would seem impossible. However, the aim is to plan early and effectively, as well as continuously provide advice to key decision-makers and staff, to minimise or address damage that could negatively impact human health or the environment, and, thus, potentially the success of the mission. When damage does occur, the expectation is to address it effectively and efficiently, learn from the experience, and carry on with the mission.

Executing EP for military activities, however, is not easily accomplished. Specific environmental impacts may be difficult to predict, prevent, or assess. Operational reasons may limit EP planning time or delay reactions to occurrences of environmental damage. Beyond the direct effects of an action, EP issues may only manifest as higher-order effects.[16] Levels of environmental contamination present before NATO impacts occurred are often unknown and can be very difficult to estimate; even contaminant levels at a planned NATO camp location may not be known if operational deployment occurs rapidly or assessments are not completed immediately upon occupation. Thus, it may be difficult for NATO to determine contamination levels for which it is responsible. Exacerbating these challenges, multinational NATO forces may have significant internal differences in EP institutionalisation and enforcement across component national forces. NATO forces may operate in an area where Host Nation EP laws and regulations are uncertain, at a low standard, or disregarded by locals.

Conversely, NATO forces must also be prepared to operate in nations having high regulatory and accountability standards for EP. In particular, during the current era of renewed attention for preparing NATO forces to conduct large-scale, collective defence operations in the European theatre where most nations have demanding standards of EP, capacities and performance will be important. As an example, Norway recently hosted Exercise TRIDENT JUNCTURE 2018 and developed detailed EP standards for all

[16] NATO planners are expected to look beyond simply first-order EP effects to any action, but to consider the potential for second- or third-order EP effects. This consideration is particularly important for targeting.

participating nations.[17] Should NATO nations perceive a low standard for EP amongst other NATO military forces, some may become reluctant or unwilling to host large exercises critical to ensure force readiness.

Despite these challenges, balancing military operational requirements with EP responsibilities is not intrinsically impossible and NATO forces must achieve EP standards to reduce the environmental footprint of operations. One of the greatest advantages NATO must possess over its adversaries is its credibility and commitment to high standards, even when actions—or inaction—are beyond public view. It is important that wherever NATO operates it shows principled leadership and a responsible presence. Lapses in EP can erode trust amongst allies and partners, strain relations between NATO and Host Nation governments, harm vulnerable local populations and stoke unrest, amplify challenges for post-conflict recovery of combat areas, and come to define the enduring legacy of a past NATO presence in an area. Poor EP practices can offer NATO's critics and adversaries an opportunity to undermine alliance cohesion and legitimacy, either directly or using hybrid means. It is therefore imperative that commanders at all levels understand, support, and impart the importance of EP to NATO objectives.

A Short History of EP in NATO

The environmental movement emerged in the 1960s and 1970s through an increased understanding of the connection between the health of the natural environment and security of individuals and societies.[18] By the late 1960s, EP and conservation concerns were playing a prominent role in international relations.[19] These factors provoked a substantial and influential policy response including the establishment of the US Environmental

[17] For a detailed description of EP factors, requirements, management procedures, and performance during Exercise TRIDENT JUNCTURE 2018, see: Major Marianne Bø, 'NATO-exercise Trident Juncture 2018 - Overview of Environmental Protection Concerns, Preparations and Handling of Damages' (2019) 40 *NATO Legal Gazette* 138. The current MOU between Norway and SHAPE, signed in 1997, specifically mentions the requirement for "Sending Nations to be respectful of environmental regulations and procedures". See: NATO and the Kingdom of Norway, *Memorandum of Understanding (MOU) between the Government of the Kingdom of Norway and Supreme Headquarters Allied Powers in Europe and Supreme Headquarters Allied Commander Atlantic Regarding the Provision of Host Nation Support for the Execution of NATO Operations* (NATO and the Kingdom of Norway, 1997).

[18] Rita Floyd and Richard A. Matthew, 'Environmental Security Studies: An Introduction' in Rita Floyd and Richard A. Mathew (eds), *Environmental Security: Approaches and Issues* (Routledge 2013) 3.

[19] Simone Turchetti, *Greening the Alliance: The Diplomacy of NATO's Science and Environmental Initiatives* (University of Chicago Press 2019) 8. George F. Kennan, the celebrated American diplomat and academic, and father of the US's policy of containment towards Soviet Communism, was an early supporter of environmental diplomacy. See: George F. Kennan, 'To Prevent a World Wasteland' (1970) 48(3) *Foreign Affairs* 401.

Protection Agency (1970), the first UN Conference on the Human Environment (1972), the creation of the UN Environment Programme (UNEP; 1972), and the proliferation of additional organizations, programs, as well as national legislation associated with protecting the environment.

NATO first established its major role in addressing environmental concerns in 1969 when NATO celebrating its 20th anniversary. Besides political and security consultation, President Richard Nixon urged the establishment of a "third dimension" to NATO's agenda—the social and natural human environment—addressed under the auspices of a new body called the Committee on the Challenges of Modern Society (CCMS).[20] Concurrent to CCMS's creation, NATO's existing Science Committee began placing an emphasis on environmental research. These initiatives pursued more than simply environmental objectives and achieved greater consensus and cohesion within the Alliance.[21] "The first operational focus established within an international organization to tackle environmental problems,"[22] some of CCMS's initially analysed EP topics included oil spills and other forms of water pollution, and air pollution.[23] Later environmental topics addressed by CCMS included the promotion of environmental awareness in military forces and achieving an international consensus on methods to assess the toxicological magnitude of mixtures of carcinogenic dioxins and related substances.[24] Until the CCMS merged with the NATO Science Committee in 2006 to form the new Science for Peace and Security Programme, the CCMS provided a collaborative venue for NATO Member States and partner nations to exchange knowledge within the civilian and military sectors regarding social,

[20] For information on the creation and role of CCMS, as well as the controversy it generated amongst numerous allies, see: Livingston Hartley 'Challenges to the Environment: Some International Implications' (1970) 14(2) *Orbis* 490; Charles F. Doran 'Can NATO Defend the Environment?' (1973) 2(4) *Boston College Environmental Affairs Law Review* 667; Thorsten Schulz 'Transatlantic Environmental Security in the 1970s? NATO's "Third Dimension" as an Early Environmental and *Human Security* Approach' (2010) 35(4) *Historical Social Research* 309; Jacob Darwin Hamblin, 'Environmentalism for the Atlantic Alliance: NATO's Experiment with the "Challenges of Modern Society"' (2010) 15 *Environmental History*, 54; Evanthis Hatzivassiliou, 'Nixon's Coup: Establishing the NATO Committee on the Challenges of Modern Society, 1969-70' (2016) 38(1) *The International History Review*, 88.

[21] Simone Turchetti, *Greening the Alliance: The Diplomacy of NATO's Science and Environmental Initiatives* (University of Chicago Press 2019) 8-9.

[22] Craig Sinclair, "NATO and the Environment" 3(2) *Project Appraisal* 67, 68

[23] NATO, *Man's Environment and the NATO Alliance* (NATO, 1 June 1971) http://archives.nato.int/mans-environment-and-atlantic-alliance;isad, accessed 23 August 2018. For a summary of some later topics addressed by CCMS, see: Craig Sinclair, "NATO and the Environment" (1988) 3(2) *Project Appraisal* 67.

[24] NATO/CCMS, Scientific Basis for the Development of International Toxicity Equivalency Factor (I-TEF) Method of Risk Assessment for Complex Mixtures of Dioxins and Related Compounds, Report No. 178 (NATO/CCMS, 1988).

health, and environmental concerns.[25] To this day, the NATO SPS Programme continues to provide a forum to share and fund scientific research and technological innovation amongst NATO Members and partners to deliver solutions for issues of mutual concern.[26]

NATO's first EP guidelines and standards for military activities were created in the late 1970s.[27] Yet, even throughout the 1980s and early 1990s, the extent of consideration for environmental damage during large exercises, for example, was often limited to having a Damage Officer follow behind the manoeuvring elements as they impacted private property, writing cheques as necessary to compensate landowners. However, by the mid-1990s, pressure for NATO to heighten its EP performance was increasing. NATO nations, in particular those within the European Union, had made EP a cornerstone in their policies through both mandatory and voluntary codes of practice.[28] Within the Supreme Headquarters Allied Powers Europe (SHAPE), the perception was that with the end of the Cold War, many of the accepted military dispensations from civil law had disappeared and NATO was now participating in operations short of war, where civilian law is not suspended. It was recognized that in many cases, even emergency laws or specific exemptions from normal law may not be in place at the time of deployment of a multinational force. Consequently, operations had to be planned with respect for national laws and regulations while ensuring balance between the aim of the mission and EP requirements. An increasingly informed public and media would analyse all future military operations.[29]

NATO's first major crisis response operation was conducted in Bosnia and Herzegovina when it relieved the United Nations Protection Force in the mid-1990s. Beginning with the Implementation Force (IFOR; 1995-1996), and continuing with the Stabilisation Force (SFOR; 1996-2005), NATO force responsibilities regarding EP including site restoration were established. To help meet these aims, direction was issued requiring pre- and post-occupation surveys to enable comparison of environmental conditions of occupied sites,

[25] NATO, 'Environment – NATO's Stake' (NATO, 9 December 2014) https://www.nato.int/cps/en/natohq/topics_91048.htm, accessed 29 March 2019.
[26] NATO, 'Science for Peace and Security' (NATO, 6 November 2016) https://www.nato.int/cps/en/natolive/78209.htm, accessed 29 March 2019.
[27] NATO, 'Environment – NATO's Stake' (NATO, 9 December 2014) https://www.nato.int/cps/en/natohq/topics_91048.htm, accessed 29 March 2019.
[28] Examples included the Eco-Management and Audit System and ISO 14001.
[29] NATO/SHAPE, *SHAPE Guidance on Environmental Protection for Operation Joint Forge*, 6233/JOC J4/98 (NATO/SHAPE, July 1998)

such as camps, during the mission.[30] The requirements in the SOFA and SHAPE direction were that NATO and Troop Contributing Nations (TCNs) should respect the laws of the Host Nation on the environment. Sites NATO used should be returned to the Host Nation in comparable condition[31] to when first occupied. This required implementing a principle of continuous environmental care. The technical arrangements supplementary to the Memorandum of Understanding with both Croatia and Bosnia-Herzegovina set out procedures for resolving claims that were binding on NATO and TCNs. One of NATO's aims was to minimise liability at locations for which NATO common funding would be used to pay for damages.[32] The Supreme Allied Commander Europe urged all TCNs to adopt a similar approach to avoid the possibility of claims escalation and the adverse publicity that could arise from TCNs adopting different standards.[33] Henceforth, although NATO Members had a collective responsibility for the environment, individual TCNs would ultimately be responsible for the environmental impacts of their forces at any site they occupied or used. Further direction was given regarding such matters as the investigation of environmental incidents, reporting and records keeping, and collection of lessons learned to improve future EP performance.[34]

In the Post-Cold War period, EP was used as a non-controversial area of early collaboration with former Warsaw Pact nations.[35] With military threats

[30] NATO/SHAPE, *SHAPE Guidance on Environmental Protection for Operation Joint Forge*, 6233/JOC J4/98 (NATO/SHAPE, July 1998)

[31] Interpreted to be in identical or better condition than when first occupied.

[32] Such as for facilities used as the international military headquarters.

[33] NATO/SHAPE, *SHAPE Guidance on Site Clearance for Operation Joint Endeavor* (NATO/SHAPE, 1996)

[34] This same period saw several other EP developments to help harmonize and institutionalize EP policies for use in the Balkans and other future operations. Allied Joint Publication 4 (AJP 4), Joint Logistic Doctrine, was developed through the collaborative effort of NATO nations and was approved by the Senior NATO Logisticians' Conference (SNLC) in May 1998. Chapter 3, Section VIII of this document gave detailed guidance regarding real estate and EP. The NATO Training Group/Army Sub Group (NTG/ASG) Environmental Training Working Group (ETWG) was established to analyse NATO EP training requirements, including those for NATO-led operations, with the primary aim to identify and recommend suitable projects to harmonize EP training within NATO (NATO, *Record of Proceedings: NTG/ASG Environmental Training Working Group, Tomar, Portugal, 02-06 April 2001* (NATO, 2001)). By 2010, the NTG/ASG ETWG had been subsumed into the NATO EPWG as a panel.

[35] However, this was not the first instance of multilateral EP collaboration between NATO nations and Communist bloc nations. The *Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area* was signed by the seven contemporary littoral Baltic Sea nations, including three Warsaw Pact nations (USSR, Poland, German Democratic Republic), two NATO nations (Denmark, Federal Republic of Germany), and two neutral nations (Sweden, Finland). This convention marked the first time a multilateral EP agreement had been signed between members of competing military alliances. See: Anna Korppoo, Nina Tynkkynen, and Geir Hønneland, *Russia and the Politics of International Environmental Regimes: Environmental Encounters or*

appearing to abate, opinions within NATO and in the West saw the promotion of strong liberal democratic values and institutions as a critical component for security and stability in these nations within this new era.[36] NATO-Russia collaboration within the sphere of EP started in 1993, and EP was a component of the 1997 NATO-Russia Founding Act on Mutual Relations, Cooperation and Security (which established the Permanent Joint Council,[37] replaced in 2002 by the NATO-Russia Council). In 2003, an Action Plan was signed between NATO and Russia to "enhance cooperation in areas such as advanced training in environmental protection, re-use of former military lands, improving the quality of water adjacent to military sites and environmentally friendly industrial technologies,"[38] with specific projects being discussed within the NATO's CCMS.[39] Since 2014, NATO cooperation with Russia has been suspended because of Russia's military intervention in Ukraine, although political and military channels remain open.

Although NATO was making progress toward institutionalisation of EP, many instances of failures of varying magnitude still occurred, some of which led to impacts with Host Nation and international audiences. For example, in the late-1990s, an SFOR camp was observed by local residents discarding used vehicle oil on the ground. This caused risk to local drinking water wells drawing from the same aquifer that flowed under the NATO camp. Amongst its responses, the city refused to allow the camp to connect to the local water supply. In other cases, even when NATO intended to dispose of waste properly, reliance on contractors brought challenges. Some contractors unscrupulously accepted contracts requiring them to adhere to proper disposal practices, only to dump the waste on lands or in water bodies illegally.

In 1999, the 78-day (24 March—9 June) NATO bombing campaign under Operation ALLIED FORCE raised, perhaps, the most intense negative attention ever received by NATO related to its EP performance. During the

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Foreign Policy? (Edward Elgar Publishing Limited 2015) 57-58.

[36] Alexandra Gheciu, 'Transcending Old Divisions? NATO and Russia after the Cold War' (2009) 13 *Politique américaine*, 37, 39-40.

[37] NATO and the Russian Federation, *Founding Act on Mutual Relations, Cooperation and Security between NATO and the Russian Federation* (NATO and the Russian Federation, 27 May 1997), https://www.nato.int/cps/en/natohq/official_texts_25468.htm, accessed 16 March 2019.

[38] NATO-Russia Council, 'Statement, Meeting of the NATO-Russia Council at the level of Ministers of Foreign Affairs: Madrid, Spain, Wednesday 4 June 2003' (NATO-Russia Council, 4 June 2003) https://www.nato.int/docu/pr/2003/p030604e.htm, accessed 16 April 2019.

[39] Pravda, 'Russia to Set Environmental Protection Priorities at Coming NATO-Russia Meeting' (Pravda.ru, 2 June 2003), http://www.pravdareport.com/news/russia/02-06-2003/50367-0/, accessed 23 August 2018.

operation, locals and international critics alleged the operation caused significant contamination of the Danube River and also released toxic and carcinogenic chemicals into the ground and air.[40] NATO included amongst its bombing targets petroleum and other industrial facilities, allegedly leading to severely contaminated waterways and other forms of environmental consequences. Several incidents received prominent coverage in the international media.[41] During the conflict concerns surrounding the alleged use of munitions containing depleted uranium also received widespread attention, as did targeting of civilian infrastructure such as sewage treatment facilities that reportedly caused environmental damage in Yugoslavia, and downriver in Bulgaria and Romania.[42]

To investigate and assess the extent of environmental damage because of the conflict, in May 1999 the United Nations Environmental Programme (UNEP) established an expert task force[43] comprising representatives from several UN agencies and departments, 19 nations, and 26 NGOs and scientific organizations.[44] While the task force found the conflict had "not caused an environmental catastrophe affecting the Balkan region as a whole," it identified "hot spots" at four bombed industrial locations. The worst of these were the petrochemical plant, a fertiliser plant, and a major oil refinery complex at Pančevo[45] and the industrial facilities of Novi Sad.[46]

NATO acknowledged the environmental impacts of the bombings but insisted that military necessity justified some collateral damage as the industrial sites were a key source of the Serb regime's power. In July 1999,

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[40] Peter Hough, 'Trying to End the War on the World: The Campaign to Proscribe Military Ecocide' (2016) 1(1) *Global Security: Health, Science, and Policy* 10, 13.

[41] UNEP, *The Kosovo Conflict: Consequences for the Environment and Human Settlements* (UNEP 1999) 4.

[42] Regional Environmental Centre for Central and Eastern Europe, *Assessment of the Environmental Impact of Military Activities during the Yugoslavia Conflict: Preliminary Findings* (June 1999).

[43] As UNEP had also done after the 1991 Gulf War.

[44] UNEP, *The Kosovo Conflict: Consequences for the Environment and Human Settlements* (UNEP 1999) 3.

[45] At Pančevo, the UN task force noted the main concerns as being: Serious leakages of 1,2-dichloroethane (EDC) (2,100 tons) and metallic mercury (8 tons); burning of 460 tons of vinyl chloride monomer that would have released dioxins, hydrochloric acid, carbon monoxide, polycyclic aromatic hydrocarbons (PAHs), and possibly phosgene; burning of 80,000 tons of oil & oil products releasing sulphur dioxide, carbon monoxide, PAHs, and other noxious gases; high concentrations of EDC found in water of canal running into the Danube; high concentrations of mercury and petroleum products in the canal sediments. In addition, as a preventative measure, about 250 tons of liquid ammonia was released by plant managers into the adjacent canal fearing a direct bombing strike could kill large numbers of people. This release was assessed to be the likely cause of fish deaths reported up to 30 km downriver in the Danube. See: UNEP, *The Kosovo Conflict: Consequences for the Environment and Human Settlements* (UNEP 1999) 31-34.

[46] Abas Basir, *Liability for Environmental Damage with Special Reference to Armed Conflicts* (Éditions universitaires européennes 2017) 5.

within a *New York Times* article that painted a highly disturbing picture of the bombing effects on local populations and the environment, an unnamed NATO representative was quoted:

> NATO had two types of targets. There were tactical and strategic targets. The oil refinery in Pančevo was considered a strategic target. It was a key installation that provided petrol and other elements to support the Yugoslav Army. By cutting off these supplies we denied crucial material to the Serbian forces fighting in Kosovo….When targeting is done we take into account all possible collateral damage, be it environmental, human or to the civilian infrastructure. Pančevo was considered to be a very, very important refinery and strategic target, as important as tactical targets inside Kosovo.[47]

However, many in the international community were still highly critical of NATO's actions. Amongst numerous other legal commentators, legal scholar Aaron Schwabach asserted the extent of environmental damage during the campaign raised "legal questions independent of the underlying legality of the war itself."[48] Richard Falk, Professor of International Law and Practice at Princeton University, commented that "The present legal regime has seemingly been eroded by NATO's bombing tactics during its Kosovo campaign."[49]

The International Criminal Tribunal for Yugoslavia (ICTY)—a special ad hoc UN court set up to try crimes committed in the wars of the Yugoslav secession—investigated many complaints concerning alleged serious violations of international humanitarian law by senior political and military figures from NATO countries. For all complaints, the ICTY recommended that based on available information, no investigation be initiated by the Office of the Prosecutor. Allegations specifically pertaining to environmental damage during the campaign were unsupported because damage did not exceed

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[47] Chris Hedges, 'Serbian Town Bombed by NATO Fears Effects of Toxic Chemicals" *New York Times* (New York, 14 July 1999) https://www.nytimes.com/1999/07/14/world/serbian-town-bombed-by-nato-fears-effects-of-toxic-chemicals.html, accessed 28 March 2019.

[48] Aaron Schwabach, 'Environmental Damage Resulting from the NATO Military Action Against Yugoslavia' (2000) 25 *Colum.J.Envtl.L.* 117, 118.

[49] Richard Falk, 'The Inadequacy of the Existing Legal Approach to Environmental Protection in Wartime' in Jay E. Austin and Carl E. Bruch (eds), *The Environmental Consequences of War: Legal, Economic, and Scientific Perspectives* (Cambridge University Press 2000) 149.

the threshold of "widespread, long-term and severe" under Articles 35(3) and 55 of Additional Protocol I, also noting the very high requirements for application of these Articles.[50] The Kosovo conflict marked the highest public participation to date in assessing and reporting conflict environmental damage, where locals, multinational organizations, academics, NGOs and other concerned international audiences monitored and documented environmental effects and led to steady reporting in the media and on the internet.[51]

In July 1999, a NATO press statement heralded the inaugural meeting of the NATO Environmental Protection Working Group (EPWG),[52] which had

[50] *International Criminal Tribunal for the Former Yugoslavia (ICTY): Final Report to the Prosecutor by the Committee Established to Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia* (2000) 39 ILM 1257. The report acknowledged that neither the USA nor France had ratified Additional Protocol I, but "Article 55, may, nevertheless, reflect current customary law." Regardless, it stated that "Articles 35(3) and 55 have a very high threshold of application. Their conditions for application are extremely stringent and their scope and contents imprecise. For instance, it is generally assumed that Articles 35(3) and 55 only cover very significant damage. The adjectives "widespread, long-term, and severe" used in Additional Protocol I are joined by the word "and", meaning it is a triple, cumulative standard that needs to be fulfilled. Consequently, it would appear extremely difficult to develop a *prima facie* case upon the basis of these provisions, even assuming they were applicable. For instance, it is thought that the notion of "long-term" damage in Additional Protocol I would need to be measured in years rather than months…". Given the short amount of time between the campaign and UNEP's study of environmental damage, the study was not viewed as a reliable indicator of long-term environmental consequences. Thus, it was the investigating committee's opinion that "on the basis of information currently in its possession, that the environmental damage caused during the NATO bombing campaign does not reach the Additional Protocol I threshold. In addition, the UNEP Report also suggests that much of the environmental contamination which is discernable cannot unambiguously be attributed to NATO bombing."

[51] For example, Dr. Arjun Makhijani, President of the Institute for Energy and Environmental Research in Maryland vociferously called out NATO by stating: "It is imperative that NATO provide a full accounting of why these plants were bombed, and what assessments have been undertaken of their direct and indirect consequences for present and future generations….NATO apparently did not conduct a proper analysis of the potential health and environmental consequences before beginning the bombing of chemical facilities. If they did conduct one, they have neglected to inform the public of the possible dangers. It is urgent that NATO immediately make public all the information that it has and provide a thorough report to the public of the possible consequences of its strategy. The effects could be serious." See: Institute for Energy and Environmental Research (IEER), "News Release: NATO Bombing in Balkans Could Result in Widespread Ecological Disaster," (IEER, 11 May 1999, last modified Mar 2013) https://ieer.org/resource/press-releases/nato-bombing-in-balkans-could-result-in-widespread-ecological-disaster/ (downloaded 26 Mar 2019).

[52] Before the creation of the EPWG, NATO had already established consultation to promote the development of maritime capabilities to enhance readiness, comply with national and international maritime environmental protection regulations, and foster cooperative efforts towards achieving environmentally sound ships, operations, and support facilities. Presently, the *NATO Specialist Team on Energy, Efficiency and Environmental Protection* (ST/EEEP) fulfils this function, which is located under the Maritime Capability Group "Ship Design and Maritime Mobility" that reports through the NATO Naval Armaments Group to the Conference of National Armaments Directors. See: NATO, *Specialist Team on Energy, Efficiency and Environmental Protection (ST/EEEP) Terms of Reference*, AC141 (SDCG-ST/EEEP)D(2018)0001 (NATO, 9 November 2018).

convened a month earlier at NATO HQ and was attended by 12 nations.[53] The press statement further stated that "[v]irtually every military action has an effect on the environment and we clearly have a duty to act responsibly." The EPWG was given the task to "develop standardisation proposals or prepare STANAGs[54] and APs[55] which may be agreed as desirable in the light of recent technical developments or new operational requirements."[56] The EPWG immediately took responsibility for the nascent *STANAG 7141* that aimed to help standardize doctrine for EP by Allied forces and soon began work to produce an overarching EP policy. This policy, *MC 469 – NATO Military Principles and Policies for Environmental Protection (EP)*, was approved in June 2003 by the Military Committee.[57]

During operations in Afghanistan, NATO operated in a nation that lacked environmental governance, enforcement, and had a legacy of contamination from previous conflicts. Further challenges to NATO's EP performance were caused by the scale and importance of the mission, the threatening environment, still incomplete NATO EP standards, and ongoing differences amongst NATO nation attitudes and approaches to EP (including allocation of human and financial resources for this purpose).[58] However, it was during this mission that NATO's EP community ambitiously delivered many additional standardized documents. These were published as Allied Joint Environmental Protection Publications (AJEPPs) and implemented by agreement through a covering STANAG. These AJEPPs support and amplify the concepts in MC 469.[59] Projects completed under the Science for Peace and Security Programme, in close collaboration with the EPWG, produced

[53] NATO, *Press Statement: Protecting the Environment* (NATO, 2 July 1999).
[54] STANdardization AGreements. A NATO STANAG is: "A NATO standardization document that specifies the agreement of member nations to implement a standard, in whole or in part, with or without reservation, in order to meet an interoperability requirement." See: NATO/NSO, 'NATO standardization agreement' (*NATOTerm: The Official NATO Terminology Database*, 22 October 2010) https://nso.nato.int/natoterm/Web.mvc, accessed 10 March 2019.
[55] Allied Publications
[56] NATO, *Convening Order for the 1st Meeting of the Environmental Protection (EP) Working Group (WG) to be Held at HQ NATO – 21-23 June 1999*, MAS(AIR)302-EP(CO) (NATO, 9 March 1999).
[57] NATO/MC, *MC 469 – NATO Military Principles and Policies for Environmental Protection (EP)* (NATO/MC, 27 June 2003). The most recent version of this document is: NATO/MC, *MC 0469//1 – NATO Military Principles and Policies for Environmental Protection (EP*) (NATO/MC, 13 October 2011).
[58] For more details on NATO's EP performance in Afghanistan, see the following article in this issue of the *NATO Legal Gazette*: Chris Ingoe, "Environmental Protection in the NATO Resolute Support mission in Afghanistan" (2019) 40*NATO Legal Gazette*, 153.
[59] Not all NATO EP standardized documents are published as AJEPPs. For example, see: NATO/NSO, *Allied Fuels and Lubricants Publication 7102 (STANAG 7102), Environmental Protection Handling Requirements for Petroleum Handling Facilities and Equipment* (NATO/NSO, October 2018).

several of these AJEPPs. NATO's current AJEPP library includes those presented in Table 1.

Table 1: List of Current NATO Allied Joint Environmental Protection Publications (AJEPPs) as of 17 April 2019[60]

Covering STANAG	AJEPP Title	Promulgation of Most Recent Revision
STANAG 2582	AJEPP-2, Environmental Protection Best Practices and Standards for Military Camps in NATO Operations	28 November 2018
STANAG 2583	AJEPP-3, Environmental Management System in NATO Military Activities	3 May 2017
STANAG 7141	AJEPP-4, Joint NATO Doctrine for Environmental Protection During NATO-Led Military Activities	8 March 2018
STANAG 6500	AJEPP-6, NATO Camp Environmental File During NATO-Led Operations	26 August 2015
STANAG 2594	AJEPP-7, Best Environmental Protection Practices for Sustainability of Military Training Areas	3 July 2015

During NATO's 2011 mission in Libya, the most significant EP-associated

[60] In 2019, the standards-related document entitled *AJEPP-6.1 – Manual for Environmental Sampling Protocols* will likely be released, which will assist in the implementation of *AJEPP-6*. For a legal perspective regarding the NATO AJEPP series, see: Ben Valk,"NATO Environmental Policy Implemented: On Land, at Sea, and in the Air" (2019) 40 *NATO Legal Gazette*, p.46. All current AJEPPs and their corresponding STANAGs can be found at https://nso.nato.int/nso/nsdd/listpromulg.html (accessed 17 April 2019). *AJEPP-1 (STANAG 2581)* was cancelled in 2016 after its contents were amalgamated into the previous version of *AJEPP-2 (STANAG 2582) – Environmental Protection Best Practices and Standards for Military Camps in NATO Operations* (NATO, February 2016). *AJEPP-5 (STANAG 2510) – Joint NATO Waste Management Requirements During NATO-Led Military Activities* was cancelled in April 2019 after its contents were amalgamated into the current version of *AJEPP-2*. See: NATO/NSO, *Cancellation of STANAG 2510 EP (Edition 3) – Joint NATO Waste Management Requirements during NATO-led Military Activities – AJEPP-5, Edition A* (NATO/NSO, 12 April 2019).

issue to come to the fore was the importance of cultural property protection (CPP) planning to operational success. Subsequently, through the efforts of the EPWG, CPP and related terms were incorporated into several NATO AJEPPs, although SHAPE J9 Division (who performs the function of civil-military cooperation) was given responsibility as the Allied Command Operations (ACO) focal point for this topic.[61] Since being stood up in 2017, NATO activities for Enhanced Forward Presence (eFP) have had many EP challenges, not least of which being a complex Soviet-era contamination legacy in areas used by eFP forces. Of note, significant EP coordination and collaboration has occurred between Framework Nations, Sending Nations, and Host Nations.[62] The EPWG continues to use lessons from training and operations to improve the content of NATO AJEPPs.

EP Becomes a Military Engineering Area of Expertise

Since the early 1990s, almost three decades of expeditionary operations have seen a steady expansion of the roles of military engineers. While all military functions have EP-related responsibilities, since 2008, EP in NATO has been formally assigned to the Military Engineering (MILENG) function to provide as an area of expertise and ensure EP content is properly integrated into operations planning and execution. MILENG capabilities shape the physical (man-made and natural) environment in support of operations during all types of missions.[63] These capabilities consist of improving and adapting the physical environment—such as to enable or inhibit movement, develop and maintain infrastructure, and provide life support—and also protecting the physical environment. Notably, EP places significant requirements on fixed and deployable infrastructure that is planned and coordinated by the MILENG function.

Improving EP in NATO… Where the NATO Legal Community Can Assist

Despite NATO's increased recognition and efforts to achieve EP objectives, challenges remain. At the political level, decisions taken at the last three NATO Summits reflect focus back to NATO's core task of collective defence. This places large requirements on logistical planning. EP aspects,

[61] For more information on the relationship between EP and CPP within NATO, see: Lieutenant-Colonel David J. Burbridge, 'The Integration of Cultural Property Protection into NATO Environmental Protection Policy: An Example of Good Practice' 38 *NATO Legal Gazette* 8-18.
[62] For details concerning EP challenges and coordination for eFP, see: Major Ross Franklin, 'Environmental Protection Efforts in Recent NATO Operations and Exercises' (2019) 40 *NATO Legal Gazette* 68.
[63] NATO/MC, *MC 0560/2 – MC Policy for Military Engineering* (NATO/MC, 4 September 2017)

from a doctrinal perspective, should be inherent requirements within the NATO Defence Planning Process. These requirements could encourage NATO nations to include environmental considerations in national equipment and deployable infrastructure asset procurements. Environmental considerations also need better recognition in NATO common-funded procurements and projects through inclusion in the NATO common-funded capability delivery governance model, the NATO Security Investment Programme Manual, as well as life-cycle costing and life-cycle management policies.[64]

In 2015, ACO created the Environmental Protection and Energy Efficiency Working Group (ACO EPEE WG) in part to improve NATO Command Structure EP planning and coordination. While beneficial, this working group cannot overcome all gaps caused by EP staff under-manning. Indeed, within NATO organizations, EP needs better representation to become an institutional norm. Outside ACO, there are few MILENG—let alone EP—staff spread across important organizations such as the International Military Staff (IMS), Headquarters Supreme Allied Commander Transformation (HQ SACT), or the Joint Warfare Centre (JWC). These staff gaps inhibit the inclusion of EP in important initiatives and activities across NATO. Within ACO staff limitations also constrain EP planning and advice. Apart from the single SHAPE staff officer post[65] dedicated to environmental management within SHAPE's Infrastructure and Engineering (I&E) Division, EP duties within the staffs of other NATO Command Structure and Force Structure organizations is a secondary responsibility.[66] As a minimum each Joint Force Commands needs a full-time EP officer to support training and operations.[67]

Greater coordination of EP within the efforts of the NATO MILENG

[64] For example, with regard to facility construction, EP considerations and applicable EP standards need to be accounted for during all phases of a facility's life-cycle, including planning, and design, construction, operation, and decommissioning. The longevity of infrastructure lifecycles, which typically endure for decades, necessitates careful, well-considered regard for their environmental impacts and how these can be mitigated. Infrastructure planners must also be cognizant that EP regulations are generally expected to become more stringent over time, with NATO facilities being required to respect these new regulations.

[65] Since January 2005 when this post was first filled, it has been continuously filled by a Canadian military officer at the rank of OF-4 (Lieutenant-Colonel) holding a Master's degree in an environmental field (e.g., environmental science, environmental engineering, etc.)

[66] The only other full-time NATO EP staff officer is the civilian-filled Theatre Environmental Protection Officer position for the Resolute Support Mission in Kabul, Afghanistan.

[67] The most recent example being: NATO/SHAPE, *NATO Environmental Protection Sustainability*, SH/JENG/LC/16-311926 (NATO/SHAPE, 18 January 2016). Further back, in 2006, the observation was made to the SHAPE Command Group that the strategic and operational commands should have sufficient EP capability and capacity to support NATO military activities as required: NATO/SHAPE, *SHAPE CG Point Paper: Requirement for Environmental Protection Expertise within the NATO Command Structure* (NATO/SHAPE, 16 February 2006).

community is also required. For example, while *MC 560/2 – MC Policy for Military Engineering* designates EP as a MILENG area of expertise, the EPWG creates and maintains EP standardized documents independent of NATO MILENG bodies such as the MILENG WG. Making the EPWG a panel of the MILENG WG is one possibility to resolve these issues. The development of NATO's current library of AJEPPs is a success story. However, NATO's AJEPP portfolio requires continuous analysis for gaps and improvements. One such gap is the requirement for a fully developed environmental risk assessment and management process. Leveraging the knowledge and experience of NATO partners such as Australia during their planning of major joint, combined exercises such as the Exercise TALISMAN SABRE series could assist NATO. More involvement by legal officers knowledgeable of NATO EP regulations and issues could also improve the content of future AJEPPs.

The 2014 North Atlantic Council aimed to stimulate environmental thinking and practices by creating the *NATO Green Defence Framework*. However, because the framework lacked a tangible plan for governance, it remains mainly aspirational. In the meantime, efforts are underway to revise NATO's MC-level EP policy. Last revised in 2011, *MC 469/1 – NATO Military Principles and Policies for Environmental Protection* remains NATO's most significant EP document. However, it lacks language that fully communicates EP's strategic importance and the breadth of topics in NATO that require EP attention. SHAPE I&E Division is leading the revision of this document with the intention to correct these issues and describe specific roles and responsibilities at all levels. The revised policy looks to coordinate EP efforts across NATO organizations, NATO Members, and partners.[68] It also aims to describe relationships between the Alliance and other international organizations (e.g., United Nations, European Union, European Defence Agency, Organization for Security and Co-operation in Europe). Outreach to industry and academia[69]

[68] NATO partners such as Austria, Sweden, and Australia are active participants in the NATO EPWG. In addition, NATO collaboration with partners in the EP domain includes capacity building. A recent example is the November 2018 training course delivered over five days in Skopje, North Macedonia, to approximately 20 participants from the Host Nation and several neighbouring nations. See: North Macedonia/ARM, 'Workshop: 'Regional Team for Environmental Protection"' (ARM, 2018) http://www.arm.mil.mk/general-staff-of-arm/rabotilnica-regionalen-tim-za-zashtita-na-zhivotnata-sredina/?lang=en#, accessed 20 April 2019.

[69] For example, AJEPP-2, Annex I (Cultural Property Protection) was developed in close collaboration with Dr. Frederik Rosén (Denmark) and Dr. Laurie Rush (USA), academics who were two of the four Co-Directors of NATO's SPS CPP project. For more details, see: Lieutenant-Colonel David J. Burbridge, 'The Integration of Cultural Property Protection into NATO Environmental Protection Policy: An Example of Good Practice' 38 *NATO Legal Gazette* 8, 15. Furthermore, a PhD student at Erasmus University Rotterdam is in the initial stages of research focused on governance of environmental management for supranational organizations, with a particular emphasis on NATO. As part of their research, this student intends to plan an SPS workshop in spring

will also be proposed.

Improving NATO's EP performance will not only require improvements to EP-specific policies and standards, but also inclusion of EP in the policies and standards of related topics. For instance, the Comprehensive Operations Planning Directive (COPD) mentions EP in its templates for writing orders. However, within *AJP-3.9 Allied Joint Doctrine for Joint Targeting*, for example, the only reference to the notion of the natural environment is a brief reference to the "collateral damage estimation."[70] It does not highlight the importance of balancing military necessity with EP considerations. Similarly, the 2018 Military Committee-promulgated *MC 0668 – Concept for Protection of Civilians* provides not a single mention of EP or the contribution EP can make to mitigate the negative effects NATO operations may have on civilian populations. Collaboration with SHAPE J9 to include and strengthen the EP content in future versions of this policy may provide another opportunity to broaden the NATO understanding of EP's many roles.

For these measures to produce better results, more appropriately-trained EP personnel are necessary within NATO. NATO has one online environmental training course available on the Allied Command Transformation-managed Joint Automated Distance Learning (JADL) website[71] and two accredited EP-focused residential courses: the two-week operational level-focused Environmental Management for Military Forces course hosted at the NATO School; and the one-week tactical level-focused NATO Military Environmental Protection Practices and Procedures Course hosted at the Military Engineering Centre of Excellence.

The Environmental Management for Military Forces course at the NATO School includes a one-hour lecture on "Environmental Law in Military Operations." There is great interest amongst students on the legal aspects of EP and this lecture is typically generates high ratings from the students. Similar lectures for the 2019 NATO Legal Advisor Course and the Operational Law Course are planned. However, these are introductory courses. While well-designed to meet objectives of knowledge, understanding, and

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2020 that will bring together NATO and national experts. This research has the potential to bring meaningful and welcome recommendations to NATO.

[70] NATO/NSO, *Allied Joint Publication 3.9, Allied Joint Doctrine for Joint Targeting* (NATO/NSO, April 2016). This document includes a definition of *collateral damage estimation* as: "the unintentional or incidental physical damage to non-combatants, non-military objects or environment arising from engagement of a legitimate military target."

[71] See: https://jadl.act.nato.int/

implementation of NATO EP policies, standards, planning, and practices, they are insufficient for training military EP experts. While NATO-accredited EP courses can provide the basic skills to meet the training aims for some positions, they only provide an important but limited portion of the expertise needed to be an effective, professional NATO military EP planner and advisor. This can only occur through national training systems and, as previously mentioned, NATO must increase EP staffing to gain this expertise.[72]

Conclusion

Over the past fifty years and especially within the last two decades, NATO has demonstrated increasing awareness of its EP responsibilities and good progress in using numerous tools at its disposal for meeting these ever more challenging responsibilities. Yet, much remains to be done if NATO is to truly address the full requirements of this important and cross-cutting topic.

On operations, and especially during armed conflict, it is unrealistic to expect NATO to have EP performance equivalent to that achieved by NATO national standards during peacetime. However, a steadily increasing level should be expected. On exercises, a regularly high level of performance should be expected. Improving NATO's capacities and performance for EP will require persistence and sustainment. The good news is that NATO Members and partner nations are amongst the world's most knowledgeable in recognizing the causes and consequences of environmental damage, and the avoidance and remediation. In an era where the internet and digital media can almost instantaneously disseminate information on subjects of concern to the widest audience, avoiding unnecessary future political and legal ramifications of EP failures will rely on true mainstreaming of EP into an organizational norm of NATO.

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[72] In addition to SPS being used to develop some of NATO's current AJEPPs, examples of how SPS can be used to leverage academic expertise include the projects that resulted in the following publications: Gary E. Machlis, Thor Hanson, Zdravko Špirić**,** Jean E. McKendry (eds), *Warfare Ecology* (Springer 2011); Michael Evan Goodsite and Sirkku Juhola (eds), *Green Defence Technology: Triple Net Zero Energy, Water and Waste Models and Applications* (Springer 2017). These and many more examples of EP-related books published by Springer in collaboration with SPS are found in the book series: *NATO Science for Peace and Security Series C: Environmental Security* https://link.springer.com/search?facet-series=%227108%22&facet-content-type=%22Book%22, accessed 4 April 2019. A recent example of an STO project that contributed to NATO EP objectives was AVT-249 (for a description of the project, see: NATO/STO, 'Munitions Related Contamination: Military Live-Fire Range Characterization, AVT-249' (NATO/STO, 2018) https://www.sto.nato.int/Lists/test1/activitydetails.aspx?ID=16157, accessed 5 April 2019), which played a key role in developing the soon-to-be-released (likely 2019) NATO standards-related document, AJEPP 6.1 – Manual for Environmental Sampling Protocols.

Source: www.nato.int

NATO Environmental Policy Implemented: on Land, at Sea and in the Air

by Lieutenant Colonel Ben Valk[1]

Introduction

Some 50,000 troops from 31 NATO and partner countries, along with 65 ships and about 250 aircraft, have been deployed to central and northern Norway in October 2018.[2] With these numbers, EXERCISE Trident Juncture 18 is the largest in a series of deliberately-planned exercises scheduled over several years to ensure that NATO forces are trained, able to operate together and ready to respond to a threat from any direction.[3]

It goes without saying that an exercise on this scale, conducted in

[1] Lieutenant Colonel Valk was the Deputy legal Advisor of the International Military Staff, NATO Headquarters Brussels, until 1 February 2019. The views expressed in the article are those of the author solely and does not reflect NATO's official position on this topic.

[2] *Trident Juncture 18*, NORTH ATLANTIC TREATY ORG. (25 October, 2018), https://www.nato.int/cps/en/natohq/news_158620.htm.

[3] Plans for Massive NATO exercise in Norway underway, SHAPE online news archive. https://shape.nato.int/news-archive/2018/plans-for-massive-nato-exercise-in-norway-underway >

several NATO member states, does have an impact on the environment. Not complying with Environmental Protection (EP) standards will cause damage to the environment and will leave NATO with bad publicity. But how does NATO deal with EP? What is the NATO policy on EP? What standards does a commander apply when he[4] is conducting an exercise or deployed on Non Article 5 Crisis Response Operation (NA5CRO)? Does he have to comply with Host Nation (HN) environmental laws? What if there are no environmental laws? These are questions a Legal Advisor (LEGAD) could get when preparing for an exercise or mission. In order to help the LEGAD answer these questions, this article will first describe how EP is incorporated in NATO's founding documents. It furthermore describes the view of North Atlantic Council (NAC) on how EP can influence stability and security. After this, an overview of the existing NATO EP policies and regulations will be given. Finally, the specific EP aspects for the operational domains land, sea and air will be described and their practical implementation. The article will finish with some conclusions.

Environmental Policy in NATO's Founding Documents

At the time of the North Atlantic Treaty's signature, EP was not recognized as important topic. It is, therefore, understandable that NATO's founding document[5] does not mention EP. However, within its general principles, the North Atlantic Treaty seeks "to promote stability and well-being in the North Atlantic area" and Parties "are resolved to unite their efforts for collective defence and for the preservation of peace and security."[6] Today, the influence of EP on peace, stability and security is recognized by the NAC. This is confirmed by NATO's Strategic Concepts where the Alliance recognizes that security and stability have political, economic, social, and environmental elements.[7] The heads of States and Government reiterated the importance of EP in their Wales Summit Declaration.[8]

[4] Whenever the word "he" is mentioned it has to be understood as he or she.
[5] The North Atlantic Treaty (1949), Preamble, Articles I and II
[6] The North Atlantic Treaty (1949), Preamble
[7] Alliance new Strategic concept (1991), paragraph 24 <https://www.nato.int/cps/en/natohq/official_texts_23847.htm >, The Alliance's Strategic Concept approved by the NAC in Washington D.C. (1999), paragraph 25 <https://www.nato.int/cps/en/natolive/official_texts_27433.htm > and Strategic Concept: Active Engagement, Modern Defense (2010), paragraph 15 < https://www.nato.int/cps/en/natohq/official_texts_68580.html >
[8] Wales Summit Declaration, paragraph 110,"Key environmental and resource constraints, including health risks, climate change, water scarcity, and increasing energy needs will further shape the future security environment in areas of concern to NATO and have the potential to significantly affect NATO planning and operations."

The NATO SOFA[9] and Paris Protocol[10] do not mention EP specifically, but the NATO SOFA recognizes the duty of a force to respect the laws of a receiving State.[11] The Paris Protocol states that an Allied Headquarters shall be considered to be a force for the purpose of Article II of the NATO SOFA.[12] A lot of NATO's Members States concluded Supplementary Agreements to the NATO SOFA or Paris Protocol. Pending in the date of signature, these agreements might have one or more specific paragraph(s) on EP.[13]

Does the cooperation between NATO and the EU have any influence on how NATO or NATO troops deal with EP? NATO does not have to comply with EU regulations, but 22 NATO nations are also member of the EU.[14] As several environmental laws are based on EU Directives, and the EU member states have integrated EU standards in their national legislation, EU regulations will have indirect influence on military operations.

NATO Environmental Policies:

It is clear that NATO recognizes that it faces environmental challenges when conducting exercises or NA5CRO's. The Alliance is working to reduce the environmental effects of military activities[15] and to respond to security challenges emanating from the environment.[16] The question is how NATO defines environment. The agreed NATO definition of environment is: *The surroundings in which an organization operates, including air, water, land,*

< https://www.nato.int/cps/en/natohq/official_texts_112964.htm?mode=pressrelease >. Note that this paragraph was not included in the Warsaw Declaration.

[9] Agreement between the parties to the North Atlantic Treaty regarding the status of their forces. Done at London June 19, 1951.

[10] Protocol on the Status of International Military Headquarters set up pursuant to the North Atlantic Treaty. Done in Paris Aug 28, 1952

[11] NATO SOFA, Article 2

[12] Article 3, paragraph 2

[13] As an example: article 54A of the Agreement of 3 August 1959, as Amended by the Agreements of 21 October 1971, 18 May 1981, and 18 March 1993, to Supplement the Agreement between the Parties to the North Atlantic Treaty regarding the Status of their Forces with respect to Foreign Forces stationed in the Federal Republic of Germany (Revised Supplementary Agreement) (effective 29 March 1998).
Article 17 of the Agreement between the Republic of Estonia and the Supreme Headquarters Allied Powers Europe and Headquarters, Supreme Allied Commander Transformation to supplement the Paris Protocol, 25 October 2012

[14] Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, France, Greece, Germany, Hungary, Italy, Latvia Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and the United Kingdom

[15] This could be a NATO mission, operation or other activity.

[16] Environment – NATO's stake < https://www.nato.int/cps/en/natohq/topics_91048.htm?selectedLocale=en >

natural resources, flora, fauna, humans, and their interrelations.[17] As this is a broad and general definition, the Military Committee (MC) adopted MC 469/1 to establish NATO's military EP principles and policies in support of all NATO-led military activities.[18] The MC 469/1 defines the responsibilities of NATO Commanders, Commanders of units from all participating NATO Nations and non-NATO Troop Contributing Nations for EP during the preparation for and execution of military activities.[19] The document recognizes that there might be a conflict between operational imperatives and EP principles and policies, and states that operational imperatives will have priority. Factors such as mission success, security considerations, reduced preparation time and the possible limitations of environmental expertise and equipment may influence the application of EP principles and policies, particularly during the initial stages of military operations. Despite this, under all conditions, NATO-led forces must strive to respect EP principles and policies thereby demonstrating NATO's respect for international and HN laws and values.[20] As for the conflict between operational imperatives and EP principles during exercises, exercises under peacetime conditions should be conducted in a manner consistent with applicable environmental regulations. The only exceptions to this requirement would be emergency situations that threaten human life or safety.[21]

That is fine, but how to proceed if you are appointed as LEGAD to a contingent that has to operate in another nation? The MC 469/1 sets out basic principles in order to achieve the EP objectives.[22] The general principle is that the Host Nation's (HN's) environmental laws will be respected. However, where Participating Nations and/or Contributing Nations EP standards are more stringent than HN ones, they should be applied as long as these are not contravening to HN law and as far as reasonably practicable. Where HN environmental laws do not exist, applicable EP standards must be agreed upon consensus by participating nations during the planning process.

For multinational operations, Nations will have a collective responsibility

[17] AAP-06, accessible through the NATO Standardization Office website < http://nso.nato.int/nso/zzlinks/terminology_public__non-classified%20nato%20glossaries.html >
[18] MC 469/1, NATO Military Principles and Policies for Environmental Protection (EP), 14 October 2011
[19] MC 469/1, paragraph 4
[20] MC 469/1, paragraph 6
[21] Paragraph 3.1.1 of the AJEPP-4, Joint NATO doctrine for Environmental Protection during NATO-led military activities, Edition B Version 1 March 2018
[22] MC 469/1, Article 8.a.

for the protection of the environment.[23] This means that coordination between Nations is of the utmost importance and general EP guidelines should be included in the OPLAN of an operation.[24] The best practicable and feasible EP measures must be applied and operation plans must include specific guidance in the form of an EP Annex.[25] Where required, the designated NATO Commander, i.e. the Combined Joint Task Force Commander in an operational theatre, has the authority to establish EP procedures and standards consistent with the MC 469/1 and the OPLAN, and to direct their compliance.[26] For exercises on the territory of another NATO Nation this would mean that EP information (like procedures and standards) should be exchanged between the designated NATO Commander, Participating Nations and the co-operating HN. Even if the military engineering function within a mission would normally have EP expertise, the LEGAD might be asked to share his or her view on how to apply HN EP laws and regulations.

During a mission the EP standards that are applied might change. For example, during the construction of a military camp or compound, not all facilities to apply EP standards properly might be in place. As the mission evolves, contracts between local waste processing companies might be concluded allowing the introduction of a proper waste management system. It is, therefore, necessary to regularly review and update EP procedures and standards. For longer missions it might be useful to implement an Environmental Management System (EMS) .[27] The minimum EP standard is to hand back areas used by NATO in no worse environmental condition than they were received.[28]

All these measures might not prevent incidents or accidents that have

[23] Note that each nation bears ultimate responsibility for the actions of its own forces.
[24] See also the template for an OPLAN in Appendix 1 to Annex B of MC- 0133/4, NATO's operations planning, 7 Jan 2011
[25] The MC-0133/4 template mentions Annex T, note that this is one of the annexes that have to be endorsed by the MC and approved by the NAC.
[26] MC 469/1, paragraph 8. (3)
[27] STANAG 2583, Environmental Management System in NATO Operations, AJEPP-3 gives a definition of an environmental management system (EMS), being "a systematic management approach that enables NATO commanders to improve environmental performance, achieve established environmental objectives and monitor conformity during a NATO military activity. This includes identifying environmental aspects pertaining to the mission and reducing adverse environmental impacts of military activities. The identification of potential environmental impacts as early as possible in the planning process will ensure the effective development of mitigation and control measures". A complete version can be downloaded at:
< http://nso.nato.int/nso/nsdd/stanagdetails.html?idCover=8503&LA=EN >
[28] AJEPP-3, paragraph 1.1.2.

a negative impact on the Environment. In accordance with MC 469/1, transparency is one of the principles that have to be applied. Therefore, adverse environmental impacts or threats must be immediately reported to appropriate NATO and national authorities (e.g. the command line, higher commands, EP-officers in these lines and public information offices). This should include information on environmental damage caused and remediation measures taken by NATO forces, so far as provision of this information does not negatively impact on operational imperatives and objectives.[29] For the LEGAD, it is useful to be involved in the drafting of communiques that will be released to the public.

The MC 469/1 policy makes it clear that EP creates obligations for NATO, NATO nations and nations participating in NATO operations. As the policy is generic, the EP officer and the LEGAD have to fall back on more detailed regulations. Most of these regulations are STANAGs and accessible through NSO internet website.[30] More specific regulations can be found in the documents listed in the MC. For this article, only those documents that LEGAD is likely to use during an exercise or operation are listed.

1. On Land

STANAG 7141, *Joint NATO doctrine for environmental protection during NATO-led military activities*,[31] is the promulgation letter in which the participating Nations agree to implement a standard, in this case, Allied Joint Environmental Protection Publication 4 (AJEPP-4). The AJEPP-4 contains NATO's environmental doctrine for NATO-led military activities and provides guidance in environmental planning for all military activities. It describes environmental planning[32] and the aspects of environmental risk management in military activities during exercises and operations being; the Commanders policy and guidance, Environmental Planning, Implementation, Checking and Corrective Actions and After Action Review.[33] It furthermore focuses on the commander's responsibilities[34] and training and education.[35]

[29] MC 469/1, Article 8.a (6)
[30] See <http://nso.nato.int/nso/nsdd/listpromulg.html> for list of current NATO Standards
[31] STANAG 7141, 15 May 2014. A digital version can be downloaded under <http://nso.nato.int/nso/nsdd/apdetails.html?APNo=2684>
[32] STANAG 7141, Chapter 2
[33] STANAG 7141, Chapter 3
[34] STANAG 7141, Chapter 4
[35] STANAG 7141, Chapter 5

STANAG 2582, *Environmental Protection Best Practices and Standards for Military Camps in NATO Operations*,[36] provides the joint requirements for NATO waste management during NATO-led military activities.[37] NATO military activities produce waste, which consists of non-hazardous discarded material and hazardous waste. Generally, there are four phases of managing waste: generation, storage, transportation, and disposal. All phases aimed to prevent damage to the environment i.e. by proper storage that in case of a leakage will contain the spill. It is the NATO Commander's responsibility to ensure "coordination of overarching aspects of waste management, e.g. corresponding agreements with the host nation."[38] If not covered by the Status of Forces Agreement (SOFA), waste regulations should be part of the Memorandum of Understanding (MOU) between the HN and the NATO-led forces. The LEGAD should be involved in drafting the MOU text. Trans-boundary movements of waste must be effected in compliance with the Basel Convention[39] and the applicable national and international rules/laws of the HN, transit states, and the country of import.[40] MOUs with the HNs for waste from countries of deployment and transit states must be signed as early as possible. Waste management requires involvement of environmental protection specialists, preventive medicine/health care personnel, logisticians, finance and procurement professionals, and LEGADs.

STANAG 7102, *Environmental Protection Handling Requirements for Petroleum Handling Facilities and Equipment* (Ed 3) dated 16 August 2017. Deployed military forces often use substantial amounts of Petroleum, Oil and Lubricants (POL) products. Improper handling of POL products can result in leaks and spills which can cause widespread and long-term damage to HN groundwater and surface water resources. To address this concern, STANAG 7102, approving the Allied Fuels and Lubricant Publication 7102 (AFLP-7102),[41]

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[36] With STANAG 2582, Nations agree to implement AJEPP-2 - Environmental Protection Best Practices and Standards for Military Camps in NATO Operations Edition 2 February 2016; <https://nso.nato.int/nso/nsdd/APdetails.html?APNo=2806&LA=EN>

[37] AJEPP-2. Annex D. The Annex dedicated to waste management in this AJEPP does not address the treatment of wastewater, material which is classified for security reasons, warfare agents and explosive ordnance, including ammunition and ammunition remnants, decontaminating agents, radioactive substances and waste in connection with maritime operations.

[38] AJEPP-2, Annex D (D.1.4) (1) (b)

[39] Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal - adopted in 1989 with later amendments. The text of the convention and the amendments can be downloaded at <http://www.basel.int/>

[40] AJEPP-2, Annex D (D.4.2)

[41] STANAG 7102 and the Allied Fuels and Lubricant Publication (AFLP-7102), Environmental Protection Handling Requirements for Petroleum Handling Facilities and Equipment, edition A version 1, are both unclassified, but

establishes technical standards and procedures for operating and maintaining fixed and mobile fuel storage and fuel handling equipment while deployed to another nation. As mentioned in MC 469/1, it is NATO policy that deploying forces will comply with HN standards for handling POL products and, where conditions allow, deploying forces will follow their own national standards when those standards are more stringent. Host Nations therefore are expected to brief incoming personnel on their national environmental requirements, to include proper handling, storage, and transportation of POL. HN authorities should explain their national requirements[42] for spill prevention, containment, clean-up, and reporting of spills and leakage. Additionally, it is important that Host Nations provide detailed information about environmentally sensitive areas such as protected groundwater sites. Section 5 of AFLP-7102 contains a list of National MOD Points of Contact and in Section 6 an environmental questionnaire that gives an overview of specific regulations per nation.

2. At Sea

The STANAGs described above are land-oriented. One could argue that an EMS could be implemented on board of a ship. However STANAG 2583 does not focus on Maritime operations. For maritime environmental regulations, the LEGAD has to fall back on Allied Maritime Environmental Protection Publication (AMEPP). The MC 469/1 refers to eight AMEPP publications[43] of which three could be relevant to the LEGAD. The AMEPP-01 Ed: 4, *NATO Navies Pollution Abatement Policies*, which provides information on various pollution abatement programmes of the members states. AMEPP-02 Ed: 3, *National Navy Regulations for the Disposal of Waste*, which provides information on the national regulation of disposal of waste, like grey and

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not accessible through the NSO website. Although its access is limited, the standard is too important to be left out of this article.

[42] AFLP-7102, paragraph 0301

[43] AMEPP-01 Ed: 4, NATO Navies Pollution Abatement Policies, Aug 2002
AMEPP-02 Ed: 3, National Navy Regulations for the Disposal of Waste, Mar 2002
AMEPP-03 Ed: 3, Shipboard Pollution Abatement Equipment Catalogue, Feb 2001
AMEPP-04 Ed: 2, Guidance for the Integration of Maritime Environmental Protection (MEP) Functional Requirements into Ship Design, Jan 1999
AMEPP-05 Ed: 1, Alternative Non-Ozone Depleting Solvents/Cleaning Agents, Aug 1995
AMEPP-06 Ed: 2, Hazardous Material Offload Guide, Apr 2002
AMEPP-07 Ed: 2, Glossary of Terms and Definitions used in the AMEPP Series, Dec 1999
AMEPP-08 Ed: 1, Military Use of Ozone Depleting Substances in NATO, Oct 2005
AMEPP-09 Ed: 1, Health Care Waste Management Procedures Aboard NATO Navy Vessels, 31 Oct 2008
Note: although unclassified these publications are not available on the NSO website.

black water. AMEPP-06 Ed: 2, *Hazardous Material Offload Guide*, which provides information on hazardous material offload procedures for ship visits to ports within the Alliance. Besides these AMEPP, the MC mentions the Code of conduct for the use of active sonar to ensure the protection of marine life within the framework of Alliance Maritime Activities,[44] a topic, though interesting, that would not raise any legal questions.

3. In The Air

MC 469/1 does not mention or refer to air operations. In a NATO-exercise, an Allied air force would usually operate from a HN airfield and follow the local EP regulations. Things like building a compound would most probably not be part of the training as the HN would provide hangars and offices. During a NA5CRO in a non-NATO nation, the circumstances might be more basic. Some air forces would plan for a worst-case scenario, being only a runway and a platform available and all other facilities having to be built. In such a scenario, or a scenario where only basic facilities are available, the STANAGs mentioned in par. 3.1, would also be applicable.

But what about "noise pollution"? Studies show that aircraft noise can have health effects on population living in the vicinity of an airfield. How would this influence a NATO Nation's air force when it is conducting flight operations during an exercise in another NATO member state? Could national laws and regulations put restrictions on air operations? The Chicago Convention[45] on International Civil Aviation is applicable only to civil aircraft, not to state aircraft. Aircraft used in military, customs and police services shall be deemed to be state aircraft.[46] Would that mean that NATO can fly where and whenever it wants? State aircraft are not bound by international civilian standards on aircraft noise (ICAO Annex 16)[47] or national implementations thereof.[48] This means that they can produce more noise than civilian aircraft.[49] However, flying over the territory of another NATO nation still needs to be authorised by the HN. The Chicago Convention clearly states that "no state aircraft of a contracting State shall fly over the territory of another State

[44] MC 0547/2, Code of Conduct for the Use of Active Sonar to Ensure the Protection of Marine Mammals within the Framework of Alliance Maritime Activities, 12 June 2018
[45] Convention on International Civil Aviation, signed at Chicago on 7 December 1944
[46] Article 3 (a), (b)
[47] ICAO Annex 16 volume 1 <http://cockpitdata.com/Software/ICAO%20Annex%2016%20Volume%201>
[48] Art. 3 Chicago Convention
[49] Note the discussion on flying the aircraft of the NATO Airborne Early Warning and Control Force Geilenkirchen

or land thereon without authorisation by special agreement or otherwise, and in accordance with the terms thereof."[50] Entering the airspace of a nation with a military aircraft would need a diplomatic clearance of that nation. For a legal advisor, it is useful to see if there is a so-called permanent diplomatic-clearance,[51] and to check if there are exemptions. The fact that a military aircraft produces more noise than allowed according to ICAO regulations, and therefore produces "noise pollution," would in itself not be a restriction. However, the HN can set rules that might restrict an exercise in time and place.

Conclusion

Although Environmental Protection is not mentioned in NATO's founding documents, NATO acknowledges that it faces environmental challenges when conducting exercises or NA5CRO's. The MC 469/1 provides principles and policies in support of all NATO-led military activities. As the wording of the MC-469/1 is general, the STANAGs on EP are more useful for the LEGAD. NATO commanders and their staff should rely upon their LEGAD and environmental specialists to know the applicable environment protection laws and standards, to understand environmental issues, and recommend appropriate solutions. In order to implement EP properly, it should be incorporated in the commander's policy and guidance, planning and the actual conduct of an exercise of NA5CRO. Not taking care of EP may lead to unnecessary environmental damage that might impact civilian populations, create bad publicity and lead to loss of public support of the mission.

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[50] Article 3 (c)
[51] A useful tool for European nations might be the European Defence Agency portal < https://dic.eda.europa.eu/ >

Source : https://rs.nato.int/

What NATO and National Legal Advisors Should Know about NATO Environmental Protection Policy, Doctrine and Standardization Agreements

by Mr. Jeroen Rottink M.Sc.[1]

Introduction

From the perspective of an environmental protection (EP) specialist with two decades of NATO experience, this article offers guidance to the legal adviser (s) who will take part in the planning and operation of NATO-led military activities. In the fulfilment of these tasks, legal advisers will work with other EP stakeholders, including military commanders. To interpret and properly apply NATO EP policy, doctrine, and procedures, legal advisers may also need to collaborate with environmental protection officers, military engineers (MILENG), civil-military cooperation (CIMIC) personnel, gender

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The views expressed in this article are solely those of the author and may not represent the views of NATO, ACO, ACT, or their affiliated institutions, or any other institution.

advisors, contracting authorities, auditors, strategic communicators, geospatial information experts, operational planners, and representatives of the Host Nation.

The article summarises current NATO EP doctrine, a recommended method for EP discussions, and emphasises a team approach to addressing EP issues. It provides links at the end of this essay.

The Importance of EP to NATO Military Operations

In NATO-led military operations, EP is an essential supporting effort. Proper EP performed at the operational and tactical levels can be a strategic force multiplier.[2] The framework of international law contains many provisions to protect the environment during armed conflict.[3] However, "in practice […] these provisions have not always been effectively implemented or enforced."[4] Fortunately for NATO-led operations, the Member Nations of the North Atlantic Alliance have translated the international treaties into NATO EP policy. This doctrine forms a solid basis for legal advisers, EP specialists and other stakeholders to advise on the EP mission requirements. Because NATO EP policy is more descriptive than directive, navigating the many "shoulds" in NATO EP doctrine requires a smart team approach: EP expertise and legal frameworks balanced with knowledge of other expertise to advise commanders about her or his responsibilities.[5]

EP has gained increasing importance for modern military operations. Beyond being an issue of command responsibility, it is also a concern for

[2]Nathaniel Whelan and Jeroen Rottink, "Sustainability for Defence", (September-December 2017*), Engineer, TheProfessional Bulletin of Army Engineers* 47. See also David. L. Burbridge, "The Integration of Cultural Property Protection into NATO Environmental Protection Policy: An Example of Good Practice", (September 2018*), NATO Legal Gazette* 38.

[3]2009, United Nations Environment Programme (UNEP) "Protecting the Environment During Armed Conflict - An Inventory and Analysis of International Law" In the report provisions within the four main bodies of international law that provide protection for environment during armed conflict are reviewed. These include international humanitarian law (IHL), international criminal law (ICL), international environmental law (IEL), and international human rights law (HRL). Each body of law is inventoried and analysed as per the treaties, customary law, soft law and case law it contains on the topic. The report culminates in a number of key findings and recommendations explaining why the environment continues to lack effective protection during armed conflict, and how these challenges can be addressed to ensure that the legal framework is strengthened and better enforced.

[4]Ibid. Chapter 6 Conclusions and recommendations, p.51.
<https://www.unenvironment.org/resources/report/protecting-environment-during-armed-conflict-inventory-and-analysis-international>
Special Rapporteur of The International Law Commission of the United Nations, Marie G. Jacobsson

[5]Email Sherrod Bumgardner, ACT SEE Legal Advisor, and the author, 13 August 2018.

humanity regarding issues like sustainability, climate change, and biodiversity. Therefore, the diligent execution of EP has a very practical military role—it can be of critical importance to the overall success of full spectrum operations, such as gaining and maintaining support from Host Nation and international populations, or influencing key actors in the operational area. Environmental damage by deployed military forces can threaten local livelihoods, lead to increased tensions and violence, and threaten Host Nation and international support for a mission.

To implement EP measures requires detailed studies of the terrain, both above and below the surface, an understanding of the terrain's former uses, and of its inhabitants. Getting EP success causes deliberate planning and strict management controls over human activities to avoid contamination of sensitive sites. EP sustains unique and valued resources. EP comprises non-combat tasks whose proper execution may impose constraints on, or require the relocation of, military activities. Ecosystem components—besides physical structures—can be powerful elements of a society's culture, which if damaged because of military activities may require decades or generations to recover.[6] While unfulfilled EP obligations may have legal ramifications, it must also recognized that military necessity may override these protective functions in justified circumstances.

How it all started...

In 1999, NATO established the Environmental Protection Working Group (EPWG) as part of the Military Air Standardization Board was overseen by the NATO Standardization Agency. At the time, joint standardization was not yet a working concept. Now, 20 years later, the EPWG reports to the Military Committee Joint Standardization Board and the NATO Standardization Office. The EPWG aims to reduce possible harmful impacts of military activities on the environment by developing NATO policies, standardization documents, guidelines and best practices in the planning and conduct of operations and exercises.

In 1999 I attended my first EPWG meeting as a delegate in the Dutch

[6]Laurie Rush, 'Cultural Property Protection as a Force Multiplier in Stability Operations: World War II Monuments Officers Lessons Learned' (2012) XCII (2) Military Review 36, 41. For example, in 1944, British forces began logging a virgin forest near Camaldoli, Italy, that had been protected since the 11th century or earlier when Saint Romauld established an order of monks that inhabited the area. Local protests resulted in British recognition of the need to protect the most sacred portion of the forest.

delegation. At the first meetings we worked on the NATO standardized agreement (STANAG) for EP—STANAG 7141, Joint NATO Doctrine For Environmental Protection During NATO-led Military Activities.[7] We discussed the need to address other topics, like waste management.[8] As EP specialists, having a professional passion for protecting the environment and working toward a sustainable future, we entered strong wording into our EP documents, like "must" and "shall." In the NATO and national staffing process of STANAG 7141 our directive EP guidance was weighed against other priorities. A consequence of the process was that the agreement became more descriptive and suggestive rather than declarative and directive.

In 2006 I became the Chairman of the EPWG. Being a civilian in the Dutch armed forces with limited operational and deployment expertise, I realized I had to stand on the shoulders of my military co-workers and the military working group members. I made it a point always to have briefings by EP specialists from the NATO commands and, if possible, the EP officers in NATO missions.

Because the NATO standardization policy requires the NATO commands have to implement all ratified STANAGs, the NATO commands and missions are the first users of the EPWG products. As the early adopters, they experienced first-hand any problems in execution of the standards and procedures the nations have agreed upon. They also identified gaps in interoperability where standardization could improve mission performance. Their feed-back and briefings at the EPWG showed where to improve the existing STANAGs and, after 2011, the Allied Joint Environmental Protection Publications (AJEPPs).

[7] Until 2010 NATO Standardization Agreements (STANAGs) were a single document with two parts. The first part identified the nations that had ratified the STANAG and the second was the text of the standard that the nations had accepted. Starting in 2011 the two parts became separate documents: the STANAG and the associated Allied Publication (AP). Today a STANAG contains only information about the nations that agreed to the standards in the AP along with any reservations or comments they may have about the text of the AP. The AP is published as a separate document. The standards for NATO environmental protection doctrine are now contained in **Allied** Joint Environmental Protection **Publications** (AJEPPs).

[8] STANAG 7141 Edition 7 is the agreement of the ratifying NATO Nations to use the standards contained in Allied Joint Environmental Publication-4 (AJEPP-4) as the "NATO environmental doctrine for NATO-led military activities and to provide guidance in environmental planning for all military activities." AJEPP-4, Edition B,Ver. 1 (2018) JOINT NATO DOCTRINE FOR ENVIRONMENTAL PROTECTION DURING NATO-LED MILITARY ACTIVITIES at: https://nso.nato.int/protected/nsdd/ CommonList. This is a password protected site that is available to persons working in the governments of NATO nations and persons serving in NATO organizations.

NATO Environmental Protection Policies and Doctrine

Because of NATO's work on EP for over two decades, policies, doctrine and EP standards, procedures and best practices are well in place. Two primary documents shape the execution of EP within NATO. The first is MC 0469/1, NATO Military Principles and Policies for Environmental Protection (EP).[9] This is NATO's highest-level EP policy. This document establishes the EP principles and policies for implementation by commanders during the preparation and execution of all NATO-led activities. The aim of MC 0469/1 is "to facilitate the integration of EP into all NATO-led military activities, consistent with operational imperatives."[10] According to the policy, consideration of environmental aspects must occur as early as possible in the planning process and throughout the execution of the exercise or operation.[11]

The second primary document is MC 0560/2, MC Policy for Military Engineering. It describes the concept for the delivery of an effective military engineering (MILENG) capability, which is essential to success in operations. Doctrinally, military engineers support all NATO operations in all phases and incorporates specialist areas of expertise such as EP. Allied Joint Publication 3.12, Allied Joint Doctrine for Military Engineering develops the MILENG role in EP. A third important document is MC 334/2, NATO Principles and Policies for Host Nation Support. This document provides NATO Commanders the authority to establish mandatory environmental protection procedures and negotiate environmental protection arrangements.

Allied Joint Environmental Protection Publication 4 (AJEPP-4) Joint NATO Doctrine for Environmental Protection provides implementing guidance during NATO-led Military Activities. AJEPP-4 provides direction and guidance on environmental planning and risk management. While it cites the importance of EP, it recognizes that operational imperatives have primacy.[12] Through early integration of EP aspects in operations planning, it is possible to prevent later more costly environmental problems. AJEPP-4 describes actions to protect water, soil, air, flora and fauna. It directs close attention to the

[9] MC 0469/1 NATO Military Principles and Policies for Environmental Protection (EP) (2011) document is currently under revision.
[10] MC 0469/1, NATO Military Principles and Policies for Environmental Protection (EP), para 7.
[11] MC 0469/1, *supra* note 10, para 8(b)(1)
[12] STANAG 7141, Joint NATO Doctrine for Environmental Protection During NATO-led Military Activities (AJEPP-4)

storage and handling of petroleum, oils and lubricants (POL), hazardous materials and waste. Planning for waste should incorporate prevention, reduction and recycling. Noise, the impact of birds and their migratory routes on flight safety, and cultural property protection must be evaluated. Importantly,[13] AJEPP-4 addresses the responsibilities of commanders in the planning and execution of a mission, and summarises EP education and training opportunities.[14]

AJEPP-4 begins by describing a team approach between legal advisers and environmental experts.[15] This team will have to advise about the "applicable environmental laws and regulations" that Commanders comply with during NATO Operations and what EP activities she or he should direct.[16] To plan its advice, the team should rely on the five current NATO EP standards described below.

NATO EP standards and practices

Since 1999, the STANAG portfolio of the Environmental Protection Working Group (EPWG) has grown significantly. The EPWG has combined with the NATO Science for Peace and Security Programme for workshops. These workshops "produced practical, result-oriented cooperation involving scientists, experts and government officials from NATO member and partner countries alike"[17] and formed the basis of several promulgated NATO EP STANAGs/AJEPPs.[18]

- AJEPP-2 (STANAG 2582), Environmental Protection Best Practices and Standards for Military Camps in NATO Operations, provides NATO commanders with best EP practices to use in the various stages of a deployed camp that is often in an area where the infrastructure for EP is lacking and/or the initial tempo of operations leaves no time for extensive EP measures. It also provides waste management guidance, including the application of principles such as the precautionary principle and the polluter-pays principle, and the waste management

[13] AJEPP-4, Chapter 2 Environmental Planning
[14] Ibid.
[15] See AJEPP-4, Paragraph 5.2.4. "The need for professional environmental expertise may require ready access to specialized experts/advisors. Particular attention will have to be given to environmental policy and guidance, risk management and planning."
[16] Ibid.
[17] See https://www.nato.int/cps/en/natohq/topics_85373.htm
[18] NATO, 'Environment – NATO's stake' (9 December 2014) <https://www.nato.int/cps/en/natohq/topics_91048.htm> accessed 8 September 2018

hierarchy of reduce, reuse, recycle and remove.[19] A key element in AJEPP-2 is that the lead nation in a multinational camp writes, implementing and optimising an overall waste management plan.[20] Using the information contained on the NATO Standardization Office website—,https://nso.nato.int/nso/—legal advisors should check the ratification, implementation data, and national reservations of AJEPP-2 by the nations in the multinational camp. Because some nations have declared AJEPP-2 to be a collection of best practices rather than being obligatory NATO doctrine, this will be valuable information for creating a successful waste management plan for the camp.

- AJEPP-3 (STANAG 2583), Environmental Management System in NATO Operations, provides the EP Officer with insight into the NATO operations planning process and with tools to integrate EP into the process.

- AJEPP-6 (STANAG 6500), NATO Camp Environmental File During NATO-Led Operations, outlines the content of the environmental file of a deployed camp during all phases of a mission. The file serves as an archive of environmentally relevant matters pertaining to the camp and is part of the documentation for transfer of the camp to another troop contributing nation or to the Host Nation. In liability cases, a well-kept camp environment file will give important support. AJEPP-6 contains templates for six important tools or reports:
  Environmental baseline study (EBS), environmental closeout study (ECS);
  Environmental impact assessment (EIA);
  Environmental condition report (ECR);
  Hazardous material record management;
  Environmental handover certificate; and
  Sampling protocols.

- AJEPP-7 (STANAG 2594), Best Environmental Protection Practices for Sustainability of Military Training Areas, provides national EP Officers and authorities a collection of best practices themed by habitat/ecosystems, flora, fauna, wetlands, soils, fire, noise/vibration, geographic information system and environmental training/outreach.

For the naval domain, several specific Allied Maritime Environmental Protection Publications (AMEPP) are in place. The Specialist Team on Energy

[19] STANAG 2582 Environmental Protection Best Practices and Standards for Military Camps in NATO Operations (AJEPP-2), Annex D (D.1.2)(2)
[20] Ibid., Annex D (D.1.4)(2)

Efficiency and Environmental Protection (STEEEP) (under the Maritime Capability Group 'Ship Design and Maritime Mobility' that reports through the NATO Naval Armaments Group to the Conference of National Armament Directors) is custodian of these publications. 'The STEEEP aims to integrate environmental protection and energy efficiency regulations into technical requirements and specifications for armaments, equipment and materials on ships, and for the ship to shore interface in the Allied and partner nations' naval forces.'[21]

Waste management as the Red Thread'

Recognition of the thematic importance of waste management to NATO EP started in the early1990's when NATO began its large scale out-of-area missions, most prominently Operation Deny Flight over the Balkans. Operating from air force bases in the Mediterranean, these forces discovered they had a different understanding of EP and what EP-measures to take. For instance, each nation was responsible for its own waste management. Other nations undertook no separation and recycling of waste while others separated waste into many fractions and actively recycled. A waste removal company would collect all fractions in one truckload. This mixed up all the separated waste. Worse, despite the contractor's assurance, instead of being processed in a waste processing facility, the truck would dump in a nearby landfill. Such poor waste management effects caused the drafting of a specific NATO waste management standard, STANAG 2510, Joint NATO Waste Management Requirements during NATO-Led Military Activities that came into effect in 2007. In 2019 AJEPP-2 superseded STANAG 2510 but in both documents NATO and the Member Nations have expressed in our doctrine standards the intention to apply the more protective of either Host Nation, NATO, or national standards for waste management. STANAG 2582 / AJEPP-2 implements best waste management measures "to proactively ensure the health and safety of NATO-led forces and to minimise adverse environmental impacts, while respecting host nation laws in accordance with NATO environmental protection policy."[22]

In the NATO Member Nations, waste management is mature, with re-use, recycling, separation, energy recovery and several other removal options. These operations are usually performed in well-organized facilities

[21] NATO Multimedia Library, *supra* note 8
[22] STANAG 2582, Annex D (D.1.1)

with government oversight, permits and so on. The challenge arises when the Host Nation does not have such mature waste management practices or if there are no or few reliable waste removal and waste processing contractors.

At the onset of mission planning for deployed NATO operations, waste management planning requires both a priority and a team approach. The legal advisor assists the operational planning team in addressing these issues by emphasising the responsibility and obligation of the NATO force to respect the laws of the receiving state and MC 0469/1, NATO Military Principles and Policies for Environmental Protection (EP) described above. Using a team approach other specialists can address other aspects of waste management topically. For instance:

- Waste prevention options—EP, requirements/procurement, design, MILENG, logistics, POL-specialists, catering;
- Local disposal options—EP, legal, contracting, CIMIC, security;
- Framework to transport (hazardous) waste back home – legal, contracting;
- Storage of (hazardous) waste—POL-specialists, EP, MILENG.

I cannot overstate the importance of this planning. As waste can attract rodents and other pests, its presence forms a health danger. To avoid this undesired outcome, there are several mitigation options but all have drawbacks and challenges. Without detailed planning some nations may resort to using burn pits—a poor solution from environmental, health and safety perspective because the burning may be partial, leading to smoke, toxic fumes and airborne particles. Other nations deployed waste incinerators. However, these incinerators need expert operation to avoid malfunctions. Containers used to collect the waste do not always match the design of the incinerator to lift and empty the waste into the incinerator. In such situations the waste has to be transferred, introducing extra work for the troops on the ground to transfer waste and supervise incinerator operations. The nations who separate hazardous waste from non-hazardous waste, intending to ship back the hazardous waste to their home nation must comply with the Basel Convention[23] and the applicable national and

[23] Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal - adopted in 1989 with later amendments.

international rules/laws of the Host Nation, transit states, and the country of import. Also, the hazardous waste must be collected and stored in such a way that it complied with POL-instructions for hazardous material storage, including facilities and even climate-conditioning. In short, the level of challenge waste management poses in NATO-led operations demands detailed, coordinated, multinational planning.

A Legal Approach For EP

To conclude this article for legal advisers new to EP agreements and the legal aspects of EP planning, here is a short legal approach analysing EP topics. First, build your personal NATO EP library of the above-discussed references. Second, review the relevant Status of Forces Agreements (SOFAs), supplemental agreements to the SOFA(s) and Host Nation support agreements. Ask if other international agreements apply. Third, in these documents look for phrases in these documents that create obligations or responsibilities for the NATO-led force such as:

> *with due respect for applicable Host Nation laws and regulations;*
>
> *commitment to respect relevant Host Nation safety laws, regulations and standards;*
>
> *in accordance with applicable NATO policies and practice and applicable international agreements;*
>
> *a preventative rather than a reactive approach to environmental protection and human health and safety;*
>
> *to apply the more protective of either Host Nation or NATO standards.*

Fourth, because NATO commits itself to a preventive approach rather than reactive response, and to applying the more protective standards of either Host Nation or NATO use a team approach to determine 1) which NATO EP policies and practices apply and 2) what are the applicable NATO and Host Nation [EP] standards.

Following this approach when advising to a NATO commander will require staff coordination and teamwork. The environmental protection

specialists and the legal adviser must be provide joint advice to the NATO commander the EP-aspects in execution of the mission. Depending on the topic the advisory team may include other staff elements like MILENG, logistics, plans, operations and (strategic) communications. The goal is to ensure that NATO meets the objectives in its agreements with the Host Nation and NATO doctrine and policy. As this article has attempted to show, only the shared perspective of the EP specialist, the legal adviser and other subject experts will achieve this goal.

NATO Standardization Office - Interoperability and standardization

A coordinated development of policy, procedures and materiel enhances military effectiveness and efficiency. Almost since the founding of NATO, the NATO Standardization Office (NSO) has facilitated Working Groups (WGs) which strive to increase operability in their area of expertise by issuing and maintaining Standardization Agreements (STANAGs) and Allied Publications.

The NSO website provides a wealth of information. Once registered, a user can search for and download any STANAG or AP. Information on national ratification, including reservations, of STANAGs is also available. Through this website you also access the NATO Term database <https://nso.nato.int/natoterm/content/nato/pages/home.html?lg=en>, which is the official reference for NATO terminology. While NATO Term contains all officially approved and cancelled terminology, it also contains legacy terminology, the terminology that is not (yet) NATO agreed, and with civilian terminology adopted by NATO.

Information about national ratification, national implementation dates and reservations of STANAGs will be of legal interest when preparing for a multinational mission, as these may already show different EP approaches between participating nations. From a legal perspective, for instance, the information on ratification, implementation and reservations may be very relevant.

The portal of the Military Committee Joint Standardization Board should be visited for specific EPWG issues.

EP training opportunities

NATO provides support for one EP distance learning and two resident EP courses:

1) Advanced Distance Learning 033, *Introduction to Environmental Awareness,* on the NATO Joint Advanced Distributed Learning website <https://jadl.act.nato.int/>, comprises four modules that provide a broad overview of the main environmental protection themes of NATO-led military activities. For the curious LEGAD, this course may provide at least some basic knowledge on EP .

2) The two-week *M3-77 Environmental Management for Military Forces Course* is an operational-level course held twice annually at the NATO School Oberammergau in southern Germany. <https://www.natoschool.nato.int/> It is aimed at officers, operational planners and civilian equivalents involved with EP. The course provides a familiarisation with environmental law, NATO EP Policy, doctrine, standards and procedures and practices at the operational level. Course graduates can advise commanders on the assessment, control and mitigation of environmental risks and to integrate environmental considerations into operational planning.

3) The one-week *NATO Military Environmental Protection Practices and Procedures Course* (NMEPPPC) is held at the Military Engineering Centre of Excellence in Ingolstadt, Germany. <http://www.milengcoe.org/Pages/default.aspx> It is aimed at non-commissioned officers and civilian equivalents engaged in EP activities, assigned to either an operation or to a national or NATO headquarters to support the operation. The NMEPPPC is a tactical-level course designed to familiarise the student with the knowledge and skills needed to integrate NATO-led military operations with NATO EP requirements in accordance with NATO STANAGs and policies. As fieldwork, this course contains an outdoor practical Environmental Baseline Survey exercise.

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Environmental Protection Efforts in Recent NATO Operations and Exercises

by Major Ross Franklin, P.Eng.[1]

Introduction: Environmental Protection and Defence Capability

When asked, a legal advisor will remind the environmental protection officer that if a claim for environmental damage resulting from exercises and operations in an Allied country is made, there is always the NATO Status of Forces Agreement (SOFA) to settle the matter. Indeed, few would dispute that the SOFA is a necessary and practical means of maintaining interoperability. Yet, the word 'environment' does not appear once in the text of the 1951 Agreement.[2] Much has changed in the political and military landscape since then, not least of which has been the accession of many of the former Warsaw Pact nations to the North Atlantic (Washington) Treaty, and, in turn, to the SOFA. The current notion of the 'environment' as an entity requiring protection has also been a product of the decades since 1951: on both sides of the Atlantic, since the early 1970s in particular, as well as in the

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* Except where authority from official sources is cited in footnotes, the views presented in this paper do not represent the official position of the Canadian Armed Forces, NATO, ACO or ACT, or of the Government of Canada on any issue.

[2] North Atlantic Treaty Organization, 'Official Text: Agreement between the Parties to the North Atlantic Treaty regarding the Status of their Forces' <https://www.nato.int/cps/en/natohq/official_texts_17265.htm> accessed 7 April 2018

former Eastern Bloc. The environment had grown to such importance by the early 1990s that eleven of eighteen newly independent nations in Central and Eastern Europe created an environment ministry within three years of leaving the Soviet sphere.[3] Post-1989, the sense of urgency with which the newly independent nations managed the environmental effects of the Soviet armed forces in the wake of their withdrawal was noted as a success for environmental movements across the region.[4] Arguably, correcting these impacts also represented convergence between *environmental protection* and *defence capability* as these concepts are now understood in the Alliance. Protecting the environment in training areas serves to achieve regulatory compliance and may even help to secure a military's social licence to operate.[5] In the simplest terms, it preserves the integrity of manoeuvre areas and keeps damage at a minimum. This keeps soldiers firing and armoured vehicles driving, and these, in turn, mean that individual and collective training events can take place as scheduled. All of this realistic and demanding training ultimately contributes to defence capability.

Nowadays, environmental statutes and regulations have become the norm. Among nations, there are nearly five decades' worth of international environmental treaties, or Multilateral Environmental Agreements, which are widely ratified and implemented.[6] NATO saw also benefit in promulgating policy on EP at the Military Committee level (through consensus), first in 2003 with MC 0469 - *NATO Military Principles and Policies for Environmental Protection (EP)*, and again in 2011 with MC 0469/1. As of the time of writing, there were five Allied Joint Environmental Protection Publications (AJEPP) and nine Allied Maritime Environmental Protection Publications (AMEPP) as well as other Standardization Agreements (STANAGs), on topics ranging from petroleum handling equipment to map symbols that are related to EP.[7] MC 0469 and many of the AJEPPs were products of the International Stability Assistance Force (ISAF) years—the period between 2001 and 2014 that saw the first-ever invocation of Article 5 in the Alliance's history and a substantial

[3] Per-Olof Busch and Helge Jörgens, 'The international sources of policy convergence: explaining the spread of environmental policy innovations' [2005] J Eur Pub Pol 12:5, <https://doi.org/10.1080/13501760500161514>
[4] Susan Baker and Petr Jehlička, 'Dilemmas of transition: The environment, democracy and economic reform in East and Central Europe – An introduction' [1998] Env Pol 7:1 <http://doi.org/10.1080/09644019808414370>
[5] Neil Gunningham, Robert A Kagan, and Dorothy Thornton, 'Social License and Environmental Protection: Why Businesses Go beyond Compliance' [2004] Law & Soc Inquiry 29
[6] 'Key Multilateral Environmental Agreements, <https://www.unenvironment.org/explore-topics/environmental-governance/what-we-do/meeting-international-environmental-commitments> accessed 7 April 2018
[7] See NATO Standardization Office at https://nso.nato.int/nso/nsdd/listpromulg.html.

growth in membership.[8] In response to the events of 2014 in Crimea, refocused European assurance and deterrence measures have been deployed, requiring a fresh look at EP in NATO. It is argued in this essay that renewed collective defence measures in Europe are revealing the many capabilities and, in some cases, limitations of the current NATO EP framework in supporting the spirit of the North Atlantic Treaty, the NATO SOFA, and other foundations of the Alliance.

Environmental Protection in NATO

NATO's existing EP framework has been informed by the disciplines of environmental management, sciences, and engineering, as well as by the environmental programmes of other multinational organizations, and these measures promote the aim of protecting the environment as an enabler of military capability within the Alliance. National delegations of staff officers and subject-matter experts meet in working groups and panels; they develop doctrine, standards, publications, and terminology; argue and negotiate over their contents; and upon promulgation of these documents, submit national responses, variously to ratify and implement them, now or later (or not at all). In 2003, the same year NATO promulgated its first environmental protection policy, which may be considered, at best, a form of soft law,[9] there were some 700 binding Multilateral Environmental Agreements in effect around the world.[10] Admittedly, NATO operations are not of the same scale as civilian petroleum, mining, and manufacturing projects, for which regulatory compliance, liability reduction, and social licence to operate may become top management concerns. Still, NATO and its constituent forces should never become laggards as far as environmental policy is concerned. To date, NATO has promulgated a series of measures on environmental protection (policy, doctrine, and standards), all short of treaty-level law, that could be considered an instance of self-enforcing international environmental co-operation by an empowered, knowledgeable community.[11]

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[8] 'Collective defence – Article 5 <https://www.nato.int/cps/cn/natohq/topics_110496.htm> accessed 13 May 2018

[9] Jon Birger Skjærseth, Olav Schram Stokke, and Jørgen Wettestad, 'Soft Law, Hard Law, and Effective Implementation of Environmental Norms' [2006] Global Env Pol 6:3

[10] Robert B Mitchell, 'International Environmental Agreements: A Survey of Their Features, Forms, and Effects' [2003] Ann Rev Env Res 28 <https://doi.org/10.1146/annurev.energy.28.050302.105603>

[11] Carlo Carraro and Domenico Siniscalco, 'The international dimension of environmental policy' [1992] Eur Econ Rev 36. *See also* Peter M Haas, 'Obtaining International Environmental Protection through Epistemic Consensus' [1990] Millennium – J Int Studies 19:3 <https://doi.org/10.1177/03058298900190030401>

The essence of contemporary environmental management—exemplified in the precautionary principle, sustainable development, and environmental impact assessment—is prevention, rather than reaction.[12] Prevention has an upfront cost, of course, but ample evidence shows the tilt of the overall cost–benefit relationship in its favour. For instance, it is estimated that 30- to 200-fold savings have been realized through preventing groundwater contamination in the United States of America rather than remediating it, or otherwise reactively paying out compensation.[13] For NATO Member States to spend hundreds to thousands of euros on fuel and lubricant spill clean-up kits and Environmental Baseline and Close-out Studies on military exercises and operations in fellow-Member Nations—to avoid paying out orders of magnitude more in compensation or damage claims, or even to mitigate uncertainty about environmental conditions—is a straightforward business case. This would be reason enough to practise preventive EP in NATO, if Article VIII[14] claims under the SOFA were the only concern. But aside from the money at stake, Allies visiting one another for weeks or months should expect nothing less than an ethic of neighbourly stewardship. Allies moving in, for years at a time, can do better still by taking a hard, unbiased, and empirical look at the sustainability, environmental and otherwise, of exercises and operations. It seems rational to codify these ethics so that they become widely ratified and implemented operational-level standards.

Leading and Following in Collective-Defence Operations and Exercises

When Allies visit one another, they depend upon Host Nation support for mission-essential services. The process, according to the relevant NATO joint doctrine,[15] is to conclude a Technical Arrangement (TA), Statements of Requirement (SOR), and other documents. Since operational doctrine and standards represent a 'middle ground' of sorts, or the means through which political and strategic goals are realized at the tactical level, there is always and necessarily a balancing of interests. They must give way, one way or the other, to be of use to political and military leadership and to the soldiers who will actually execute plans.

[12] Joel A Tickner and Ken Geisner, 'The Precautionary Principle – Stimulus for Solutions- and Alternatives-Based Environmental Policy' [2004] J Env Imp Assess Rev 24 <https://doi.org/10.1016/j.eiar.2004.06.007>
[13] Charles A Job, 'Benefits and Costs of Wellhead Protection' [1996] Groundwater Monitoring and Remediation 16:2 <https://doi.org/10.1111/j.1745-6592.1996.tb00124.x>
[14] Article VIII of the NATO SOFA defines the damage-claim procedure.
[15] Allied Joint Publication (AJP) 4.5, Host Nation Support

In 2016, Canada took command of the NATO Enhanced Forward Presence (eFP) Battle Group in Latvia.[16] In military engineering terms, this has meant consolidating multinational infrastructure requirements and co-operating closely with the Host Nation in defence real-estate matters—more closely than in recent organizational memory at the Canadian Joint Operations Command. The Canada–Latvia Technical Arrangement, concluded 18 April 2017, provided a framework for the other Sending Nations to that eFP Battle Group to join. As is now typical practice for Canada, the TA included provisions for environmental protection. However, even such an agreement is no absolute guarantor of performance by any party. Initial and Final Statements of Requirement, in-theatre contracts, and Operations Orders have followed in due course. But the aggregate of day-to-day standing orders and procedures, their understanding, and their fulfilment by a given rotation of personnel on the ground provide an auditable check on these good intentions. Indeed, have political will, strategic intent, and operational standards been translated into tactical behaviour with objectively verifiable results? Canada's performance as a Framework Nation in Latvia should be judged in this context.

Theatre-Opening in Latvia

From early 2017 onwards, the Latvian State Centre for Defence Military Sites and Procurement (VAMOIC) provided timely answers to Canadian requests for information. This included discussions about gazetted Latvian laws and regulations and the standing operating procedures at Base Ādaži. This highly professional *Latvian* effort allowed Canada to meet its responsibilities to the letter and intent of MC 0469/1. Latvian Ministry of Defence EP videos, pamphlets, and other soldier-accessible sources of information were provided for the benefit of Canadian soldiers during their two -week Theatre- and Mission-Specific Training cycle before deploying to Europe. Latvia, in turn, having just begun to procure modern mechanised infantry vehicles, asked about Canada's experience accommodating its mechanised Brigade Groups at defence sites in a northern climate. Twenty years' worth of petroleum spill-report data from Canadian bases and training areas were provided to depict the 'typical' spill rates that could be expected with Canadians and their equipment exercising in Base Ādaži on a regular basis, and, therefore, to refine environmental risk assessments of the sustainability of

[16] 'Enhanced Forward Presence – History' <https://shape.nato.int/operations/enhanced-forward-presence/history-2> accessed 13 May 2018

the eFP Battle Group at Base Ādaži. A new Latvian contract to remove and remediate petroleum-affected soil was raised later that year. This arrangement, to remediate affected soil from Base Ādaži at the rate of up to hundreds of kilograms per incident, is reported by the Latvian State Centre to be working as intended, as of the fourth six-month rotation of the eFP Battle Group. Such environmental services allow all contributing nations to reduce their liability and are a tangible form of Host Nation support to enduring military capability. Perhaps more importantly, information exchange between staffs, consistent with MC 0469/1 and related NATO EP publications, had also begun in earnest.

Information Exchange

A workshop, entitled *Environmental Protection in Baltic Military Sites*, sponsored by US European Command, was convened in March 2017 in Rīga, Latvia; in March 2018 in Vilnius, Lithuania; and in March 2019 in Tallinn, Estonia—the latter with all eight eFP Framework and Host Nations represented—to discuss environmental topics of general and specific interest. Environmental aspects, such as migratory birds with EU Protected Species status and the Baltic ecological biotope, do not conform to political boundaries, and certainly not to military ones. The cumulative environmental effects of the Enhanced Forward Presence on these aspects cannot be adjudicated or mitigated solely by rotations of tactical EP officers working in isolation, or by staff officers in distant headquarters, or by civil servants alone. Mutual understanding, collaboration, and periodic verification at such occasions are needed to give the proper expression and transparency to EP. A more formal *Environmental Management Board* along similar lines is described in AJEPP-3 and has been a forum at Base Ādaži in which technical issues may be defined, prioritised, documented, and forwarded, along with proposals for resolution, to chains of command for action. Moreover, this forum affords the opportunity to build upon good practices for environmental management, focusing on the majority in common rather than the minority of differences or the iota of disagreement. At its best, the Alliance is greater than the sum of its national caveats to NATO policy.

Filling Tactical Gaps

As infrastructure contracts were let in Latvia in the spring of 2017 and as the theatre-opening team handed-over to the first eFP Battle Group rotation, EP was also in development. At first, Canada had only one graduate of the NATO tactical-level Military Environmental Practices and Procedures Course

(NMEPPPC) in Latvia. It quickly became apparent that Canada would benefit from more knowledge of Latvian and NATO environmental-protection procedures in theatre, in spite of its relatively modest total strength (approximately 450 personnel at the time). The Environmental Close-out Study of the Canadian contingent in Drawsko Pomorksie Training Area, Poland (deployed 2015-2017) came to a similar conclusion around the same time: one dedicated EP officer per company- or battalion-sized element deployed to Europe may have been justifiable in retrospect. The germane question for the Canadian contribution to the eFP was how quickly the importance of tactical-level EP would be seen by successive rotations, which, after all, are in Latvia for military operations and are not typically flush with environmental experts. Canadian operational planners would have to be prepared, given the limit on deployed personnel, to justify changes to the Order of Battle (ORBAT). Should an infantry soldier or two be removed in favour of specialized EP officers? How could one increase the level of NATO-general and Host Nation-specific EP knowledge of the incoming rotation during force generation back in Canada? Is there enough space in every soldier's rucksack (or smartphone) for yet another mandatory pamphlet? These remain open questions, but they are probably not restricted to Canada or to Canadian political and military vagaries. A NATO-recognized model EP ORBAT may help to make the case.

Success through Mutual Understanding

Still, the NATO EP framework can claim successes post-2014. Its lack of prescription in some respects has given it a flexible character. To be flexible in EP matters is to understand and respect the priorities and interests of others, being aware that there are many paths leading towards a broader policy aim, and this is no defect. Indeed, with respect to environmental protection laws and supporting policies, that which is 'sacrificed on the side of normativity is gained in international discourse.'[17] One example of differing habits and practices is found in waste management. Activity produces waste, and waste must be managed so as not to interfere with ecology, land-use, sanitation, and aesthetics, among other considerations. The Canadian average ratio of municipal waste diversion in 2012 (25.6%) was midway between the 27-member EU average (56.8%) and the Latvian one (9.4%), but in absolute terms, Canadians generated 943 kg per capita, compared to 502

[17] Elli Louka, (1996) 'Cutting the Gordian Knot: Why International Environmental Law is Not Only about Protection of the Environment' [1996] Temple Int and Comp Law J 10:1

kg per capita across the 27 member of the European Union and 304 kg per capita in Latvia.[18] The Latvian preference at Base Ādaži, informed by empirical data from waste-auditing, had been to send mixed municipal waste to sorting plants. This stimulated the local environmental industry and achieves more reliable compliance; that is, it creates less cross-contamination of waste streams. It would be prudent to support this framework rather than to adhere rigidly to the idea of source separation of waste. Though the average Canadian recycles almost as much as the average Latvian disposes, the average Canadian still ends up disposing of two and a half times more, and, according to these statistics, is objectively not as thorough a waste-manager as the average German or Swede. Thus, to achieve the overall aim of waste management, it is essential first to understand and support the rationale of the Host Nation's waste-management plan. On the other hand, if Host Nation practices and resources cannot cope with a given waste stream, the Lead/ Framework Nation must recognize its doctrinal responsibility to improve the situation—for instance, by raising additional contracts and increasing the capacity for reduction, reuse, recycling, and final disposal. The issue has, at least, been thought through at the operational level, and the effectiveness of doctrine and standards can be objectively verified through periodic waste auditing.

AJEPP-6 is likely the NATO EP publication whose technical content is most consistently implemented by Canada—MC 0469/1 and AJEPP-4 being nominally 'policy' and 'doctrine' rather than technical standards. AJEPP-6 provides an evidence-based approach to managing the environmental impacts of military camps through the Environmental Baseline and Close-out Study format. For the Canadian Department of National Defence, AJEPP-6 provides a means to manage the liability associated with potentially contaminated sites overseas and to improve environmental reconnaissance, both of which are perpetual concerns for deployed operations. From a Canadian perspective, AJEPP-6 is a success story for interoperability, and any additions or amendments to make its scope more ambitious, without limiting its extent of ratification, would be welcome. But the AJEPP-6 of the 2010s was a product of the ISAF years, and its technical focus could stand to be shifted somewhat away from forward operating bases and similar tactical

[18] Statistics Canada, 'Disposal and diversion of waste, by province and territory [in Canada]' [2016] <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/envir32a-eng.htm> accessed 7 April 2018. *See* 'European Commission Country Factsheet for Latvia' <http://ec.europa.eu/environment/waste/framework/pdf/LV%20factsheet_FINAL.pdf> accessed 7 April 2018.

infrastructure, and towards exercise and operational camps in Allied training areas, all without neglecting the valuable lessons learned from the Afghan experience. For instance, 'emerging contaminants' are, by definition, new to regulation, and new standards are required to delineate them in a systematic and mutually understandable way. Energetic materials (propellants and explosives) are one group of emerging contaminants, and they may be used in any type of operation along the spectrum of conflict: a humanitarian demining mission would make use of plastic explosives just as a force-on-force action would require tank and artillery munition propellants. Experimental methods for delineating the presence of energetic materials from Explosive Ordnance Disposal training could eventually be translated into standing operating procedures at Base Ādaži, or at Rukla, Tapa, Orzsyz, or any other training area by means of revised Allied standards. In this and other respects, the rigour of existing EP standards could be improved without harming their generality.

Continual Improvement and Command Attention

The eFP Battle Group structure, which requires extensive multinational co-ordination at company and platoon echelons, is likely to impose challenges on any Framework Nation. Environmental protection measures, as the complement to a multinational infrastructure programme in Ādaži, are among these challenges. A preventive, collective, and flexible approach to EP is attested in operational correspondence to date, but this approach must also be decisive, accountable, and prescriptive when required. Continual improvement upon past performance and command attention are specified in environmental management system standards, including NATO's own environmental management standard, AJEPP-3. If ever the base standing orders at Ādaži or elsewhere are found insufficient to manage the impact of eFP force-generation and ensure its sustainability, then new orders are needed. Staffs from all participating nations have roles—already specified in promulgated NATO policy, doctrine, and standards—to bring EP issues to commanders for the attention that these issues deserve as part and parcel of force readiness. Two years into eFP Latvia, there has been such a system in place, with staff from a majority of the troop-contributing nations represented at the June 2019 Base Ādaži environmental management board.

Bigger, Better, and Faster

Exercise Trident Juncture 18 (TRJE18) did not have the 'luxury' of rotations. Canada's integration into the Norwegian defence environmental management system at the tactical level needed to be rapid and effective. Since, it is argued, the EP ORBAT for NATO exercises and operations had not yet been adequately treated in the AJEPPs, this issue had not been forced at the operational level. The exercise plan, orders, and other operational correspondence for TRJE18 needed to force it, and to fill this requirement for the largest NATO exercise in 2018. TRJE18, with a total deployed strength of approximately 50 000 personnel,[19] also served as the largest crucible to date for the utility of ISAF-era EP standards in a decidedly different Article 5 collective-defence scenario than was the case in Afghanistan. Observations from TRJE18 will undoubtedly influence the ways and means of EP in NATO in the early 2020s. All collective-defence operations and exercises, along with the Command and Force Structures, stand to benefit from the experience. A new consensus could emerge. For instance, a dedicated EP officer in every battalion-sized element could become a matter of course—a matter of 'mainstreaming' EP. Whether the motivation behind this eventual consensus is the deliberation of the Environmental Protection Working Group, or the tally of SOFA Article VIII damage payments after the post-exercise environmental report from TRJE18 is released, the end result could be the same.

Conclusion

NATO policy, doctrine, and operational standards to do with environmental protection—supported by training courses at the tactical and operational levels—have provided a sound start to managing the environmental impacts associated with the Alliance's military activities in the 2010s. As with any other management tools, however, they themselves stand to be improved in changing circumstances. They are compatible with the NATO SOFA and the other founding documents of the Alliance, but must always be evaluated critically for their relevance to the current security situation, which is true for any other contributor to collective defence capability. By undertaking this effort, the effective capabilities in the NATO EP framework are advanced and its limitations are reduced.

[19] 'Trident Juncture 18 Media Resources' <https://www.nato.int/cps/en/natohq/news_158620.htm> accessed 8 July 2019

Source : Government of Canada, https://www.canada.ca/fr/immigration-refugies-citoyennete/services/visiter-canada.html

Key Environmental Law Aspects of Military Operations in Canada

by Dr. Jean Rhéaume, LL.D.[1]

Introduction

Every visiting nation should consider environmental law issues before operating in a Host Nation. It should understand the liability it and its representatives would assume if something goes wrong during the operation. In this context, the people planning the operation would therefore consult their legal advisors to foresee what must be known in this regard.

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On 21 June 2019, two Bills have received royal assent and will replace some texts mentioned in this article when they come into force. See *An Act to amend the Fisheries Act and other Acts in consequence*, (known as Bill C-68), S.C.2019, c.14, https://www.parl.ca/DocumentViewer/en/42-1/bill/C-68/royal-assent (s.59: most of the key provisions will come into force on a date determined by order of the Governor in Council), and *An Act to enact the Impact Assessment Act and the Canadian Energy Regulator Act, to amend the Navigation Protection Act and to make consequential amendments to other Acts*, (known as Bill C-69), S.C.2019, c.28, https://www.parl.ca/LegisInfo/BillDetails.aspx?billId=9630600&Language=E (in accordance with its section 196, its section 1, introducing the new *Impact Assessment Act*, and its section 9, repealing the *Canadian Environmental Assessment Act, 2012*, will come into force on a date determined by order of the Governor in Council).

Part XVII of the *NATO Legal Deskbook* establishes as a general rule that the visiting country agrees to respect the Host Country's environmental law.[2] However, few legal advisors would be already familiar with a Host Country's domestic law, and this lack of familiarity would be even more acute for a specialized field such as environmental law. To fill a gap in this regard, this article will provide an overview of the Canadian environmental law applicable to military activities in Canada.

I. The Constitutional Framework

Canada covers almost 10 million km^2 and is surrounded by three oceans. It has ten provinces and, north of parallel 60, three territories. The *Constitution Act, 1867*,[3] as amended, determines the distribution of power at the federal, provincial and territorial levels. Sections 91 and 92 of this Act provide a list of the exclusive legislative matters. The federal legislator has exclusive authority over military matters (subsection 91(7)) and fisheries (subsection 91(12)), but the environment as such is not mentioned. Accordingly both the Parliament of Canada and the legislative assemblies of the provinces[4] have enacted environmental laws.

As a consequence of this constitutional division of powers, of the doctrine of federal paramountcy,[5] and of the doctrine of Crown immunity,[6]

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[2] Part XVII, Environmental Protection, p.313: MC 469, Principle 1; p.317, 2.

[3] See *The Constitution Act, 1867*, 30 & 31 Vict, c. 3, http://canlii.ca/t/ldsw . The website of the Canadian Legal Information Institute (CanLII) https://www.canlii.org/en/ gives access to the legislation and cases at the federal, provincial and territorial levels.

[4] Following subsection 35(1) of the *Interpretation Act*, R.S.C.1985, c.I-21, http://canlii.ca/t/52f1g ("35 (1) In every enactment […] province means a province of Canada, and includes Yukon, the Northwest Territories and Nunavut") what is said here about provincial laws also applies to territorial laws.

[5] In case of conflict, federal law prevails over provincial law: for a recent Supreme Court of Canada decision discussing the application of this doctrine in the context of environmental law, see *Orphan Well Association* v. *Grant Thornton Ltd*., 2019 SCC 5 (CanLII), http://canlii.ca/t/hx95f .

[6] See in this regard the useful distinction made by Justice Dickson in *R*. v. *Eldorado Nuclear Ltd*.; *R*. v. *Uranium Canada Ltd*., [1983] 2 S.C.R. 551, 1983 CanLII 34 (SCC), http://canlii.ca/t/1lpf6 , p.568:

> I refer, by way of illustration, to *R*. v. *Stradiotto*, 1973 CanLII 766 (ON CA), http://canlii.ca/t/g14b4 , [1973] 2 O.R. 375 (C.A.). In that case a member of the militia was charged with careless driving under the Ontario Highway Traffic Act. At the time, Stradiotto was driving a Department of National Defence vehicle while in his official militia duties. The Ontario Court of Appeal rejected the claim of Crown immunity on the basis that Stradiotto could have effected Crown purposes without violating The Highway Traffic Act. I agree with the result reached in *Stradiotto*, but not with the reasoning of the Ontario Court of Appeal. In my view, the reason Crown immunity could not be invoked was that the careless driving was wholly incidental to official militia purposes. The careless driving was in no manner in the furtherance of the Crown purposes of the militia. In driving carelessly, Stradiotto stepped outside Crown purposes and no longer was acting as agent. Accordingly, he could not claim

the members of the Canadian Forces are not bound by provincial law in the event carrying out their duties would require doing something that is prohibited by provincial law.[7] However, they must comply with that provincial law like any other citizen when they are doing something that is not required by their military duties. For example, they would need to get a provincial permit for recreational game hunting on a defence establishment.[8] For the purpose of this short article, the focus will be on federal environmental law.

II. Federal Law Imposing Criminal Liability in the Environmental Context

One of the characteristics of Canadian federal environmental law is that most environmental statutes have a standard provision making them applicable to the federal and provincial governments: "This Act is binding on Her Majesty in right of Canada or a province."[9] As a consequence of this provision, non-compliance with these statutes and their regulations can lead to a charge being laid against a department[10] and its officials, and these can be found guilty of an offence. In the case of members of the Canadian Forces, non-compliance with "any other Act of Parliament" –terms broad enough to include federal environmental statutes– is also an offence pursuant to subsection 130(1) of the *National Defence Act*.[11]

In Canadian environmental law, most offences are considered strict liability offences and this category of offences allows the accused to avoid being found guilty if they prove that they exercised due diligence. Delivering the unanimous decision of the Supreme Court of Canada in *R*. v. *Sault-Ste-*

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immunity.

[7] See for example *R*. v. *Anderson*, 1930 CanLII 526 (MB CA), http://canlii.ca/t/gck0b and *Rex* v. *Rhodes*, 1933 CanLII 180 (ON SC), http://canlii.ca/t/g12px .

[8] See for example *Rex* v. *Smith*, 1942 CanLII 313 (ON CA), http://canlii.ca/t/gwbff , *R*. v. *Hartt*, (1979) 94 D.L.R.(3d) 461 (N.B. C.A.).

[9] See for example section 4 of the *Antarctic Environmental Protection Act*, S.C.2003, c.20, http://canlii.ca/t/532t3 , section 3 of the *Canada National Parks Act*, S.C.2000, c.32, http://canlii.ca/t/532sg , section 3 of the *Canada National Marine Conservation Areas Act*, S.C.2002, c.18, http://canlii.ca/t/52hcm , and section 3 of the *Saguenay-St. Lawrence Marine Park Act*, S.C.1997, c.37, http://canlii.ca/t/52f0w .

[10] See for example *Canada (Department of Fisheries and Oceans)* v. *Canada (Department of National Defence)*, (1993) 125 N.S.R. (2d) 208 (C.A.), 1993 CanLII 3097 (NS CA), http://canlii.ca/t/1mqwb .

[11] See R.S.C.1985, c.N-5, http://canlii.ca/t/53jfh :

> 130 (1) An act or omission
>
> (a) that takes place in Canada and is punishable under Part VII, the Criminal Code or any other Act of Parliament, or
>
> (b) that takes place outside Canada and would, if it had taken place in Canada, be punishable under Part VII, the Criminal Code or any other Act of Parliament,
>
> is an offence under this Division and every person convicted thereof is liable to suffer punishment as provided in subsection (2).

Marie,[12] Justice Dickson has established a high threshold when he determined that the accused, to prove due diligence, must show that they "took all reasonable steps to avoid the particular event"[13] and that they "exercised all reasonable care by establishing a proper system to prevent commission of the offence and by taking reasonable steps to ensure the effective operation of the system."[14]

1. Provisions Exempting Military Operations from Their Application

A number of federal statutes and regulations recognize the very peculiar nature of military operations and, therefore, contain one or more specific provisions excluding their application, in whole or in part, with or without a specific timeframe, to military personnel,[15] activities or equipment. Of particular interest are the following general exclusions:

Nuclear Safety and Control Act, sections 5 and 6:[16]

> 5 The Governor in Council may, by order, exclude the Department of National Defence or the Canadian Forces from the application of this Act or any regulations made pursuant to this Act, to the extent and under the conditions specified in the order.
>
> 6 This Act does not apply to a nuclear-powered or nuclear-capable naval vessel of a foreign state that is invited into Canada by Her Majesty in right of Canada.

Explosives Act, section 3:[17]

> 3 Except as provided by the regulations, this Act does not apply to or in respect of any explosives under the direction or control of the Minister of National Defence.

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[12] [1978] 2 S.C.R. 1299, 1978 CanLII 11 (SCC), http://canlii.ca/t/1mkbt.
[13] Id., p.1326.
[14] Id., p.1331.
[15] For example, the definition of "fish" in the *Fisheries Act*, R.S.C.1985, c.F-14, http://canlii.ca/t/52ql9 , includes marine mammals and section 7 of the *Marine Mammal Regulations*, SOR/93-56, http://canlii.ca/t/53h5h , prohibits "disturbing" marine mammals. However, paragraph 7.1(b) excludes the employees of the Department of National Defence and members of the Canadian Forces from the application of that provision "while they are performing their duties or functions."
[16] S.C.1997, c.9, http://canlii.ca/t/52w0h .
[17] R.S.C.1985, c.E-17, http://canlii.ca/t/52f20 .

Transportation of Dangerous Goods Act, 1992, paragraph 3(4)(a):[18]

> 3(4) This Act does not apply in relation to
>
> (a) any activity or thing under the sole direction or control of the Minister of National Defence, including in circumstances in which the regulations provide that it is under that Minister's sole direction or control;

It is worth noting that the purpose of these provisions is not to give *carte blanche* to do whatever one wants: these broad exclusions are granted because the Minister of National Defence[19] already has in place internal rules (regulations[20], policies…) to exercise "direction or control" over these matters.

Environmental statutes usually do not have such broad exclusions but they allow different categories of exemptions.

One category excludes activities: for example, section 17 of the *Canada National Marine Conservation Areas Act*[21] provides:

> 17 The Governor in Council may, by regulation, exempt from any regulation made under section 16 or from any provision thereof, subject to any conditions that the Governor in Council considers appropriate, movements or activities of a ship or aircraft, or of a class of ships or aircraft, owned by or operated by or on behalf of Her Majesty in right of Canada, or owned or operated by Her Majesty in right of a province or by a foreign state, if so recommended by the Minister and any other minister of the Crown having responsibility in relation to the movement or activity and if the Governor in Council is satisfied that the exemption is necessary
>
> (a) in the interests of Canadian sovereignty or security; or
>
> (b) for the conduct of any maritime activity by Canada, a province or a foreign state that is consistent with the purposes of this Act.

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[18] S.C.1992, c.34, http://canlii.ca/t/52w0k . See also section 5 of the *Antarctic Environmental Protection Act*, S.C.2003, c.20, http://canlii.ca/t/532t3s and subsection 7(1) of the *Canada Shipping Act, 2001*, S.C.2001, c.26, http://canlii.ca/t/53jg0 .

[19] Section 4 of the *National Defence Act* provides that "4 The Minister holds office during pleasure, has the management and direction of the Canadian Forces and of all matters relating to national defence […]" and subsection 18(1) provides that "18 (1) The Governor in Council may appoint an officer to be the Chief of the Defence Staff […] who shall, subject to the regulations and under the direction of the Minister, be charged with the control and administration of the Canadian Forces."

[20] See the *Queen's Regulations and Orders for the Canadian Forces*.

[21] S.C.2002, c.18, http://canlii.ca/t/52hcm .

Although this text does not mention the Canadian Forces expressly, it is clear that it refers to them implicitly. Another example in this category and with this implied reference is paragraph 83(1)(a) of the *Species at Risk Act (SARA)*:[22]

> 83 (1) Subsections 32(1) and (2), section 33, subsections 36(1), 58(1), 60(1) and 61(1), regulations made under section 53, 59 or 71 and emergency orders do not apply to a person who is engaging in
>
> (a) activities related to public safety, health or national security, that are authorised by or under any other Act of Parliament or activities under the *Health of Animals Act* and the *Plant Protection Act* for the health of animals and plants;

Another category excludes equipment: for example, paragraph 12(1)(i.2) of the *Migratory Birds Convention Act, 1994*[23] enables the governor-in-council to make regulations "excluding from the application of any provision of this Act or the regulations a military vessel, a naval auxiliary vessel or a vessel that is owned or operated by a state while it is being used only on government non-commercial service."

A small category of exemptions relates to the non-availability of recourses: for example sub-paragraph 24(a)(ii) of the *Canadian Environmental Protection Act, 1999* (*CEPA, 1999*)[24] provides that "An environmental protection action may not be brought if the alleged conduct (a) was taken […] (ii) to protect national security, support humanitarian relief efforts, participate in multilateral military or peacekeeping activities under the auspices of international organizations or defend a member state of the North Atlantic Treaty Organization."

Another rare category is the non-disclosure of information: for example, section 320 of *CEPA, 1999* provides that "Despite any other provision of this Act, the Minister of National Defence may refuse to disclose under this Part any information the disclosure of which could reasonably be expected to be injurious to the defence or security of Canada or of a state allied or associated with Canada." An example of a situation for this refusal to disclose information would be where a vessel may not want to report an accidental

[22] S.C.2002, c.29, http://canlii.ca/t/535ts .
[23] S.C.1994, c.22, http://canlii.ca/t/532r2 .
[24] S.C.1999, c.33, http://canlii.ca/t/53jpg .

release,[25] during operations in a hostile context, and thereby reveal to the enemy that it may be short of a regulated substance needed for its operations (*e.g.* halocarbons for refrigeration and air-conditioning systems).

2. Key Statutes Imposing Criminal Liability for Non-Compliance

From a liability perspective, the concern is non-compliance with the environmental statutes that create offences and apply to military personnel, activities and equipment.

A. The *Fisheries Act*[26]

Subsection 35(1) of the *Fisheries Act* prohibits anyone to "carry on any work, undertaking or activity that results in serious harm to fish [...]." Until a recent definition of "serious harm"[27] restricted the scope of this provision, a typical contravention would have been crossing a river or creek with a vehicle. Until the current definition is amended, a more likely contravention would be to destroy part of a fish habitat while building a bridge without a subsection 35(2) permit.

More important are section 34 providing a very broad definition of "deleterious substance" and subsection 36(3) prohibiting anyone to "deposit or permit the deposit of a deleterious substance of any type in water frequented by fish." In the context of military operations, the typical deleterious substance would be fuel, but it could also be chemical substances used, for example, to extinguish fire during training activities.

Since 2015, the *Aquatic Invasive Species Regulations*[28] made pursuant to the *Fisheries Act* prohibit a number of actions regarding aquatic invasive species and non-indigenous species. Its section 12 provides an exemption for "persons operating any vehicles, vessels or aircraft engaged in emergency, search and rescue or firefighting operations" but it does not provide an exemption for other activities that may be carried out by members of the

[25] In the event of a release of 100 kg or more of a halocarbon from a system, paragraph 32(a) of the *Federal Halocarbon Regulations, 2003*, SOR/2003-289, http://canlii.ca/t/l6xc requires a report of the release within 24 hours after the release is detected.
[26] R.S.C.1985, c.F-14, http://canlii.ca/t/52ql9 .
[27] The current definition "2 (2) For the purposes of this Act, serious harm to fish is the death of fish or any permanent alteration to, or destruction of, fish habitat" was added in 2012.
[28] SOR/2015-121, http://canlii.ca/t/52gjd .

Canadian Forces or their Allies.[29]

B. The *Canadian Environmental Protection Act, 1999* (*CEPA, 1999*)[30]

This short article can only offer a glance on *CEPA, 1999*, a very long and complex statute, and some of its over 70 regulations.

Part 5 entitled "Controlling Toxic Substances" (sections 64-103) allows the federal government to designate "toxic substances" by listing them in Schedule 1 to the Act and, whenever it finds it appropriate, to regulate any aspect of the life cycle of these substances. Currently over 140 substances or groups of substances[31] have been included in Schedule 1 and most have not yet been regulated.

A recent example of regulations made pursuant to Part 5 is the *Prohibition of Asbestos and Products Containing Asbestos Regulations*,[32] which contain a general prohibition to import, sell or use processed asbestos fibres, a product containing processed asbestos fibres and a consumer product containing asbestos (section 4). The regulations provide some exceptions for military equipment that is serviced with a product containing processed asbestos fibres.[33] Pursuant to subsection 9(3) of these regulations, "For the purpose of subsection (1), military operation means any operation taken to protect national security, support humanitarian relief efforts, participate in multilateral military or peacekeeping activities under the auspices of international organizations or defend a member state of the North Atlantic Treaty Organization."

Within Part 7 entitled "Controlling Pollution and Managing Wastes" (sections 116-192) it is worth mentioning Division 3 "Disposal at Sea" (sections 122-137), previously known as ocean dumping. More than 20 years ago, an environmental group challenged the Minister of Environment's decision that

[29] Subsection 17(2) provides another very limited exemption from "measures referred to in subsection 25(1) in respect of (a) ballast water and sediments, in the case of any vessel to which section 2 of the *Ballast Water Control and Management Regulations* applies […]" and paragraph 2(3)(f) of the *Ballast Water Control and Management Regulations*, SOR/2011-237, http://canlii.ca/t/52wgv provides that "2 (3) These Regulations do not apply in respect of […] (f) vessels that are owned or operated by a state and used only in government non-commercial service."

[30] S.C.1999, c.33, http://canlii.ca/t/53jpg .

[31] For example, item 65 mentions "Volatile organic compounds that participate in atmospheric photochemical reactions, excluding the following" and then excludes 60 substances, while item 134 mentions 46 petroleum and refinery gases.

[32] SOR/2018-196, http://canlii.ca/t/53g9c .

[33] See idem, sections 9-10 and 18-19.

an ocean dumping permit was not required by the Department of National Defence and the United States Navy for the testing of torpedoes at the Canadian Forces Maritime and Experimental Test Ranges at Nanoose Bay, British Columbia.

Although there was evidence of a large quantity of materials being deposited in the water as a direct consequence of the testing,[34] the trial judge concluded that "it was open to [the Minister] to find that the loss of copper wire, torpedo weights, sonobuoy hardware and batteries did not constitute dumping, but was only incidental to or derived from the normal operations of a warship or of any of its equipment"[35] and he rejected the application for judicial review. In a brief decision, the Federal Court of Appeal agreed with him that the activity engaged in by these ships did not involve dumping as defined by the Act[36] and dismissed the appeal.

It is also worth noting that a number of regulations made pursuant to Division 5 "Vehicle, Engine and Equipment Emissions" of Part 7 contain specific exemptions for military equipment.[37]

Part 9 entitled "Government Operations and Federal and Aboriginal Land" is very short (sections 206-215), but it is the basis for the *Federal Halocarbon Regulations, 2003,*[38] which regulate the use of a number of substances used in air-conditioning systems, fire-extinguishing systems,

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[34] See *Nanoose Conversion Campaign* v. *Canada (Minister of Citizenship and Immigration)*, 1997 CanLII 5812 (FC), http://canlii.ca/t/4dh1 :

> [3] […] In the testing procedure, the copper wire, the lead weights on the torpedoes and the sonobuoy hardware (including lithium batteries) fall to the bottom of the ocean, some 450 to 550 metres down. To date, this debris includes about 93,000 km of plastic-covered copper wire used for torpedo guidance and 8,500 km of sonobuoy wire, 1300 tons of lead weight, 60,000 sonobuoy cases and 51,000 sets of sonobuoy entrails containing lithium batteries.

[35] Idem, par.26.

[36] See *Nanoose Conversion Campaign* v. *Canada (Minister of Environment)*, 2000 CanLII 15574 (FCA), http://canlii.ca/t/4kxs par.7-8.

[37] See for example the *Off-Road Small Spark-Ignition Engine Emission Regulations*, SOR/2003-355, http://canlii.ca/t/5349v paragraph 5(2)(f):

> 5 (2) The engines referred to in subsections (1) and (1.1) do not include an engine that is […]
> (f) designed to be used exclusively in military machines that are used only in combat or combat support during military activities, including reconnaissance missions, rescue missions and training missions and that bears either a label to that effect and that meets the requirements set out in subsections 17.2(3) and (4) or the U.S. emission control information label referred to in paragraph 225(e) of subpart C of CFR 1068.

For similar wording, see also paragraph 5(2)(e) of the *Off-Road Compression-Ignition Engine Emission Regulations*, SOR/2005-32, http://canlii.ca/t/lfgk and paragraph 1(1)(d) of the *On-Road Vehicle and Engine Emission Regulations*, SOR/2003-2, http://canlii.ca/t/53hdt .

[38] SOR/2003-289, http://canlii.ca/t/l6xc .

refrigeration systems and solvent systems, and contain a number of provisions specific to the use of these substances in systems within military vehicles, military ships and military aircraft.[39]

C. The *Species at Risk Act* (*SARA*)[40]

This statute protects terrestrial and aquatic species at risk, as well as migratory birds at risk, and their residences and critical habitat.[41] Interestingly, sections 36 and 60 prevent the application of the provincial laws protecting species at risk and their critical habitat on federal lands until the governor-in-council makes an order declaring them applicable.

It is important to point out here that, regarding terrestrial species at risk, a Memorandum of Understanding (MOU) has been signed[42] to specify the activities exempted in accordance with section 83, quoted earlier, and the process to follow before carrying out these activities on defence establishments.[43]

D. The *Canadian Environmental Assessment Act, 2012* (*CEAA, 2102*)[44]

Adopted in 1992, the original *Canadian Environmental Assessment Act*[45] did not create any offence. Section 99 of the *CEAA, 2012*[46] creates an offence for contravening section 6, i.e. for carrying out a "designated project" before a decision has been made on the need for an environmental assessment or without complying with the conditions imposed in a decision statement.

Sections 18-23 of the Schedule to the *Regulations Designating Physical Activities*[47] designate some military activities as "designated projects" but

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[39] See idem, sections 16, 17, 18(1), 19, 24(2), 29, 30(1), and 34(1).
[40] S.C.2002, c.29, http://canlii.ca/t/535ts .
[41] See in particular idem, sections 32-35 and 58.
[42] See Memorandum of Understanding Between The Department of National Defence and The Department of the Environment and Parks Canada Agency Concerning Cooperation on Terrestrial Species at Risk matters Under the Responsibility of the Minister of Environment and Present on Defence Establishments, February 2011, Ottawa and Gatineau, http://www.registrelep-sararegistry.gc.ca/virtual_sara/files/agreements/aa_mou_ec-dnd_0611a_e.pdf .
[43] See the definition in subsection 2(1) of the *National Defence Act*, R.S.C.1985, c.N-5, http://canlii.ca/t/53jfh : "2(1) defence establishment means any area or structure under the control of the Minister, and the materiel and other things situated in or on any such area or structure."
[44] S.C.2012, c.19, s.52, http://canlii.ca/t/52zzf .
[45] S.C.1992, c.37, http://canlii.ca/t/kwcj .
[46] S.C.2012, c.19, s.52, http://canlii.ca/t/52zzf .
[47] SOR/2012-147, http://canlii.ca/t/52dh6 .

they rarely apply. When military activities involve simply a "project" on a defence establishment, the Department of National Defence is required by section 67 of the Act to determine whether "the carrying out of the project is not likely to cause significant adverse environmental effects," but this determination can be done easily and promptly.

E. The *Canada Wildlife Act*[48]

Since 2003, an area of 458 km^2 of Canadian Forces Base (CFB) Suffield, in Alberta, has been designated a "national wildlife area" (NWA) pursuant to the *Canada Wildlife Act*. In accordance with subsection 4.2(1) of the Act, the then Minister of the Environment delegated to the Minister of National Defence his powers regarding the CFB Suffield NWA, and in accordance with subsection 4.2(2) the Minister of National Defence delegated his powers to the CFB Suffield Commander. As a result, the Base Commander can issue the permit required by section 4 of the *Wildlife Area Regulations*[49] for any activity to be carried out in the NWA.

III. Federal Law Imposing Civil Liability in the Environmental Context

1. The *Crown Liability and Proceedings Act* (*CLPA*)[50]

Section 3 of the *CLPA* makes it possible to claim damages against the Canadian federal government as if it were an ordinary citizen:

> 3 The Crown is liable for the damages for which, if it were a person, it would be liable
> (a) in the Province of Quebec, in respect of
> (i) the damage caused by the fault of a servant of the Crown, or
> (ii) the damage resulting from the act of a thing in the custody of or owned by the Crown or by the fault of the Crown as custodian or owner; and
> (b) in any other province, in respect of
> (i) a tort committed by a servant of the Crown, or
> (ii) a breach of duty attaching to the ownership, occupation, possession or control of property.

When section 3 applies, a claimant in Quebec would refer to the

[48] R.S.C.1985, c.W-9, http://canlii.ca/t/532r7 .
[49] C.R.C., c.1609, http://canlii.ca/t/535vd .
[50] R.S.C. 1985, c.C-50, http://canlii.ca/t/5305j .

relevant provisions of the *Civil Code of Quebec*[51] to establish the extra-contractual liability of a person, while a claimant in the other provinces would refer to tort law cases in common law. In both contexts, this liability would include damage resulting from contamination allegedly caused by the federal government's servants.[52]

The Crown's liability includes that caused by actions or omissions of members of the Canadian Forces, who are deemed to be servants of the Crown for this purpose.[53] Although section 8 of the *CLPA*[54] seems to convey a broad exemption from liability related to military activities, the courts have interpreted this provision as excluding Crown liability only in the case of non-negligent conduct.[55]

Section 15 of the *Visiting Forces Act*[56] specifies how to apply this statute when the civil liability of members of Visiting Forces is involved:

> 15 For the purposes of the *Crown Liability and Proceedings Act*,
> (a) in the Province of Quebec
>
> (i) a fault committed by a member of a visiting force while acting within the scope of their duties or employment shall be deemed to have been committed by a servant of the Crown while acting within the scope of their duties or employment,
>
> (ii) property owned by or in the custody of a visiting force shall be deemed to be owned by or in the custody of the Crown, and

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[51] C.Q.L.R., c.CCQ-1991, http://canlii.ca/t/53jcz , in particular sections 976 and 1457.

[52] In Quebec, see for example *Spieser* c. *Canada (Procureur général)*, 2012 QCCS 2801 (CanLII), http://canlii.ca/t/frtfd under appeal. In other provinces, see for example *10565 Nfld. Inc.* v. *Canada (Attorney General)*, 2017 CanLII 25468 (NL SC), http://canlii.ca/t/h3jrc

[53] See the *CLPA*, section 36.

[54] Idem:

> 8 Nothing in sections 3 to 7 makes the Crown liable […] in respect of anything done or omitted in the exercise of any power or authority exercisable by the Crown, whether in time of peace or of war, for the purpose of the defence of Canada or of training, or maintaining the efficiency of, the Canadian Forces.

[55] See for example *K & L Land Partnership v. Canada (Attorney General)*, 2014 BCSC 1701 (CanLII), http://canlii.ca/t/g8z5s :

> [93] There is authority which limits the scope of s. 8 to non-negligent conduct: *Robitaille v. The Queen*, [1981] 1FC 90 at para. 6 (TD); *Swanson v. Canada (Minister of Transport),* 1991 CanLII 8226 (FCA), [1992] 1 FC 408 at para. 29 (CA); *Ring v. Canada (Attorney General)*, 2007 NLTD 146 (CanLII) at para. 107, rev'd on other grounds 2010 NLCA 20 (CanLII)*; Parrish & Heimbecker Ltd. v. Canada (Minister of Agriculture and Agri-Food)*, 2008 FCA 362 (CanLII) at paras. 20-21, rev'd on other grounds 2010 SCC 64 (CanLII).

[56] R.S.C.1985, c.V-2, http://canlii.ca/t/52f1w.

(iii) a service motor vehicle of a visiting force shall be deemed to be owned by the Crown; and

(b) in any other province,

(i) a tort committed by a member of a visiting force while acting within the scope of their duties or employment shall be deemed to have been committed by a servant of the Crown while acting within the scope of their duties or employment,

(ii) property owned, occupied, possessed or controlled by a visiting force shall be deemed to be owned, occupied, possessed or controlled by the Crown, and

(iii) a service motor vehicle of a visiting force shall be deemed to be owned by the Crown.

In this context, one would also have to consider the application of Article VIII of the North Atlantic Treaty Status of Forces Agreement ["SOFA"].[57]

2. Environmental Statutes Creating a Right to Recover Costs

Usually, the persons in charge (owner, manager, user…) of a potential source of pollution would take the necessary measures to prevent harm to the environment and the commission of an offence related to the harmful event. At times, however, these persons may not be aware of an imminent potential risk or may postpone taking the necessary measures. In such a case, a number of federal statutes allow a government official to take –or to order someone to take– immediately the necessary measures,[58] and then to recover costs against the responsible persons jointly and severally.[59] This liability "is absolute and does not depend on proof of fault or negligence"[60] and it does not prevent the exercise of other civil remedies.[61]

Provisions such as section 40 of the *CEPA, 1999* allow a person who has suffered loss or damage, as a result of conduct that contravenes any provision of this Act or the regulations, to bring an action to recover from the contravener "(a) an amount equal to the loss or damage proved to have been suffered by the person; and (b) an amount to compensate for the costs

[57] [1953] C.T.S. No. 13.

[58] See for example subsection 38(7.1) of the *Fisheries Act*, subsection 95(5), 119(2), 148(2), 169(5), 179(5), 201(4), 205(1), 212(4), 239(1) of *CEPA, 1999* and subsection 11.25(1) of the *MBCA, 1994*.

[59] See for example subsection 42(1) of the *Fisheries Act*, subsections 98(1)-(3), 119(3), 148(3), 170(1)-(3), 180(1)-(3), (203(1)-(3), 205(1), 214(1)-(3), 240(1)-(3) of *CEPA, 1999* and subsections 11.26(1)-(3) of the *MBCA, 1994*.

[60] See for example subsection 42(4) of the *Fisheries Act*, subsection 205(3) of *CEPA, 1999*.

[61] See for example subsection 42(5) of the *Fisheries Act*.

that the person incurs in connection with the matter and proceedings under this section."

Conclusion

This brief glance at Canada's environmental law shows the great variety of provisions that apply to military operations in Canada. A Visiting Country's legal advisors being asked about Canada's domestic environmental law may find it a useful starting point. They may also consider it important to contact their counterparts in the Host Country to know more and to get a better understanding of the law applicable to the specific context in which they would operate. It is this author's wish that a great cooperation in this regard may continue and develop to include other areas of law.

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Environmental Legal Obligations For The Conduct of Major Combined and Joint Exercises by the Australian Defence Force

by Major Shane Drew[1]

Introduction

The Australian Defence Force (ADF) conducts a number of major exercises throughout the course of its Joint Collective Training cycle. The largest of these is exercise Talisman Sabre (TS) conducted every two years with the United States (US), supported by a few third-party participant nations, usually including New Zealand (NZ), the United Kingdom, Canada and Japan.

Planning is undertaken over a two-year cycle commencing with the Concept Development Conference, and followed by the initial, mid-term and final planning conferences, and then leading into execution, usually in July.

The exercise is conducted across the east coast of Australia, and,

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occasionally, will also include localities in the Northern Territory. It utilises gazetted Defence[2] Training Area (TAs) and increasingly also makes use of Non – Defence Training Areas (NDTAs) which provides the ADF and its partner nations with access to a variety of sites not previously or regularly utilised for Defence training. The NDTAs provide complexities and variety in terrain and facilitate amphibious and special force activities.

Environmental planning for the TS exercise series incorporates not only the exercise-specific activities, but also considers the cumulative aspects of the wider annual exercise campaign. These occur when a variety of other smaller exercise activities occur at similar locations as TS, and with similar impacts. This approach ensures that environmental management adopts a minimalistic approach to its impacts and considers the obligations imposed by the environmental legislative framework under which Defence operates.

The exercise series is subject to legislative compliance requirements throughout its planning, conduct and remediation phases. The challenge for exercise planners is to understand these requirements and ensure that planning processes develop appropriate compliance measures. By doing so, the ADF will ensure that the environmental impacts of its exercise activities are minimised, that legislative requirements are complied with and that its reputation, and that of its key partners, is protected within the community and with its various stakeholders.

The US Alliance

The US alliance is Australia's most important Defence relationship and has its genesis in World War I when Australian and US forces first fought together at the battle of Hamel on 4 July 1918.[3] It is now formalised through the ANZUS Treaty[4] which binds Australia and the US under Article III "to ''consult'' whenever, in the opinion of any of them, the territorial integrity, political independence or security of any of the parties is threatened in the Pacific."

[2] The term 'Defence' refers to the Department of Defence, the uniformed component of which is described as the Australian Defence Force. The Defence structure incorporates the ADF and a Public Service (PS) component, the PS component generally being responsible for setting the Defence policy framework, which includes matters such as the Defence Environment Policy.

[3] Four US companies were sent as attachments to the Australian Corp, in an effort to give the Americans first-hand battle experience. https://www.awm.gov.au/visit/exhibitions/1918/battles/hamel

[4] Security Treaty between Australia, New Zealand and the United States of America [ANZUS] (Australia-United States) (adopted 1 September 1951, entered into force 29 April 1952) (Australian Treaty Series 1952 No 2).

Fig 1. Australian and American troops dug in together at Hamel
Source: https://www.awm.gov.au/collection/E02690
(provided by the author)

The US is, in turn, bound by Article 13 of the Status of Forces Agreement 1963 (SOFA)[5] with Australia (one of five SOFAs that Australia has entered into[6]) which obligates it to comply with relevant Commonwealth and State[7] laws and regulations.

Defence is governed by a variety of Commonwealth statutes and legislative instruments, however, under s123(1)(b) of the *Defence Act 1903,* Defence Force members are exempted from compliance with State legislation for activities conducted in the course of duty that would otherwise require the member to have permission. These legal arrangements are imposed upon visiting forces through the *Defence (Visiting Forces) Act 1963*[8] with further provisions provided through the various SOFAs in place for certain countries.

[5] Agreement between the Government of the Commonwealth of Australia and the Government of the United States of America concerning the Status of United States Forces in Australia, and Protocol (Australia-United States) (adopted 9 May 1963) (Australian Treaty Series 1963 No 10).
[6] Department of Defence, 'DIGAA Links' <http://www.defence.gov.au/legal/digaalinks.asp> accessed 7 August 2018.
[7] the term State with reference to laws includes Territory legislation and laws.
[8] This Act stipulates that visiting foreign forces are subject to the laws of Australia for activities conducted within the Australian jurisdiction, regardless of location (state or territory). Among other things, it removes the double jeopardy risk for persons already convicted under a service tribunal of their home nation for the offence they would otherwise be answerable to in the State or Territory where it was committed. This act reflects some provisions of the SOFA, however, is broader in its application.

The ADF aspires, through the auspices of the Defence Environmental Policy,[9] to comply with the spirit of State legislation during the conduct of its activities where these do not conflict with Commonwealth legislation.[10] However, the ADF reserves the right of non-compliance, to the extent permitted under the Defence Act.[11] US forces exercising in Australia follow the ADF lead and conduct their activities in accordance with the same principles regarding compliance with State laws. The Combined Exercise Instruction issued for each exercise activity reinforces the requirement to conduct exercise activities in accordance with these principles.[12]

In November 2005, the then Chief of the Defence Force, Air Chief Marshal Angus Houston and Commander, United States Pacific Command, Admiral William J Fallon signed the "Joint Statement of Environment and Heritage Principles For Combined Activities"[13] (Joint Statement), which acknowledges the importance of managing and using TAs sustainably.

It demonstrates that Australia and the US are committed to promoting a strong culture of sustainable environmental management in all combined military activities. The eight principles of the Joint Statement encourage a high-quality, risk based and continual improvement approach to the planning and conduct of Australian and US combined activities.

These principles ensure that US activities within Australia mirror those of the ADF and foster continued community and stakeholder support for ongoing participation in combined exercises and access to Australian TAs.

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[9] Department of Defence, 'Environmental Policy' <http://www.defence.gov.au/estatemanagement/governance/policy/environment/Policy/EnvironmentalPolicy2016.PDF> accessed 31 July 2018.

[10] Section 109 of the Australian Constitution establishes primacy of Commonwealth legislation over that of a State or Territory to the extent of any inconsistency.

[11] This is more a case that in practice legal proceedings are not commenced between the Commonwealth and the States for actions inconsistent with State legislation. There is a distinction between '*Defence*' as an entity and '*Defence Force members in the conduct of their duties*' in the Defence Act.

[12] Unilateral activities are subject to the normal environmental assessment and approval processes that apply across Defence such as the preparation and approval of an Environmental Clearance Certificate.

[13] Department of Defence, 'Annual Report 2005-2006' <http://www.defence.gov.au/AnnualReports/05-06/volume_01/appendices/06_ecologically_sustainable.html> accessed 7 August 2018.

Fig 2. Admiral Fallon and Air Chief Marshal Houston signing the Joint Statement, 18 Nov 2005. **(provided by the author)**

The Force Posture Agreement[14] between Australia and the US signed in 2014 furthers the shared intent of Australia and the United States to expand and increase opportunities for joint and combined training of their military forces in locations within Australia. Article XVI details arrangements for the implementation of the agreement "in a manner consistent with the protection of the natural environment." It describes the requirement to exercise a preventative approach to environmental protection, and notes that compliance standards followed by the US will be the more protective of either US or applicable Australian standards.

The Joint Statement and the Force Posture Agreement guarantee that appropriate environmental management frameworks are agreed and implemented for combined exercises such as TS, ensuring that a proactive approach is followed to minimise impacts and maintaining the ongoing

[14] The Force Posture Agreement between the Government of Australia and the Government of the United States of America (Australia-United States) (adopted 12 August 2014, entered into force March 2015) (ATNIF 24).

sustainability and provision of capability by the TAs.

Environmental Legislative Framework

Overarching Legislation

The principal environmental legislation which governs Defence is the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), which requires Defence to consider its impacts[15] on the environment and to seek approval for actions[16] that may result in a significant adverse impact to Matters of National Environmental Significance (MNES) and the environment in general.

The EPBC Act at s528 defines the environment as:

> *(a) ecosystems and their constituent parts, including people and communities; and*
> *(b) natural and physical resources; and*
> *(c) the qualities and characteristics of locations, places and areas; and*
> *(d) heritage values of places; and*
> *(e) the social, economic and cultural aspects of a thing mentioned in paragraph (a), (b), (c) or (d).*

It is of note that the definition encompasses not only the physical aspects, but also the social aspects of the environment in which the ADF operates. This definition provides context for the consideration of the environmental aspects of ADF activities and for suitable mitigation strategies to be developed so as to minimise such impacts.

The Significant Impact Guidelines of the EPBC Act define a significant impact on the environment as;

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[15] s527E(1) of the EPBC Act describes that an event or circumstance is an impact of an action taken by a person if:
(a) the event or circumstance is a direct consequence of the action; or
(b) for an event or circumstance that is an indirect consequence of the action—subject to subsection (2), the action is a substantial cause of that event or circumstance.

[16] Defined under s523 of the EPBC Act to include;
(a) a project; and
(b) a development; and
(c) an undertaking; and
(d) an activity or series of activities; and
(e) an alteration of any of the things mentioned in paragraph (a), (b), (c) or (d).

"An impact which is important, notable, or of consequence, having regard to its context and intensity.

Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts."[17]

Defence has internal environmental policies designed to minimise the impact of its activities on the environment, and to increase environmental training and awareness through a continually improving environmental management system known as the "Defence Environment and Quality Management System."[18]

In accordance with the requirements of Defence's environmental policy and its public commitments to demonstrate leadership in sustainable environmental management, Defence has followed the self-assessment process described in the EPBC Act "Significant impact guidelines 1.1 MNES (2009)" and 1.2 "Actions on, or impacting on, Commonwealth land and actions by Commonwealth agencies (2010)."

The self-assessment process has historically involved the use of external environmental assessment consultants to prepare a Public Environmental Report (PER) for a major exercise such as the TS series, which after acceptance by Defence, is publically exhibited for a one month period to allow public comment on the report via formal submissions. Any such submissions received are considered and where relevant their key tenets are incorporated into the final report.

Following the receipt of the final PER, ADF exercise environmental planners prepare an exercise Environmental Management Plan (EMP), which is assessed in conjunction with the final PER by Defence's internal regulator, the Directorate of Environmental Protection, Assessment and Compliance (DEPAC). The result of this assessment is an Environmental Assessment Report (EAR) which details the environmental management conditions under which the exercise can proceed.

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[17] Department of the Environment and Energy, 'Significant Impact Guidelines 1.1 - Matters of National Environmental Significance' < http://www.environment.gov.au/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance> accessed 3 August 2018.

[18] Department of Defence, 'Defence Estate Quality Management System (DEQMS) <http://www.defence.gov.au/estatemanagement/> accessed 3 August 2018.

The maturity of environmental planning for major exercises (joint and combined) within the ADF is such that the environmental assessment process is now being reduced in complexity, with ADF planners undertaking an in-house exercise environmental impact assessment. This assessment is informed by a comprehensive risk assessment, extant environmental information on ADF activities across the Defence estate, and "gap analysis" studies of NDTAs. The product of the assessment is an Environmental Report (ER) which is communicated to key stakeholders and the public through a detailed communications plan. This process involves both consultation and communication as the planning cycle progresses, and allows the public to inform the development of the ER as opposed to a less interactive approach adopted in the past.

Certain exemptions to the requirements of the EPBC Act are available upon application to the Minister responsible for the Department of the Environment and Energy, which administers the EPBC Act. Section 28 allows an exemption "in the interests of Australia's defence or security" or "for preventing, mitigating or dealing with a national emergency". Similarly, the Minister can declare that all actions, or a specified class of actions, taken by a specified Commonwealth agency are actions to which the EPBC Act does not apply.

It is extremely unlikely that exercise planners would require such ministerial exemptions as exercises are planned with the intent not to have any significant impacts of the kind envisaged by the EPBC Act.

Other Legislative Requirements

Indigenous Issues

Indigenous heritage values are protected by the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*. These values include areas and objects of significance to Aboriginal and Torres Strait Islander tradition and heritage and can be present in all areas where the ADF exercises or operates within Australia. The ADF is bound to consider and observe the requirements of the Act at all times and incorporates measures to avoid impacting the values through the development and implementation of EMPs for each exercise or ADF activity.

Similarly, native title issues are governed through the *Native Title Act 1993*, which provides for the recognition and protection of native title for

indigenous land holders. The ADF endeavours to enter into Indigenous Land Use Agreements (ILUAs) where native title exists over the Defence estate, which includes Defence TAs. These ILUAs directly impact on the manner by which the ADF can conduct its activities and exercises and their requirements are articulated through Range Standing Orders[19] (RSOs) for each TA.

Where the ADF plans on using an NDTA over which native title exists it will enter into a negotiated arrangement with the representative body for the native title holders[20] to facilitate access, determine local sensitivities and make arrangements to manage matters of cultural heritage in the areas where it intends to exercise. The outcomes and requirements of these negotiated arrangements are in turn incorporated into the EMPs for each exercise.

Fig 3. Smoking ceremony conducted by the Juru people – traditional owners of the Upstart Bay region in support of amphibious landings, July 2017. Source: LCDR Ian Brown **(provided by the author)**

[19] RSOs are the orders that govern the conduct of all activities on ADF training areas. They prescribe safety, live firing and environmental management requirements and are an online resource accessed through the Defence Protected computer network (DPN). RSOs have the legal authority of a "General Order" and can be enforced through the Defence legal system. The authority for the issuing of RSOs is the Defence Directorate of Training Area Management and the processes and requirements for compilation of RSOs are described in the Defence Training Area Management Manual, an online DPN Manual.

[20] Legally defined as the Prescribed Body Corporate for the Native Title Holders.

Biosecurity

A significant issue for Australia is biosecurity, and strict quarantine measures are implemented for the importation of all materials into the country through the *Biosecurity Act 2015*, administered by the Commonwealth Department of Agriculture and Water Resources (DAWR). This Act manages diseases and pests that may cause harm to human, animal or plant health or to the environment, and is designed to protect human health and ecological values of terrestrial and marine environments.

There are significant biosecurity implications for the conduct of combined exercises as third-party nations are required to undergo strict compliance monitoring to ensure all equipment and materials brought into the country are free from plant materials, soil, pathogens or animals. US forces comply with the Biosecurity Act by having DAWR inspectors travel to the US prior to commencement of the exercise and train selected staff to perform the DAWR inspection role. Personnel trained in this capacity are Reserve US Marine Corps (USMC) "Environmental Services Division" marines and are imparted with legal authorities to undertake these inspections on DAWR's behalf. This is a refined process and achieves significant efficiencies for both US forces and DAWR.

Other third-party nations do not have this approach and rely on pre-inspections at home locations or on arrival in Australia by dedicated DAWR staff.

Biosecurity requirements are also significant inter-state issues with the translocation of pest animals, pathogens and weeds of significance causing considerable damage to agricultural industries, with enormous eradication costs incurred with some regularity. Inter-state biosecurity measures are mandated through legislation by all Australian States and the ADF practice is to comply in all instances with these State legislative requirements. The mechanism for mandating this compliance during exercise conduct is through the production and implementation of the exercise EMP and its subordinate documentation, and through the requirements of the "Environment, Heritage and Damage Control" Annex to Exercise Instructions.[21]

All Defence TAs require plant and equipment entering them to be

[21]An Exercise Instruction has the effect of a "General Order" and is enforceable through Defence legal processes.

"clean" and to not be carrying any plant material, animals or pathogens, and to have certification to this effect. Accordingly, the ADF, through RSOs, requires that all interstate movement complies with these requirements, and similarly for movement into TAs.

The Biosecurity Act also gives effect to the "Ballast Water Convention,"[22] however, Defence has an exemption from the obligations of this convention under Article 3.2(e).[23] Nevertheless, Defence voluntarily complies and requires third-party nations entering Australian waters[24] for exercise activities to similarly comply through the mechanism of the "Environment, Heritage and Damage Control" Annex to the Combined Exercise Instruction.

Compliance with biosecurity arrangements for entry into Australia, movement between states within Australia and into TAs, poses significant challenges for exercise attendees. It is, however, a necessary requirement to protect Australia's environment and agricultural industries, noting that the costs to industry through damage to crops and eradication efforts are substantial. A significant example of pathogens introduced through vehicle movement is "Panama Disease", resulting from a fungus translocated in soil that causes banana plants to die, and which cannot be eradicated.[25] It is estimated that it will cost industry over $138 million per year, and was first discovered in the Northern Territory (NT) in 1997, and then found in North Queensland (NQLD) in March 2015 at Tully.[26]

Weed management in TAs is an issue that resonates with neighbouring farming communities. There are examples of exotic weed species such as Siam weed, a native of Central and South America, and nine other weed species introduced from overseas, which are now prevalent in Shoalwater Bay TA (SWBTA),[27] and which are not present in surrounding grazing

[22] International Convention for the Control and Management of Ships' Ballast Water and Sediments (adopted 13 February 2004, entered into force 8 September 2017) (BWM).
[23] Article 3.2(e) of the Ballast Water Convention refers to "any warship, naval auxiliary or other ship owned or operated by a State and used, for the time being, only on government non-commercial service".
[24] Australian waters are defined by Geoscience Australia at <http://www.ga.gov.au/scientific-topics/national-location-information/dimensions/oceans-and-seas> accessed 3 August 2018.
[25] Queensland Government, 'Panama Disease' < https://www.daf.qld.gov.au/business-priorities/plants/health-pests-diseases/a-z-significant/panama-disease2> accessed 4 August 2018.
[26] Cook, D.C., Taylor, A.S., Meldrum, R.A. et al. Journal of Plant Disease Protection (2015) 122: 229. https://doi.org/10.1007/BF03356557
[27] Queensland Government, 'Introduced plants of Shoalwater Bay Training Area Overview' <https://wetlandinfo.ehp.qld.gov.au/wetlands/facts-maps/wildlife/?AreaID=diwa-wetland-shoalwater-bay-

properties. These pose considerable concerns to the graziers and require detailed weed management regimes to be implemented by Defence to manage their spread and eradication, and ongoing liaison through the mechanism of the SWBTA Environmental Advisory Committee to synchronise weed management measures between Defence and landholders. The reputational consequences to Defence if these issues are not appropriately managed are such that they could negatively impact on the allowed usage of TAs and access to NDTAs in the future, thus reducing training effectiveness.

Maritime Legislative Requirements

ADF maritime activities are subject to a number of statutes and legislative instruments with jurisdiction over the Australian Exclusive Economic Zone (EEZ)[28] and elsewhere in international waters. These are primarily designed to impose pollution control measures, although the ADF does have exemptions from compliance from a number of them, which are written into the Acts themselves. Despite the availability of such exemptions, the ADF generally seeks to comply with their various requirements where possible, and outlines its compliance obligations in the Maritime Activities Environmental Management Plan (MA EMP) and Navy Safety Systems Manual (ABR 6303),[29] which governs the activities of Australian naval vessels both nationally and internationally.

Great Barrier Reef Marine Park

ADF exercises are conducted primarily along the eastern sea board, and the focal point of the majority of combined and unilateral exercises is its premiere training location: the SWBTA located within the Great Barrier Reef Marine Park (GBRMP). This TA is the size of Singapore Island and has been in Defence ownership since 1965. Consequentially, it has excluded the conduct of commercial and public activities from within its boundaries, and allowed the regeneration of environmental values to the extent that it is now noted as an area of significant natural value and a refuge for numerous terrestrial and maritime flora and fauna species. This in turn brings it to the attention of the GBRMP Authority who administer the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act), as it provides refuge for many maritime species which are facing considerable pressures in other areas of the GBRMP, and significantly

training-area-overview-c&Kingdom=plants&SpeciesFilter=Introduced >accessed 4 August 2018

[28] Defined by section 15B of the *Acts Interpretation Act 1901.*

[29] Annex K to Section 4, Chapter 22 details MARPOL compliance requirements

contributes to the biodiversity of the GBRMP.

The GBRMP Authority has a regulatory role over the ADF through s66 of the GBRMP Act, which requires notification by the ADF for all activities intended to be conducted within the GBRMP,[30] and subsequent conditioning as appropriate by the GBRMP Authority to minimise adverse impacts to the GBRMP.[31]

The overarching aim of the GBRMP Act is to reduce environmental impacts within the GBRMP and to strengthen resilience of the reef.[32] Areas in which there is interaction with the ADF range from transit between ports, conduct of adventure training and conduct of 'Defence activities' both within the GBRMP and on land which adjoins the GBRMP, and for which amphibious access is required.

Given the widely publicised threats to the health and resilience of the reef, discharge of waste in the form of untreated black and grey waters into the GBRMP comprise an aspect of conducting Defence activities requiring particular negotiation with the GBRMP Authority. To enable exercise conduct, specific measures are agreed with the GBRMP Authority to localise these discharges and minimise subsequent impacts on the reef. These measures are exercise and activity specific and are given authority through the exercise instructions, and can be extended to third-party nations as required.

[30] Sect. 3 of the GBRMP Act gives effect to the act over all platforms in addition to all persons, vessels and aircraft, whether or not they are Australian, while the Authority is given effect through Part II of the Act.

[31] Sect. 7 of the Act identifies the functions of the Authority and requires it to prepare a zoning plan for the GBRMP. Section 5.2 of the Zone Plan 2003 identifies obligations for notification to the Authority prior to Defence entry to the GBRMP. It also provides that the Authority may issue directions in relation to the conduct of Defence activities in the GBRMP which Defence is obligated to comply with.

[32] Great Barrier Reef Marine Park Authority, 'Great Barrier Reef blueprint for resilience' < http://elibrary.gbrmpa.gov.au/jspui/handle/11017/3287> accessed 3 August 2018

Fig 4. US 31 MEU amphibious landing at Freshwater Beach, SWBTA during EX TS 17, 13 July 2017. Source: MAJ Kurt Zwoboda
(provided by the author)

Maritime Pollution

In maritime jurisdictions within Australian waters (other than the GBRMP where there is a higher level of regulation), naval vessels comply with a number of Australian Commonwealth Acts which have specific environmental impact minimisation focus. The *Environment Protection (Sea Dumping) Act 1981* (Sea Dumping Act) regulates the dumping at sea of various waste streams and applies to Australian naval vessels, unless "in a situation of armed conflict or in an emergency."[33] It does not have authority over foreign vessels, although its requirements are imposed by SOFAs or exercise instructions on third-party nations participating in combined exercises. Regardless of the Australian domestic legislation that may be applied to visiting forces while conducting activities in the Australian EEZ, many nations are signatories to the London Convention or Protocol[34] and consequently would have existing obligations to meet the same standards established under Australian law.

[33] The *Environment Protection (Sea Dumping) Act* 1981 does not define an emergency, however, s19(7) describes the consequences of an emergency as an event that "poses an unacceptable risk to human health, safety, or the marine environment".

[34] The London Convention, otherwise known as 'The convention on the prevention of marine pollution by dumping of wastes and other matter 1972' and the more recent London Protocol (1996) of which Australia is a signatory <http://www.imo.org/en/OurWork/Environment/LCLP/Pages/default.aspx> is given effect in Australia through the *Environment Protection (Sea Dumping) Act 1981.*

Australia is a signatory to the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL), which is given effect domestically through the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (POTS Act) and the *Navigation Act* 2012. Whilst MARPOL affords exemptions to naval vessels, as does the *Navigation Act* 2012,[35] the POTS Act does not, thus obligating ADF naval vessels (and third-party nation naval vessels under their respective SOFAs, exercise instructions and the Defence [Visiting Forces] Act) to comply with pollution prevention requirements at all times.

These requirements are implemented through the MA EMP which incorporates detailed "Procedure Cards" for all of the contingencies envisaged by MARPOL. These Procedure Cards have reporting requirements for incidents and non-compliances through the "Safety and Environmental Reporting System" which provides a database of such occurrences, and the basis for investigative processes which are designed to be both punitive and preventative. The data sets allow for a process of continuous improvement in the operation of the MA EMP, which is maintained by the Maritime Safety Bureau and subject to regular review.

Pollution Response

Whilst the ADF is obligated to comply with the various legislative requirements detailed in the preceding paragraphs, and generally has a very good record for doing so, the potential for unintended occurrences during exercises exists and these will invariably result in a pollution incident. The exercise control body incorporates an environmental governance function which plans the management of the exercise with the intent of compliance with legislative obligations, minimising environmental impacts and providing an environmental response function.[36] Environmental damage response is generally an inherent engineering function for terrestrial activities. However, in the maritime domain, ADF response capabilities are limited and reliance is then placed upon the National Plan for Maritime Environmental

[35] MARPOL Article 3, Applications, provides that the convention does not apply to any warship, naval auxiliary or other ship owned or operated by a State and used, for the time being, only on government non-commercial service. Chapter 1, Part 3 S10 of the Navigation Act exempts a warship or other vessel that: (i) is operated for naval or military purposes by Australia or a foreign country.

[36] This is the exercise Environmental Working Group which consists of environmental specialists, generally Reservists with civilian qualifications, who are trained to carry out the management and response functions as part of the exercise governance group.

Emergencies[37] administered by the Australian Maritime Safety Authority (AMSA).

AMSA is a Commonwealth statutory authority created under the *Australian Maritime Safety Authority Act 1990,* which coordinates national responses to maritime pollution incidents which are outside the various national Harbour Masters' areas of responsibility[38] or beyond their capabilities. The ADF complies with response requirements and directions to the extent that national security is not compromised by the envisaged actions. It does not provide support to response processes due to a lack of capability in this area, and is not part of the national response plan.

The Air Domain

Contemporary combined and joint exercises are increasing in numerical size and spatial extent as the ADF becomes more sophisticated and rehearsed in its warfighting capabilities. This brings with it a greater impact on the environment as ADF platforms are modernised, this being demonstrated most visibly in the aircraft types operated by the Royal Australian Airforce (RAAF). Current models, including C17s and F35s, have significantly greater size and noise signatures than previous types employed by the RAAF, and are increasingly utilised during domestic exercise activities.

Similarly, the US Air Force and US Marine Corps bring platforms to combined and unilateral exercises such as the MV22 Osprey and the CH53 Sea Stallion which have their own unique impacts. These are well in excess of those impacts generated by aircraft operated by the RAAF, and require defined management protocols to minimise environmentally relevant impacts.

Environmental legislation regulating these air activities is restricted to the EPBC Act, which governs actions in the air domain noting the transient, though potentially deleterious, nature of impacts. The RAAF and the air forces of third-party nations (as required by the various SOFAs and the Defence [Visiting Forces] Act) comply with the requirements of the Act, which are implemented through the Air Activities Environmental Management Plan (AA

[37] Australian Maritime Safety Authority, 'National Plan for Maritime Environmental Emergencies' <https://www.amsa.gov.au/marine-environment/national-plan-maritime-environmental-emergencies> accessed 3 August 2018.

[38] Harbour masters have responsibilities for "first strike responses" to pollution incidents within their respective ports, and within the area of coastal waters to which they are assigned.

EMP) and given authority through exercise instructions.

The conduct of air activities and their management by exercise planners are mature processes which have resulted in minimal environmental incidents and general compliance with the requirements of the Act. Unintended incidents, such as the jettisoning of inert ordnance items into the GBRMP in the lead up to EX TS 2013 have led to improved measures to reduce the likelihood of such occurrences, and to manage the reputational consequences through more refined whole of government response measures.

Compliance requirements were again tested during unilateral US training in the GBRMP following the conduct of EX TS 2017 when a US MV22 Osprey crashed into the sea whilst landing, with associated loss of life. The improved measures ensured that the incident was appropriately managed through effective liaison with the GBRMP Authority for the salvage, and through the whole of government response and media liaison.

The AA EMP has delivered standing procedures which support exercise conduct and minimise impacts. As with the MA EMP, it is subject to regular review and continuous improvement to ensure appropriate responses and management of contemporary issues posed by the new and diverse platforms are implemented. This reinforces the evolution of environmental management processes for exercise activities, and compliance with relevant environmental laws in the domains in which Defence operates, and adds significant credibility to Defence's relationship with the community and key stakeholders.

Conclusion

The conduct of combined and unilateral training exercises on Defence TAs and NDTAs by the ADF and its partner, the US, is a significant force multiplier and provides enhanced capabilities to both militaries. The treaty agreements, SOFA and Joint Statements between Australia and the US ensure that there is sustainable environmental management of Australia's TAs and that they continue to provide capability to the ADF and facilitate the achievement of combined and joint training outcomes across all five domains.

The extensive environmental legislative framework[39] under which the ADF operates provides compliance challenges. However, it is incumbent upon Defence to ensure that it complies in fact and spirit with the various Commonwealth and State obligations to ensure that it retains community and stakeholder support[40] for the conduct of its training and exercise activities.[41] Should it lose this support, recent experience has shown that it can have a deleterious effect on training and exercise outcomes through loss of access to NDTAs and increased scrutiny of its activities.

Defence understands the importance of fostering these positive relationships and ensuring legislative compliance. It invests considerable effort in planning for compliance, engaging the community and stakeholders and risk managing its impacts to minimise their effects. The management of this proactive approach by environmental specialists provides certainty to the ADF that it will be able to meet its various obligations and maintain the freedom of activity it has generally enjoyed during the conduct of major exercises such as TS 2019, and to continue to gain the benefits that this brings to both Australia and the US.

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*The views expressed in this article are solely those of the author and may not represent the views of the ADF, NATO, ACO or ACT.

*The contributions of Mr Peter Cowper and Ms Pam Foo in reviewing this article are acknowledged.

[39] Articulated under the Defence Environmental Legislation "Legal Obligations & Compliance Registers" and discussed by Oglanis, A.A.; Loizidou, M.D., (2017). Study of environmental management systems on defence. Global J. Environ. Sci. Manage., 3 (1): 103-120. DOI: 10.22034/gjesm.2017.03.01.010

[40] Detailed in the Defence Environmental Strategy 2016 – 2013.

[41] Wu, W., Wang, X., Paull, D. & Kesby, J. (2010), Chinese Journal of Oceanology and Limnology Vol. 28 No. 3, P. 667-676, 2010 DOI: 10.1007/s00343-010-9113-3

Photo credit : UN Photo/Tim McKulka.
Source: https://charterforcompassion.org/women-gender-equality-and-climate-change

NATO Environmental Protection Doctrine and Gender

by Jody M. Prescott[1]

Introduction

The global community increasingly understands the potential impacts climate change is likely to have on the international economic and security environments, such as decreased agricultural productivity, more frequent and more intense weather events, and perhaps even armed conflict premised, at least in part, on resource scarcity. Also understood is that areas of certain countries, because of their lesser degree of economic development and their geographic locations, risk experiencing these impacts more severely and sooner than other nations, and might be less able to mitigate the impacts or adapt to them. It is further understood that within these countries, certain population cohorts are more at risk then others – particularly women and girls.

The gender-differentiated impacts of armed conflict upon women and girls are well recognized by the international community, as demonstrated by UN Security Council Resolution (UNSCR) 1325 on Women, Peace and Security

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and subsequent resolutions. This recognition is reflected in Bi-Strategic Command Directive 040-001 (Bi-SCD 040-001), which seeks to incorporate gender perspectives in NATO military activities and operations to achieve better protection for women and girls in situations of armed conflict.[2] Similar impacts are increasingly understood to occur as a result of climate change as well.[3] Research and analysis are still at a relatively early stage in terms of determining causal relationships between climate change and war, but scholarly work indicates at least the potential for each to exacerbate the other.[4] What are not well understood yet are the potential relationships between armed conflict, gender and climate change. This article explores the intersection of these three areas, focusing on NATO gender mainstreaming efforts and NATO environmental protection doctrine.

War Amongst the People, In Their Evolving Environments

General Sir Rupert Smith has described the modern operational environment as one that is increasingly civilian-centric, in which contending military and paramilitary forces wrestle more for influence over populations rather than seeking relative advantage over each other in force-on-force engagements oriented on key geographical terrain.[5] Several modern-day differences have increased the likelihood of armed conflict occurring in heavily populated areas. Among these factors are mass urbanisation, the flowering of the megacity, and the ever-increasing size of the global human population.[6] Further, populations are increasingly connected and dependent upon the Internet, and the accessibility and leverage it offers to both governments and dissident movements mean that those populations will increasingly experience conflict in an informatized way.[7] Particularly in the developing world, military operations will be impacted by these new conditions, which will complicate efforts to promote more stable political, economic and social end-states in civilian-centric operations.

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[2] Bi-SCD 040-001, *Integrating UNSCR 1325 and Gender Perspective into the NATO Command Structure* (Oct. 17, 2017).
[3] Jody M. Prescott, *Climate Change, Gender, and Rethinking Military Operations*, 15 VERMONT JOURNAL OF ENVIRONMENTAL LAW 767, 774-77 (2014).
[4] Damian Carrington, *Disasters linked to climate change can increase risk of armed conflict*, THE GUARDIAN (Jul. 25, 2016) <https://www.theguardian.com/environment/2016/jul/25/disasters-linked-to-climate-can-increase-risk-of-armed-conflict>
[5] *See* Toni Pfanner, *Interview with General Sir Rupert Smith*, 88 INTL. RED CROSS 719, 719-20, 722-26 (2006).
[6] Prescott, *supra* note 3, at 767-68.
[7] *Id.*

Another factor likely impacting the future operational environment will be the general warming of the planet caused in part by human-generated carbon dioxide from fossil fuel combustion. The possibility of more frequent and more extreme weather events, such as long-lasting droughts and large floods, and greater weather variability in general, will likely have negative impacts on areas of the world dependent upon agriculture.[8] People living in areas of developing countries that have fewer resources and capital (human and economic) to adapt to changing conditions and mitigate them if possible might experience the effects of these changes most negatively. About half of the civilians affected by these conditions will be women and girls, and any failure to consider whether and how they are affected by these conditions likely represents an unnecessary risk to the success of military missions in civilian-centric operational environments.

Armed Conflict and Gender

In general, armed conflict today tends to happen more often in areas which are less economically developed.[9] Women in these areas are likely to have a relatively inferior social and economic status as compared to men, and this gender discrimination and its effects make women more at risk to the impacts of armed conflict.[10] These negative effects occur irrespective of whether women are in the roles of civilians, refugees or even combatants. Civilian women often find themselves suffering increased physical insecurity in armed conflict situations. They are more likely to suffer sexual assault, rape, enslavement and even torture as a result of armed conflict;[11] a form of violence over which they have little control. Regarding sexual violence in general, women are also at risk to experience "forced prostitution, [ ] forced impregnation, forced maternity, forced termination of pregnancy, forced sterilisation, [ ] strip searches, and inappropriate medical examinations."[12] The effects of increased physical insecurity ripple through villages and societies, as the threat of violence makes it more difficult for women to leave their homes, tend crops and livestock, and bring agricultural products to market –

[8] Gerald C. Nelson et al, *Climate Change: Impact on Agriculture and Costs of Adaptation*, INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE vii, 4-6 (2009) <http://www.ifpri.org/publication/climate-change-impact-agriculture-and-costs-adaptation>

[9] *See* Namsuk Kim & Pedro Conceição, *The Economic Crisis, Violent Conflict, and Human Development*, 15 INTERNATIONAL JOURNAL OF PEACE STUDIES 29, 31-38 (2010) (for example, between 1990 and 2005 it is estimated that over 3,000,000 people died in armed conflicts occurring in developing countries).

[10] JUDITH G. GARDAM & MICHELLE J. JARVIS, WOMEN, ARMED CONFLICT AND INTERNATIONAL LAW, 8-9 (2001).

[11] ANN JONES, WAR IS NOT OVER WHEN IT'S OVER, 19-20, 58, 84, 101, 134-35, 143, 150-51, 161-62, 172 (2010).

[12] Johanna Valenius, *Gender Mainstreaming in ESDP Missions* (Chaillot Paper No. 101) 20 (May 2007).

thereby diminishing their ability to feed their families and earn currency.[13]

Unfortunately, women civilians experience armed conflict's negative effects even if they are not caught up directly in the fighting. Given their generally inferior status in these areas, they are often dependent upon the men of their families to provide a livelihood and protection, and the absence of men often means that women must also assume the roles of provider and protector in addition to the time-consuming domestic duties they already perform.[14] In addition, because women in these conflict zones are not likely to be able to equitably access economic resources even during times of relative peace, their resilience to withstand the hardships caused by armed conflict or to rebuild quickly once the fighting is done may likely be severely impaired.[15]

Gender and Climate Change

Similar to armed conflict, climate change too has gender-differentiated impacts upon women in general, particularly those in less-developed countries.[16] This is likewise in large part the result of women's disadvantaged status in certain cultures and areas of different countries, particularly in those characterised by lesser economic development. For rural women in developing countries, their risk appears to be grounded largely in three inter-related factors: unequal access to resources, unequal opportunities to change or enhance their livelihoods, and unequal participation in decision-making processes regarding resource use and allocation.[17] In terms of unequal access to resources, rural women often find themselves performing such time-consuming, and generally non-remunerative, tasks as animal husbandry and subsistence agriculture,[18] and drawing water to both support these important activities as well as for their families' use in their households.[19]

Because they often experience social and economic inequality vis-à-vis

[13] Sahana Dharmapuri, *Just Add Women and Stir?,* 41 PARAMETERS 56, 64 (Spring 2011).
[14] Judith Gardam & Hilary Charlesworth, *The Need for New Directions in the Protection of Women in Armed Conflict*, 22 HUMAN RIGHTS QUARTERLY 148, 153 (2000); Valenius, *supra* note 11, at 23.
[15] Gardam & Charlesworth, *supra* note 13, at 151, 153.
[16] Gotelind Alber, *Gender, Cities and Climate Change*, 33 (Thematic report prepared for Cities and Climate Change, Global Report on Human Settlements 2011) <http://www.unhabitat.org/downloads/docs/GRHS2011/GRHS2011ThematicStudyGender>
[17] Dorte Verner (ed.), *Adaptation to a Changing Climate in the Arab Countries*, THE WORLD BANK, 279 (2012).
[18] *Id.* at 281.
[19] *Id*. at 282.

men, however, rural women in developing countries may have restricted access to these resources even though they in fact might be the primary users of the land and water resources utilised to support these activities.[20] This situation is also reflected in the consumption of energy resources in developing countries. Women are often responsible for the gathering of biomass energy sources such as firewood, but do not necessarily enjoy the degree of access to these resources they would have were they men.[21] One study has calculated the amount of time spent by women and children (primarily girls) in Africa drawing water to be as much as 40 billion hours a year.[22]

Gathering biomass energy resources is similarly time-consuming, and unbalanced rates of consumption and regeneration mean that women must often range ever farther to secure necessary supplies of firewood to be burned directly or converted to charcoal.[23] Since women are often responsible for gathering firewood and water, two resources which climate change might render in scarcer supply, the longer distances women will travel on these chores would expose them to greater violence in war zones.[24] Because of the time spent in gathering and using water and energy resources, as well as other household chores, women and girls generally have less time available to become educated, or to undertake economic activity that could generate cash earnings.[25] As the men in their families migrate to other areas in search of work, women also find themselves taking on additional chores, further reducing the time available for educational or income-producing activity.

Climate Change and Armed Conflict

The relationships between climate change and armed conflict have only become frequent subjects of research and analysis in the last decade or

[20] Anne Marie Goetz et al, *Who Answers to Women? Gender & Accountability*, UNIFEM, 37 (2009), http://www.unifem.org/progress/2008/media/POWW08_Report_Full_Text.pdf.
[21] *Id.* In Bangladesh, for example, gendered norms regarding asset control lead to "an assumption that women in agriculture are concerned with subsistence only," which reinforces institutional and policy biases that "worsen[ ] women's disadvantages in accessing markets, credit, technology and services, and perpetuates the lack of recognition surrounding women's role in farming." Emily Hillenbrand, *Transforming gender in homestead food production*, 18 GENDER & DEVELOPMENT 411, 413 (Nov. 2010).
[22] Goetz, *supra* note 19, at 37.
[23] *See* Judith Gardam, *A role for international law in achieving a gender aware energy policy*, in P. Babie & P. Leadbetter (eds.), LAW AS CHANGE: ENGAGING WITH THE LIFE AND SCHOLARSHIP OF ADRIAN BRADBROOK (2014).
[24] Prescott, *supra* note 3, at 775.
[25] Goetz, *supra* note 19, at 37.

so. Some researchers have found that certain examples of conflict appear to show positive correlations, such as the devastating civil war in Syria at least being exacerbated by a multi-year drought marked by consistent and wide-spread reductions in precipitation levels.[26] Other researchers analysing the available data for Syria and the methodology used by those who found positive correlations reject these findings.[27] The case for reverse correlation, that is, armed conflict causing or exacerbating climate change, cannot be ignored, and there are positive correlations between armed conflict situations and increases in widespread environmental degradation that could affect prevailing climate or amplify climate changes effects, such as increased illegal deforestation in Afghanistan for example.[28]

In its 5th Assessment Report, the Intergovernmental Panel on Climate Change (IPCC) analysed the research and literature dealing with the relationship between armed conflict and climate change in the modern era. For purposes of its assessment, the IPCC defined an armed conflict as one which results in "more than 25 battle-related deaths in a year."[29] The IPCC noted that most of the research examining this relationship focused "on the connections between climate variability and intrastate conflicts," and that although some studies found a weak relationship between the two, others found no such relationship. The IPCC assessed that "collectively the research does not conclude that there is a strong positive relationship between warming and armed conflict."[30]

The IPCC did assess that there was high agreement among researchers as to the factors that increase the likelihood of civil war in countries, such as low per capita income and inconsistent political institutions, and that a number of these factors were sensitive to climate change.[31] Similarly, the IPCC also noted that in situations where "property rights and conflict management institutions are ineffective or illegitimate," mitigation and

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[26] Henry Fountain, *Researchers Link Syrian Conflict to a Drought Made Worse by Climate Change*, NEW YORK TIMES (Mar. 2, 2015) <https://www.nytimes.com/2015/03/03/science/earth/study-links-syria-conflict-to-drought-caused-by-climate-change.html?_r=0>; *see also* Idean Salehyan, *Climate change and conflict: Making sense of disparate findings*, 43 POLITICAL GEOGRAPHY 1, 2 (2014).

[27] Jan Selby et al, *Climate change and the Syrian civil war revisited*, 60 POLITICAL GEOGRAPHY 232-44 (2017).

[28] *See* Rohullah Anwari & Abubakar Siddique, *Afghan Lawmakers Investiagate Illegal Logging*, GANDHARA (Jan. 9, 2017) <http://gandhara.rferl.org/a/pakistan-kunar-illegal-logging/28222069.html>; Yaroslav Trofimov, *Taliban Capitalize on Afghan Logging Ban*, WALL STREET JOURNAL (Apr. 10, 2010) <http://www.wsj.com/articles/SB10001424052702303960604575157683859247368>

[29] *5th Assessment Report*, IPCC, Chapter 12, 771 (2014).

[30] *Id*.

[31] *Id*. at 771-72.

adaptation measures that modified people's "access to resources have the potential to create and aggravate conflict."[32] In contrast, the IPCC noted that research was in high agreement that in circumstances where these risk factors were "extremely low," climate change impacts on armed conflict were negligible.[33] In conclusion, the IPCC noted that it was not possible to make reliable statements about the relationship between climate change and armed conflict "given the absence of generally supported theories and evidence about causality."[34] What this conclusion does not address is whether in the absence of any clear positive correlation between the two there is still the possibility that civilian population cohorts particularly at risk in parts of certain countries, such as women and girls, are impacted much more negatively by the impacts of both occurring simultaneously regardless of causation. Such a risk to mission success would likely be more significant in civilian-centric operations because of its potential impact on achieving sufficient social and economic stability in host nations, and it therefore lends itself to being considered in the context of NATO's gender mainstreaming efforts.

NATO Gender Mainstreaming

The latest version of Bi-SCD 040-001 was issued on October 17, 2017.[35] The aim of the directive is to ensure the effective implementation of UNSCR 1325 and related resolutions, the NATO/EAPC Policy and Action Plan on Women, Peace and Security, and the Military Guidelines on the Prevention of, and Response to, Conflict-Related Sexual and Gender-Based Violence throughout the Alliance's core tasks of collective defence, cooperative security, and crisis management at all levels of operations.[36] The directive's requirements are premised on the recognition that although "men, women, boys and girls are components of a gendered system" influenced by armed conflict, "women and girls are disproportionately affected and thus, have a unique perspective to share and solutions to offer."[37] Importantly, the directive notes that the failure to address gender issues negatively impacts "conflict prevention, conflict-resolution, post-conflict reconstruction and

[32] *Id*. at 773.
[33] *Id*. at 771.
[34] *Id*.
[35] Bi-SCD 040-001, *supra* note 1.
[36] *Id*. at 3.
[37] *Id*.

peace-building."[38]

The primary engine for achieving the mainstreaming of gender perspectives into NATO activities and operations, including the writing of responsive doctrine, is the Gender Advisor (GENAD) at the headquarters level, and Gender Focal Points who are tasked with gender mainstreaming in subordinate units as an additional duty.[39] The GENAD's tasks are clearer and more flexible in this latest version of the directive than they were in previous iterations. They include the provision of technical guidance and advice to the commander, the command group and staffs, and to affiliated headquarters as necessary. The GENAD is required to maintain a working relationship with gender advisors in higher and subordinate headquarters, and to do the same with higher-level cross-functional groups in a headquarters, such as those involved in strategic planning or joint operations. The GENAD is also responsible for creating a gender analysis of the operational theatre to support planning efforts, and to collect data on crisis areas and conflicts. Finally, the GENAD is responsible for providing support for the education and training of headquarters personnel, including those who are designated as Gender Focal Points.[40]

This is a very broad range of responsibility, and it requires the GENAD to generate a transformative effect within the military mission as well as providing subject matter advice. Given the significance of the physical environment to women and girls in lesser developed parts of the world in terms of their livelihoods and safety, one might reasonably expect that NATO environmental protection doctrine reflects Bi-SCD 040-001's concern with women and girls in conflict-affected areas. Unfortunately, it does not.

NATO Environmental Protection Doctrine

Even though some of it is quite recent, the NATO environmental protection doctrine that forms the basis for the environmental protection standardization agreements by which the NATO partners agree to implement this doctrine in their activities includes no discussion of the significance of environmental activities in theatres of operation with regard to women or to gender. There are two separate tracks of environmental doctrine regarding environmental protection: the Allied Joint Environmental Protection

[38] *Id*.
[39] *Id*. at 19-20.
[40] *Id*. at 19.

Publication (AJEPP) series for land-based operations, and the Allied Maritime Environmental Protection Publication (AMEPP) series for sea-based operations. This article will only examine certain of the doctrine set out in the AJEPP series. Rather than describe these documents in detail, however, this article will instead identify those portions of the documents that would lend themselves to the inclusion of a gender perspective when they are next reviewed by the appropriate subject matter experts for updating.

Within the AJEPP series, for purposes of this article it will be sufficient to focus on AJEPP-3, *Environmental Management System In NATO Military Activities,*[41] and AJEPP-4, *Joint NATO Environmental Protection Doctrine during NATO-led Military Activities*.[42] The most useful place to begin this examination is with AJEPP-4, which provides the overarching NATO doctrine and implementation guidance in this area. AJEPP-4 states that '[w]hile meeting their military mission, NATO Forces should be committed to taking all reasonably achievable measures to protect the environment," and that this requires knowing the relationships between the military activities and the environment.[43] Such knowledge requires environmental planning, and the use of an Environmental Management System, as set out in AJEPP-3.[44]

a. AJEPP-4, Joint NATO Doctrine For Environmental Protection During NATO-led Military Activities

Consistent with the purpose of the document, AJEPP-4 addresses environmental planning, environmental risk management, a commander's responsibilities regarding the environment, and the objectives of environmental education and opportunities for education for personnel who are tasked with environmental duties. Chapter 2, Environmental Planning, provides a checklist to commanders to help them identify "the characteristics of the environment that may be impacted by or have an impact on NATO-led military activities," including the climate, water and air quality, and "the presence of birds or bird migration routes."[45] It is curious that the commander should be prompted to enquire about bird migration routes, but not whether environmental conditions are having a differentiated impact on at-risk

[41] AJEPP-3, *Environmental Management System In NATO Military Activities*, Ed. A, Ver. 1 (May 2017).
[42] AJEPP-4, *Joint NATO Doctrine For Environmental Protection During NATO-led Military Activities*, Ed. B, Ver. 1, 1-1 (Mar. 2018).
[43] *Id*.
[44] *Id.*
[45] *Id*. at 2-2.

population cohorts such as women and girls. Similarly, in a listing of the impacts that different types of pollution might have in the area of operations, the special protections accorded to wetlands and biodiversity in general by the international community are noted, but there are no impacts based on gender that are identified.[46]

Chapter 3, Environmental Risk Management, identifies four key elements of a risk management framework that commanders should use to comply with their obligations regarding environmental protection. First, commanders should issue clear guidance on environmental protection as early as possible in the mission planning process.[47] Second, an environmental plan should be developed , including "a list of identified risks and prescribed mitigation measures."[48] Clear guidance could easily include gender considerations, and this would then necessarily include identifying potential threats to at-risk groups such as women and girls and steps that could be taken to mitigate these risks.

The third key element is implementation, and AJEPP-4 notes that in addition to personnel being trained on environmental issues, units are expected to "work with local authorities and the community to identify and resolve problems."[49] Finally, risk management requires that "[a]ctivities should be continuously monitored to ensure consistency with the commander's [Environmental Protection] objectives."[50] These elements presume that there will be periodic data collection and inspections, and that working with local communities is an aspect of this assessment process.[51] If the commander's guidance were clear that this process should also include sex and gender disaggregated data collection and analysis from a gender perspective, then the likelihood of discovering any differentiated and more severe pollution impact upon women and girls would be greatly increased.

AJEPP-4, Chapter 3 sets out in some detail a commander's responsibilities with regard to environmental protection. These duties include considering environmental impacts in decision-making, and enhancing "relationships with host nations and neighbouring communities by addressing

[46] *Id*. at 2-2 – 2-4.
[47] *Id*. at 3-1.
[48] *Id*.
[49] *Id*.
[50] *Id*.
[51] *Id*. at 3-1 – 3-2.

environmental issues and maintaining appropriate levels of coordination."[52] Environmental impacts should not be narrowly construed as just being those upon the physical environment, but on the human environment as well. Enhancing relationships with local communities regarding environmental protection cannot likely be fully achieved if the conversations are channelled towards talking about things such as bird migration routes rather than gender-related issues, although it could make for interesting conversation over tea.

Finally, Chapter 4 of AJEPP-4 addresses the need for personnel to be appropriately trained and educated on environmental protection. Commanders are advised that although the "nature and applicability of training will reflect the recipient's rank and specialization," education of personnel should be geared towards raising awareness of environmental policy, environmental protection, and resource conservation.[53] Each of these areas would be suitable in some fashion to include awareness of gender issues in environmental matters, but none of them list this item as a specific educational goal. Instead, for example, under environmental protection, the focus areas of noise abatement and landscape quality protection are listed, and under resource conservation, heritage protection and energy efficiency are listed.[54] Surely gender considerations are at least as important as litter control.

b. AJEPP-3, Environmental Management System In NATO Military Activities

Like AJEPP-4, AJEPP-3 is of recent vintage, and like AJEPP-4 it contains no mention of UNSCR 1325, Bi-SCD 040-001, women or gender.[55] This document sets out for the environmental protection officer supporting the commander the Environmental Management System that AJEPP-4 prescribes be used to meet the commander's environmental obligations. It is a thorough and useful piece of doctrine, and it leads the commander through the development of the Environmental Management System Plan, its execution, how to conduct an assessment of the system, and how a commander should approach a review of the system.[56] It also contains two practical appendices, the first being a table that identifies possibly polluting activities, their vectors

[52] *Id*. at 4-1.
[53] Id. at 5-2 – 5-3.
[54] *Id*. at 5-2.
[55] AJEPP-3, *supra* note 40 (May 2017).
[56] *Id*. at 2-1 – 5-1.

for pollution of the environment, and what those pollution impacts might register as in the environment.[57] The second appendix is a template for drafting an Environmental Management System plan for military activities.[58]

AJEPP-3 notes that the tasks assigned to the environmental protection officer will vary depending upon which phase of the Operations Planning Process this mission is currently in.[59] For example, during Phase 1, Initial Situational Awareness of Potential or Actual Crisis, the environmental protection officer is expected to "develop environmental intelligence products in conjunction with other subject matter experts."[60] In Phase 4, Operational Plan Development, the environmental protection officer is expected to liaise with host nation personnel and conduct environmental impact assessments.[61] At the conclusion of this phase, the environmental protection officer is required to produce the environmental protection appendix to the Military Engineering Annex of the operations plan.[62] Importantly, unless the environmental protection officer is aware of the need to enquire as to gender considerations regarding the impacts of activities on the physical environment, it is difficult to see how link-up with the GENAD occurs as part of subject matter expert consultation. It is then also unlikely that the environmental impact assessments will be as fully developed as they need to be regarding the impacts upon the human environment.

Importantly, this means that the risk assessment that is set out as an integral part of the planning process[63] could quite easily miss the differentiated and possibly more severe impacts that pollution from military activities would have on at-risk segments of the local communities, such as women and girls. Further, execution of the Environmental Management Plan includes the use of an Environmental Management Board at the tactical level to manage the plan's implementation for the commander.[64] This board is composed of regular members such as the organization's senior environmental protection officer and representatives from J3 (operations), J4 (logistics), the military engineering staff, and the medical staff.[65] Special

[57] *Id*. at Appendix A, A-2.
[58] *Id*. at Appendix B.
[59] *Id*. at 1-3.
[60] *Id*.
[61] *Id*.
[62] *Id*.
[63] *Id*. at 2-2 – 2-4.
[64] *Id*. at 3-1.
[65] *Id*.

members as required include public affairs and LEGAD, but there is no mention of the GENAD.[66] As with AJEPP-4, small but important changes could be easily made in AJEPP-3 to help ensure that the intent of Bi-SCD 040-001 to achieve greater protection for women and girls in NATO military activities and operations is realized.

Conclusion

Particularly in disadvantaged parts of developing countries, underlying gender-differentiated risks could be amplified by armed conflict, and then re-amplified by climate change, all in a non-linear fashion. This would make it more difficult to predict or to address these effects in military campaign plans, especially in civilian-centric missions such as stability or civil-military operations, even if there were some level of sensitivity to gender issues in the military organizations conducting these activities. Unfortunately, as demonstrated by the lack of recognition of the operational significance of gender in NATO environmental protection doctrine, the militaries of even many developed countries today are either still not cognisant of the gender-differentiated impacts of armed conflict and climate change, or they approach these impacts incompletely.

NATO military organizations are often engaged in missions in which they are sharing operational space with host national governmental, international, and non-governmental organizations, all ostensibly working towards similar goals. Even if the civilian agencies are working in ways that account for the gender-differentiated impacts of armed conflict and climate change, synchronised or even complementary actions between them and military organizations are not likely to prove productive in this regard if the military does not recognize the full operational relevance of gender. The area of environmental protection would appear to be ripe for such action, because from a doctrine-writing perspective it would easily lend itself to inclusion of gender considerations in military engineering operations.

The NATO-accredited Military Engineering Centre of Excellence located in Ingolstadt, Germany, is likely the proper institution to begin consideration of how gender perspectives could be best included in NATO environmental protection doctrine and practice. Through its Policies, Concept and Doctrine Development Branch, it supports the development of

[66] *Id*.

NATO engineering doctrine and practice, and its serves as the proponent of military engineering-related NATO doctrine and policy. Importantly, as part of its instructional work, it also teaches a week-long course on NATO Military Environmental Protection Practices and Procedures.[67] The combination of these important capacities should be leveraged to make NATO more responsive to an evolving international security environment increasingly influenced by climate change, and marked by the occurrence of missions that are civilian-centric in nature. By working to have gender considerations included in Alliance engineering doctrine, the Military Engineering Centre of Excellence could begin the process to enable commanders, planners and operators to begin thinking about the operational risk posed by the failure to consider gender in this important area of operations.

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[67] Military Engineering Centre of Excellence, "MILENG COE Flyer 2018," http://milengcoe.org/SiteAssets/Pages/homepage/Flyer%20COE%20allgemein%202018_Intranet%20usw.pdf

Nature Protection as a Hybrid Threat

Europe is now a petri dish for hybrid war.[1]

by Mr. Nathaniel L Whelan[2]

Introduction

There are many lines of advance in hybrid operations (e.g. ethnic dissent, cyber, democratic disruption). This article focuses on one with which it is particularly difficult to discern friend from foe – environmental protection. The principle of distinction is hard to determine; are non-governmental organizations or other state actors legitimate or a proxy for hybrid operations? Entities with nefarious purposes can use the environmental protection "wildcard" to handicap NATO nations by severely limiting military training capability. A multi-faceted solution set, which adheres to host nation regulations and NATO standards, based on the principles of authoritative information, integrated management and strategic communication could counter both complex hybrid and real environmental protection threats.

[1] Nadia Schadlow, 'The Problem with Hybrid Warfare' (War on the Rocks, 2 April 2015) <http://warontherocks.com/2015/04/the-problem-with-hybrid-warfare> accessed August 24, 2017

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Background

Live-fire military training facilities are a critical training enabler for NATO Member and partner nation armed forces. Recent NATO and national investments, to include the U.S. European Deterrence Initiative (EDI), are developing range and training area facilities throughout the European theatre. Through strategic communication of ambiguous environmental protection issues, government or non-governmental organizations (NGO) could subversively influence the availability, accessibility and capability of these facilities.

Military training areas in Europe are "among the richest and most important sites for biodiversity in their country."[3] Many national training areas in the European Union are designated as either Special Areas of Conservation and/or Special Protection Areas for birds under the European Union's Natura 2000 network of nature protection areas. Public understanding of the positive correlation between military training and biodiversity is growing; however, this situation promotes considerable risk to the military mission.

Hybrid Threats and Nature Protection

NATO has struggled with a common understanding of the concept of hybrid threats and hybrid warfare. Only recently (2018), has NATO agreed on the definition of hybrid threat: "type of threat that combines conventional, irregular and asymmetric activities in time and space."[4] Drawing from national references, Mosquero and Bachmann note hybrid warfare as "a warfare variant resulting from using an economy of 'force war', in which State or non-State actors interact with a minor traditional military investment. These actors will use indirect and multidisciplinary approaches (civil and military, legal and illegal, kinetic and nonkinetic, high-tech and 'rock-art' means, etc.)."[5]

There is a lack of publications noting environmental protection as a potential hybrid threat. Various national references note hybrid warfare as optimally directed to an adversary's vulnerabilities and focused on complicating decision making. Environmental protection considerations could

[3] European Commission, 'LIFE, Natura 2000 and the Military' (2004) <http://ec.europa.eu/environment/life/publications/lifepublications/lifefocus/documents/military_en.pdf> accessed 24 August 2017

[4] NATO Standardization Office, 'NATOTerm The Official NATO Terminology Database' <https://nso.nato.int/natoterm/Web.mvc> accessed 31 May 2018

[5] A Mosquera & S Bachmann, 'Lawfare in Hybrid Wars: The 21st Century Warfare' (2017) Journal of International Humanitarian Legal Studies 7 63-87

well fit into these categorizations.

Mosquera and Bachmann further tangle the hybrid threat web by noting the concept of Hybrid "Lawfare", which uses "law as a weapon with a goal of manipulating the law by changing legal paradigms."[4] Environmental law covering NATO nations is multi-layered, with regional, national and supranational (i.e. European Commission) guidance impacting the environmental protection legal requirements on military training areas. Nevitt notes the trend of environmental law in Europe as characterized by "an increasing environmental accountability of military activities."[6]

Public and NGO opinion can be strongly influenced, particularly based on accusations of illegal environmental destruction activities of Host Nation or visiting nation armed forces. Social media can fuel these accusations and create viral information operations that provide a "shot gun" blast to a broad cross-section of the public. The false accusations could well support anti-military/anti-NATO conspiracy agendas and place armed forces in a difficult and challenging defensive posture.

Training Infrastructure Investment

National and EDI investment is reshaping and modernising training infrastructure throughout NATO. EDI is a means to assure NATO Allies and partners of the U.S. commitment to the security and territorial integrity of NATO. EDI funds enable Operation Atlantic Resolve, which ensures a ready and persistent rotational presence of U.S. air, land and sea forces in the region, especially in Central and Eastern Europe as a show of support to NATO Allies and in response to Russia's actions in Ukraine.

EDI supports multiple U.S. European Command Plan elements, including an increased U.S. rotational presence throughout Europe, exercises and training events, enhanced pre-positioning, improved infrastructure and partner capacity.[7] The Fiscal Year 2018 EDI budget is programmed at $4.8 billion, $1.4 billion more than 2017.[8]

Parallel to EDI investment, NATO nations' military budgets increased for

[6] M Nevitt, 'Defending The Environment: A Mission for the World's Militaries' (2014) University of Hawai'i Law Review / Vol 36:27

[7] U.S. European Command Public Affairs Office, 'European Deterrence Initiative (EDI) Fact Sheet' (2018) <http://www.eucom.mil/media-library/document/2019-edi-fact-sheet> accessed 31 May 2018

[8] U.S. European Command Public Affairs Office, 'European Reassurance Initiative (ERI) Fact Sheet' (2017) <http://www.eucom.mil/media-library/document/35544/eri-fact-sheet> accessed 24 August 2017

the second consecutive year in 2017.[9] This spending boom has created an expansion of forces and accompanying range and training area infrastructure development. For example, Latvia plans to invest in its primary training area, Ādaži base, at a rate of EUR 50M annually from 2018 to 2021 and to expand the area to 13,050 ha.[10] Latvia's land expansion initiatives are typical of other Enhanced Forward Presence host nations' pursuing similar spatial enlargements of their military training areas. Many of these new expansion land areas are classified as Natura 2000 and have flora and fauna habitat requiring environmental protection management and conservation.

The higher priority infrastructure projects include training capability improvements to live-fire ranges to ensure compliance with applicable training qualification standards. The capability to conduct combined arms manoeuvres and live-fire of a scale appropriate for deployed forces is a cornerstone for meeting collective qualification standards. Multinational Battalion Battle Groups operating in Estonia, Latvia, Lithuania, and Poland under NATO's Enhanced Forward Presence posture also benefit strongly from the investment in training infrastructure.

Risks related to environmental restrictions for these sites are significant, considering many of these training sites, and planned expansion areas, are nominated as Special Areas of Conservation and/or Special Protection Areas for birds under the European Union's Natura 2000 network (Figure 1). Risk is partially mitigated due to significant defence investment in environmental programs. However, increases in facility development, training tempo and types of weapons systems raise environmental protection complexities which could be subversively leveraged.

[9] Jonathan Stearns, 'NATO Members Post New Defense-Spending Increase' (2018) Bloomberg <https://www.bloomberg.com/news/articles/2018-03-15/nato-members-post-new-defense-spending-rise-amid-trump-pressure> accessed 24 May 2018

[10] Remigiusz Wilk, 'Latvia invest in military infrastructure' (2018) IHS Jane's Defence Weekly <http://www.janes.com/article/77679/latvia-invests-in-military-infrastructure> accessed 24 May 2018

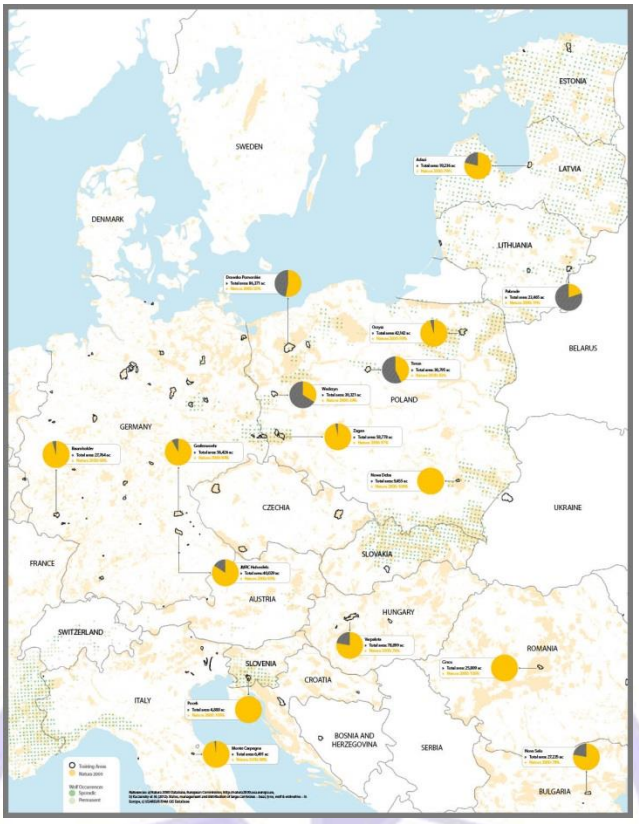

Figure 1: Areas of select national major training areas (not including planned expansion areas) nominated under the EU Natura 2000 environmental protection Directive. (credit: U.S. Army Europe Sustainable Range Program, 2018)[11]

(provided by the author)

Case Studies: Italy and Fort Bragg

Based in Vicenza, Italy, the 173rd Airborne Infantry Brigade Combat Team, or "Sky Soldiers", is the U.S. European Command's conventional airborne strategic response Force for Europe. In 2014, 173rd training facilities endured a loss of capability due to nebulous environmental protection concerns. Following pressure from local Italian environmental NGOs, regional civilian interpretation of Natura 2000 guidelines led to a prohibition of blank firing and heavy airborne drops in Italian training areas used by the 173rd Airborne. Regional officials cited nature protection concerns and executed their authority under Italian law to restrict military training activities that have been routinely conducted in the past.

[11] European Commission's Directorate-General for Environment, 'LIFE Database' <http://ec.europa.eu/environment/life/index.htm> accessed 24 August 2017

Figure 2: A High Mobility Multipurpose Wheeled Vehicle belonging to the 173rd Brigade Support Battalion, 173rd Airborne Brigade, descends onto Frida IV Drop Zone, after being dropped from a U.S. Air Force C-130 Hercules from the 86th Air Wing , Pordenone, Italy, Sept. 21, 2017. (credit: U.S. Army Photos by Visual Information Specialist Paolo Bovo/Released)
(provided by the author)

The 173rd Airborne temporarily mitigated these restrictions through the use of training areas in Slovenia and Germany. U.S. inquiries failed to determine the specific nature-protection issues justifying these new restrictions. Through the Office of the Secretary of Defense (OSD) Defense Environmental International Cooperation (DEIC) program, U.S. European Command initiated a series of meetings in 2014 and 2015 with key military and civilian leaders and organizations which ultimately facilitated an Agreement which lifted the training restrictions.

These meetings added a level of transparency to U.S. training requirements which opened the door for non-military nature-protection regulators to share concerns and cooperatively find win-win solutions. Continued engagement is key to protecting the military mission. However, this way ahead may be threatened by the planned termination of the OSD DEIC program in 2020.

Military training restrictions related to bird habitat are arguably a higher risk encroachment threat. Almost 20 years of training restrictions at the U.S. Army's Fort Bragg due to the endangered Red-cockaded Woodpecker is an infamous example of the power of bird habitat restrictions.

Rigorous and intensive scientific monitoring played a key role in ultimately lifting many restrictions upon recovery of the Woodpecker populations. Unfortunately, similar case studies of dwindling endangered bird populations exist throughout the European Union.

Wildcard Environmental Threats

Natura 2000, a network of environmental protected sites across the European Union, includes military sites throughout the Baltics. Standard Data Forms for Special Protection Areas, which cover bird species, list 10 protected bird species in Estonia (north and west of Tapa Training Area), 32 protected bird species in Latvia (Ādaži Training Area) and 11 protected bird species in Lithuania (Pabradė Training Area). Bird fauna in the Baltics is expansive due to its geographical location along migration routes and variety of favourable ecological habitats, such as heath and grassland, which are particularly unique to many military training areas.[12]

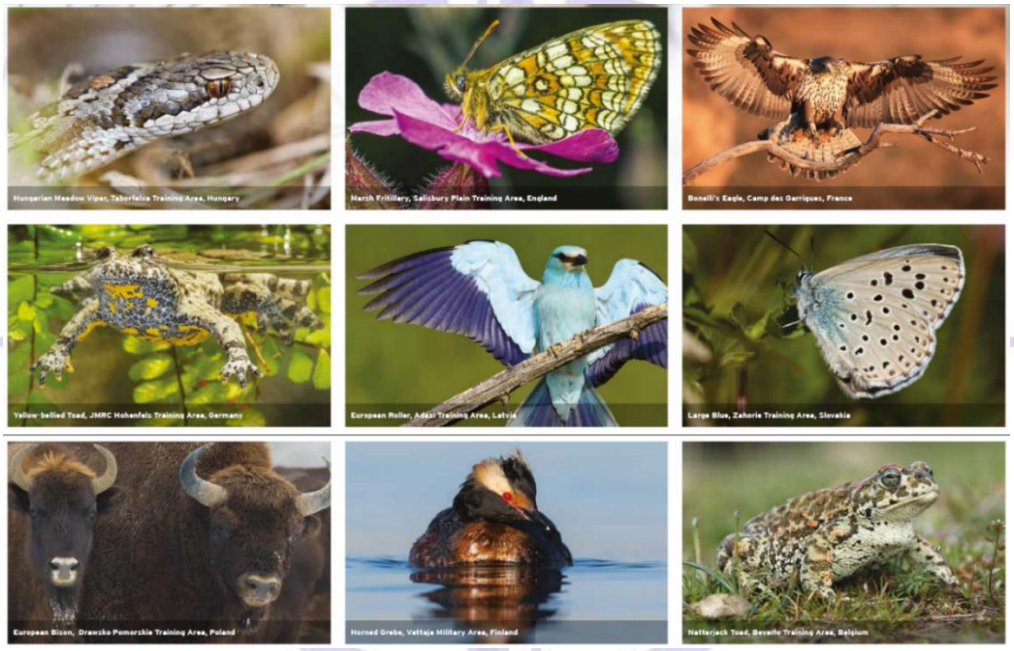

Figure 3: Military training areas host a wide variety of threatened and endangered species. (credit: U.S. Army Europe Sustainable Range Program, 2017)
(provided by the author)

Nature protection issues provide a "wildcard" for adversaries seeking a means to disrupt military activities. The complex dependencies of flora and fauna, such as mating habits of protected bird species, could be cited by a NGO to justify seasonal military range live-fire restrictions. Noise impacts of live-fire ranges on bird mating habits is debatable, but a savvy NGO could mount

[12] Baltic Wildlife, 'Bird Watching' (2017) <http://www.balticwildlife.eu/eng/birdwatching> accessed 24 August 2017

a strategic communications campaign via social media to a European public which strongly empathizes with environmental issues.

Role of NGOs

The Italian 173rd Airborne case study highlights how mission-essential training tasks could be halted by vague nature-protection issues. In regions such as the Baltics, the hybrid threat of a non-standard, complex and fluid adversary is well documented and evolving. A skilled adversary could cripple military training activities through disinformation and the use of a proxy, such as an environmental NGO to stir protests. Some local population members could facilitate these tactics while keeping their subversive actions culturally transparent.[13]

Although the majority of EU member States have a high level of trust in their Army, many EU nations on the periphery of Russia have low public trust in their nation's Armies (e.g. Latvia 66%, Poland and Romania 65%, Hungary 61%, Bulgaria 44%). The EU public also scored environmental issues as a top ten personal concern, just below taxation and education. As noted by the EU Standard Barometer, this is "the highest score measured for environmental issues as a personal concern since Spring 2012."[14]

Historically, Baltic nations were accustomed to a Soviet approach to military base management which had no regard to environmental protection. The public viewed these often remote sites as secret no-go sites for public access. Post-Soviet occupation environmental studies identified 2,743 sources of pollution spread between the 10 Soviet military training areas in Lithuania.[15] Nearly two million tons of pollutants and hazardous waste were found over 565 former Soviet military sites in Estonia. Types of environmental hazards documented included nuclear, radioactive, chemical and a full range of toxic (i.e. chemicals, Ni/Cd accumulators, mercury vapor lamps, transformer oil) waste.[16] Various studies have attempted to quantify the financial costs of

[13] Michele Commercio, 'Why Putin won't attempt to 'integrate' Estonia and Latvia into the Russian Federation' (2018) The London School of Economics and Political Science <http://blogs.lse.ac.uk/europpblog/2018/03/07/why-putin-wont-attempt-to-integrate-estonia-and-latvia-into-the-russian-federation> accessed 10 May 2018

[14] European Commission, 'Standard Barometer 88 Public Opinion in the European Union' (2017) Directorate-General for Communication

[15] P. Kavaliauskas, 'Sustainable Landscape Planning System and Landscape Ecology' (2007) Ekologija Vol 53 2 <http://elibrary.lt/resursai/LMA/Ekologija/Eko72priedas/7.pdf> accessed 24 August 2017

[16] H Järv, A Raukas, K Sepp, J Raet & R Ward, 'Soviet military heritage: brown and green – recovery and enhancement' (2013) WIT Transactions on The Built Environment, Vol 131 579-592

this environmental degradation, to include Estonia's Ministry of Environment estimate of EUR 3.6 billion or USD 4 billion US.[17]

NGOs and governmental organizations in the Baltics have made impressive progress in implementing robust environmental protection programs for their national military sites. However, the historic association between military activities and environmental degradation provides a strong launch platform for public acceptance of an anti-military environmental NGO.

An estimated 85 environmental NGOs are active at the European Union supranational level. Latvia provides a national case study, with an estimated 29 environmental and sustainable development NGOs operating at the regional/national level. Certification and registration of NGOs appears to be inconsistent at the national and regional levels. Furthermore, using Lithuania as a case study, environmental NGOs appear to work primarily alone - only 20% operate jointly with partners, less than 10% cooperate with the national government and only half perceive these partnerships as important.[18]

Environmental protection management is not necessarily a domestic weakness in the Baltics, though the fragmented nature of NGOs, coupled with the lack of governmental controls, enables the establishment of proxies masquerading as environmental NGOs. Proxies could further build capacity through development of coalitions. Few nations could counter sudden coordinated NGO accusations (to include political, informational and economic) which aim to correlate military activities with environmental degradation. Utilisation of sensational environmental 'fake news' pushed aggressively through social media channels, such as evidence of Depleted Uranium from historic live-fire exercises, could overwhelm and frustrate military strategic communication efforts.

[17] A Raukas, 'Past Pollution of the Soviet Army in Estonia and its Liquidation' (1999) Ministry of the Environment: Talinn

[18] Society Integration Foundation, 'NGO Latvia' (2017) <http://www.ngolatvia.lv/en/> accessed 24 August 2017. *See* United States Environmental Directories, Inc, 'The Earth Directory.Net' (2017) <http://www.earthdirectory.net/ europe#Organizations> accessed 24 August 2017. *See* Regional Environmental Center for Central and Eastern Europe, 'NGO Directory Database' (2017) <http://archive.rec.org/REC/Publications/NGODirIntros/Lithuania.html> accessed 24 August 2017.

Role of Regulators

The current recognition of a specific threat (e.g. Russia aggression) will likely assist national defense interests in handling near-term NGO considerations. However, over time the concept of national defense is difficult to articulate to the public. National defense interests will remain controversial, and when pitted against a local interest (environment, development), the national interest is less likely to prevail.

NGOs will pressure regulators to think in terms of ecology and biodiversity, not military readiness. This pressure could force small, yet progressive, temporal or spatial restrictions on military training activities. NGO pressure could also force regulators to apply environmental laws to munitions on active ranges. The Natura 2000 designation of these areas would promote equitable application of environmental laws to both military and non-military environmentally protected sites.

Solution Set

What are the available means to mitigate this hybrid threat? A broad and multi-faceted solution set is required which addresses tactical, operational and strategic considerations supporting national and multinational training activities. Objectives can be roughly divided into three lines of effort: a) sustainable training area management; b) military activities integration (operations and exercises); and c) NATO standardization.

Sustainable Training Area Management

Nations have existing military environmental programs which focus on conventional environmental protection challenges. Many of these programs embrace tenets similar to the principles of the U.S. Army's Sustainable Range Program: authoritative information, integrated management, and outreach. Although designed for conventional 'threats', these tenets, when applied at the regional, national and supranational levels, can also proactively mitigate hybrid threats.

Authoritative information, ideally organized in a geographic information system, ensures armed forces have better environmental information than their adversaries. Critical documents, such as legal agreements, environmental baseline surveys, capability briefs and after-action reports, should be readily accessible by site managers and training planners. Integrated management requires the use of this authoritative information in

close and frequent communication with military and non-military stakeholders. An example is the unlikely information sharing partnerships of the Nature Conservancy with over 25 U.S. DoD installations. This arrangement highlights the win-win value of organizations trying to achieve similar end goals. Cooperative management of endangered woodpecker habitat at Fort Bragg since the 1990s also provides a strong case study which involved military and non-military stakeholders working together to reduce restrictions on military training and restore habitat off the base.[19] This cooperation builds valuable credibility for the military while collecting subject matter expert advice on site management and a public green stamp of approval; valuable assets for mitigating questionable NGO threats.

The positive impacts of military's good environmental deeds are proportional to the third principle of outreach. A dedicated outreach program, which is coordinated with public affairs and stakeholders, educates the public on the need for military training and improves the Armed Force's understanding of public concerns. Multinational engagement initiatives, such as the U.S. Defense Environmental International Cooperation program, enable this outreach to partner nations and should be strengthened at the Department of Defense and Combatant Command levels.

Military Activities Integration

Train as you fight is the mantra for armed forces throughout NATO. The hybrid threat posed by nature protection should be integrated into military training activities, just as cyber warfare, public misinformation and diplomacy are typically integrated into current national and NATO exercises. Without proper training, traditional armed forces lack the flexibility to shift tactics to counter evolving and complex hybrid threats.

During the planning phases of exercises, scenario design planners work with subject matter experts during the production of the Master Scenario Event List (MSEL). The MSEL captures injects to the exercise such as cyber electromagnetic activities, media or military information support operations. The MSEL injects could be real or simulated activities which challenge the Commanders and units to find solutions under the doctrinal operational variables of the exercise.

[19] The Nature Conservancy, 'The Military and Nature' (2017) <https://www.nature.org/newsfeatures/specialfeatures/partnership-with-the-department-of-defense.xml> accessed 24 August 2017

MSEL injects related to simulated nature protection issues could challenge the Commanders to react to an encapsulated short-term hybrid threat. An example of such an MSEL inject noting that a local NGO demands an immediate halt to military activities alleging depleted uranium rounds fired during the exercise are contaminating the environmentally protected sites. MSEL injects could be based on a wide variety of environmental protection topics; such as endangered species protection, migratory birds, hazardous material spills and groundwater contamination.

Additionally, freedom of movement is a priority exercise focus area which highlights the threat of contagious diseases such as African Swine Flu. Accusations of armed forces facilitating disease vectors could have strategic implications on movement and maneuver for large-scale exercises such as Trident Juncture, Saber Strike or Saber Guardian. NGOs could readily present a strong anti-military case based on the real and perceived threat. These MSEL injects would help Commanders, legal advisors and logisticians counter accusations.

Proper integration of such scenarios into military activities tests the Commander's reaction and identifies steps to counter these simulated hybrid threats. Lessons learned can further be readily adapted into best practices and NATO standards.

NATO Standardization

NATO recognizes that addressing environmental protection considerations is an integral part of planning and executing military activities and can significantly support mission success. This is evident from the multiple Environmental Protection Standardization Agreements (STANAGs) which define processes, procedures, terms, best practices and conditions for common military or technical procedures between the Member States of the Alliance. Of the six current NATO Environmental Protection STANAGs, Allied Joint Environmental Protection Publication-6 (AJEPP-6), which is covered under STANAG 6500, *NATO Camp Environmental File during NATO-Led Operations*, and AJEPP-7 (STANAG 2594), *Best Environmental Protection Practices for Sustainability of Military Training Areas* provide tactical and operational best standards and practices which readily enhance interoperability.[20]

[20] NATO Standardization Document Database, 'STANAG 6500 AJEPP-6 NATO Camp Environmental File during

AJEPP-6 outlines the content of the environmental file of a deployed camp during all phases of a mission. The file serves as a standardized archive of environmentally relevant matters pertaining to the camp. As it is part of the documentation for transfer of the camp to another troop contributing nation or to the Host Nation, this standardized approach ensures interoperability. The Environmental Baseline Survey, Closure Surveys, Impact Assessments and Condition/Spill Report included under AJEPP-6 can be readily used to counter ambiguous and/or subversive environmental protection accusations.

NATO's eFP mission provides an optimal scenario to apply the standards specified in AJEPP-6. An accurate and comprehensive environmental file passed between the 6-9 month rotations of Framework and Contributing nation units supporting the respective Battle Groups provides an environmental protection "insurance policy" for the eFP mission.

AJEPP-7 provides a one-stop clearinghouse of best practices and lessons learned related to sustainability of military training areas. AJEPP-7 does not provide prescriptive guidance, but a catalog of proven practices themed by habitat/ecosystems, flora, fauna, wetlands, soils, fire, noise/vibration, geographic information system and environmental training/outreach. The AJEPP has significant potential for providing proven strategic communication tactics which can mitigate hybrid threats.

Curriculum under the primary NATO environmental protection courses, including the a) M3-77 Environmental Management for Military Forces course, hosted by the NATO School in Oberammergau, Germany, and b) NATO Military Environmental Protection, Practices and Procedures Course (NMEPPPC), hosted by the Military Engineering Centre of Excellence in Ingolstadt, Germany, can also be enhanced to better address tactics and procedures to counter a hybrid threat.

Conclusion

Armed forces are faced with pressures from a variety of diverse interests. Tensions exist internally with other government agencies and externally with NGOs and the public. It is critical to protect the projected needs for the fielding of the next generation of military weapon systems,

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NATO-led Operations' (2015). *See* NATO Standardization Document Database, 'STANAG 2594 AJEPP-7 Best Environmental Protection Practices for Sustainability of Military Training Areas' (2015).

tactics and training. These needs will require more physical space specifically designated for these uses.

However, armed forces have a social license to operate, which includes adherence to environmental protection laws and regulations. Mission requirements may take precedent over environmental protection in limited situations, but environmental protection specialists provide professional management at national training areas. National policies and plans provide clear guidance on pollution prevention, flora and fauna management, waste management and other key functional areas.

Hybrid tactics, such as environmental protection disinformation, are not a random sequence of improvisations but reflect an order behind an agenda to disrupt national and NATO collective action. Agreements made in one nation to a hybrid threat sets precedence for all. NATO and partner nations must adapt new strategic postures in response to hybrid threats, to include tactics related to environmental protection which fall outside conventional approaches. Complex environmental protection legal issues provide a strong case study of how a strategic information "Lawfare" campaign could create a formidable weapon with significant operational and strategic impacts. Proactive efforts now could largely mitigate threats which may leave the warfighter at a disadvantage later.

NATO nations need to have training and compliance with environmental protection rules and standards in order to defeat this threat. NATO standards serve two purposes; a) allow NATO to conduct clear strategic communication that is true and verifiable; and b) provide defensible information if there were to be a tribunal. When NATO nations meet the highest environmental protection standards, then conditions are optimal for effective strategic communication. The consistent application of environmental protection best practices armours NATO against both hybrid and real encroachment threats. Overcoming both hybrid and real environmental protection threats is the win-win scenario which will shield NATO military capabilities from encroachment, shutdown or loss.

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NATO-exercise Trident Juncture 2018 - Overview of Environmental Protection concerns, preparations and handling of damages

by Major Marianne R. Bø[1]

Introduction

In autumn 2018, NATO conducted the high-visibility exercise Trident Juncture 2018 (TRJE18) in Norway; the country's largest NATO exercise since the 1980s. The exercise was defined as a major joint operation in NATO.[2]

Norway previously hosted NATO-exercises Iron Sword in 2005 and Nobel Ledger in 2014, but they were smaller and did not use such large areas on land. All 29 NATO Nations participated in TRJE18, as well as the 2 partner-nations Sweden and Finland, with over 50,000 military personnel, 10,000 different kinds of vehicles, 60 vessels, 150 airplanes and 70 helicopters.

Hence, it necessitated an appropriate preparation to mitigate the environmental impacts of such an exercise and handle the aftermath. This article will describe the Norwegian experience as a Host Nation (HN) for TRJE18.

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[1] Engineering officer in the Norwegian Armed Forces posted as Staff Officer Environmental Protection within Logistic Division (J4) at the Norwegian Joint Headquarters. At the NATO-exercise expressed in this article are solely those of the author and may not represent the views of NATO, ACO or ACT or the Government of Norway, Norwegian Armed Forces.

[2] HQ Supreme Allied Command Transformation was the Officer Scheduling the Exercise and Joint Force Command Naples (JFC NP) was the Officer Conducting the Exercise. NATO, 'Exercise Specification (EXSPEC) Trident Juncture 2018 (TRJE18) LIVEX' (SACT, 9 Mar 17)

Legal Framework

1. Act relating to military requisitions

In Norway we have some larger military training areas and shooting ranges, but they were not located inside the exercise area for TRJE18. Therefore, to be able to host TRJE18, the Norwegian Joint Headquarters (NJHQ) needed to use civilian and public properties in 4 counties.

The *Act relating to military requisitions* (in Norwegian: Lov om militære rekvisisjoner[3]) § 1 states that civilian areas can be requisitioned in peacetime, but only for larger exercises. Thus, NJHQ uses it every second year when Norway's larger joint exercise called Cold Response takes place. NJHQ also uses this Act to facilitate combined joint exercises. Moreover, the Act states that all damages and loss shall be compensated by the Treasury (§ 12).

2. NATO documents

NATO has now several documents, both STANAGs (NATO Standardization Agreements) and AJEPPs (Allied Joint Environmental Protection Publications), concerning Environmental Protection (EP). Two of them are of great interest for us:

MC 0469/1 - *NATO Military Principles and Policies for Environmental Protection*[4] and NATO STANAG 7141 (AJEPP-4) *Joint NATO Doctrine for Environmental Protection during NATO-led Military Activities*.[5]They present the Commander's environmental responsibilities, and this regards commanders at all levels.

In the preparation for TRJE18, EP has been mention in several NATO documents; in the Exercise Specification (EXSPEC) point 20.5 you can, for instance, read that "… the enforcement of Host Nation's environmental laws will be mandatory. …"[6]

JFC Naples published the TRJE18 LIVEX EXPLAN and Annex 1AD about Environmental Protection Instructions.[7] Annex 1AD gave Guidance and Direction, and the Commanders responsibility, information about the Planning

[3] LOVDATA, 'Lov om militære rekvisisjoner (rekvisisjonsloven)' (Norwegian Ministry of Defence, 1952 (2018))
[4] NATO, 'NATO Military Principles and Policies for Environmental Protection' (NATO Military Committee 0469/1, 2011)
[5] NATO, 'Joint NATO Doctrine for Environmental Protection during NATO-led Military Activities' (STANAG 7141 (AJEPP-4), 2014)
[6] NATO, 'Exercise Specification (EXSPEC) Trident Juncture 2018 (TRJE18) LIVEX' (SACT, 9 Mar 17)
[7] NATO, 'Environmental Protection Instructions' (JFC Naples TRJE18 LIVEX EXPLAN Annex 1AD, 12 January 2018)

phase, Education and training, Environmental studies (regarding camps), what to do with Contamination and pollution, and Waste handling. Further, it gave Instructions for reporting spill or critical incidents, the need for Environmental Protection Officers (EPOs) at the Brigades/equals, EPO-POC in the Battalions/equals, and information about what to do with complaints, damages and claims. In addition, it gave information about the TRJE18 exercise map and map symbols, and the Out-of-Bound (OOB)–areas.

In the Technical Arrangement (TA) between Norway and NATO SHAPE about BRJP18 and TRJE18,[8] paragraph 3.6 concerns Environmental Protection and paragraph 3.8 concerns Claims and liabilities.

3. NATO SOFA

Since TRJE18 is a NATO exercise, Norway as HN used NATO SOFA[9] regarding damages.

Article VIII of the NATO SOFA concerns damages;

- In paragraph 1 it is written that the HN must refrain from making claims on military property.
- In paragraph 2 (f) it is written that the HN shall not demand compensation from other nations if the damage is less than Kr. 10,000 in Norway's situation.
- In paragraph 5 (e)(i) it is written that if one nation (SN) causes damages, the SN shall pay 75 % and the HN shall pay 25 % of the damage.
  (ii) If several nations cause the damage, the Nations responsible will share equally the compensation cost, but if the HN is not among the accomplices, it will pay half of each SN contribution.

NJHQ is responsible for the process regarding damages towards the participating nations at TRJE18. First of all, they will need to process all of the damages, and then prepare the documentation for the Norwegian Ministry of Defence.

4. The Environmental Information Law

In 2004, Norway passed a law regarding the right to receive

[8] Technical Arrangement between The Ministry of Defence of Kingdom of Norway represented by Norwegian Joint Headquarters and Supreme Headquarters Allied Powers Europe represented by Headquarters Allied Joint Force Command Brunssum and Headquarters Allied Joint Force Command Naples regarding The provision of Host Nation Support for the execution of "Exercise Brilliant Jump 2018" and "Exercise Trident Juncture 2018" (2018)

[9] NATO 'Agreement between the Parties to the North Atlantic Treaty regarding the Status of their Forces' (1951)

environmental information and participation in public decision processes of importance for the environment (The Environmental Information Law).[10]

In accordance with the Environmental Information Law, Norwegian civilian personnel and organizations have asked for environmental information before and after TRJE18. They are particularly interested in the amount of CO2-equivalents and how the NATO exercise has affected the environment in Norway.

Environmental Protection on exercise

Environmental Protection (EP) is a collective term for all the measures that are done to take care of and to protect the environment.

High-cost avoidable damages used to be a difficult issue for the Norwegian Armed Forces. Once the exercise was finished, the Damages Officers needed to visit the civilians and offer compensation for the damages.

However, since 1992, the year EP became a part of the Norwegian Constitution and Norway trained its first EPOs, there has been a shifting focus toward a preventive approach. Before, the Damages Officers were working after the units had more or less gone home. But now, the EPOs work together with the different kinds of planners to take care of the environment and prevent damages. Since prevention costs less than compensation, operating in a more EP-friendly way has a positive economic effect.

Unfortunately, there are still not many full-time officers today, and most of them are located in the Army.

For an EPO, it is important to understand the Commander's task and intent, and how the unit operates to be able to give good and relevant advice. This way the EPO can better support the Commander and the unit in their planning process to avoid, for example, environmentally sensitive areas. The EPO can also present the consequences to the Commander if he/she continues with his not non-EP-friendly plan.

[10] LOVDATA 'Act about the right to receive environmental information and participation in public decision processes of importance for the environment (The Environmental Information Law)' (Norwegian Ministry of Climate and Environment, 2004) (Loose translation)

But why do we have EP on exercises?

First of all, because the Armed Forces have to follow laws and regulations – it is peacetime so we have to operate in accordance with the laws, regulations and conventions.

Secondly, it is to reduce the strain on the local civilians. Since we exercise close to and inside local communities we must respect that they have their "normal" life and we, by our activity, can disturb them.

Thirdly, because we must reduce the physical damages as much as possible. In some areas the traces of our activity can be seen for decades if we do not operate smart or in accordance with the nature.

We do also have EP on exercises to ensure the respect of our rights because sometimes civilians can claim that we are not allowed to be "there" just because they do not like it.

Last but not least, we do have EP on exercises for economic reasons. As already mentioned, an EPO can see possibilities where a unit just sees "no-go"-areas. Or an EPO can advise the unit to not do something, because the damages afterwards will be very expensive or harm the Armed Forces' reputation.

Host Nation Norway

The Kingdom of Norway is located in the northern part of Europe and is a long country with a lot of fjords.

The central part of Norway was the main exercise area for TRJE18; from the town of Rena up to the town of Røros, and from the border with Sweden to the coastal borders. Thus, the inhabitants of the counties of Hedmark, Oppland, Møre og Romsdal, and Trøndelag were the most affected. Prior to the beginning of the exercise, ships with materials and airplanes with personnel entered from the south, west and north into this area. Swedish materials and personnel entered from the east. (See Figure 1)

NJHQ was responsible for the national planning. Because of the magnitude of the exercise, Norway Armed Forces started early in the planning process to cooperate with the Total Defence. The Total Defence is all of Norway's civilian and military resources. It is based on mutual support and cooperation from peace to war and it is coordinated by the Norwegian Directorate for Civil Protection.

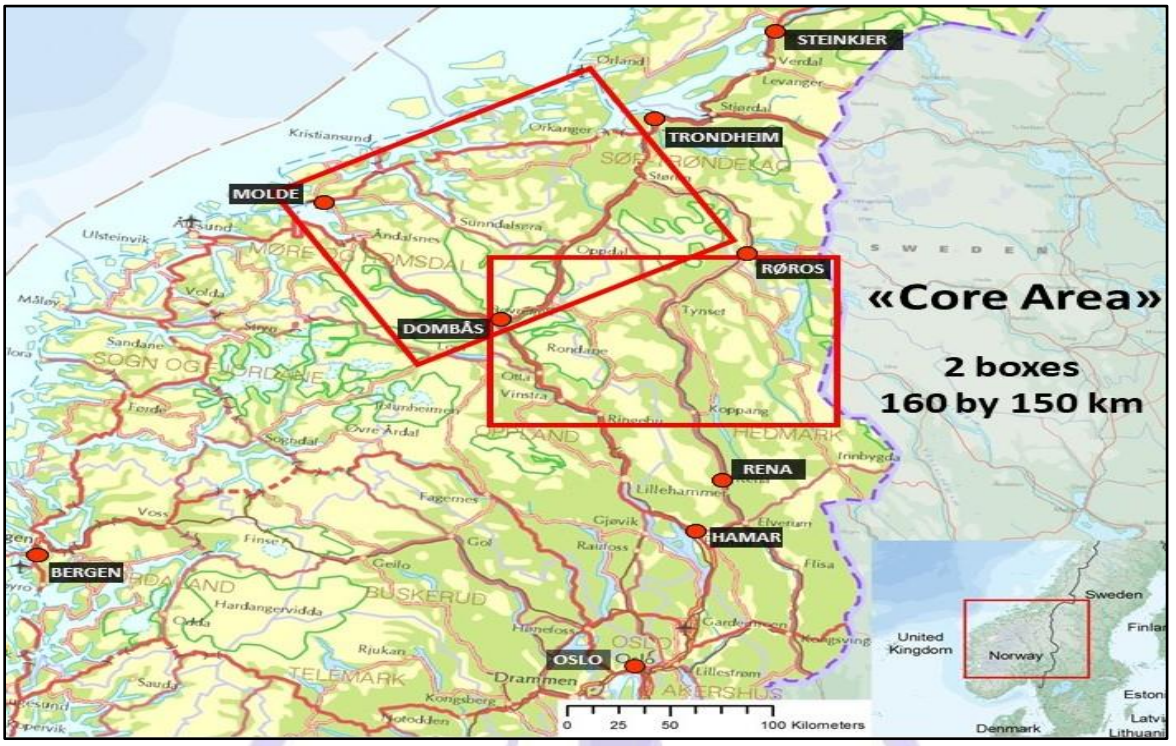


Figure 1: TRJE18 Exercise area for land and amphibious operations
(provided by the author)

Timeline

The Reception, Staging and Onward Movement (RSOM) phase started 18th August 2018. All vehicles, materials and personnel entered in this phase and had to be delivered to the correct camp in their respective assembly areas.

Over 50 camps had to be built, where 20 of these could accommodate more than 500 personnel. The largest camp built was for 6,500 personnel.

The RSOM phase ended when the Combat Enhancement Training / Force Integration Training (CET/FIT) phase started from 25th until 29th October, the last preparations were done by the units before the exercise started.

The units left their assembly areas and started the exercise from the 31st October until the 7th November – this was period for the Field Training exercise (FTX).

Rearward Movement Staging and Dispatch (RMSD) began on the 8th of November and it continued until the 28th December, when the last personnel left Norway.

Despite the fact the exercise is over and all the units have returned back to their home bases, TRJE18 for Norway as a Host Nation continues. In the coming months and years, we will continue to clean up and handle damages.

Environmental Protection in TRJE18 preparation

Reconnaissance of the area

The preparation started in October 2016. Until the beginning of TRJE18, six official NATO's site surveys of the exercise area and additional national reconnaissance visits were conducted.

The Norwegian Joint Headquarters (NJHQ) has a tradition to make exercise maps with military EP regulations (identified with map symbols) for joint exercises in new areas. In spring 2017, four teams, composed of an EPO and a military geographical officer, visited the exercise area to update the maps. Six different types of symbols were used in TRJE18. These maps were used during the Main Planning Conference and site surveys, and distributed to the participating NATO Headquarters and Sending Nations.

Map symbols						
Description	*Out of bounds* All military activity prohibited.	*Sensitive area* Heavy vehicles and fuel distribution prohibited.	*Object sensitive to noise* All military activity prohibited.	*Object out of bounds* All military activity prohibited in the vicinity of the object.	*Out of bounds aquaculture* All military activity prohibited in the vicinity of the object.	*Out of bounds cultural heritage* All military activity prohibited in the vicinity of the object.
Activity on foot			(+ 200 m distance)			(+ 50 m distance)
Tracked vehicles on snow		If conditions allow it (Not ski-tracks)	(+ 200 m distance)			(+ 50 m distance)
Motor vehicles on roads	(Unless specified otherwise)		(Consider noise effects)			
Bivouacs, positions		If conditions allow it	(+ 200 m distance)		(+ 200 m distance)	(+ 50 m distance)
Use of blank ammunition		If conditions allow it	(+ 200 m distance)			(+ 50 m distance)
Air activity		If conditions allow it	(+ 1000 ft distance)	(No landing)	(+ 1000 ft distance)	(+ 1000 ft distance)
Sea activity					(+ 200 m distance)	

Figure 2: Six different map symbols that indicated environmental restrictions on the TRJE18 maps
(provided by the author)

Informational meetings with civilians

An important task during the planning process was to inform the local Norwegian population in the exercise area about what to expect before, during, and after TRJE18, regarding EP and damages. A recurrent challenge

was that the locals wanted more details about the upcoming exercise than we had to provide with farmers having the most concern and need for information.

Informing the Participants

Informing all the participants on EP regulations and means of mitigation contributes to prevent damages. The NJHQ informed the participants on the EP Regulations and measures of mitigation through the use of EP folders, which allow reaching more people than the TRJE18 EXPLAN Annex 1AD Environmental Protection Instructions which was mostly read by EPOs and planners only. The folder was either sent to the participating nations or handed out whe entering Norway.

Although English and French are official NATO languages, many participants in NATO exercises are not fluent in English or French. To reach as many TRJE18 participants as possible, the EP folder was translated from Norwegian into English, German, Italian, French and Spanish.

Norway's Environmental Protection Risk Assessment

Norway's greatest concern and highest risk regarding TRJE18 was traffic accidents. Over 10.000 different kinds of vehicles were going to drive around on early-winter-condition with drivers who had not enough experience on these conditions. Additionally, they were going to drive around in local communities with children and pupils walking around.

Picture 1: A minor vehicle accident at TRJE18 (Photo: Stian Woll)
(provided by the author)

Ground conditions

TRJE18 was conducted in late October and early November. The participants faced cold weather, snow and rain. The conditions contributed to damages on cultivated grounds from heavy armoured vehicles.

Cultivated ground

Norway's second greatest concern was damage to cultivated ground. The *Act relating to military requisitions*[11] states, in § 32, that to avoid damages and disadvantages as much as possible, exercise areas should be in outlying fields / forests. Cultivated ground shall be avoided as far as possible.

To landowners whose livelihoods depend on these lands, when the units do not respect this provision, it leads to major economic impacts. Therefore, if the units had to use cultivated ground, they were instructed to talk to the landowner and drive carefully. This was discussed in the TRJE18 LIVEX EXPLAN Annex 1AD (paragraph 2b)[12] and in the TRJE18 EP Folder (about Cultivated ground on page 14).[13]

Typical damages to cultivated ground are reduced growth the upcoming years, destroyed drainpipes and potentially destroyed machinery if bits or parts from the military units are left behind on the cultivated ground.

So far, 265 complaints have been lodged on this regard, some of them resulting from a violation of this instruction.

Picture 2: TRJE18 A military camp and "road" on cultivated ground (Photo: Marianne Bø **(provided by the author)**

[11] LOVDATA 'Forskrift om militære rekvisisjoner' (Norwegian Ministry of Defence, 1999)
[12] NATO, 'Environmental Protection Instructions' (JFC Naples TRJE18 LIVEX EXPLAN Annex 1AD, 12 January 2018)
[13] Norwegian Joint Headquarters, 'Environmental Responsibilities Important information to all participants Exercise Trident Juncture 2018 (2018)

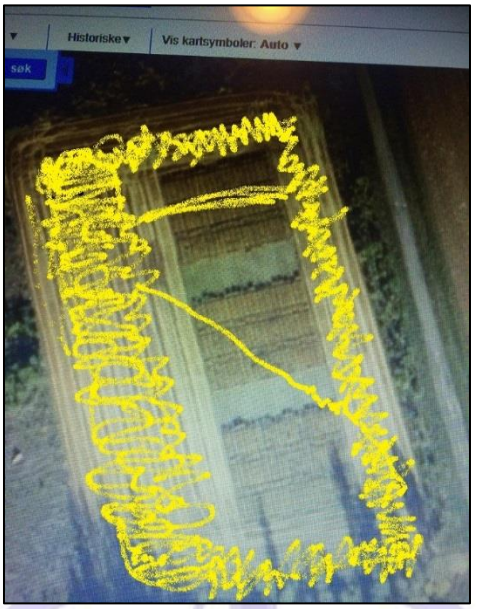


Figure 3: A unit drove over a 3-4 year old scientific field regarding cultivated ground. The yellow colour indicates where they drove.
(provided by the author)

Spreading of transmittable animal, fish and plant diseases

Potential spreading of transmittable animal, fish and plant diseases was Norway's third greatest concern.

The production of salmon is very important for Norway's economy and one high-productive area is the coastal areas of county Møre & Romsdal. If rivers get infected with the fish-parasite "Gyrodactylus Salaris", it can be catastrophic (both from an ecological and financial perspective) for the salmon production. Two rivers in the TRJE18-exercise area had earlier been infected by this parasite and were now in the process of being cleaned. But still, if personnel or materiel enter these rivers and then move to a clean river – the parasite can be transferred.

Both the Italian Brigade and US Marine Corps Unit had to move along two of these rivers (River Rauma and Driva). Information about these two rivers was given, but to make it even clearer for the participants – the rivers were given a 200 metres buffer on each side as Out-of-Bound area (or prohibited area) on the TRJE18 Exercise maps.

In addition, the potential spreading of African swine fever was also highly feared. In Norway, we do not have this fever, but nations that were going to participate have this disease or their units have been on exercises or operations in areas with this disease.

Spreading of alien species

Spreading of alien species is one of the greatest threats against biodiversity. The Norwegian military Veterinarian Service had a close cooperation with the Norwegian Food Safety Authority to avoid unwanted species introduction to Norway. All equipment and materials the visiting forces brought with them required a Veterinary Certificate to enter and random inspections at different ports were performed.

Driving inside National parks and Nature reserves

During TRJE18, Norway had to deal with units trespassing into National parks and Nature reserves despite clear prohibiting signs. Some few reports have been filed on units entering into protected area, destroying Out-of-Bound Area's signs doing so.

Picture 3: Military vehicles driving into area out-of-bound (Photo: Ove Andreassen) **(provided by the author)**

Noise + Disturbing and killing livestock and wildlife

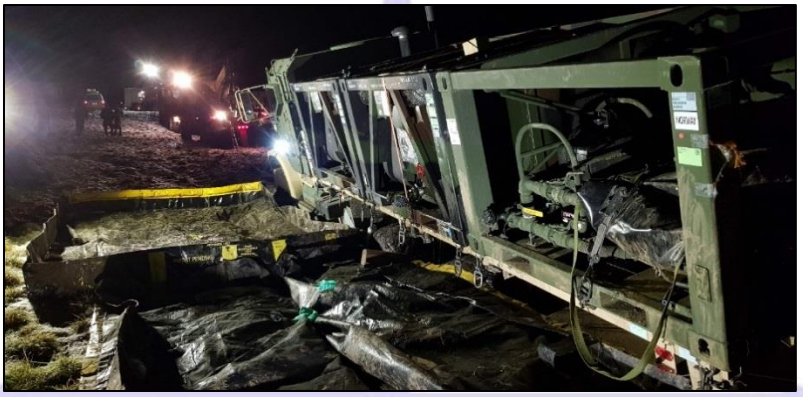
Regarding EP, noise from military activity is always a concern. Not only it affects civilians living in the vicinity, but some animals are very sensitive towards it. In the exercise area, chicken-, cattle- and fur-farms represented a risk. In an effort to preserve them, their location was indicated on the exercise maps by a specific symbol. Still, despite the mitigation efforts, at the end of TRJE18, many complaints were lodged about noise and disturbance of livestock.

Pollution and littering

The large number of vehicles in the exercise area and heating systems that required daily refuelling inside the camps produced a high risk of pollution.

In addition, the Joint Logistic Support Group (JLSG) needed two large fuel bladders to support the units, one in the south and one in the north of the exercise area. We were particularly concern about the one inside the military camp at Sessvollmoen (in the south), because the camp was located just 10 metres above an important drinking water reservoir.

Overall, most of the reported pollution-cases were fixed with absorbents or with help from the local fire departments. Except from the 500 litres fuel spill resulting from a fuel truck bogged down on cultivated ground, no major damages were encounter.



Picture 4: Fuel truck is stuck on cultivated ground with a leakage of about 500 litres (Photo: Olav Sandnes)
(provided by the author)

In a large exercise like TRJE18, litter management is always a challenge. We planned in this exercise to have the waste collecting points where the exercise participants wanted them to be, keeping some flexibility to move them if needed. Overall, we had only few cases of human waste accumulation in improper areas. The EPOs from both Sending Nations and HN had to clean it up and face the local media attention.

Forest and outlying fields

In compliance with the *Act relating to military requisitions*, we used outlying fields to avoid cultivated ground, but we were concerned about damages to the forests and plantations. Based on previous experiences, we knew some armoured vehicles commanders would decide to cross the forest to save time instead of going around. Regrettably, by July 2019, 56 cases of damages to forests and outlying fields were reported.

Cultural heritage

Cultural heritage was also a concern regarding TRJE18. While preparing the TRJE18 exercise maps, we realized there were over 110,000 larger and smaller culture heritage sites inside the exercise area. Knowing how the units wanted to operate (more or less) and with our experience from previous exercises, we reduced the amount of cultural heritage symbols on the maps down to less than 10,000. Due to the uncertainty about the amphibious operations, we kept all the culture heritage symbols in the coastal area.

The town of Røros and the Circumference is listed on UNESCOs World Heritage list and is an authentic mining town from the year 1645. We were particularly concern about two of the brigades (NOR and SWE) having to pass through Røros to start the exercise. The area was marked on the maps, but of course military vehicles can drive on public roads as others. Unfortunately, we got a case inside the mining town Røros.

Picture 5: The mining town of Røros (Photo: adressa.no)
(provided by the author)

Infrastructure

Damages to infrastructure are not really an EP issue, but traditionally we handle them as well. The destruction of roads, bridges, power lines, or communication cables affects civilians. Therefore, one of our tasks was to inform the different public offices if there were damages to these.

During TRJE18, many damages on roads, crash barriers, traffic sign and bridges were reported. Also, due to the military activity, the roads became very slippery for the locals as seen on the pictures

Picture 6: Destroyed crash barrier (Photo: Mobility Group, LOPSCON TRJE18)
(provided by the author)

Too close to locals

In the TRJE18 EXPLAN ANNEX 1AD and in the TRJE18 EP folder, it was stated that the minimum distance for vehicles to houses and huts/cabin has to be at least 50 metres. In some situation, it was not respected.

Picture 7: Vehicles driven less than 50 metres from houses (Photo: Local landowner in the exercise TRJE18 area)
(provided by the author)

Handling of complaints and damages

As of 29 October, 2019, 1069 cases of complaints, claims and damages

had been registered in total; 32 of them are still in progress.[14]

Of the 1069 cases registered, 49 were complaints; most of them regarding military traffic on public roads and noise, but also about roads, barbed wire, military personnel inside schoolyards, activity too close to churches, cultural heritage, cutting trees, waste, livestock, etc. Most of the complaints were closed just by listening to the reporting parties' situation, frustration or irritation rather than paying compensation. In some cases, more work had to be done to fix the situation.

The other 1020 cases registered were cases of damages. To assess the damages and mitigate the financial risk, participating nations were encouraged to perform the Environmental Baseline Study and the Environmental Closure Study. Those tools offer environmental information about an area before and after it has been used by military units. Compensation has been paid in 537 of these cases of damages so far.

The Damage and Environmental Protection Group

During exercise TRJE18, the Damage and Environmental Protection Group (DEP) was responsible for receiving phone calls and emails about complaints, claims and damage, and to handle damages. Part of DEP other responsibilities were building and maintaining Situational Awareness about the Environmental Protection situation, the Damage situation and the Complain situation, and ensure contact with units participating to provide EP advice, handle the Reporting system for complaints and damages, process all damage reports (if necessary contact the County Governor's for the Board of Judicial Assessment) and in case of damages involving civilian infrastructure, immediately inform all necessary Departments / Offices.

The DEP consisted of three sub-groups; the EP officers, the phone operators and the damage officers, for a total of 30 personnel.

To avoid a deterioration of the situation coming from frustration, the DEP put in place a proper claiming process for the civilians having suffered damage to their property or wanting to complaint about a situation. The DEP's contact information was widely-diffused through media, Internet, and the "TRJE18 Business card".

[14] Information about of these complaints is publically available through the Norwegian Joint Headquarters. For inquiries contact: info@njhq.no

Compensation

In Norway there are three terms for compensation under general compensation rules. First, there must be a basis for responsibility. Second, there must be an economic loss, and, third, there must be causation between the incident and the damage. In addition, the damage and the loss must be adequate.

In the NOR Armed Forces we also have some general principles for compensation:

- The compensation shall compensate the real loss
- The compensation is based on tariffs or rates from Public Authority (County Governor, Agriculture Dept., Forestry Dept., etc.)
- The use of an appraiser, if necessary
- The treatment shall be equal in the whole exercise area
- The use of common sense / general agreement
- "Feelings" are not compensated

If the terms for compensation are fulfilled, there are normally three ways to compensate:

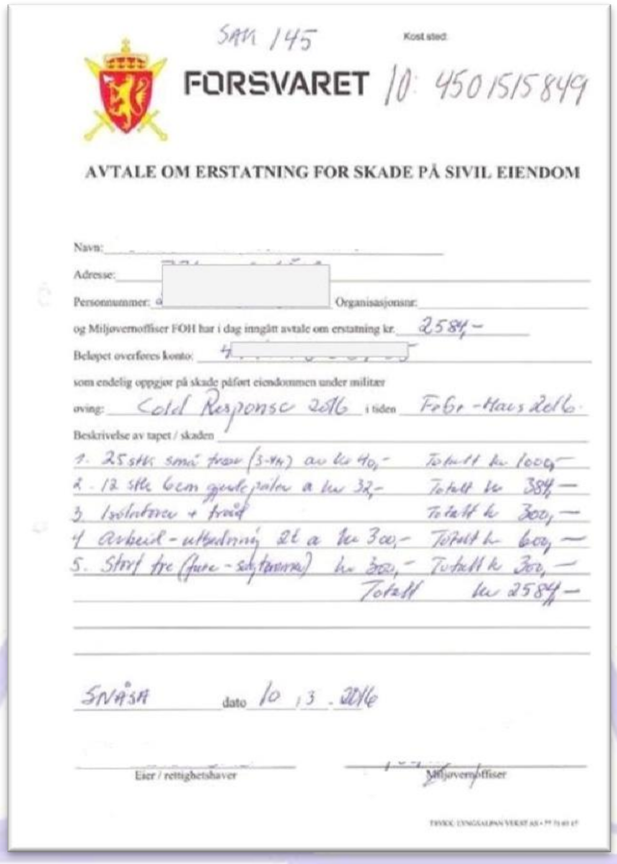
1. Direct Compensation

Direct compensation is the most used form for compensation. It is easy and normally the claimant receives the payment within 30 days.

NOR Armed Forces have developed an Agreement form that is used in conjunction with direct compensation: Agreement about compensation for damage on civil property.[15]

The agreement about the compensation is written on the white original (figure 4), a yellow copy is given to the claimant and a red copy to the damage officer. The original is later given to the Procurer at J8/NJHQ. He will do the preparation with a unique procurement number and then send the case to the Armed Forces Accounting Administration to do the pay-out. All the originals are archived at Norwegian Joint Headquarters for at least ten years.[16]

[15] Norwegian Armed Forces: Agreement about compensation for damage on civil property (In Norwegian: Avtale om erstatning for skade på sivil eiendom).
[16] Norwegian Joint Headquarters on behalf of Norwegian Armed Forces has the responsibility to handle


SAN 145 Kost sted:

FORSVARET ID: 4501515849

AVTALE OM ERSTATNING FOR SKADE PÅ SIVIL EIENDOM

Navn:

Adresse:

Personnummer: Organisasjonsnr:

og Miljøvernoffiser FOH har i dag inngått avtale om erstatning kr. 2584,-

Beløpet overføres konto: 4

som endelig oppgjør på skade påført eiendommen under militær

øving: Cold Response 2016 i tiden Feb - Mars 2016

Beskrivelse av tapet / skaden

1. 25 stk små trær (3-4m) av kr 40,- Totalt kr 1000,-
2. 12 stk 6cm gjerdepåler a kr 32,- Totalt kr 384,-
3. Isolatorer + tråd Totalt kr 300,-
4. Arbeid - utbedring 2t a kr 300,- Totalt kr 600,-
5. Strøm fra (fure - ...) kr 300,- Totalt kr 300,-

Totalt kr 2584,-

SNÅSA dato 10.3.2016

Eier / rettighetshaver Miljøvernoffiser

Figure 4: Direct compensation - Agreement about compensation for damage on civil property (This example is from exercise CR16 and is about threes)
(provided by the author)

2. An agreement with a contractor

If the claimant wants someone else to repair the damage, the use of a contractor is normal. Sometimes it is even better if a contractor repairs the damage, for example, if a private road with several owners is damaged or if it is a complicated damage. But before the contractor can start the work, there must be an agreement about the job to be done with the damage officer. Afterwards the contractor will send an invoice to the procurer at J8/NJHQ.

3. The use of the Board of Judicial Assessment

The Board of Judicial Assessment is a Board from the County Governor, related to the *Act relating to military requisitions*. The Board consists of three persons; two civilians and one military. If it is necessary, depending on the

damages and claims at larger joint exercises.

complexity of the damage, the Board can be supported by subject matter experts. When the damage officer asks for support, NJHQ requests the County Governor for support from the Board. NJHQ requests for support if:

- There is a disagreement about the amount of money (as compensation) between the claimant and the damage officer, or
- The compensation is a large amount of money, or
- It is a principles case.

When the Board has come to a conclusion, both the claimant and NJHQ can appeal the result to the Ministry of Defence according to Regulations to the Act relating to military requisitions §29 for a final conclusion.[17]

After TRJE18, one case was submitted to the Board regarding a disagreement on the amount of money offered as compensation.

Conclusion

In accordance with AJEPP-7 *Best environmental protection practices for sustainability of military training areas*, "every person in the military […] should know and obey applicable environmental laws and regulations, exercise caution, prepare for reasonably foreseeable risks and respond to risks and incidents as soon as practicable."[18] When participants in NATO exercise act otherwise and trespass on prohibited areas, damage cultivated ground or throw away litter outside a kindergarten as seen during TRJE18, not only does it represent an environmental issue, but it also affects public opinion of NATO's military activities. Violation of environmental standards and Host Nation law harms the reputation of NATO and presents a national governmental challenge that have to be address.

If compensation helps fixing environmental damages, it does not completely rectify the harms that have been done. The issue goes in fact beyond Environmental Protection (EP). EP's consideration in NATO exercises is a demonstrative strategic communication of NATO's values. The respect of those law and standards reinforces the goals set by the Nations in the North Atlantic Treaty, such as the safeguard of common heritage and the

[17] LOVDATA "Forskrift om militære rekvisisjoner" (Norwegian Ministry of Defence, 1999)
[18] NATO Standard AJEPP-7 Best environmental protection practices for sustainability of military training areas, 3.3. Individual Responsibilities, 2015, p. 20.

promotion of stability and well-being in the North-Atlantic area.[19] Hence, it is necessary to ensure the environmental values of the organization will be respected in future exercises.

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[19] The North Atlantic Treaty, Preamble, 1949.

Environmental Protection in the NATO Resolute Support mission in Afghanistan

by Mr. Chris Ingoe[1]

Introduction

Managing the environmental impacts of NATO's activities in the Resolute Support (RS) mission in Afghanistan relies on the provisions and guidance within NATO Environmental Protection Standardization Agreements (STANAGs),[2] Host Nation (HN) laws and the Status of Forces Agreement (SOFA). The management of these environmental impacts in Afghanistan is not as straightforward compared to Europe because there is a significant lack of industry, markets, expertise and governance within the HN to support NATO environmental programs. To fill the gaps in HN capabilities and support NATO environmental programs there is a mixture of funded solutions and reliance on the current HN (government and private contractors) capabilities. In any event, NATO environmental programs are required to be carefully coordinated within the agreed legal frameworks.

This article describes some of the top environmental protection issues challenging the NATO mission in Afghanistan. To meet these challenges there needs to be cognizance of the legal frameworks that guide the mission and the perseverance and professionalism to ensure the mission remains on the right path towards environmental compliance.

Legal framework

Afghanistan has state-enforced environmental laws,[3] but under the

[1] The Staff Officer Theatre Environmental Protection position sits within the Director of Support's (DCOS Spt) Combined Joint Engineer (CJENG) branch. The post is the only full time operational Environmental Protection Officer in NATO. The author is a former UK Military Engineer who holds a BSc (hons) in Environmental Studies, MSc Environmental Health, MSc Water and Environmental Engineering and is a PhD student in Civil and Environmental Engineering with the University of Surrey in the UK.
The views expressed in this article are solely those of the author and may not represent the views of NATO, ACO, ACT, or their affiliated institutions, or any other institution.

[2] Information from Allied Joint Environmental Protection Publication (AJEPP) 2 is used. STANAG 2582 - AJEPP-2, Best Environmental Protection Practices for Military Compounds in NATO Operations.

[3] There are two Afghan environmental laws relevant here: Environment Law 2007, Government of the Islamic Republic of Afghanistan and Environmental Impact Assessment Regulations, Government of the Islamic Republic of Afghanistan, 2008.

SOFA,[4] NATO is not obliged to conform to them. Articles within the SOFA require that NATO respects relevant Afghan environmental laws, regulations and standards in the execution of its policies but specifically acts in accordance with applicable NATO practices and applicable international agreements. The Articles were drafted in such a way as not to require adherence to Afghan environmental law, but the Alliance has agreed to follow the more protective of either NATO or Afghan standards. As an example, the permit for discharging wastewater into the Kabul River requires adherence to the agreed Afghan environmental permit's discharge standards because they are a higher standard than that of NATO.

The use of land by NATO for its bases is authorised in the SOFA. Therefore, NATO will have environmental liability of all the sites irrespective of the lead NATO nation at each base. However, within NATO, the lead nation of a base is expected to clean up or is expected to identify the polluter for all environmental-related contamination and address all environmental issues that they have caused. Costs lie where they fall and if a lead nation has contaminated an area during its tenure in-country it is then liable for its clean-up. Resolute Support Headquarters (RSHQ) has oversight of all lead nation environmental-related activities to ensure applicable Environmental Protection (EP) standards are followed as laid down in RS Environmental Protection Standing Operating Procedures (RS EP SOPS). RS EP SOPs are hybrid documents based off the NATO EP STANAGs, MC 469/1, SOFA and relevant aspects of Afghan Environmental Law.

Implementing the standards within the RS EP SOPs carries an obligation that will imply an additional cost to the mission. The funding of EP does not only contribute towards the achievement and maintenance of EP standards, but has to fund the gaps in the HN capabilities.

Hazardous waste

An example of such a gap is the HN inability to process hazardous waste. Funding is required to support programs that collect, store and ship hazardous waste out of theatre to treatment facilities in Europe. Hazardous waste facilities at HQ RS and at Hamid Karzai International Airport (HKIA), the

[4] Agreement between The North Atlantic Treaty Organization and the Islamic Republic of Afghanistan on Status of NATO and NATO Personnel conducting mutually agreed NATO led activities in Afghanistan, Articles 5 and 6 Sept 2014. The SOFA defines the terms and conditions under which NATO forces will be deployed in Afghanistan.

NATO airbase in Kabul, were justified and funded by the Military Budget (MB) to support the base's hazardous waste program.

Local companies are attempting to fill the HN gap by offering hazardous waste removal and treatment services. After an assessment of their practices and facilities it made legal and practical sense to follow the current NATO Support and Procurement Agency (NSPA) method of hazardous waste removal and management. NSPA's hazardous waste removal program provides management of hazardous waste in and out of theatre.

When hazardous waste is mismanaged this can compromise force protection and heighten environmental, reputational and ethical risks. There have been force protection alerts due to the mis-handling of Uninterruptible Power Supply (UPS) batteries because of their size and potential to power Improvised Explosive Devices (IEDs). Vehicle batteries that are locally disposed of present ethical and reputational risks to NATO when children are employed to recycle battery components.[5]

Hazardous waste that cannot be recycled or reused in theater under controlled conditions is transported from Afghanistan to Germany for processing and destruction. Transporting this hazardous waste across international boundaries is subject to United Nations conventions. Hazardous waste disposal under NSPA complies with the Basel Convention controlling the trans-boundary movement of hazardous waste and its disposal.[6] Pakistan and Afghanistan are signatories to the Basel Convention, allowing ease of movement under an international legal framework. Complying with the Convention ensures environmentally sound management and tracking of hazardous wastes from a NATO facility to its final disposal.

Solid waste

Solid waste management in Europe is guided by the hierarchy of solid waste management (reduce, reuse, recycle). In Afghanistan there are limited opportunities to implement these three 'Rs'. There are fledgling companies in Kabul that are using waste plastic as feedstock in manufacturing, indicating positive progress. One company recycles plastic for kitchen utensils, another

[5] This was communicated to the RS EPO from the Afghan National Environmental Protection Agency (NEPA) in an email.

[6] Basel Convention, *Basel convention controlling transboundary movements of hazardous wastes and their disposal, 2018* http://www.basel.int/ [Accessed 29 Mar 18]

uses organic waste and cardboard from NATO bases as feedstock to make compost. The compost is then given to a group of local women that includes Afghan war widows whom use this compost to fertilise plots of land provided to them to grow and sell produce.

Image 1. Creating compost-using feedstock of cardboard and organic waste.
(provided by the author with permission of M&R Environmental Solutions)

In a conflict-affected and developing country, components of solid waste are valuable commodities. Valuable in this context means the energy derived from its combustion or the recyclable potential and monetary value of metals and plastics. Combustible waste such as wood, cardboard and paper are used in the domestic environment to heat homes and as cooking fuel during the long winter months. In extreme cases, waste plastics are incinerated in the home environment to generate heat contributing significantly to indoor and outdoor air pollution.[7]

[7] CNN, 'Sad report of Afghan –Pashtun child 5 burning trash for her families survival in Kabul' 2011 https://www.youtube.com/watch?v=74kCS4XaSa8 [Accessed 20 Mar 18].

Image 2. Solid waste transported from NATO bases is sorted at the contractors yard. All valuable components of solid waste are extracted and wither reused or recycled. Source: Resolute Support Mission.
(provided by the author)

Recycling at the point of disposal is partially conducted at HQ RS and HKIA. Some of the reusable and recyclable components of the solid waste stream are removed in the camps by the local workers. In addition, cardboard, wood and industrial metal waste is separated out of the waste stream at HQ and glass bottles and aluminium cans recovered at HKIA. The mixed solid waste from the camps are then removed by a local solid waste contractor and delivered to their local compounds for further sorting and removal of valuable components. If NATO sorts its solid waste within the base it will have implications on local employment at these facilities and on force protection. Dedicated separation on camp will require numerous trucks to enter the camps to take away the segregated waste. Force protection requires the minimum number of vehicles on base. Any remaining solid waste after sorting and recovery is taken to a government-designated landfill South-West of Kabul ((as specified in RS solid waste contracts).

Air pollution

In winter the air in Kabul becomes thick with smoke. The surrounding mountains create a bowl effect where periodically the weather keeps the pollutants concentrated over the city. The only relief is when wind stirs the air or cold air is forced down from the atmosphere replacing the polluted air. This

situation has led to an increase in respiratory illnesses in Kabul, as reported in local media, especially within the vulnerable age groups.[8]

There are very few environmental protection measures that NATO can employ to control its emissions. Burn pits are banned[9] because there is no control of what is incinerated and there is no control over its toxic emissions. The only remaining significant emission source is from power generation and construction activities. All NATO generators lack emission scrubbing devices resulting in large quantities of respirable and particularly menacing Particulate Matter (PM) at 10 and 2.5 microns discharged into the local environment.[10]

The original specification for the generators at NATO Kabul bases were subject to the Minimum Military Requirement (MMR). The MMR is defined as the most austere facility or equipment required to fulfil a NATO military need identified by the NATO military authorities. The NATO nations will not authorise the procurement of an energy efficient, noise reducing, emission scrubbing generator if the capability of supplying power (the primary requirement) can be fulfilled by a generator that produces the required output. In this context the generators were purpose built to operate at Kabul's altitude, but energy efficient and air pollution mitigation measures were omitted.

One future course of action to reduce local generator emission sources is to connect the bases to prime power supplied by Afghan companies. This will improve the air quality of the micro-environment (including noise) and reduce commercial traffic in and out of the bases. However, the timeline for this project is slipping further into 2021 and beyond and it is looking increasingly unlikely that it will happen. If HQ RS were to be connected, then there will still remain an essential requirement for back-up generators in the event the local power supply becomes unreliable.

The RS EPO has campaigned for new prime power generators at HQ RS and HKIA to utilise emission scrubbing technologies and are energy efficient. Both of these enhancements will serve to protect human health, the environment and will relieve force protection efforts by reducing the number of fuel trucks required per day on base to refuel the generators. The health of

[8] TOLO News, 'Diseases increase as air pollution worsens', https://www.tolonews.com/afghanistan/diseases-increases-air-pollution-gets-worse [Accessed 01 May 2018].
[9] US department of Veteran Affairs, *Burn pits*, https://www.publichealth.va.gov/exposures/burnpits/index.asp [Accessed 20 Mar 18]
[10] Australian Government, Department of Environment and Energy, 2018, Particulate *matter (PM10 and PM2.5)* http://www.npi.gov.au/resource/particulate-matter-pm10-and-pm25 [Accessed 23 Mar 18].

NATO personnel, environmental protection and the efficient use of resources are now critical contemporary considerations to be included as a MMR.

It is difficult to assess if the current generator emissions are within environmental tolerances. A Ringleman Chart, based on a percentage of opacity, i.e. 0% is clear emissions and 100% is dark heavily polluted emissions, can be used. Most NATO generators are around 20% opacity and according to US Environmental Protection Agency standards, 20% is acceptable. This may be a result of the high quality of fuel used and regular maintenance of the generators. The Ringleman Chart does not identify PM at sizes 10 to 2.5 microns. Without emission scrubbing devices, each of the generators at RSHQ emits 2.12 tons of PM into the local atmosphere per year. There are 13 generators in a confined area at RSHQ, emitting a total of 28 tons (the equivalent mass of two and a half red London busses) of PM per year.

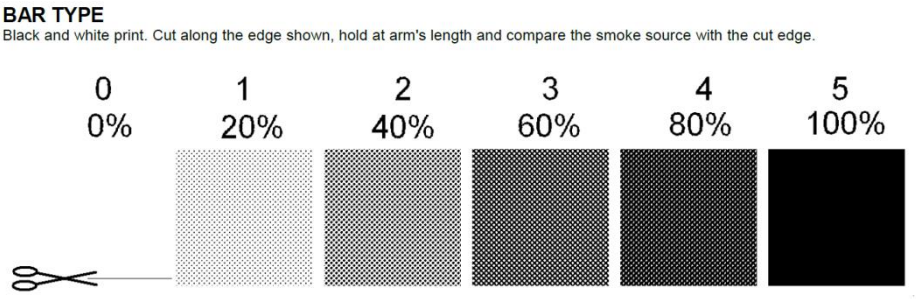

Image 3. The Ringleman Chart used to compare the opacity of the emissions from generator stacks. The chart is printed on A4 paper and held up to the emission stack from a distance to identify a % of emission opacity.
Source: https://notalotofpeopleknowthat.wordpress.com/2014/11/24/the-uk-clean-air-act-black-smoke/
(provided by the author)

Background levels of PM from a 2006 study of Kabul were approximately 160 micro grams per cubic meter of air. World Health Organization (WHO) standards are 50 micro grams per cubic meter. There are industrial hot spots around Kabul such as brick kilns and power plants with recorded elevated levels of PM above normal background levels. The only specialists in-theatre capable of conducting detailed air quality sampling for NATO is the US Preventative Medicine (PMED) team. Samples are analysed in the US and the results provide a foundation for a Screening Health Risk Assessment (HRA) for deployed personnel. However, HQ RS will soon receive an air quality monitoring station capable of analysing PM levels in real time. In the case of infrastructure renewal, this average and continuous data can be

used to justify an enhancement of the MMR and allow NATO commanders to obtain a real time picture of air quality in their Area of Responsibility (AoR).

The PMED random sampling does not provide year round average representation of pollution levels that the new air quality monitoring station will provide. Random sampling is subject to the season of the year, time of day and the weather at the time of sampling. There has not been any continuous monitoring before and therefore periodic sampling depends on these time and weather variables. The Afghan National Environmental Protection Agency (NEPA) is also developing an air quality monitoring program, and this will serve to inform RS of background pollution levels within the wider Kabul area. There are also mobile phone application based air quality monitoring sources but the data provided cannot be verified.

At present, NATO personnel are left to manage their own personal exposure to the poor air quality, particularly during the winter months. Some poor air quality mitigation methods include avoiding early evening to early morning outside physical activity, and for personal to purchase their own anti-pollution masks and air filters in their accommodation. However, some nations have purchased air purifiers and urban pollution masks for their personnel in Kabul.

Image 4. Portable monitoring equipment set up by Preventative Medicine teams to collect particulate matter on to a filter. This filter is sent to the US for analysis. Note the clear weather that is not truly representative of a typical polluted day in Kabul.
Source: Resolute Support Mission **(provided by the author)**

Renewable energy

In the future, if the MMR includes a provision for energy efficient generators they would also have to be supported by energy efficient practices by the base's residents to gain maximum benefit. This could include a mix of renewable energy. Renewables offer a great alternative to fossil-based fuel sources not only in terms of benefits to the environment and human health, but also force protection because of a foreseeable reduction in fuel deliveries.

The practical applications of renewables are limited in a security-challenged operational environment. Wind turbines require a strong wind to turn the blades. In Kabul the turbines would have to be sited on hill tops away from the bases where there is adequate wind flow. This is a security issue as the turbines are vulnerable to destruction by insurgent activity that will require a guard force in an isolated location.

Solar panels require a large real estate footprint to concentrate enough panels to produce the required amount of energy. The available real estate at the bases in Kabul is at a premium and allocation of large tracts of land for solar panels is unreasonable. If placed on roof tops the panels will require regular cleaning because dirt and dust accumulates quickly in Kabul. This will drastically reduce the efficiency of the output. NATO bases are energy intensive with the use of air conditions, hundreds of desk tops, heaters and lighting. Solar panels are more practical to power smaller equipment such as security cameras, LED lighting and small communication devices.

A more practical option is the use of energy efficient generators coupled with in-built energy conservation devices (e.g. auto light switches) and the installation of A++ energy efficient equipment. The Forward Support Base (FSB) who operate and manage the base at RSHQ are making great efforts to purchase energy efficient equipment and lighting. It is conflicting that under the MMR a D rated appliance will be purchased because it is practical and cheaper. The MMR forfeits the long term gains in cost savings from burning less fuel and enhancing force protection by receiving less fuel deliveries and, therefore, fewer opportunities for insurgents to infiltrate into the bases.

Fuel Storage and contaminated land

The intensive energy requirements at NATO bases demand the storage

of large quantities of fuel. This strategy presents an environmental risk. In 2016, a significant quantity of fuel burst from its Collapsible Fabric Fuel Tanks (CFFT) at Kandahar Air Field (KAF) and poured into its surrounding containment. A split along the seam of the CFFT was the cause. The containment storm water drain plug was inadvertently left open and the fuel subsequently flowed into the oil water separator that normally separates fuel from the storm water. The separator became overwhelmed and the fuel backed up and laterally spread across the site contaminating over 6000 cubic meters of soil.

While a quantity of fuel remained unaccounted for, a significant quantity was recovered, filtered and reused. The remaining fuel entered the soil environment under the site. Fortunately, the soil profile is of fine grain silty clay that retards percolation downwards preventing the fuel reaching greater depths. The fuel contractor under NSPA led the clean-up operation. This is a case of the polluter paying. A specialist company from Austria deployed and conducted soil sampling of the site. Their report mapped out the extent of the hydrocarbon contamination at the site.

Image 5. Collapsible Fabric Fuel Tanks used for fuel storage throughout theatre.
Source: Resolute Support Mission
(provided by the author)

Image 6. Contaminated site at Kandahar undergoing excavation of the soil above 2000 ppm. Source: Resolute Support Mission
(provided by the author)

The climate at KAF climbs to over 50 degrees Celsius during the summer months and the CFFTs do not have an all-weather cover. This event occurred in May of 2016, a slightly cooler period, but nonetheless hot at around 30 degrees Celsius. The high temperatures at the time of the uncontrolled release aided the evaporation of fuel on the surface smothering the site in a pungent oily odour.

The CFFTs are an expeditionary method of fuel storage and have been used for over 16 years in Afghanistan. There are inspection regimes that monitor the integrity and serviceability of the CFFTs, and any signs of wear and fabric deterioration are compared against a set standard. The CFFTs are either passed fit or taken out of service. This particular CFFT was passed fit for service by being classified as 'green' status. Green means fully mission capable and able to use to store 100% maximum storage capacity.[11]

Environmental risks from spills of this magnitude can impact groundwater, soil, and human health. KAF is served by three aquifers and it is the shallow aquifer at 10m below ground level that was of concern. The fuel's viscosity ensures a slower velocity through the soil profile; and this coupled with the soil type (fine grained versus coarse grained) determined how far the released fuel travelled under gravity. Fuel that reaches the groundwater will

[11] Headquarters Department of Army, Technical bulletin for Collapsible Fabric Fuel Tanks (2009) http://www.quartermaster.army.mil/pwd/Publications/Petroleum/TB%2010-5430-253-13,%20Bag%20TB.pdf [Accessed 01 Mar 18].

solubilize and the toxic component separate out dependent on the concentration of fuel reaching the groundwater. It is essential that neighbouring boreholes used by the Afghans are not polluted by NATO's activities. Fortunately, in this case, the fuel migrated no further than 3 – 4m into the soil profile.

The NATO standard for the remediation of contaminated soils is 2000 parts per million (ppm) (that is 0.002 Kg of hydrocarbons per Kg of soil). This is an industrial standard chosen from North America for NATO operations in Afghanistan.[12] Soil contaminated above 2000 ppm requires remediation.

This standard determined the amount of soil that was required to be removed at KAF, leading to the excavation and transport of 4500 cubic meters of soil to a remediation site south of KAF. If the acceptable standard was raised to 5000 ppm then only 2000 cubic meters of soil would have been excavated. The contractor requested this, but was denied. At the remediation site, the soil was laid out in the sun and nature was allowed to take its course and break down the hydrocarbons in to carbon dioxide and other non-toxic components. This is one practical option for remediation.

The cost of the KAF clean-up was over one million US Dollars. This was paid for by the polluter. There are still several International Stabilization and Assistance Force (ISAF) (the name of the mission prior to RS) legacy sites to be remediated throughout theatre. Even when funding is available there are several other barriers to timely and effective project execution.

The availability of experienced and qualified contractors is one barrier. The nearest contaminated land expertise resides in Western Europe and not in Afghanistan. Few companies are willing to deploy to theatre with equipment, therefore, forcing NATO to rely on local inexperienced contractors. Trying to keep the whole project confined to a base is desirable, but security and real estate availability precludes this course of action in some locations. Long lead times are associated with this type of project because it will take approximately two years from the initial project conception to fully remediate the contaminated soil if using western qualified contractors. A mission location cannot expediently close if environmental liabilities are to be addressed.

[12] This is from North American standards for soil clean up levels for diesel range of organics/heavy oils. In table 8.4, method of a soil clean up levels for petroleum contamination specifies industrial land use. Department of Ecology, State of Washington, Guidance for remediation o petroleum contaminated sites https://fortress.wa.gov/ecy/publications/documents/1009057.pdf [Accessed 03 Apr 17]

Wastewater

The contamination of the scarce water resources in theatre is also a problem in Afghanistan and is particularly noticeable in Kabul. Driving along the Kabul River, the odour is strong, the trash in the water is unsightly and the mass of foam visually indicates suspected indiscriminate disposal of untreated industrial and domestic effluents. A recent initiative to clean up the Kabul River was undertaken by the HN government to support the rehabilitation of the local environment, create employment opportunities and protect underground water resources from pollution.[13]

RSHQ discharges its treated effluent from its onsite contracted wastewater treatment plant (WWTP) into the Kabul River. To achieve the required standards, the technologies employed at NATO wastewater treatment plants need to be effectual. Energy intensive bioreactors are used at the majority of NATO bases to achieve this. Leach fields are used at some locations where the ground permits the breakdown of the organic matter and where there is sufficient depth to ensure groundwater resources are not polluted. This method is also practical where there is no discharge point such as a waterway.

Image 7. There have been clean up initiatives of the Kabul River bed in recent times. However, indiscriminate dumping of solid waste still continues and the river receives wastewater and industrial waste along its urban length. This image shows the perennial Kabul River mid-summer when it is just a dry river bed but exposes solid and industrial waste. The HQ RS wastewater treatment plant discharges into this river under a legal permit from GIRoA. Source: Resolute Support

[13] Pajhwok Afghan News, *Kabul river campaign cleaning*, 2017 https://www.pajhwok.com/en/node/496827 [Accessed 01 Mar 18]

The RSHQ WWTP is the only plant in theatre that discharges into an official GIRoA waterway. Discharge into the Kabul River reduces force protection risks and removes potential health risks presented if it were to be stored on base. Without this discharge there would be the requirement of several tanker trucks per day to enter RSHQ to take away the wastewater and sludge. Discharge into the Kabul River is legally permitted by GIRoA under a permit to discharge as long as the effluent quality is within agreed parameters. The plant has undergone a 1 million Euro upgrade to increase its capacity, improve performance and introduce new technologies to reduce the amount of sludge produced. Since the new upgrade came online, there has been a significant reduction in the amount of sludge taken out of RSHQ. This is a win-win for force and environmental protection.

The WWTP at HKIA discharges effluent that meets EU standards, which are higher than NATO's. However, because this effluent is not discharged into an official waterway, the GIRoA's standards do not apply. The wastewater effluent is discharged into a storm water ditch that runs around the peripherals of the base. This storm water ditch is highly contaminated before it reaches the perimeter of HKIA, upstream from our location, because of indiscriminate dumping into the drain by the local population. It has a black consistency and a pungent sulphuric odour. It is assumed to be toxic because there is limited plant growth in the riparian zones along the storm ditch length. This issue has been discussed with GIRoA, but a lack of capacity and a safe and secure environment prevent it from being corrected.

There is agricultural land surrounding the east of HKIA and there are concerns that the water from the storm water ditch is being used for irrigation by the local population. Using highly polluted water for irrigation will contaminate vegetation. There is also a risk this polluted water can reach shallow groundwater through pathways directly to the water table. Despite the desire to help, management of these water issues are outside of the mission of RS. Since the waters are outside the two bases, their management falls under the responsibility of the Ministry of Energy and Water, and the agricultural issues are the responsibility of the Ministry of Agriculture, Irrigation and Livestock.

Image 8. This image was taken circa 2010 when the security situation in Kabul was more conducive to external inspections on contractors that were paid to take away black water. Here the contractor is caught discharging the black water into a depression near Kabul.
Source: Resolute Support Mission
(provided by the author)

Water resources

At the opposite end of the base's water cycle is raw water extraction from groundwater for non-potable use. NATO bases are utilising shallow groundwater supplies that usually are high in Total Dissolved Solids (TDS). TDS can be from natural sources, sewage, urban run-off, industrial wastewater or chemicals. High TDS will mean the raw water requires a higher level of treatment to ensure the salts are not deposited on the water distribution infrastructure within the camp. This precipitates as scale on taps and inside water heaters and boilers and leads to energy inefficiency. In these shallower wells there are the tell-tale signs of anthropogenic contamination by higher nitrate levels. This is assumed to be leakage from poor sanitation infrastructure within Kabul.

The treatment of Kabul groundwater at NATO facilities is energy intensive. The more energy intensive the treatment the safer the water is likely to be. However, there is no guarantee of safety at the tap and therefore bottled water is used for drinking. This was evident at RSHQ in 2015 when there were high nitrates recorded in the water supply at the dining facility. Several safety barriers between consumer and source were deficient at the time, but the issue was rectified by installing an additional treatment line on the outside of the dining facility. NATO treated raw water is still classed as non-potable,

but suitable for use in domestic situations (showers, vehicle washing, and sanitation).

Water is supplied on NATO bases to meet a minimum demand of liters per person per day. In bases where there is a high concentration of personnel, this would represent a significant amount of raw water extraction. A recent study showed that the amount used per day was higher than the STANAG recommendation.[14] There is a water study planned for this location to determine and manage water resources more efficiently. This will include low flow shower heads and other water saving devices, better overview on water usage and the ability to target areas of high water demand.

Summary

For the RS mission there are barriers that have to be overcome to effectively implement the environmental protection program. NATO overcomes these barriers with bespoke projects, trained personnel, funding and time, but there is still a lot of environmental protection work to do. The solutions require innovative thinking and continued support from all RS mission personnel, GIRoA and the wider NATO community.

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[14] STANAG 2885, Emergency supply of potable water in war.

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