CHAPTER 9

Uphill Battle: Military Organisations' Reporting on Environmental Sustainability Performance

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'We need to climate-proof our organizations, our policies, and our equipment'
—General Middendorp[1]

Abstract

This chapter investigates the issues the military need to address when reporting to internal and external stakeholders on its environmental sustainability performance. We propose a conceptual model to identify the most important decisions to be made. Empirically, we provide an overview of recent developments in reporting on environmental sustainability by the MODs of Australia, Canada, the United Kingdom, the United States, and the Netherlands. In doing so, we identify two main decisions to operationalise environmental sustainability performance and its reporting.

Keywords: operational sustainability performance, environmental sustainability performance, secrecy, defense, internal and external reporting.

9.1 Introduction

Sustainability entails more than a reduction of footprints. In the military, the concept is applied in several contexts and is understood in several ways. The NATO Logistics Handbook defines sustainability as "the ability of a force to maintain the necessary level of combat power for the duration required to achieve its objectives".[2] Regarding this definition, the European Defense Agency (EDA, 2017) annually reported from 2007 until 2017 on sustainability, concerning 27 European Union (EU) member states. During this period, typically, sustainability would be derived from the armed forces' deployability, defined as the number of national (land)forces that could be deployed immediately by a member state. Deployability was measured both as an absolute number of military men and women, as well

as a percentage of the sum total of the nation's military. Regarded as a derivate of deployability, sustainability was defined to equal the number of (land)forces a nation can deploy in the longer term. In line with deployability, sustainability also would be expressed as both an absolute number of military as well as a percentage of the sum total of the nation's deployable military (Beeres, Bollen, and Bogers, 2023, Beeres and Bollen, 2017). From 2005–2017, based on a mean of 1,580,614 military annually, the 27 EU member states reached a deployability percentage of 27.3%. During the same period, the mean sustainability percentage reached 23.3%. Thus, out of a European total of 1,580,614 military, annually 99,612 military could be deployed on missions in the long term.

Recently, in literature, military sustainability has been operationalised quite differently than described above, referring to issues pertaining to the social (e.g. social safety), environmental (e.g. CO_2 emissions), and economic (i.e. cost-effectiveness) behaviour of defense forces (Atlason and Gerstlberger, 2017, Holcner and Smiljanic, 2018, Smaliukiene, 2018). Intra-military environmental sustainability discourses focus both on sustainable energy consumption and additional environmental issues, traditionally connected with the armed forces, such as soil contamination at military bases, pit burns, water extraction in mission areas, noise levels caused by fighter jets, and use and storage of dangerous substances (Smaliukiene, 2018). According to a report by Kearney, a drastic shift in the global supply of energy is expected in the next 25 years as supplies of non-renewable energy decline, which will affect a nation's ability to deploy its armed forces (Boladian et al., 2023). This means that military organisations should have a focus on military effectiveness in a world that is changing due to investments in sustainability, but also a focus on social responsibility to contribute where they can to sustainability. One would expect that designed measures would support awareness and would support defined desired outcomes for future-proof military effectiveness and military sustainability.

In the private sector we see quite a similar shift. The *Corporate Sustainability Reporting Directive* (CSRD) of the European Union (EU) introduces detailed sustainability reporting requirements for large EU corporations. CSRD is a core element in the EU's ambitious focus on corporate sustainability and entered into force on January 5, 2023. On one hand, companies are required to disclose information on how sustainability-related factors affect their operations and the business (outside-in). On the other hand, companies must inform how their business model impacts sustainability factors (inside-out). The scope of required reporting covers environmental, social, and human rights and governance factors. Developments such as the establishment of CSRD in the EU are paralleled by similar developments in the United States (US) and the United Kingdom (UK). In March 2022, the US Securities and Exchange Commission proposed expansive climate related disclosure rules. Likewise, the UK is developing its own broader corporate sustainability

reporting standards. Moreover, the International Sustainability Standards Board (ISSB) has produced a comprehensive global baseline of sustainability-related disclosure standards.

Zooming in on the industry providing major military systems, we note that compared to most other sectors, the global defense industry is challenged regarding environmental sustainability, for example in reducing greenhouse gas emissions. This is not entirely surprising: safety, reliability, and performance have been and will continue to be the paramount requirements of customers in the armed forces. Many defense systems and supporting infrastructure are also inherently more difficult to decarbonise than in most other sectors (Dimitrova et al., 2021). It is stated that decarbonising efficiently will require a holistic approach. Defense contractors and the sector as a whole need to get a clear picture of their current emissions to establish a baseline, define firm targets and strategic roadmaps for each business unit, and start implementing emission reduction initiatives. These initiatives will vary by company and business unit, but they should include procuring greener inputs and assemblies from suppliers, accelerating R&D programs to develop new generations of carbon-efficient products, and coordinating with other players to create green solutions at scale.

Depending on the specific situation of a public organisation, a performance measurement instrument is designed and geared towards effectiveness, efficiency, or fairness. Because of its relatively large footprint as a public organisation, environmental sustainability is to be added to the existing performance measurement instruments in the Defense public sector. To this end, the traditional sustainability context needs to be operationalised concerning other performance elements. As large corporations do, the military is also confronted with some level of public pressure to organise their operations sustainably and to report on what they are doing in this regard. Current research on this topic in a military context is limited. It represents a specific domain of research adjacent to military studies, public management (e.g. procurement) and sustainability as a broader topic.

Our chapter offers a strategic, qualitative reflection on sustainability reporting by military organisations of several countries. Hence, to limit the scope our research, we do not design a roadmap for sustainability reporting by military organisations, recommend improvements on sustainability reporting by military organisations or quantitatively measure sustainability performance of military organisations. Instead, our research questions include:

(1) How do we position environmental sustainability in the notion of sustainability?

(2) How do military organisations report on environmental sustainability?

To do so, first, we present our theoretical framework to enable us to think conceptually about the design of performance management systems for public and non-profit organisations. We then identify major decisions to be made for both internal and external reports on environmentally sustainable performance. Next, we discuss the ways in which the MODs of The Netherlands, Australia, Canada, the UK, and the US currently report on environmental sustainability. Finally, we reflect upon sustainability policies and reporting across international cases of military organisations and identify two main decisions to operationalise environmental sustainability performance and its reporting.

9.2 Positioning Environmental Sustainability

What is the scope of environmental sustainability (performance)? According to Dathe et al. (2022), Environmental Social Governance (ESG) is defined as "the operationalization of sustainability management by means of the process of Environmental Social Governance" (Dathe et al., 2022). So, being successful in sustainability needs managing these three dimensions. Furthermore, the successful application of ESG requires smooth cooperation between a variety of stakeholders, good quality reported data (Cort and Esty, 2020), and decent underlying concepts to ensure this quality. Let us first describe the three dimensions of ESG.

First, according to Bradley (2021), the main ESG ***environmental factors*** relate to the (re)use of natural resources. That is a company's stewardship obligations which can be outlined in practices as:

- Protecting the natural environment, and
- Using natural resources throughout the logistics process and product lifecycle in a responsible manner (i.e., from product design, purchasing, production, assembly, warehousing to transportation, and recycling) (Uemura Reche et al., 2022), thus
- Promoting a circular economy, preventing pollution, and stimulating biodiversity (Bradley, 2021).

These practices usually involve matters such as confronting greenhouse gas and carbon emissions, adopting clean energy sources, optimising energy usage, and conserving water.

Second, important ESG ***social factors,*** identified by Bradley (2021), are social trends and conditions related to how a company's social performance impacts human well-being. This varies from the life quality of employees and dealing with social communities, to applying social standards regarding the supply chain. Examples of topics frequently dealt with are gender and diversity (so the reduction

or elimination of inequalities), data protection and privacy, employee engagement, community relations, human rights, and labour standards.

Third and finally, ***governance*** is a mandatory element in any due diligence process, directing and dictating the environmental and social elements of ESG. It comprises four factors: organisational leadership, its management; the internal auditors and the external auditors. As stated by Bradley (2021, p. 83) "In total, it safeguards appropriate oversight aimed at ensuring long-term, sustainable value creation with due regard for all stakeholders."

Although environmental sustainability is mostly dealt with in combination with social and governance sustainability, we focus mainly on the first one. It is this field that has seen the most turbulent developments in recent years, with the 2015 Paris Agreement on climate change, assessment reports of the Intergovernmental Panel on Climate Change (IPCC), and a continuous stream of media messages on climate change and its imminent effects, which urge organisations, both public and private, to act.

9.3 Reporting on Environmental Sustainability

For the private sector there are multiple frameworks developed that cover sustainability performance reporting. Examples of these frameworks are the Global Reporting Initiative (GRI), the Task Force on Climate Related Financial Disclosures (TCFD), the World Economic Forum (WEF), the International Integrated Reporting Council (IIRC), the International Sustainability Standards Board (ISSB), and the European Financial Reporting Advisory Group (EFRAG). Each of the aforementioned reporting frameworks may cover environmental, social, and human rights, governance, and other factors. In general, they all strive for integrated reporting. However, these reporting frameworks vary substantially in terms of for instance the scope of the framework, disclosure requirements, sector applicability, the effective date of the standards, and the interoperability with other frameworks.

We see similar developments in the public sector, although it is lagging a little behind. On May 9, 2022, the International Public Sector Accounting Standards Board published its consultation paper, Advancing Public Sector Sustainability Reporting (IPSASB, 2022). This paper identifies the following factors driving the need for public sector-specific sustainability reporting:

- Global public interest;
- Major economic, environmental, social and governance impact;
- Capital markets significance.

IPSAS proposes a public sector-specific sustainability reporting framework. After reviewing the responses in the last quarter of 2022, IPSAS decided to establish a Sustainability Task Force for further research and scoping. The prioritised research topics of the Task Force are:

- General requirements for disclosure of sustainability-related financial information;
- Climate-related disclosures;
- Natural resources – non-financial disclosures.

Especially in the research topics we see the main focus is on environmental sustainability. However, in the current situation the public sector has not established standards on sustainability reporting, nor on topics that are mandatory to report on. So how and what to report on concerning environmental sustainability is still unclear.

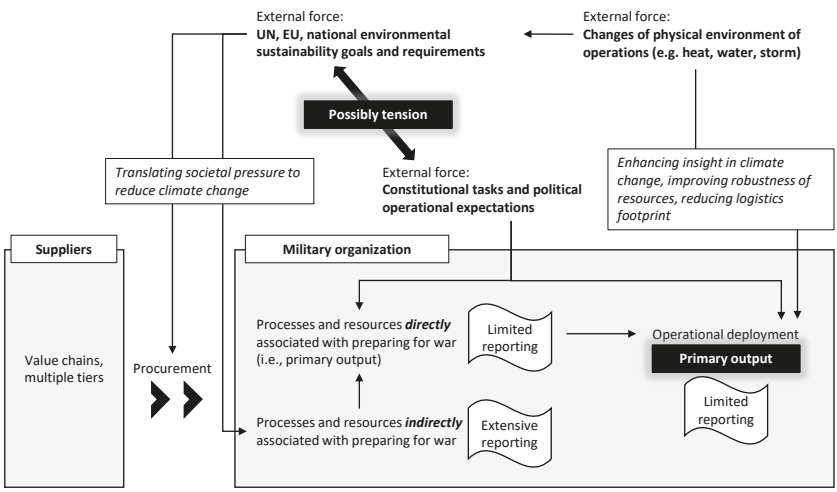
After discussing private and public sector reporting we looked for guidance in the (international) military scope (e.g. NATO). We find no established guidance on reporting. However, we notice military organisations are still probing sustainability reporting on national level. Because of this we need to explore reporting possibilities further, which is done in the next section.

9.4 Military Organisations: External Influences and Organisational Reporting

Non-financial external reporting is an emerging phenomenon that asks organisations to develop and embrace new organisational practices (O'Dwyer and Unerman, 2020). When military organisations need to account for their policy, actions and results achieved in the field of environmental sustainability this is covered by non-financial reporting. Non-financial external reporting is relatively new. This contrasts with the long-standing, institutionalised rules and practices concerning financial external reporting (Lahouirich et al., 2022). To relate external reporting to an organisation, internal reporting is a necessary precondition. As a starting point, we can distinguish internal reporting as a counter-phenomenon within the organisation (Jones and Ratnatunga, 2012). Internal reporting stimulates organisations to be adaptive to external developments; it preludes pending changes to transform the fabric of organisations. It implies more than just reporting within the organisation, involving a range of intervention opportunities like the development of strategies and policies, performance management, technology, controls, change management and audit readiness. Research has been emerging on these intervention opportunities to enable sustainability transformation in organisations (Romero, Jeffers, and DeGaetano, 2014).

Figure 9.1 provides a framework for contextualising these opportunities for sustainability reporting interventions. First, internal goals and indicators enable reporting on internal/external environmental sustainability performance. Mirroring external goals and indicators, the internal side also requires political and conceptualisation (operationalisation) processes. The relationship between environmental sustainability and other aspects of organisational functioning tends to be complex. Second, internal reporting requires information on activities and resources being the object of measurement. This is where internal reporting proceeds to the micro realities of organisations. For military organisations we distinguish on the one hand the standing organisation and peacetime operations, and on the other hand the mission-oriented operations (de Bakker and Beeres, 2016). And third, a military organisation's activities and resources relate on the input side to suppliers and on the output side to external partners and contexts. Both generate information that is used in internal reporting.

Figure 9.1. Military organisations and reporting on environmental sustainability.



Conceptually, the internal organisation can be understood as a cybernetic information processing system that includes goals, operationalisation of goals (indicators), measurement systems, and actual information processing (Galbraith, 1981). An integrated theory of organisations as cybernetic information processing systems encompasses, for instance, the Viable Systems model and the (increasingly sustainability oriented) Business Model approach (Espejo et al., 1996, Freudenreich, Lüdeke-Freund, and Schaltegger, 2020). The extant cybernetic system must be enriched and transformed by environmental sustainability, i.e. changes to goals

and policies (Greve and Teh, 2018), capabilities (Silva, Rodrigues, and Ferreira Alves, 2022), and reporting. Organisations increasingly face the challenge of such 'deeper change' and entering the 'decade of action' (van Tulder et al., 2021), i.e. to institutionalise sustainability in their strategic control and operations. This will help them address external criticism of merely pursuing superficial change like greenwashing (de Freitas Netto et al., 2020). Instead, stemming from fundamentally new ideas on sustainability and circularity, organisations would rethink their stakeholder management, business/ organisational models, structure, culture, and product/ service chains (Bansal et al., 2022). In other words, a more fundamental challenge needs to be addressed in transforming an organisation's cybernetic system to avoid remaining stuck in greenwashing.

While presently existing business models are extended with 'eco-social costs' and 'eco-social benefits,' rethinking strategies and performance measures is required to meet rapidly changing external expectations (Medne, Lapiņa, and Zeps, 2022). Some sectors spearhead this trend due to their impact on the environment (e.g. construction and agriculture). For military organisations, rethinking strategies and measures will stem from dealing with new and increasingly enforced societal-public and industry standards as well as expectations and requirements pertaining to military operations and their contextual properties (like climate change). Internal reporting tends to start with high level domains that express an organisation's mission and can be operationalised towards the internal organisation and its activities/ resources. For instance, Novo Nordisk, a global healthcare company, uses *Living our values, Access to health, Our employees, Our use of animals, Eco-efficiency and compliance, and Economic contribution* (Morsing, Oswald, and Stormer, 2018). Military organisations operating in a different context will need to rearticulate their high-level domains and re-operationalise these. Several domains prove relevant to military organisations and lead to initiatives to restructure internal reporting with environmental sustainability in mind.

- Overall, procurement and life cycle management of technologies increasingly incorporate environmental aspects (Hastings, 2015). Suppliers of weapon systems and other technologies like general purpose vehicles and services must report towards customer organisations on their sustainability scores, which directly leads to internal reporting (Hafsa, Darnall, and Bretschneider, 2021).
- Concerning the military organisation as a standing organisation – including its peacetime operations – attention is paid to mobility (reducing travel, opting for low-pollution modalities) and energy (shift towards new technologies such as used in buildings, e.g. solar panels).
- For mission-oriented operations, military organisations seek to reduce the logistics footprint of transportation and compounds (energy, water, waste), in part to improve environmental sustainability.

Internal reporting, to conclude, will not be easy. While initiatives are taken to reduce for instance CO_2 (e.g. 50% by 2030), implementation of these often-separate initiatives does not yet guarantee better overall environmental sustainability performance and achievement of organisational objectives in a broader sense. In fact, across all levels of organisations, a combination of indicators and reporting information must be considered to identify and manage tension between environmental sustainability approaches and 'other' approaches emphasising business, power, and finance. This pertains in a context-dependent manner to multinational corporations like Unilever as well as public and military organisations (Hahn et al., 2014). A clear example of this struggle is the steel industry, the centre of major political and public attention (and very important for the military as well) (Choudhury, 2022). As our model in Figure 9.1 illustrates, organisations are open systems on the input and output sides. Hence, internal reporting will embark on a journey to combine information on their purely internal activities and resources with information on external dependencies. This includes information from value/ supply chains (input) and information on operational settings (output). As mentioned in the introduction, sustainability encompasses both inside-out and outside-in dimensions. Moreover, tensions arise as shown in Figure 9.1. Combined, internal reporting information will contribute to the organisation's environmental sustainability insights, innovations, interventions, and performance, and in the end to external reporting.

Finally, we need to describe one specific caveat for military organisations, when it comes to external reporting. In general, transparency is what organisations strive for. However, precisely military organisations need to uphold a certain level of confidentiality because not everything is for the external world to know. While private businesses like Tony Chocolonely strongly focus on transparency, this is not what the military always would – or even should – do, because providing specific information might be detrimental to military interests. To find out what practices there are, in the next sections we discuss how other MODs – internationally and in the Netherlands – report on environmental sustainability.

9.5 Concepts for Comparing Countries

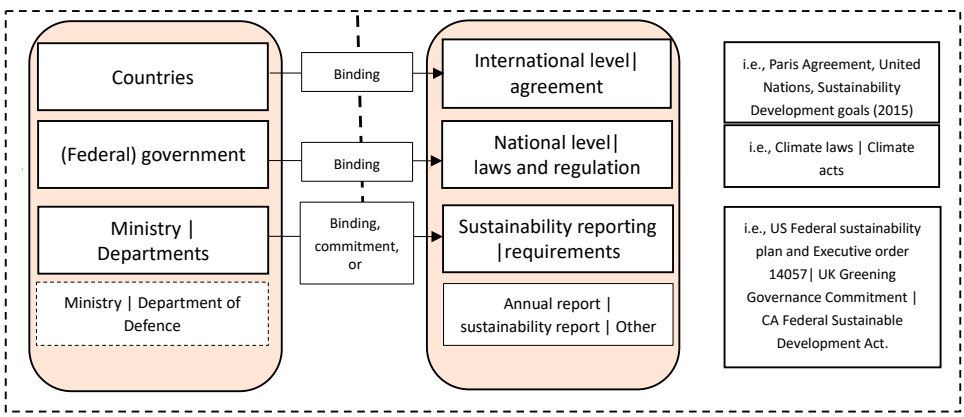
We now focus on the aspects that are important in shaping the way both internal and external reporting on environmentally sustainable performance is done in different countries. First, we explain our research method. Next, we discuss the ways in which the MODs of the Netherlands, Australia, Canada, the UK, and the US currently report on environmental sustainability.

When analysing the different countries reporting, the following aspects were considered:

- What is the relevant international, institutional context for national government and MOD;
- How is the MOD embedded in national government, and its reporting structures;
- What are the main policies for the MOD with respect to environmental sustainability in the different countries;
- What is the main orientation of and stakeholders in sustainability reporting in the different countries.

Our empirics consist of multiple case studies and our approach is inductive. We investigated five countries, the United Kingdom, the United States of America, Canada, Australia, and the Netherlands. The criterion for inclusion is that the Netherlands has worked closely with these countries for many years and in many ways, they organise and operate in a manner comparable to our MOD. We research the environmental sustainability and climate change policy and subsequently the reporting for each of these countries, focusing on the aspects described above. As stated earlier, on an international level the public sector has not established standards on sustainability reporting, nor on topics that are mandatory to report on. Therefore, we must look at the national regulatory items covered. There are however sustainability goals set in international agreements that translate into national law. An overview of sustainability regulation is given in Figure 9.2 below.

Figure 9.2. General overview of world-wide sustainability regulations for Defense.



When looking at the current situation in the five countries we included in our research, we see they diverge on sustainability reporting requirements (Table 9.1). Some do and others do not have formal sustainability reporting requirements. Consequently, form and substance of sustainability reporting differ depending on countries' and defense organisations' orientation.

Table 9.1. Overview table of sustainability reporting regulation.

Country	**Sustainability reporting requirements**	**Reference**
The Netherlands	No formal sustainability reporting regulation. The government commits to the sustainability targets by the United Nations. The Ministry of Defense developed goals and targets for sustainability and reporting.	Klimaatwet [Climate law], Uitvoeringsagenda Duurzaamheid [sustainability implementation agenda]
United States of America	Formal regulation for sustainability reporting at the federal level. The Department of Defense is required to develop plans and report on a regular basis with score cards.	United States federal sustainability plan and executive order 14057
Australia	No formal sustainability reporting requirements for the Department of Defense.	Public Governance, Performance and Accountability [PGPA] act/rule
United Kingdom	No formal sustainability reporting regulation. The governance commits to the sustainability targets by the United Nations. The Ministry of Defense developed goals and targets for sustainability and reporting.	Greening Governance Commitments (GCC), Ministry of Defense Climate Change and Sustainability Strategic Approach
Canada	Formal regulation for sustainability reporting on federal level [FSDA]. The Department of Defense is required to develop plans and report on a regular basis.	Federal Sustainable Development Act, Greening Government Strategy [GGS].

9.6 Results: Military Organisations and Sustainability Reporting

In this section we analyse the actual situation on sustainability reporting in the different countries, starting with the Netherlands.

9.6.1 The Netherlands

9.6.1.1 The Netherlands sustainability policy

The Netherlands MOD is focusing on environmental responsibility. The origin is found in the 2015 Paris Agreement on climate change. The Netherlands government implemented the measures of the Paris Agreement in 2018. At the national level there is a Netherlands Global Climate Strategy (2022) and a Climate Act from 2019 and 2023. This act and strategy should lead to a reduction in CO_2 emissions of 30% in 2030, and by 2050 the reduction must be 95%. Furthermore, a circular economy needs to be in place by 2050. The Dutch MOD has committed itself to a reduction of the environmental footprint too. Its efforts resulted in the *Defense Energy and Environment Strategy* (Tweede Kamer, 2019). Research shows that there is not a clear relation between the national targets and the MOD sustainability targets. An important reason for that lies in the fact that, from an outside-in perspective, the Dutch MOD needs to be able to operate under all circumstances. Climate change and energy transition influence the security of the world and the ability to operate as a military organisation. They, therefore, have an impact on personnel of the Dutch MOD and its means. Natural resources are getting scarcer; gaining resources and having access to resources are a risk for global security. Moreover, usage of natural resources affects the environment (inside-out perspective). It is clear that military organisations need to reduce their footprints as well, as part of society, but also to be able to operate.

The *Defense Energy and Environment Strategy* describes the focus to work towards sustainable and environmentally aware armed forces that are less dependent on fossil fuels, with a reduced ecological footprint and reduced negative consequences for the environment. The Dutch MOD focuses on taking reduction measures concerning real estate and reduction of fuel consumption in peacetime (Tweede Kamer 2019–2020). Therefore, a baseline measurement has been performed to determine the position of the Dutch MOD before the implementation of reduction measures. With the help of this baseline measurement, structural monitoring of consumption of energy and fuel has started to provide insights into the amount of reduction that is established now and in the future.

Dutch MOD policy is trying to ensure sustainability through cooperation, innovation, awareness, and behaviour, allocating responsibilities and working towards specified goals, strengthening government-wide initiatives, and stimulating sustainability in procurement procedures. Therefore, the Dutch MOD has formulated three primary objectives (Tweede Kamer, 2022–2023: 2):

– Dutch MOD adapts to the effects of climate change;
– Reduction of dependency on fossil fuels;
– Dutch MOD works where possible on a circular basis.

Internally the Dutch MOD is using information to refine more specific actions in the categories (note the link to processes and resources that are in/directly related to operational deployment, Figure 9.1):

– Operational material, military weapon systems like planes, ships, and vehicles (including encampments);
– Real estate, like terrains and buildings;
– Sustainable mobility, like daily commuting and business travelling;
– Non-operational equipment and consumables (Tweede Kamer, 2022–2023: 2–3).

9.6.1.2 The Netherlands sustainability reporting

The categories mentioned above are further divided into specific subjects which can be monitored individually and should be the basis for a dashboard capturing sustainability at the Dutch MOD. This dashboard is not yet in use, it is still being developed.

Currently the Dutch MOD reports the following performance measures concerning sustainability: 1) the total amount of CO_2 emission and 2) the percentage of used biofuels. The percentages for used renewable energy and for sustainable procurement are under construction (Tweede Kamer, 2022–2023). This information is being prepared for internal and external reporting.

Through external reporting, the Dutch MOD expresses its responsibility for climate change and its role in this respect. In short, sustainability within the Dutch MOD is still developing and is expected to become more part of day-to-day business. Current developments show that the Dutch MOD recognises the need for climate change and therefore plans are made. Moreover, the first elements of reporting on progress can be found in external communication. On a normative note, it seems crucial now to proceed from planning to execution and to show how closely the MOD moves towards reaching these goals. One of the first actions needed will be to establish a more complete set of performance measures and associated reporting routines.

9.6.2 United Kingdom

9.6.2.1 United Kingdom sustainability policy

The sustainability policy of the MOD of the United Kingdom is driven by climate change (MoD 2015–2025). The UK MOD conforms as much as possible to national policy on environmental sustainability. It also considers what climate change means for operational deployability, in particular to operating in mission areas, specifically aimed at logistical support, and adapting to new circumstances. As a first response to these challenges, the Sustainable Support Strategy has been developed, based on the policy for the coming years. Emerging green technology helps defense for the future in agility, resilience and increased operational pace. It also includes how the results of this strategy are monitored. This strategy is derived from a larger, national plan "Net Zero Economy 2050" (BCG, 2022). Examples of performance measures include CO_2 emissions (related to estates, travel, domestic flights), total waste (related to waste to landfill, waste to recycle), water use, paper use, international flights.

9.6.2.2 United Kingdom sustainability reporting

In the UK Ministry of Defense Annual Report and Accounts 2021–22, sustainability results achieved are reported in accordance with the provisions of the Sustainable Support Strategy, in addition to financial, personnel and operational data (MoD, 2021). These are limited to plain numbers/percentages regarding CO_2 emissions, water consumption and waste processing. A visualisation of CO_2 emissions' development is included in the report. The progress of other sustainability results is explained in more general terms, such as socially responsible procurement, nature restoration and sustainable infrastructure.

9.6.3 United States

9.6.3.1 United States sustainability policy

Within the US Department of Defense (DOD), the focus is on climate change and its impact on the armed forces. In addition, the DOD conforms as much as possible to national policy on environmental sustainability. It also considers what climate change means for operational deployability and national security. It focuses on how to guarantee safety in changing circumstances and how to adapt to it. At the strategic level, the *DOD Climate Adaptation Plan* was released. It states: "The Department must take bold steps to accelerate adaptation to reduce the adverse impacts of climate change. These adaptation efforts must align with our strategic

objectives and mission requirements, ensuring that our military can deter aggression and defend the nation under all conditions. The Department is responding to climate change in two ways: adaptation to enhance resilience to the effects of climate change; and mitigation to reduce greenhouse gas emissions" (DOD, 2021). In addition, "In all cases, both within large corporations and militaries, the environmental and social effects of solutions are considered secondary to the operational benefits that a given solution brings." The initial 'drive' is therefore dictated by operational deployability, with environmental sustainability coming second. In the *Department of Defense Sustainability Plan 2022*, attention is paid to reducing waste and environmental pollution, promoting circularity, and using sustainable materials. In addition, various programs have been set up with training courses for staff to enhance awareness in the field of sustainability (DOD, 2022b). A scorecard has been developed which reports on energy use, water use, renewable energy use, facility efficiency investments, high performance, sustainable buildings, fleet petroleum and alternative fuel, and greenhouse gas emissions.

9.6.3.2 United States sustainability reporting

The US DOD reporting on 'performance metrics' related to climate change is linked to the *Lines of Effort (LOE).* US DOD describes some of the recent efforts to respond to the climate crisis, but it is stated not to be complete, and it is recognised that there is much more work to be done (DOD, 2022a). It also states that in the years ahead, the countries that are the most resilient and best prepared to manage the effects of climate change will gain significant security advantages (Atlason and Gerstlberger, 2017). One could consider the progress report as a form of integrated reporting. At the same time, the adjective 'integrated' could be further scrutinised. It should be noted that progress often consists of making separate plans regarding the LOEs, supported by a few examples of related activities and new initiatives. In addition, a Climate Assessment Tool has been developed that collects climate-oriented scientific data to support research, analysis, and decision-making regarding future climate impacts. This helps the DOD to determine how to adapt and protect their assets and installations in the US to be sufficiently resilient.

In addition to the aforementioned progress reporting, there is also an annual report in the form of a 'scorecard', aimed at 'metrics' in the field of emissions, energy consumption/ reuse, water consumption, buildings, vehicle fuel consumption and socially responsible procurement. These results are compared to those of former years and explained in the annual Sustainability Report & Implementation Plan. The goals (sometimes in numbers or percentages) are also displayed for the following year. It is sometimes difficult to assess whether the reports referred to serve as external accountability documents or as internal reports. The impression is that, given some titles, external accountability to Congress or other government agencies prevails.

9.6.4 Canada

9.6.4.1 Canada sustainability policy

In Canada, an Act has existed since 2018, prescribing that each federal organisation, including the MOD, is required to contribute to the *Federal Sustainable Development Strategy* (GoC, 2021). This enables the Minister of Environment and Climate Change to report on this strategy every three years. Each federal organisation must prepare and execute its own departmental environmentally sustainable development strategy. These strategies complement the federal strategy by listing their own targets and goals. *The Departmental Sustainable Development Strategies* provide detailed information on what individual departments and agencies are working on to help meet the aspirational goals of the Federal Sustainable Development Strategy (GoC, 2021).

The *Defense Energy and Environment Strategy* sets out the direction to evolve as an environmentally sustainable organisation, better manage energy use, and minimise the environmental footprint across a broad spectrum of activities (CAF, 2017). The Canadian Department of National Defense continues to focus on four key themes: improving energy efficiency, integrating climate change adaptation into their programs, maintaining sustainable real property, and strengthening Defense's green procurement processes.

9.6.4.2 Canada sustainability reporting

The Canadian Department of National Defense annually reports on their sustainability goals separately. Being the results of government policy – the underlying sustainability strategies and reporting are laid down in legislation – a review of the *Defense Energy and Environment* shows there is room for improvement (Sultana, 2019). The implementation of the policy lacks potency as it fails to assign sufficient targets which would decrease greenhouse gas emissions on deployed operations and in military fleet vehicles (Sultana, 2019).

9.6.5 Australia

9.6.5.1 Australia sustainability policy

Globally, Australia is one of the largest contributors to negative climate impact. In 2021, the United Nations generated a report on positive climate action of its 193 member states, and Australia was ranked last (Mazengarb, 2021). It is expected that from May 2022 onwards, under the leadership of a new Federal Government, after years of natural disasters, Australia will finally pay more attention to environmental

sustainability and climate change. Butlers (2022) states that on June 12, 2019, the Chief of the Australian Defense Force made a speech to the National Security Management Symposium in which he made a statement towards "*securitizing the issue of climate change*" (Bulters 2022). This was done to get more and adequate resources for realising a proper sustainability and climate change policy. The *Royal Australian Forces Defense Environmental Strategy* (2016–2036) is structured according to four pillars: Compliance, Efficiency, Trust, and Accountability (ADF, 2016). These pillars underpin Defense activities, guide decisions, and align behaviours when managing environmental challenges and opportunities. The Defense mission is to defend Australia and its national interests. The Defense Environmental Policy is supported by the Defense Environmental Strategy and the Defense Environmental Plan (ADF, 2016). The Defense Environmental Strategy articulates how Defense will achieve its environmental vision, while the Defense Environmental Plan outlines specific actions, timeframes, and responsibilities for implementing the strategy and reporting on achievements.

9.6.5.2 Australia sustainability reporting

The Governmental Committee on Foreign Affairs, Defense and Trade (2018) advised that Defense must "follow their strategic allies and increase military preparedness and resilience in the face of growing climate risks" (GCFA, 2018). In line with the Australian Climate Change Act 2022, the Climate Change Authority sent the first annual progress report on Climate Change to Parliament in November 2022. In this report, the Australian MOD was not mentioned. The Royal Australian Forces report on their goals as mentioned in their Environmental Strategy as part of their annual Defense Report (ADF 2016). Topics that are addressed are its environmental performance on topics like waste management, land and water management, climate, disaster resilience and sustainability on the Defense Estate. The statements made have not yet been translated to targets and key performance indicators on all topics.

9.7 Conclusion

This chapter has investigated the issues the military will have to address when reporting both to internal and external stakeholders on its environmental sustainability performance. In doing so, we have identified two major decisions to enable the military to operationalise environmental sustainability performance and its reporting.

First, it is generally acknowledged that the armed forces' raison d'être is to fight when necessary to protect all that is dear to us. In line with this paramount goal people are educated and trained to be deployed during crises. All means to

support the military in their job must be robust for soldiers to trust the quality and deployability of their materiel. Sustainability of materiel is therefore not a priority per se. However, on the flipside, the military, are also morally and legally obliged to achieve various sustainability objectives. This presents contradictory requirements, i.e. a paradox, making for a challenging process to achieve an equilibrium (Smith and Lewis, 2011). Moreover, climate change may very well induce operational changes although it is not yet clear which adaptations are to be made. It may become harder to achieve 24/7 deployability across the globe as the conditions may deteriorate due to climate change. Therefore, we will have to understand **what matters most** to the military regarding sustainability and, in its slipstream, which goals we will have to strive for, and how multiple goals can be combined. This requires a perspective on how operational deployability, sustainability and environmental sustainability performance are related. As there may exist tension between these three concepts, this new perspective, or vision, will have to be clear on the conditions under which one or the other concept will be prioritised. From our empirical investigation we conclude that our most important defense allies have more or less the same focus on environmental sustainability as the Dutch MOD, although they might have different motivations for introducing policies and measures in the field of environmental sustainability and climate change. On one hand, attention is paid to environmental sustainability and climate change, and issues related to economic, planet and people aspects. On the other hand, especially in the UK and US, we also see palpable attention for the consequences of sustainability-inspired interventions for performance (the deployment) of the armed forces. Presently, the degree of embedding and the translation of policy into measures and measurable objectives and also the reporting on these topics is not always clear within the different MODs. Furthermore, environmental sustainability is primarily managed in peacetime operations and less in situations of military deployment. An attractive area of innovation is reduction of logistics footprint; this may serve both operational and sustainablity-related objectives. Reverting to policy, we conclude that reporting on environmental sustainability and climate change differs between the four researched MODs. It is strongly related to the way the MOD is subject to a larger agreement (e.g. an Act) or is just realising its own self-imposed targets. Although reporting should be closely related to the way an organisation is managing and realising its environmental sustainability and climate change goals, we do not see a common pattern or a best practice for reporting.

Second, being a national security organisation, it seems unlikely that all information will be shared. The current security era will probably require even more scrutiny. The new vision will have to offer clarity on what (sections of) information can be shared externally, i.e. information governance (Szczepaniuk et al., 2020). After all, the more detailed the reporting that takes place, the more

information potential opponents may obtain. As discussed in the introduction of this chapter, the development of such visions may be one reason to stop reporting on operational performance on deployability, sustainability and deployment by the European Defense Agency. EDA does not provide any straightforward comments regarding this assumption.

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Notes

[1] https://www.mckinsey.com/industries/aerospace-and-defense/our-insights/the-link-between-climate-and-national-security

[2] https://www.nato.int/docu/logi-en/1997/defini.htm

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