

# Environmental Crime of the Armed Forces in the Republic of Slovenia

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Green criminology does not provide a comprehensive explanation for environmental crimes committed by armed forces. In the article, the cases are analysed using open coding to aggregate contextual characteristics of environmental crime committed by the armed forces, and the data are interpreted using an ideal-type qualitative method. Results reveal that environmental crimes committed by the armed forces are generated under the influence of political, geographical, and economic contextual factors. Environmental crimes of the armed forces in the Republic of Slovenia are primarily reflected in the political (44%) and geographical (32%) dimensions. Given the intensity, on the political dimension, we identify some problematic (49%) (court proceedings, opposition, presence of foreign armed forces, etc.) contextual features of the environmental crime of the armed forces, while on the geographical dimension (85%) (geomorphological characteristics of the soil, presence of nature reserves, proximity to populated areas, etc.). Although the Slovenian Armed Forces are an environmentally responsible institution, in the case of the Republic of Slovenia, there are political and geographical factors that influence the detection threshold of environmental crimes by the armed forces, which should be considered by political decision-makers.

**Keywords:** military, armed forces, green criminology, environmental crime, environmental harm

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## 1 Introduction

Green criminology studies act harmful to humans, animals, and ecosystems, and harmful practices carried out by states, corporations, and other organizations (White & Heckenberg, 2014). It includes in its study illegal and legal practices that are harmful to the environment. Green criminology examines the detrimental effects of unregulated activities that lead to pollution, environmental degradation, and threats to human and animal health. It studies environmental harm, crime, victimisation, legislation, regulation, and justice (Lynch & Stretesky, 2011). We describe green criminology as the connection between environmental harm, social inequality, and power relations. The problem of environmental destruction caused by armed forces is recognised in various scientific disciplines (humanities, social sciences, natural sciences, medicine, etc.) (Beck et al., 2018). Individual studies on the environmental impacts

of military activities link them to environmental harm, even in peacetime (Kelebemang et al., 2017; Koniuszewski, 2016). The military's environmental impacts represent its capacity to significantly impact the air, land, and water in both peacetime and wartime. The history of anthropogenic impact on the environment has not filled the theoretical gap regarding the historical impact of military activity (including war and peacetime) on nature (Coates et al., 2011). Even in peacetime, the armed forces use the same weapons, resources, tactics, and doctrines that are used in wartime (but to a lesser extent). At the same time, war has a highly destructive impact on the environment (Closmann, 2009). Environmental harm resulting from military activities is predictable and can be limited, prevented, or remediated. The armed forces establish a complex military-environmental interaction with the environment, which also results in environmental harm. Nature is considered an invisible victim of military activities in peace and war, or conversely, armed forces can be an invisible perpetrator of environmental crime (harm).

Although military sociology examines intra-military relations and civil-military relations (Segal, 2007), it does not address certain criminological issues (McGarry & Murray, 2018), such as environmental crimes and their associated harms. Only a few contributions in the field of green criminology partially or indirectly address the environmental crimes of the armed forces. So-called green perspectives indicated the need for a specific response from

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conventional criminology in cases of acts (conduct) with a harmful impact on the environment (South, 1998), which includes corporate negligence (omissions), environmental discrimination, regionalization of landfills, the legacy of nuclear and conventional weapons testing, the export of toxic waste to underdeveloped countries, and the environmental effects of government warfare (burning of oil wells, use of herbicides). South (2014) states pollution and regulation, corporate crime, organised crime and corruption, impacts of police and military activity on the environment and population, adverse impacts on wildlife and habitats, and prevention and prosecution of such acts. Ruggiero and South (2010) identify different areas where environmental harm or environmental crime occurs. Among others, these include pollution, corporate crime, occupational safety, illegal trade in toxic waste and wildlife, and the impacts of police and military activities on the landscape, water supply, air quality, and human health. Some authors emphasise the importance of responding to the harm caused to humanity, the environment, and animal species by powerful institutions (governments, transnational corporations, the military apparatus) and the individual (Beirne & South, 2007; Brisman, 2014). Proechel (2007) explains international environmental crime by armed forces in relation to the environmental impacts of military bases on foreign territory (environmental legislation, remediation, liability). Inadequate management of water resources, which leads to environmental destruction and injustice, is also a result of cooperation between the state, the military, and international organisations and corporations (Kane, 2012). She proposes the application of national and international legislation in a way that also recognises the responsibility of the military and industry for polluting water resources. Stefes and Theodoratos (2017) recognise that armed forces, among other factors, are linked to environmental crime in undemocratic regimes. Clifford and Edwards (2012) present environmental harm as an act committed with the intention or potential to cause damage for the purpose of obtaining commercial, political, or personal gain, and also include the activities of armed forces in the definition. Michalowski and Kramer (2006) write about state-corporate crime, which involves the cooperation of corporations and state institutions, and in which they also recognise the cooperation of the armed forces. Brisman and South (2015) link state-corporate crime with causing environmental harm and, in a special chapter, they write about the toxic impact of war and military activities on the environment. Military environmental issues are no longer solely the domain of military organisations or a matter of military secrecy, as their content and scope pose a risk to the health of military personnel, the local population, animals, and the state of the environment. Political and military decision-making on the use of military technology

in relation to environmental risk must be transparent and accessible to the public (White, 2008). The decision to use a weapon must also consider the potential for indiscriminate environmental harm or environmental injustice.

Environmental crimes committed by the armed forces are often not recorded in official crime statistics. This requires recognizing the activities of armed forces in areas where they come into conflict with the natural and social environment. The response of the state to the harmful military environmental impacts is not necessarily an objective recognition (solution), but can deny, ignore, cover up, file lawsuits, use violence, violate regulations, and carry out prosecutions, displacements, arrests, and murders of activists, groups, and indigenous peoples. Green criminology authors' contributions address the issues, but do not comprehensively explain the problem of environmental crime by armed forces in peacetime. Academic contributions are scattered across different disciplines. This paper fills a research gap within green criminology, whereby aims to: 1) define environmental crime of the armed forces in peacetime, 2) develop a general model of environmental crime of the armed forces, 3) determine the contextual factors that enable of or point toward the environmental crime of the armed forces, and 4) apply a selected case study to a model to assess the level of environmental crime.

## 2 Theoretical Framework of the Research

Similarly, the study of environmental crime by the armed forces is necessarily interdisciplinary in nature, as is the field of green criminology. The complexity of the environmental impacts, harm, crime, and injustice associated with the armed forces can only be explained by a synthesis of findings from social and natural science disciplines. The research is theoretically and conceptually based on three areas: environmental sociology, green criminology, and military sociology. Green criminology examines actions that harm people, animals, and ecosystems, as well as harmful practices carried out by states, corporations, and other organisations (White & Heckenberg, 2014). Environmental sociology studies the relationships between humans and the natural environment and explains the causes of environmental destruction and degradation (Schaefer Caniglia et al., 2021), while military sociology studies the diverse civil-military relationships that include the balance of civilian control over the functioning of the military institution (Janowitz, 1960; Joó, 1996). The conceptual-theoretical framework of environmental crime by the armed forces is graphically presented in Figure 1.

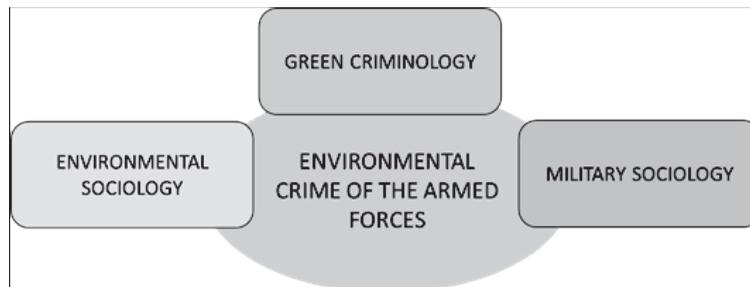


Figure 1: Theoretical framework of environmental crime of the armed forces

## 2.1 Environmental Sociology Perspective

The right to a healthy environment is integrated into the United Nations Declaration of Human Rights and recognised as a universal human right (United Nations General Assembly, 1948, 2022). The right to live in a healthy natural environment stems from fundamental human rights (Human Rights Council, 2018). From the perspective of achieving sustainable development goals, it is a valid question to consider the contribution of the armed forces, especially in areas such as drinking water, population health, security, resource consumption, and climate change mitigation (United Nations General Assembly, 2022). The armed forces are a significant consumer of resources and a producer of waste and emissions, with military activities having a notable impact on the environment. A certain degree of environmental responsibility and institutional inclusiveness is thus expected from the military as well. As social environmental awareness grows, environmental polluters (including the military) are coming under the critical gaze of the public. Environmental sociology studies the areas of environmental degradation, structural inequality, power distribution, and injustice (Schaefer Caniglia et al., 2021). It deals with the question of how institutions and socio-economic systems processes cause environmental harms and benefits. Environmental sociology acknowledges the issue of environmental destruction caused by military operations (Lengefeld et al., 2021). With industrialisation and technological development (Revolution in Military Affairs) (Adamsky, 2008; Chapman, 2003), warfare has changed, but it is no less destructive to humans and the environment. Military technology used in peacetime is used in war (expected environmental consequences). Warfare involves the deliberate destruction of the environment (ecocide, resource destruction, access control, impact on morale) to gain military advantage and victory in battle. The development of technologically intensive armies requires a constant supply of resources, with the participation of state institutions and the economic sector (corporations). In this, state institutions operate from a position of power, denial, and

beyond state borders. The synergy of geopolitics, economic growth, and militarisation creates specific environmental destruction and economic inequality (asymmetric warfare, unequal economic exchange, risk-transfer militarism, carbon boot-print of the military) (Lengefeld et al., 2021).

A sociological perspective on the problem of military environmental pollution is presented from the perspective of the treadmill of destruction theory, while Hooks and Smith (2005) highlight the military organisation's expansionist dynamics (expansion and increase in the number of training grounds, increase in the defence budget, technological modernisation, militarism, coercion). In the current environmental (climate) crisis, the contribution of the military organisation to the total amount of greenhouse gases produced is not negligible (Michaelowa et al., 2022). The military organization, with its existence, scope, demand, and activity, represents an institution that significantly burdens the budget and contributes to a greater consumption of social, material, and natural resources (Smith, 2020)(A/37/386. The index of defence spending and industrial production in NATO member states shows a negative impact on sustainable development, which can be mitigated by balanced economic, environmental, and security policies (Akusta, 2024). The armed forces are a state agency financed from the state budget. Amount of defence spending (expressed in millions of US\$) in 2024 was for the United States of America (USA) (997,309), China (313,658.3), Russia (148,967.3), Germany (88,458.5), India (86,126), Australia (33819.6), and Slovenia (951.9) (Stockholm International Peace Research Institute, 2025). With the demand for military technology, the military organisation strengthens the military-industrial complex. This maintains growth and conservatism in the military, while also strengthening capitalism through the production and sale of weapons (Ross, 2000). Financially and technologically intensive armies generate greater consumption of raw materials and energy. This creates a risk and danger that stems from growing societal militarism, rising defence spending, and the expansion of the military-industrial complex (Light,

2014; Seelarbokus, 2021). The question arises as to how much defence spending exceeds real defence needs, or whether continuous preparation for war is meaningful (Jorgenson et al., 2010; Alvarez, 2016). The armed forces also serve the function of politics for the military realisation of economic interests (resource provision) (Ballentine, 2003; Allenby, 2000) or they benefit from environmental crime (financing, control), especially when it is integrated into the economic policies of weak countries (Watts, 2004).

Environmental security is a constitutive element of modern security (Prebilič & Oder, 2004), where the role of the armed forces is crucial in light of the deepening environmental crisis (Homer-Dixon, 1994; North Atlantic Treaty Organization [NATO], 2019, 2023). It is positive that NATO has a doctrine on environmental protection during military activities (Nato Standardisation Office [NSO], 2018) (environmental protection regulation, protection against environmental impacts). However, a purely military approach to addressing the problem of climate change is inadequate (Barnett, 2009). Adaptation measures are primarily aimed at reducing military emissions and lowering energy consumption. Nevertheless, solutions have been proposed that include arming, excluding, ignoring, and suppressing (Parenti, 2011), which leads to “green” authoritarianism or further militarisation (Mabee & Vucetic, 2018), which actually destroys ecosystems (Gould, 2007). The awareness or perception of the strengthening of militarism in society increases the population’s concern about the state of the local environment near military bases and training grounds, expressed by the local opposition (Dear, 1992), environmental activism (Younhee, 2016) and protest movements against military bases (Vine, 2019), which may otherwise be part of the wider public’s anti-militaristic views.

## 2.2 Green Criminology Perspective

Green criminology addresses issues of inequality, power, and politics in the processes of criminalization, victimization, human rights violations, and crime prevention (Eman, 2011). Explains how economic interests determine the social construction of environmental crime. It examines how environmental harm is defined in environmental legislation and examines the unequal social distribution of environmental harm based on race, ethnicity, and social status (Lynch et al., 2017). Lynch and Stretesky (2011) advocate green criminology, which should be directed against the capitalist mode of production, which is one of the leading causes of global environmental problems. According to this criminological orientation, the greatest threat to the environment is represented by systemic structures that facilitate environmental damage. Environmental harm can be encouraged by states, corporations, and other influential organisations (including

the military), which have the power to influence the definition of environmental crime in such a way that certain environmentally harmful practices are legalised (Lynch et al., 2017). The issue of military environmental impacts is often linked to environmental injustice,<sup>4</sup> but this relationship does not fully account for the phenomenon. Green criminology originates from the concept of justice, encompassing the egalitarian rights of humans, nature, and animals (White, 2008). In environmental racism, it is similarly about the institutional practice (governments, corporations) of unequal environmental burdens on marginalised communities.

In defining the state crime, criminology confronts the highest holders of social power. State crime occurs when a state is involved in committing criminal acts against its own citizens or those of another state (White, 2008). State organisational deviance refers to actions by the state that violate the fundamental human rights of its citizens (Green & Ward, 2000). It includes actions against citizens, whether committed by the state, state organisations, agencies, or representatives of the state, that are in the interests of the elites who control the state apparatus. The state uses techniques of concealment, disinformation, denial of responsibility, and corruption, whereby state crime is a general violation of national and international laws (Barak, 1991). A manifestation of state terrorism (Schwartz, 1998) is also environmental terrorism (Chalecki, 2001), eco-terrorism (Lawrence Likar, 2011), and ecocide (Higgins, 2012).

Generating profits through the exploitation of natural resources causes violence, impoverishment of the population (income, quality of life, well-being) (Lenning & Brightman, 2009). Aggressive war constitutes a state crime and a violation of international law (Kramer & Michalowski, 2005). The military, as a state institution, implements racial and colonial projects through which the state defines, regulates, and controls marginalised populations (Jung & Kwon, 2013; Rahall, 2015). The population and employees in the military, military industry, and supporting industries are exposed to the consequences of environmental influences, also known as slow violence (Nixon, 2011). With peacetime activities of the armed forces, we associate infrastructure pollution (Urbanised,

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<sup>4</sup> Environmental justice means “The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.” (Environmental Protection Agency, 1998: 2).

2021), infrastructural changes to the cultural and natural landscape (Woodward, 2004), and infrastructural violence (Smith, 2020). A campaign of infrastructural or high-tech violence is typical of high-tech armies in so-called just wars. From the perspective of the law of war, these are accompanied by attempts to legitimise the collateral damage with long-term consequences for the population and environment, which is indiscriminately created by the use of modern military technology (bombing of critical infrastructure, drones, cyberattacks, depleted uranium missiles) (Smith, 2020).

Green criminology, similar to critical (radical) criminology (Kanduč, 1994), exposes the (in)justice of systemic structures. By analysing the environmental crimes of the armed forces, we inevitably highlight the issue of the legitimacy of state power and state institutions such as the military. The armed forces are a state institution whose attributes include legality, the possession of weapons (imposing will), and the defence of the state (sacrifice, pursuit of highest goals). The armed forces are a particular perpetrator of environmental crime, a major consumer of resources, and have the personnel, capacity, and organisation to impact the environment. By the perpetrators, we distinguish four types of environmental crime 1) corporate (industrial pollution, production of toxic waste, workplace risks, environmental pollution), 2) organized (organized crime and trafficking in hazardous waste, trafficking in rare plant and animal species), 3) government (nuclear weapons testing, hazardous waste disposal, military operations), and 4) individual (Situ & Emmons, 2000). Government agencies are among the country's biggest polluters. The geographical distribution of environmental burdens is not balanced and is often based on discriminatory criteria (race, status, ethnic minorities, etc.). Nuclear weapons and their production (permanent environmental pollution, high remediation costs) represent the ultimate form of environmental crime. The potential for widespread and long-term environmental destruction represents the extremely antagonistic relationship between nature and the armed forces. It is a conceptual connection between the terms armament, pollution (destruction, devastation), and environmental crime. The production of the nuclear arsenal has permanently polluted the environment and increased the risk of irresponsible management of nuclear waste (Kramer & Michalowski, 2005). At the beginning of 2020, there were a total of nine nuclear-armed states in the world (USA, Russia, Great Britain, France, China, India, Pakistan, Israel, and North Korea). The total number of nuclear weapons was 13,400, of which 3,720 were in operational use (1,800 in a high-alert state) (Kile & Kristensen, 2020). Possession of nuclear weapons raises social, moral, and ethical issues in addition to defensive ones, while the threat of nuclear weapons use is once again present in political rhetoric (Perkovich et al., 2025). Nuclear weapons are a characteristic

of developed countries that possess strategic ambitions, wield significant global geopolitical influence, have a robust economy, and maintain technologically advanced armed forces. Large countries are characterized by a global presence of armed forces and geo-specific interests. In this global process, armed forces participate in the (in)direct exploitation or securing of natural resources (Klein, 2014). Environmental crime committed by armed forces exhibits transnational characteristics (Proechel, 2007), primarily characterized by risk-transfer militarism (Clark & Jorgenson, 2012) and the provision of resources, which converges with geographic hotspots of environmental crime (van Uhm & Nijman, 2020). Environmental crime by armed forces is present in both developed and less developed countries. Democracy in developed countries does not guarantee that armed forces will not commit environmental crimes (Clark, 2013). The difference between countries lies mainly in the forms of environmental crime. In quasi-democratic and authoritarian regimes, armed forces often strengthen political power in the country through environmental crime (Nellemann et al., 2016; Stefes & Theodoratos, 2017).

### 2.3 Military Sociology Perspective

The theoretical framework of civil-military relations is presented in the studies "The Soldier and the State" (Huntington, 1957) and "The Professional Soldier" (Janowitz, 1960). Civil-military relations are a variety of relationships between civil society and the military, with the former referring to the exercise of civilian authority in defence matters, and the latter to a military institution whose primary task is the military defence of the state. Civil-military relations are a dynamic category (Joó, 1996). There is a constant risk that military power will be misused against civilian authority, so stable civil-military relations, including effective control of the military, are important. The term "military" refers to institutions intended to manage violence and legitimised through state control (Moskos, 1993). The term "military" encompasses the army, navy, marines, and air force, as well as other branches, but typically excludes the police, security, and intelligence services. Armed forces are a specialised armed formation of the state, organised and prepared to conduct armed conflict, and as such are the main subject of military defence in the state (Grizold, 1999). Technological developments have enabled armed forces to be equipped with weaponry with a high potential for the destruction of humans and the natural environment. In particular, the possession of weapons is a means by which armed forces promote and pursue their corporate interests (Ross, 2000). The military carries out its peacetime activities until the environmental harm it causes can no longer be concealed (Shulman, 1992). The military, in its internal dynamics, constantly expresses the need for more readiness. The need for

more training ranges and facilities follows this. Its plans include an increasing number of military exercises, involving a larger number of soldiers, equipment, and military weapons. Greater burdens on the natural environment also follow such efforts. The size and technological capabilities of the military lead to an increase in energy consumption (Clark et al., 2010), both in terms of the development, maintenance, and use of weapons systems and in terms of the rapid movement of units over greater distances. The capabilities of the armed forces to cause environmental harm are thus a function of their technological equipment (Clark & Jorgenson, 2012).

The military reflects specific values and social norms. Conservative values and norms in the military are essential for maintaining discipline, morale, and obedience (Fields & Jensen, 1998). The values in a divergent military organisation are institutionalism, collectivism, and masculinity, whereas in a convergent one, professionalism, individualism, and a mix of masculine and feminine values prevail (Kiss, 1999). A military organisation is characterised by a specific subculture (Soeters et al., 2007). It is characterised by the communal nature of life, hierarchy, and discipline. The imperative of coercion is characteristic of a highly bureaucratic organisation, such as the military. Discipline serves as a function of controlling behaviour that is important to the organisation (Arvey & Jones, 1985). In the hierarchical structure of a military organisation, decisions are made at a higher level, and responsibility for implementing these decisions is transferred to lower levels (Grizold, 1999). Tasks are carried out based on orders, which must be executed when certain conditions are met. An individual in a military organisation is “trapped” in regulations and has limited ability to make their own decisions. Organisational culture in a military shapes the attitude of its members towards the natural environment, which, without proper management, can be inadequate and, in its extreme form, manifest itself systemically as environmental crime or unnecessary environmental harm.

New cadets and recruits must be socialised through military training for the tasks required by the total institution. Candidates go through a process of mortification, in which their civil status is deconstructed to adopt new values and assume a “new identity”. The purpose of the resocialization process is for candidates to develop commitment to the military organisation and predictable behaviour (Soeters et al., 2007). Soldiers undergo not only a process of physical and psychological change, but also the internalisation of military culture, through which the military organisation achieves that the individual becomes a collective part of the “military organism” (Walklate & McGarry, 2016). By building a recruit, the cultural distance from civil society increases, in which values of superiority, difference, and importance are

formed. Violence in the military organisation is a constitutive element of military culture (Wadham, 2016). The military organisation employs practices and techniques that, in a more or less brutal manner (Østvik & Rudmin, 2001), compel individuals into conformity. The process of dehumanisation in the military reduces the level of moral sensitivity for fellow humans (Wingrove-Haugland, 2015). The question is whether, in the process of dehumanising the enemy, soldiers also lose their moral responsibility towards the natural environment, and where the so-called process of de-ecologisation of the environment can be recognised (Grčar & Eman, 2022). If moral sensitivity is suppressed, soldiers exceed permissible force against the enemy (torture, massacres) or commit violence against nature and the civilian population. Soldiers in conflict are emotionally and morally distanced from the enemy and the environment. In the war, everything connected with the enemy becomes hostile, including the natural environment. This conclusion is supported by the fact that de-ecology is generated even before the war and manifests itself in wartime (demolition of cultural and sacral buildings). In addition, soldiers perceive the environment in a specific way (instrumental and impersonal) (Woodward, 2004). If nature is considered a warrior, it makes sense to use technologically superior weapons against an anthropomorphised opponent (Leebaw, 2014). Destruction of the environment thus becomes part of the fight against the enemy.<sup>5</sup> It is strengthened using unmanned and remote weapon platforms, although these may have greater precision and selectivity. A special aspect is green militarisation, where it is not about true environmental protection but about achieving military goals (Edwards, 2023).

### 3 Definition of the Environmental Crime of the Armed Forces

The article is based on the sociological concept of environmental crime, which, in addition to its criminal

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<sup>5</sup> During crises, social organizations legitimize deviant behavior by using neutralization techniques (rationalization, bureaucratization, normalization, dehumanization) (Brants, 2007). The use of certain terminology, such as “collateral damage” during the bombing of cities or “intimidation” in the case of the destruction of crops, expresses moral neutrality or moral justification for committing crimes. It is particularly problematic when a military organization systematically carries out tasks that constitute the institutional execution of criminal acts, including environmental crime. Soldiers are forced to participate in such behavior due to the influence of institutional, cultural, and normative factors, informal sanctions, dysfunctional leadership, abuse of position by commanders, or indifference. In conformist adaptation to institutional norms, an individual in the organization does not necessarily perceive his or her behavior as deviant (Vaughan, 2007).

definition, also includes environmental harm. Environmental deviance is reflected as environmental crime, which refers to any act committed to cause harm or an act with the potential to cause harm to ecological and/or biological systems for the purpose of obtaining a business or personal benefit. Environmental crime is any act that constitutes a violation of environmental legislation (Clifford, 1998; Eman, 2011). It refers to acts that are prohibited by law, are harmful, and threaten human health, safety, and the natural environment (Situ & Emmons, 2000). It is any temporary or permanent act or omission, defined as deviant under (supra-) national legislation, that causes any form of harm (artificial modification, degradation, burdening, degeneration, or destruction) to one or more of the eight constituent elements of the natural environment, or that disrupts natural environmental cycles. Environmental crime encompasses acts that cause environmental harm and degradation (Walters, 2010). Includes illegal activities that cause environmental damage and in which individuals, groups, and companies seek to profit either by exploiting, damaging, trading, or stealing natural resources (Nellemann et al., 2016). It occurs when individuals, groups, or companies intentionally violate environmental laws for financial gain or to exert power (Brack, 2002). When such criminal activity has an international or global impact on the environment, it represents international environmental crime. Eco-crime refers to the legal acts of environmental degradation committed by states and corporations (Walters, 2010). Environmental crime is defined as acts that cause or have the potential to cause significant damage to ecosystems, to increase or promote production (Stretesky et al., 2013). We define it as an act, even if legal, that causes identifiable harm to the ecological system (ecological destruction and disorganisation) for capital accumulation (Lynch et al., 2017).

In reviewing the definitions of environmental crime, we find that most assume a violation of the law and a prescribed sanction. The prevailing definition of environmental crime is essentially legal in nature and is not sufficient to cover pollution (harm) that results from permitted (legal) activities in the economic sector. As such, environmental crime is any behaviour that violates environmental protection norms (Eman, 2011). The sociological definition extends the term environmental crime beyond the definition of criminal law. Especially if we consider that the social construction of environmental crime is also formed through a process of routine activities, and socially unacceptable and criminalised actions against nature. Clifford and Edwards (2012) distinguish between environmental crime, which is a violation of environmental legislation and for which criminal sanctions are provided, and environmental harm. The latter refers to actions committed with the intention or potential

to cause harm to ecological or biological systems for the purpose of obtaining business, political, or personal gain. They explicitly include political gains through military and international government activities. Since such activities are not necessarily illegal or criminal, they are included in the concept of environmental harm. The latter is a consequence of the lawful or unlawful activities of the armed forces, which requires a broader conceptual and theoretical definition:

Environmental crime of the armed forces is all the acts and omissions of the military, realized through institutional processes, and by its members during the performance of their military service, which are harmful to the components of the natural environment (air, water, soil), vegetation, humans and animals, represent a violation of criminal law and environmental legislation, directly and indirectly caused forms of environmental injustice, all emissions (chemical, biological, physical, radiological, energy) that the army as a state institution releases into the environment through its activities above limit values and are not remedied and for which monitoring is required.

## 4 Methodology

The concept of studying environmental crime of the armed forces is based on a qualitative research approach (Berg, 2001), which allows in-depth insight and understanding of a phenomenon (Korstjens & Moser, 2017). The advantage of qualitative research is its contextual adaptability of the research. Attributing meaning to a social phenomenon depends on the context in which it arises. Social context includes temporal, spatial, emotional, and cultural dimensions (Neuman, 2014). Qualitative research allows for conceptualisation in the data collection process and maintains a certain degree of flexibility in terms of research flow, measurement methods, reflection, etc. For the purpose of this study, we use qualitative research methods as descriptive analysis of publicly available sources, data analysis by the ideal type model and a selected case study. We verified an ideal model of environmental crime of the armed forces by applying the selected case.

### 4.1 Qualitative Data

In the process of collecting cases of environmental crime committed by the armed forces, we utilised qualitative data in the form of reports, analyses, academic articles, magazine reports, books, and publications (Neuman, 2014; Stapley et al., 2021). By compiling written and online sources, based on the definition of the environmental crime of the armed forces, we have collected cases on a global level (regardless of the state system or country) in which armed forces are

directly or indirectly the cause of environmental crime, harm, or any form of environmental injustice. We assumed that context creates a specific environment that determines, enables, or influences the actions of armed forces in terms of causing environmental crime, harm, or injustice. We used non-probability purposive sampling in the study, and partly a snowball sampling as related cases “unfolded” during the research process. In purposive sampling, the researcher uses their own expertise to select a group or subject that represents a specific population or exhibits certain attributes (Berg, 2001). In qualitative research, we organise raw data into conceptual categories and create themes or concepts (Neuman, 2014). Qualitative coding is an integral part of data analysis. Coding relieves us of getting bogged down in the details of accumulated data and directs us towards theory and generalization. Codes are labels that assign meaning to units in the broader description of the collected data.

#### 4.2 Ideal Type Model

We analyse data on cases of environmental crime of the armed forces using the so-called ideal type of model. By this model, we create an abstract standard about a social phenomenon. We compare the collected data for an individual case with an ideal type and identify differences, assuming that there is no ideal case in reality (Stapley et al., 2021). It is an analytical construct that enables us to measure, test, or interpret a social phenomenon. Analysis using the ideal type enables the formation of typologies (ideas) with which we explain a specific research question. It contains elements that determine the context of environmental crime by the armed forces. Using the ideal type of model, we assess the probability, reality, and content of environmental crimes committed by the armed forces in each case and make a comparison with other cases. Based on the results of the data analysis, we expose the contextual factors (circumstances, conditions) that enable or point toward the environmental crime of the armed forces.

#### 4.3 Case Study

A case study is a qualitative research method used to explain the context of a phenomenon, where the distinction (boundary) between phenomenon and context is not entirely clear (Yin, 1994). It is useful for researching specific situations, connecting a wide range of data into useful results, and is based on theoretical assumptions that determine the collection and analysis of data. A case study is not so much about generalising about laws, but rather about understanding the processes, functioning, and context of the observed case (Mesec, 1998). It involves the systematic collection of information about a specific individual, social arrangement, event, or group, allowing the researcher to understand how the selected entity

functions (Berg, 2001). It is a method focused on an individual case or broader social life. Organisational case studies are the systematic collection of data about a specific organisation for the researcher to understand internal organisational processes (decision-making, specific environments, relationships within the organisation, etc.) (Neuman, 2014). Units in a case study can be individuals, groups, organisations, movements, events, or geographic units. A case study focuses on examining a small number of examples and attributes within a single case, while also considering the context. For the purposes of the research, we designed a descriptive case study, which requires a priori defined theoretical framework and subject (or unit) of research (Berg, 2001). By studying organizations (including the military), the researcher explains organizational specifics and processes

The case study included the Republic of Slovenia, where there are some open environmental issues regarding the central training ground (CTG) of the Slovenian Armed Forces (SAF) at Poček, near Postojna. This is a long-standing case of local community opposition to the operating SAF CTG, or the problematic placement of a military facility in the area. The opposition stems from concerns about environmental protection (as a source of drinking water) and economic and political interests. With Slovenia's affiliation with the EU and NATO (2004), the establishment of stable civil-military relations was expected. After two decades, we find that certain disagreements (open issues) between the local community and the Ministry of Defence (MoD) persist regarding the environmental dimension of civil-military relations. The study aimed to investigate whether, in the case of the Republic of Slovenia, there are locally specific circumstances (context) that facilitate environmental crime by the armed forces.

#### 4.4 Data Analysis – Ideal Type Model of Environmental Crime of the Armed Forces

We analysed collected cases of environmental harm, crime, and injustice of the armed forces at the global level to identify common and specific features of the social context. During the analysis, we characterised the specificities of the context of each case through an open coding process, which is the initial coding of qualitative data to aggregate it into preliminary analytical categories or codes (Neuman, 2014). We continued with axial coding, which organised existing codes to identify concepts, connections between cases, and generalising conclusions. An example of an open-coding case analysis is presented in Table 1.

**Table 1:** Analysis of environmental crime of the armed forces by using open coding

Description, name of the case	Consequences	Coding contextual features of the case	Author, source
US Naval Base Vieques (Puerto Rico)	Unexploded ordnance areas (surface, subsurface, sea). High incidence of cancer. Arrests of activists. Economic migration.	Discriminatory economics. Gentrification. Inefficient healthcare system. Long-term and intense bombing. Use of unconventional munitions. Cause célèbre activism. Remoteness. Low population density.	Al+ (2019); Chan (2023); Santana (2009)
Military bases in Panama and the Philippines	Large quantities of toxic substances (dumped, submerged, untreated landfills). Use of untreated infrastructure for civilian purposes (risk to users' health). Contamination of drinking water. Deaths and injuries from unexploded ordnance.	Long-term presence of foreign armed forces (bases, training areas). Oral agreements between foreign armed forces and authorities. Undeclared provisions of bilateral agreements on environmental liability. Agreements do not include clear provisions on environmental limitations and management, long-term consequences of environmental damage and remediation. Extensive training areas in use. National legislation does not contain clear provisions on environmental liability abroad. International legislation on environmental liability of armed forces abroad is ineffective. Armed forces avoid environmental liability in courts.	Proechel (2007)
Toxins in the drinking water of Camp Lejeune military base (USA)	Health impact (fetal development). Drinking water contamination. Fear.	Lack of supervision. Inappropriate spatial planning. Inadequate wastewater management practices.	ABC News (2011); Nazaryan (2014); Sonnenfeld et al. (2001)
La Maddalena Naval Base (Italy)	Risk of accidents (nuclear fleet). Pollution with hydrocarbons and heavy metals. Impact of pollution on the distribution of observed marine species.	Long-term presence of foreign armed forces on a remote island. Less anthropogenically polluted archipelago. Emphasising military-strategic reasons for the presence. Collusion between officials. Presence of nuclear submarines. Accidents. Civil opposition. Slow recovery of the tourism industry.	Jontz (2008); Salvi et al. (2015)
Production of plutonium at the Mayak plant (Russia)	Environmental pollution with radionuclides. Not to mention in nuclear production facilities. Radiological contamination of groundwater and surface water. Impact on health and public safety. High incidence of radiological disease.	High-tech plutonium production facilities. Nuclear waste storage. Decommissioning of nuclear technology and weapons. Inadequate decommissioning practices (lake diving). Accessibility of information. Decommissioning conditioned by financial resources. Long period of secrecy (military secret). Covered up accidents. Absence of safety measures. Inadequate working conditions.	Larin (1999); Standing (2006)
Nuclear testing in Nevada (USA) and other locations	Consequences of nuclear explosions for the environment and health. Long-term radiological contamination. Physical destruction of the environment. Development of radiation-related diseases.	Long-term and numerous nuclear tests. Planned exposure of soldiers (also multiple). Awareness of risk. Denial of causality. Lack of studies of consequences on soldiers and children. Denial of compensation and recognition of status. Linking into associations.	LaFleur (2016); Ponton et al. (1982)

Through coding, we compiled a list that reflected the different contextual characteristics of individual cases of environmental crime of the armed forces. We have arranged the list of characteristics into a table that represents the design of the so-called ideal type of model. The ideal type contains elements (characteristics) that represent the context of the environmental crime of the armed forces. With the ideal type of model, we formed an abstract description of an ideal context, which, due to its inherent characteristics, enables (maintains) the emergence of various forms of environmental crime of the armed forces. With such a model, we assess the approximation of selected cases of environmental crime of the armed forces to the academic idealization of the phenomenon, and we conduct a comparative analysis with other cases. The design of the model of the ideal type of environmental crime of the armed forces is presented in Figure 2.

the illegal exploitation of natural resources, which is usually enabled by political and economic elites. Both forms of state rule involve institutional environmental crime, insofar as the armed forces are considered a state agency, with a difference in the manifestation of environmental crime between the two. A stimulating factor for the prevention of environmental crime is the membership of states in political communities (EU environmental legislation) or military alliances (NATO), which regulate environmental protection and the reduction of the impact of military activities through military doctrines. We have classified the contextual characteristics (sub-ideal types) of environmental crime into four groups: political (P), economic (E), geographical (G), and combinations (COM) of the above, and present them in Table 2.

Stable democracies	Regulated environmental legislation	Military production	Obsolete nuclear technology	Sacrificed areas	Lack of information on environmental impact	Quasi-Democracies Weak States
	Nuclear waste storage	Nuclear weapons testing	Nuclear weapons arsenal	Export/import of military waste	Violation of the rights of indigenous peoples	
	Remediation determined by legislation	Nuclear weapons modernization	Improper waste management	Military control over resources	Military protecting corporations	
	Denial of causality	Conversion of the area to civilian purposes	Resources perpetuates conflict	Harmful government projects	Environmental crime as an economic system	
	Lack of interest from the authorities and the military	Executions of environmental activists	Economic deprivation	Corruption	Absence of environmental legislation	

Figure 2: Model of the ideal type of environmental crime of the armed forces

The emerged contextual dimensions (economic, political, and geographical) of the observed phenomenon influence the social role of the armed forces and the functional relationships they establish with each individual dimension. We find similarities in the manifestations of environmental crime of the armed forces, which are characteristic in countries with stable democracies and so-called quasi-democratic or weak states. The former are characterised by high economic development and the existence of technologically intensive armies (with specific impacts on the environment, including environmental crime), while in non-democratic systems, environmental crime of the armed forces is mainly related to

**Table 2:** Contextual characteristics of environmental crime of the armed forces

Political Characteristics (P)	Economic Characteristics (E)	Geographical Characteristics (G)	Combination of Characteristics (EPG, EP, PE...)
Absence of environmental legislation Lack of interest from authorities and the military in remediating environmental damage Nuclear weapons testing Violation of the rights of indigenous peoples Militarization of the resource area Public denunciation of environmental activists Military violence Legally untenable arguments Populist rhetoric about prosperity Violations of environmental legislation (international, national)	Military production (long-term, dangerous, technology-intensive) Nuclear waste storage Abandonment of dangerous military production Accumulation by expropriation Looting of cultural heritage Large amounts of military waste Environmental crime as financing of the military government Improper storage of hazardous substances Large quantities of obsolete military equipment Abandoned military infrastructure Transfer of responsibility for remediation	Confirmed concentrations of pollutants in soil Geomorphological characteristics of the soil Proximity to populated areas Migration of pollutants into groundwater or a river basin Availability of natural resources Presence of nature reserves and landscape parks Extensive military areas Remoteness of the area (unpopulated, inaccessibility) Extensive pollution Quality of water resources Natural and cultural heritage	Areas of economic, military or strategic interest Export of military waste Obsolete nuclear weapons and technology Environmental injustice of the authorities Cultural and existential importance of access to water resources Ambitions of military leaders (profits, power) Increased military resource extraction Selective species protection Questionable investments in resources and development Cyclical nature of maintaining conflict

## 5 Results

The findings of the descriptive study of peacetime activities of the armed forces in the Republic of Slovenia, with an emphasis on environmental issues related to the SAF CTG, are included in the model of the ideal type of environmental crime of the armed forces. We included in a model a total of 196 contextual characteristics of environmental crime at the global level, namely political (P) 109 or 55%, economic (E) 22 or 11%, geographical (G) 18 or 9%, and combinations of the above (COM) 47 or 23%. We find that in the model designed in this way, the political dimension of environmental crime of the armed forces has the largest share and represents the strongest contextual characteristics factor. Based on the perceived intensity, we determined a continuum from unperceived to problematic intensity for each contextual characteristic and marked it with a colour scale (green, yellow, orange, red). The contextual characteristics of environmental crime of the armed forces in the Republic of Slovenia, compared to those included in the ideal model, are political 19 (17%), economic 3 (13%), geographical 14 (77%), and a combination of characteristics 7 (14%). We find that in the Republic of Slovenia, the largest share of characteristics included in the ideal model is represented by those on the geographical dimension.

Through the analysis, we identified a total of 43 contextual characteristics of environmental crime in the case of the

Republic of Slovenia, namely political (P) 19 or 4%, economic (E) 3 or 7%, geographical (G) 14 or 32% and a combination of the above (COM) 7 or 16%. We find that in the Republic of Slovenia, according to the characteristics included in the ideal model, the largest share is represented by characteristics in the political dimension.

According to the perceived intensity on the political dimension, we identify 10 (or 52%) same-dimensional contextual characteristics at the yellow level (7P - Absence of information on environmental impacts; 17P - Remediation of military areas determined by legislation; 131P - Refusal of environmental consents; 153P - Authorities do not take into account the needs of the population; 79P - Anti-militarism; 96P - Exposure of soldiers and civilians - harmful impacts; 109P - Scandals in the military leadership; 112P - Coercive policy of living in toxic areas; 161P - Reference to the defensive purpose of the presence of a foreign armed force; 170P - Civilian environmental movements); at orange level 8 (or 44%) (30P - Incomplete environmental documentation; 40P - Covert opposition; 41P - Environmental activism; 46P - Long-term presence of foreign armed forces; 50P - Lawsuits; 95P - Absence of environmental control; 187P - Publicity of the problem; 190P - Long-term opposition), and at red level 1 (or 5%) (78P - Long-term use of training grounds).

In terms of perceived intensity on the economic dimension, we recognize 2 (or 66%) of the same-dimensional contextual characteristics at the yellow level (128E - Diversion of resources intended for environmental protection; 120E - Condition of equipment and facilities (maintenance, damage, deterioration); at the orange level 1 (or 33%) (34E - Impact on tourism development) and at the red level 0.

According to the perceived intensity on the geographical dimension, at the yellow level we recognize 2 (or 14%) of the same-dimensional contextual features (36G - Other pollution factors; 33G - Water resource quality); at the orange level 1 (or 7%) (37G - Natural and cultural heritage) and at the red level 11 (or 78%) (28G - Aquifer vulnerability; 29G - Confirmed underground connection to the aquifer; 121G - Extensive military areas; 31G - Confirmed concentrations of pollutants in soil; 32G - Confirmed concentrations of pollutants in water and sediment; 35G - Geomorphological characteristics of the soil; 45G - Proximity to populated areas; 52G - Migration of pollutants into groundwater or river basin; 54G - Availability of natural resources; 149G - Presence of nature reserves and landscape parks; 77G - Proximity to sensitive ecological systems).

According to the perceived intensity on the combination dimension, we recognise 2 (or 28%) of the same-dimensional contextual features at the yellow level (73PE - Failure to enforce environmental legislation; 118EP - Development of accompanying military infrastructure); at the orange level 4 (or 57%) (129PE - Lack of personnel for environmental

protection; 53PE - Environmental injustice of the authorities; 92EP - Delay in remediation; 104P - Distrust of the authorities) and at the red level 1 (or 14%) (110PE - Reference to state interest).

Given the contextual characteristics of environmental crime of the armed forces in the Republic of Slovenia, we estimate that the model of the ideal type of environmental crime, as we have designed it, does involve the perception of some extreme problems. Otherwise, the perceived contextual characteristics of environmental crime by the armed forces in the Republic of Slovenia are fairly centred on the diagonal of characteristics inherent to both technologically intensive and conventional armed forces. Environmental crime committed by the armed forces in the Republic of Slovenia has a limited incidence, which is graphically illustrated in the model of the ideal type. A relatively problematic aspect of the case of the Republic of Slovenia is that the environmental crime of the armed forces is expressed primarily in the political dimension, with a predominantly perceived intensity at the yellow (52%) and orange (44%) levels, while in the geographical dimension, with a predominantly perceived intensity at the red (78%) level. The finding indicates areas where specific political or environmental regulations are needed. The placement of the RS case in the model of environmental crime of the armed forces is presented graphically in Figure 3.

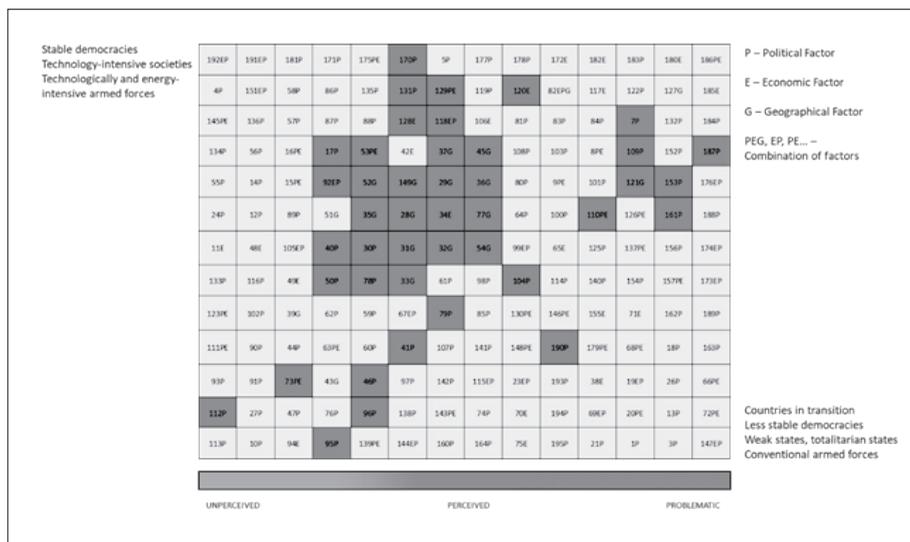


Figure 3: Environmental crime of the armed forces in the Republic of Slovenia

## 6 Discussion

### 6.1 Contextual Characteristics of Environmental Crime of the Armed Forces

Environmental crime of the armed forces can be studied within the conceptual framework of green criminology, which focuses on hotspots of environmental crime (van Uhm & Nijman, 2020), geographical and temporal categorizations (White & Heckenberg, 2014), or primary and secondary typologies of environmental crime (Carrabine et al., 2004; White, 2008). By now the certain specific typologies on military environmental impacts were made (Barker et al., 2021; Majeed, 2004). Within this article we comprehensive define (analyze) environmental crime of the armed forces by the politic-economic-geographical context factor. In general, we recognize two forms of environmental crime of armed forces, which are distinctive in terms of state regime on a continuum from democratic to undemocratic regimes with technologically intensive or more conventional armed forces. We describe the manifestations of environmental crime of the armed forces according to the intensity of perception (unperceived – perceived – problematic) and time (short-term, persistent). Environmental crime of the armed forces is context specific, although it shares some common characteristics (environmental impacts), conditioned by the level of environmental regulation. Developed countries protect the environment through criminal law, while in developing countries and countries in transition, environmental or economic crime is often normalized in practice (integrated into the political and economic system). Political concepts are not the same between countries, as countries have different interests regarding environmental criminal legislation (Eman et al., 2009; Selinšek, 2006). In less developed countries, we recognize the role of the armed forces in the process of illegal exploitation of natural resources or participation in any form of environmental injustice, while in developed countries, such a role of the armed forces is less obvious or is disguised by citing higher, more "humane" goals. The incidence and causes of environmental crime are geographically determined. Social response to environmental crime is regionally specific. Environmental crime arises under social and economic conditions in which the environment is exploited for survival or profit (Eman et al., 2013). The threat to the value of the right to a healthy environment is actually posed by systemic structures that provide goods based on the exploitation of natural resources (White & Heckenberg, 2014). If we consider that the military institution is a self-developing and expansive organization in its organizational development and ambitions (Hooks & Smith, 2005), then we assume that it can only expand as much as the context of its existence and operation allows it to. Namely, with its

characteristics, it determines the boundaries (legislation, regulations, availability of resources, control) or gaps (unregulated areas) in which some form of environmental crime of the armed forces, harm, or injustice can develop.

### 6.2 Political Contextual Characteristics

The armed forces are a state institution that operates under the patronage of the state, with their operations conditioned by the political, economic, and geographical context. As the armed forces do not operate in a social vacuum, their activities are influenced by these factors. The armed forces are a key attribute (capability, resource) of a state that it utilises to pursue its interests with military force. The armed forces, as a state structure, reflect the political will of decision-makers, the economic power of the state, and the moral state of society. The armed forces, in their organisation and purpose, reflect the internal processes and ambitions of the political and economic system. Warfare requires preparations that begin in peacetime with the engagement of part of social power (economic, personnel, financial, technological). The economic and political systems create circumstances that, in conjunction with geographical conditions (resources, location), lead to the generation of environmental crime. We study armed forces within an economic and political system that provides the necessary conditions (financing, resources) and grants them some form of legal and legitimate power, as well as within a specific geographical context. The armed forces are a state institution authorised by the state to manage violence, and we cannot avoid the role of the economic and political system in the country. The legal right for the military to operate is generated under the patronage of the state, which assigns it certain tasks for economic or political reasons, even if they are harmful to the environment. The political system (democratic, authoritarian) determines the role of the state and government in relation to society and the environment. The political authority of a country defines the role, position, and purpose of the armed forces. Decisions regarding the development, strengthening, and deployment of the armed forces are made at the political level. Political strategic goals determine the expansive (offensive) or defensive ambitions of countries. The decision to arm, produce nuclear weapons, and have a global military presence and intervention is, therefore, first and foremost political.

### 6.3 Economic Contextual Characteristics

The military is a state agency responsible for implementing state economic policy. If the government is dysfunctional or has a high level of corruption, the implementation of environmental crime at the state level is normalised. Links are established between state leaders, officials, businesses, and the

military that enable environmental damage to occur. Military autocrats use the military to commit environmental crime for their own profit, to achieve political goals, and to finance the military. The military cooperates with corporations, primarily by securing or controlling their production facilities, where it derives political or financial benefits. Suppose we assume that industrial production, resource consumption, and aggressive marketing contribute to the emergence of a global environmental crisis. In that case, we can explain the environmental crime of the armed forces within the framework of the political-economic system. The armed forces are an attribute of the state for the provision and control of resources. The military creates demand for specific services and products. The armed forces are a significant consumer of energy and consumables, which are essential goods used in the production process. With the expansion of the military-industrial complex, the military has become an enormous consumer of raw materials and services. We distinguish between economically strong countries that invest in technologically intensive armies and allocate a significant portion of their budget to defence (geostrategic interests beyond the borders of the country) and weak countries that allocate a substantial portion of their budget to defence (conventional forces). Within both systems, the military has a certain position and role (political ambitions, tradition). By increasing defence budgets, governments divert social resources (human resources, finances, services, resources). Military production and armed forces activities contribute significantly to total greenhouse gas production, with the most militarily powerful countries generating a disproportionate share (Michaelowa et al., 2022), or intensive military activities cause unequal environmental burdens (risk-transfer militarism) (Hooks & Smith, 2005).

#### 6.4 Geographical Contextual Characteristics

Geographic location influences predispositions to certain forms of environmental crime. At the same time, the role of the political and economic system, which systematically exploits natural resources (including their availability), is not excluded, either legally or illegally. It is a nexus of geographical location, natural conditions, and political regime that prevents, encourages, or enables environmental crime (de Araujo Barbosa et al., 2016). Forest crime, or illegal logging and trade in logs, would not be possible outside the conditions created by the political-economic system, both in its organisational existence and in its specificities (Nellemann et al., 2016). Corruption at all levels, inefficiency of law enforcement agencies and state institutions, lack of control, the availability of commercially attractive natural resources, and economic factors are all factors that enable the occurrence of environmental crime. In this sense, environmental crime is always systemic.

To comprehensively capture global environmental crime and injustice, it is essential to recognise environmental harm in a specific geographical context (White, 2013). The consequences of climate change are creating crisis hotspots in the Middle East (Euphrates, Nile, Tigris River basins), Central America (Peru), Central Asia (Kyrgyzstan, Tajikistan, Uzbekistan), North Africa (Sudan), the Pacific Rim (Philippines, Thailand, Indonesia, Japan), South Asia (Bangladesh) and the Mediterranean (Spain, Greece, Italy) (Scheffran, 2008). For comparison, regional hotspots of environmental crime in Africa, Asia, and South America, as well as in the Golden Triangle (Myanmar, Laos, Thailand, China), Congo Basin (Central Africa), and Darién Gap (Colombia, Panama) areas (van Uhm & Nijman, 2020) coincide with specific cases of environmental crime of the armed forces. If we consider that environmental crime arises in the conversion (cooperation) between the state, corporations, and criminal organisations (Ruggiero & South, 2010), next to them, we add the role of the military. At hotspots of environmental crime, armed forces play a recognisable role (legally, illegally), with natural conditions (availability of resources, strategic geographical location) often serving the political and economic interests of countries (local, interstate, regional, global).

#### 6.5 Environmental Crime of the Armed Forces in the Republic of Slovenia

With the accession of the Republic of Slovenia to the EU and NATO, we are observing some positive changes in the field of military environmental protection regulation. More elaborate EU environmental legislation, along with the doctrinal principles of the NATO military alliance, has an impact on strengthening the importance and implementation of military environmental protection measures. The SAF are obliged to respect national criminal and environmental legislation in its operations. The provisions of NATO standardisation agreements on environmental protection during the Alliance's military activities have also been implemented in the operations of the SAF through standard procedures. Nevertheless, we are still identifying some persistent environmental issues related to the activities of the SAF in the Republic of Slovenia, especially in connection with the operation of the SAF CTG. In this case, it is primarily about the environmental aspect of civil-military relations, which are marked by the conflicting placement of a military facility, opposition from the local community, and the existence of an active civil initiative (consultative referendum on the closure of the training ground, complaints, and conflicting positions of local authorities). On the contrary, the MoD takes the position of an environmentally responsible institution (financing local infrastructure, compensation to

local communities for military use of space, remediation, environmental monitoring, public involvement, information about activities, etc.). In the Republic of Slovenia, there is a specific local context for the case, which we explain with the model of environmental crime of the armed forces. The Municipality of Postojna, where the largest SAF CTG is located, is characterised by the long-standing presence of the army (over fifty years), which influences the formation of the opposing population's attitudes. The presence of the army evokes associations (comparisons) with the former Yugoslav People's Army and reduces trust in the NATO alliance. Activities at the SAF CTG increased with Slovenia's entry into NATO. Combined arms warfare involves a larger number of troops, equipment and weapons. There is also a noticeable increase in the presence of allied armed forces at the SAF CTG.

With declining trust in NATO, attitudes against the presence of foreign armed forces are growing among the local population. According to regional institutions and local authorities, frequent and prolonged military activities hinder the regional economic and tourist development. The dialogue between the municipality of Postojna and the MoD (state) regarding the SAF CTG is characterised by a cyclical exchange of conditioning-concessions-opposition. The obstruction of the spatial plan for the SAF CTG, followed by the exclusion of an environmental assessment of the training site. Geographic proximity to military infrastructure is a significant factor in local population opposition. According to the results of an empirical survey from 2021 (Grčar et al., 2025), the local population is most concerned about the energetic-chemical impacts of military activities and violations of environmental rights. The results of measurements at the SAF CTG showed that the limit values of some parameters in the soil and water sediment were exceeded.

At the same time, remediation was delayed for many years. The training ground is located in a sensitive geomorphological (karst) area (Kogovšek & Petrič, 2004) and near a water and nature conservation area. The MoD is conducting public consultations on the national spatial plan for the SAF CTG, which includes the interested public, who may otherwise believe that their opinions are not being considered. Regarding the SAF CTG, the MoD insists on defence needs, but is not decisive or successful in finding alternative solutions. Among the exposed population, there is a sense of anxiety, fear, distrust (in institutions, science), fatalism, and helplessness. The issue of the SAF CTG has been publicised for many years, with local media publishing articles that are not favourable to the military. The public is also not uninterested in the environmental impacts of the military. From the questions posed by the media to the MoD

in the period from 2009 to 2021, it is clear that the most significant interest was in the renovation of military facilities (16%), the national spatial plan (11.7%), military real estate (10.1%), and military shooting ranges and training grounds (8.5%) (Ministrstvo za obrambo Republike Slovenije, 2022).

## 7 Conclusion

Some military environmental impacts are so severe that they require the perpetrators to be held accountable and are subject to criminal prosecution for causing environmental crimes, or criminal sanctions (such as imprisonment or financial penalties) are foreseen for certain actions. The armed forces are a powerful state institution. Some military activities are exempt from environmental legislation (or it does not exist). Environmental crime committed by the armed forces is typically not included in official statistics. The consequence of military activities is some form of environmental harm or injustice, which requires different approaches (environmental regulation, environmental dimension of civil-military relations, political solutions, etc.). In an article, we contribute to the field of green criminology by comprehensively presenting the issue of environmental crime committed by the armed forces. Identifying this type of crime requires a certain expertise, and its study requires a broader conceptual approach (within the theoretical framework of environmental sociology, green criminology, and military sociology). To the existing typologies (approaches) of studying military environmental impacts, we have added a political-economic-geographical context factor typology.

We have expanded the analysis of environmental crime of the armed forces to include contextual characteristics that enable this type of criminality or indicate its existence in a given society. We limited the analysis of environmental crime of the armed forces by the number of selected cases, which most comprehensively covers the diversity of the phenomenon. Through this type of qualitative data analysis, we identified three contextual characteristics (political, economic, and geographical) that combine specificities in content and whose intensity is marked on a continuum from (un)perceived to problematic. The findings of the selected case study are compared with an abstract model to explain the specificity of environmental crimes committed by the armed forces. Decision-makers can thus focus on addressing those specific aspects of armed forces environmental crime that are problematic and, as such, also of interest to green criminology.

At the global level, according to the ideal type model, the most pronounced contextual characteristics of environmental crime of the armed forces are political and a combination of political,

economic, and geographical factors. The political contextual characteristics of environmental crime are conditioned by the form of government, ideology, the degree of militarization of society, the decision-making process, security and defence policy, and the strategic goals (ambitions) of the state. The economic contextual characteristics of environmental crime are conditioned by the level of economic power, technological development, and the provision of resources. The geographical contextual characteristics of armed forces' environmental crime are conditioned by the availability of resources, the strategic importance of the location, and the existence of territorial disputes. The set of geographical contextual characteristics also includes the evident convergence of environmental crime of the armed forces with geographic hotspots of environmental and organized crime (drugs, minerals, oil, wildlife, territorial control, etc.).

According to the designed model, the most pronounced contextual characteristics of environmental crime of the armed forces in the Republic of Slovenia are geographical and political. However, of all the contextual characteristics of the environmental crime of the armed forces for the selected case study, we find that for the Republic of Slovenia, the most pronounced are political and geographical characteristics. The finding indicates the need for a political approach to solving the problem (opposition of the local population, obstruction of the national spatial plan, protest letters, incidents), which will also include the geographical component of the problem (geomorphological characteristics, state of the environment, regional development). Within the framework of green criminological analysis, we identify some problematic contextual characteristics of environmental crime of the armed forces, which can be defined at least as a discrepancy in the environmental dimension of civil-military relations in the Republic of Slovenia.

Recognizing environmental crime requires a certain amount of expertise and knowledge of the broader context of the subject of study, which includes control (direction, adaptation, establishment of conditions); institutional characteristics (communal character, values, specific criminality, dehumanization and de-ecologisation process); technological aspect and military industry (impact of modern weapons systems on the environment); the role of the military in society (tradition, tasks, expectations); trust in institutions (building trust, public involvement, transparency); investments in infrastructure (taking into account the environmental aspect, promotion of sustainable projects, situational prevention of environmental harm); and recognition of environmental impacts (what threatens whom? state of the environment, environmental feedbacks, and sustainability).

The military establishes a complex relationship with the natural environment, which requires a multidisciplinary approach to study, including green criminological analysis. Environmental crime by the armed forces is a prevalent phenomenon yet often obscured. At the global level, we recognise two types of environmental crime by the armed forces of developed and less developed countries, with the common military environmental impacts to those of technologically intensive and conventional armies being primarily energetic-chemical impacts and danger impacts. Last but not least, it is also necessary to pay attention to a more covert and specific form of environmental crime by the armed forces of developed countries, especially if it involves unequal exchange, risk transfer, exporting environmental harm, greenwashing activities, or so-called green militarisation. There is also a concern about how much defence is enough to prevent violations of environmental rights caused by the military. Military and local community cooperation in addressing environmental issues is not a completely exclusive concept, yet, based on awareness of military environmental impacts, it is necessary to closely monitor military endeavours.

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## Ekološka kriminaliteta oboroženih sil v Republiki Sloveniji

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Ekološka kriminologija ne pojasnjuje celovito ekološke kriminalitete, ki jo zagrešijo oborožene sile. V članku so primeri analizirani z uporabo odprtega kodiranja za združevanje kontekstualnih značilnosti ekološke kriminalitete oboroženih sil, podatki pa so interpretirani z uporabo idealnotipske kvalitativne metode. Rezultati kažejo, da ekološka kriminaliteta oboroženih sil nastaja pod vplivom političnih, geografskih in ekonomskih kontekstualnih dejavnikov. Ekološka kriminaliteta oboroženih sil v Republiki Sloveniji se odraža predvsem v politični (44 %) in geografski (32 %) dimenziji. Glede na intenzivnost na politični dimenziji ugotavljamo nekatere problematične (49 %) (sodni postopki, nasprotovanje, prisotnost tujih oboroženih sil itd.) kontekstualne značilnosti ekološke kriminalitete oboroženih sil, na geografski dimenziji pa (85 %) (geomorfološke značilnosti tal, prisotnost naravnih rezervatov, bližina naseljenih območij itd.). Čeprav je Slovenska vojska okoljsko odgovorna institucija, v primeru Republike Slovenije obstajajo politični in geografski dejavniki, ki vplivajo na prag odkrivanja ekološke kriminalitete oboroženih sil, ki jih morajo upoštevati politični odločevalci.

**Ključne besede:** vojska, oborožene sile, ekološka kriminologija, ekološka kriminaliteta, okoljska škoda

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