



RESEARCH PAPER

Environmental Crime, Regulatory Evolution and Enforcement Challenges

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ABSTRACT

This study explores the environmental crime, the role law can play and challenges faced by regulatory agencies in implementation of environmental laws. The paper briefly discusses the environment, crimes specifically related to the environment and the enforcement challenges faced by different jurisdictions. Environment crime is illegal activities that degrade environment. It starts from exploitation of natural resources and ends in carelessness by natural and artificial person. Illegal logging, illicit trade of natural resources, fisheries crime, hazardous waste, and pollution etc. are the examples of environmental crimes. The study is exploratory in nature and analyse the theory. The research is based on the primary data such as the statutes and the secondary data, which are scholarly articles. It is found that weak enforcement is the result of insufficient data, unclear sanctions, infrequent prosecutions, corruption among bureaucrats particularly in developing countries, administrative penalties rather than criminal, limited resources, and lack of cross border cooperation.

Keywords: Environment, Environmental Crime, Transnational and Organized Crime, Environment Regulations

Introduction

Environment is everything that surround us. It includes Biotic, Abiotic elements, and their interaction with each other. It includes the natural as well as manmade environment. Natural elements consist of natural resources and the physical infrastructure is an example of human made environment. The environment is the sum of all living and non-living organism of a certain area, including their interactions and the conditions in which these organisms exist. Eskandari et al. (2019) defines environment as "a natural unit consisting of all plants, animals and micro-organisms (biotic factors) in an area functioning together with all of the non-living physical (abiotic) factors." Crime is the act of human beings prohibited by law and the environment crimes are those, which effect the environment by human activities. The scope of environment crime is very wide. It has a significant relationship with economic activities. The production of food, and development of infrastructure leads to damage environment, although these are inevitable but for sustainability certain limits have been imposed by law, whose violation is a crime.

Environment is not limited to one state, the act in one state can affect the environment of another state, hence it has global impact. The global issues such as, ozone depletion, the global warming, and the climate change has added to its importance. The rapid increase in world population is the cause root of environmental crime, as it increases the demand for food, water and other necessities of life. These results in industrialization

and development, which ultimately damage our environment through air, water and soil pollution etc.

The components of environment consist of hydrosphere, water bodies and their cyclic nature, lithosphere which includes soil, earth rock and mountains etc., atmosphere such as the air which covers the earth and last biosphere which is the living organism, such as plants, animals and human beings and their interaction with water, soil and air. The challenge world is facing nowadays is to ensure the permissible interaction of living organism with non-living elements of environment. For sustainable growth, development must be harmless to environment. The sustainable development goals such as good health and wellbeing, Clean water and sanitation, Climate action, Life below water and life on land cannot be achieved until and unless environment is saved from degradation. The environment degradation must be curtailed by keenly observe the human activities. For this an applicable law shall be enacted and implemented with true spirit.

Literature Review

Environmental Crime

Any activity that degrade the environment, beyond the permissible limits are environmental crimes. Environmental crime is broadly defined as illegal activities that directly harm the environment, aimed at financially benefiting individuals, groups, or companies through exploitation and theft of natural resources (Lirëza & Koçi, 2023a; Rippingille, 2023a). Williams (2006) emphasizes that the environment is "everything and anything external to us that might have an impact on how we think, feel, and act," encompassing both natural and human-made elements. Gomeseria (2016) similarly describes it as "all the living and non-living things in a natural setting composed of plants, animals, insects, microorganisms, rocks, soil, water, and sunlight." However, Syroid (2024) note that no single normative instrument in international law provides a unified definition, with different international institutions offering varying interpretations.

Environmental crimes result from irresponsible behavior by individuals and the corporates. These crimes encompass a wide range of activities from careless behavior to deliberate criminal enterprises (Bricknell, 2010). It starts from exploitation of natural resources and ends in carelessness. Environmental crimes are illegal acts that directly harm the environment, encompassing diverse offenses ranging from pollution to wildlife trafficking. Syroid (2024) classifies environmental crimes into five main types: fisheries crime, forestry crime, pollution crimes, illicit trade in natural resources, and wildlife crime. Lirëza & Koçi (2023b) and Pathal (2016) identify specific acts including illegal logging, wildlife trafficking, hazardous waste dumping, illegal fishing, and trade in endangered species. In the United States, Suggs et al. (2002) document illegal hazardous waste disposal, unpermitted discharges to water systems, oil discharge by vessels, pesticide misapplication, and illegal importation of ozone-depleting substances as common environmental crimes. The sources consistently emphasize that environmental crimes cause significant ecological and human health damage.

Corporates are involved in environmental crimes for profit motive. They do the cost and benefit analysis, of their illegal and unlawful activities. If there is any benefit to the company, even on the cost of environmental damage, they prefer that act which ultimately benefit the company. On the other-hand the environment is also being degraded by individual activities, there are numerous factors, and most important is the lack of awareness and irresponsible behaviour of the people.

Environmental crime represents one of the most profitable forms of criminal activity globally. Current estimates suggest it is worth between USD 70-281 billion annually (Nellemann et al., 2014), with some sources indicating it's growing at 5-7% annually two to

three times the rate of global economic growth (Rippingille, 2023a). It ranks as the third or fourth largest global crime sector (Lirëza & Koçi, 2023a; Rippingille, 2023a). Major categories of environmental crime and their economic impacts are Forestry crime: USD 51-152 billion annually (the largest sector), Illegal mining: USD 12-48 billion annually, Illegal fisheries and poaching: USD 11-24 billion annually, Illegal wildlife trade: USD 7-23 billion annually, Illegal trafficking of toxic waste: USD 10-12 billion annually, Illegal oil exploitation: USD 19-23 billion annually (Rippingille, 2023a).

Environmental crime has become increasingly transnational and organized (Elliott, 2016; Spapens et al., 2016). Criminal networks take advantage of globalization, free trade, reduced border controls, and opportunities to launder profits through legitimate financial systems (Elliott, 2016). The involvement of organized crime syndicates is evidenced by detailed planning, substantial financial support, and massive profits (Walters, 2013).

Legal and Regulatory Evolution

The regulatory evolution of environmental crime involves clarifying criteria for criminal enforcement, focusing on significant harm, deceptive conduct, deliberate non-compliance, and repetitive violations to advance environmental regulatory goals (Uhlmann, 2009). Environment can be protected by civil as well as criminal laws. In Past there was no any specific law that deals with the environmental issues. The remedies in civil and criminal laws were available, but ineffective. As it became the global concern, therefore in 1900s the issue was highlighted in the United Nations Organization (UNO). United Nations Stockholm conference 1972, was the milestone where United Nations Environment Programme was established. The focus of Stockholm conference was on Human Environment (Nations, 1972). Another step was taken in 1992 called Rio Declaration on Environment and Development. Principle 11 of the Rio Declaration, inter alia, mandates that "States shall enact effective environmental legislation"(Nations, 1992). After that the member states started enactment to protect environment.

A key piece of UK legislation, the Environmental Protection Act, 1990. (Environmental Protection Act, 1990) mainly outlines legal obligations for waste management, pollution prevention, and land contamination. Canadian Environmental Protection Act, 1999 (Canadian Environmental Protection Act, 1999), An Act deals with pollution prevention and the protection of the environment and human health in order to contribute to sustainable development. Enacted on January 1, 1970, the National Environmental Policy Act (National Environmental Policy Act, 1970), is a fundamental federal statute in the United States that mandates agencies to evaluate the environmental effects of proposed significant federal activities. Pakistan, the first law regarding environment was enacted in 1997, termed as the Pakistan Environmental Protection Act, 1997 (Pakistan Environmental Protection Act, 1997). The regulatory evolution of environmental crime in Malaysia involves shifts in regulation since the Environmental Quality Act of 1974, with innovative strategies targeting individual and corporate liability (Mustafa et al., 2015).

Environmental regulation has evolved from minimal, reactive approaches to comprehensive, proactive systems globally, with convergence occurring between Western and non-Western countries. The evidence spans multiple scales and timeframes. E. Weiss (2011) documents dramatic expansion in international environmental law: in 1972, only a few dozen multilateral agreements existed and most countries lacked environmental legislation; by 2011, hundreds of multilateral and bilateral agreements existed with all countries having environmental statutes. Thomas Sommerer (2014) analyzed 24 OECD countries (1970-2005) and identified major trends including upward regulatory shifts and policy convergence. Lovei & Weiss (1998) found OECD countries shifted from "ad hoc, sectoral" approaches reacting to damage toward "proactive and integrated" approaches. Importantly, Sommerer & Lim (2016) analyzed 37 countries across 25 policies, finding

regulatory expansion occurred in non-Western countries too, with "some evidence for the trend of global convergence." Xing et al. (2023) analyzed 9,185 papers (2000-2019), showing research intensity increased significantly after COP21, with the USA leading.

The regulatory evolution of environmental crime involves developing innovative collaborative mechanisms due to the absence of a specific international treaty, despite being under resourced (Elliott, 2012). In Europe the Environmental Crime Directive, originally adopted in 2008 and revised in 2024, aims to harmonize criminal law approaches across member states (Lundh, 2024). However, implementation challenges persist due to varying national legislation and enforcement approaches. The regulatory evolution of environmental crime over the last three decades has led to a growing problem of international environmental crime, valued at \$20–40 billion annually, driven by factors such as differential costs, regulatory failure, and enforcement issues, exacerbated by new multilateral agreements (Brack, 2004).

Enforcement Challenges

The problem of enforcement initiated from incomplete data of environmental crimes, least priority and uncertainty about laws. Regulators face challenges in controlling environmental crimes due to low prioritization, unclear sanctions, and legal uncertainties in defining such crimes (Luttenberger, 2017) due to insufficient data, weak enforcement, infrequent prosecutions, and complications from globalization (Shover & Routhe, 2005). The mix of civil and criminal liabilities and difficulty in imputing criminal liability to corporates is another challenge of enforcement. Initiating criminal proceedings ends with no fruit-full results because mostly agencies fail to collect evidence and prosecution department is unable to prove its case. Executive fails in translating international environmental agreements into effective actions due to weak commitments and lax enforcement, especially in developing countries (French & Mastny, 2001). Most of the countries ratified the international conventions but fail to apply in their home countries in same sense, this is because of the religion, cultural, social and political factors. Lack of awareness, deep rooted corruption and weak rule of law encourage the wrong doers and violators to do illegal logging and trade of hazardous waste. Environmental crimes are challenging to control due to their obscure victims and the public's difficulty in relating to them, which can lead to a lack of adherence to regulations (Korsell, 2001). Corruption among bureaucrats significantly impedes regulators' ability to control environmental crimes, particularly in developing countries where it is a major cause of environmental degradation (Damania, 2002). The rapid population growth, which leads to high poverty level in developing countries also add to the executive failure in implementation of environmental laws. The lack of resources and unidentified victims, and corruption in bureaucrats is the cause root of environmental violations.

Multiple papers highlight significant enforcement challenges: In under developed countries environment is least concern as their main aim is to survive. Environmental crimes often rank low on law enforcement priority lists (Luttenberger, 2017). The limited resources prioritize the national crimes and that is one of the reasons of enforcement failure. Penalties are frequently administrative rather than criminal and often inadequate (Luttenberger, 2017) Corporates main goal is to maximize their profits, and for that the administrative and financial penalties are least effective. Another issue is the number of statutory laws to address environmental crimes, this make the whole process complex. Detection is difficult due to the complexity of environmental regulations and the hidden nature of many crimes (Brack, 2004). Cross-border cooperation is time-consuming and problematic (Spapens et al., 2016). Limited resources and expertise hamper effective enforcement (Lirëza & Koçi, 2023a).

Material and Methods

What is environmental crime, How the law evolved and which challenges the regulators faced in enforcement of environmental laws? An exploratory qualitative analysis technique is used based on the primary and secondary data. The review analysis is conducted in the area of environmental laws. Data is collected from primary sources such as statutes, and secondary sources that include books, articles, and online sources. Qualitative analysis is done based on the available material. The scope of our study is limited to environmental crime and environmental law. The purpose of this study is to identify the challenges faced by the regulators, and suggest solutions to protect environment through legal as well as other ways.

Results and Discussion

Environmental crimes have consequences beyond environmental damage. They undermine good governance and rule of law (Elliott, 2016), contribute to political instability and armed conflicts (Walters, 2013), create environmental refugees and displace communities (Walters, 2013), and pose threats to human health and ecosystem integrity (Lirëza & Koçi, 2023). The body of research establishes environmental crime as a serious, growing, and inadequately addressed global challenge requiring coordinated international responses, improved enforcement mechanisms, and innovative prevention strategies. Environmental crime can be minimized by Use of satellite technology for detection (WACHHOLZ, 2011), International cooperation mechanisms (Elliott, 2016), Focus on financial aspects and money laundering (Spapens et al., 2016).

The International debate to protect environment was initiated by Stockholm declaration on Environment and Human Rights in, 1972, and the legal recognition of environmental damage was set by the principle 11 of the Rio Declaration on Environment and Development. Apart from the developed nations such as U.S.A. most countries started enactment to protect environment afterward. Malaysia in 1974, United Kingdom in 1990, Pakistan in 1997, and Canada in 1999. Etc. The environmental laws are based on the principles of Precautionary Approach: Preventive measures be taken before occurrence of environmental harm, Intergenerational Equity: equal rights of present and future generations to use natural resources and live in healthy environment, Polluter Pays Principle: the cost to pollute environment shall be borne by the polluters, and Integration Principle according to which Economic, Social, Development and Environment goals are interdependent and there must be sustainable development. Number of sustainable development goals depends on environment protection.

Environment protection is inevitable for the universe. For this there are effective international and national laws but their implementation is weak and a global challenge. The regulators failed to identify and prosecute the perpetrators. The problem initiated from the plethora of laws, due to which the regulators face difficulty in identification of relevant law and its enforcement and ultimately, they fail in proving their case, this benefit the criminals who repeatedly violate the rules and earn huge profit at the cost of environment degradation.

Conclusion

Environmental crime comprises illegal activities that directly harm the environment while financially benefiting perpetrators through exploitation, theft, or trade in natural resources (Rippingille, 2023b). Environmental crime is a crime against all living organism. It is a global issue as the act in one state effects the environment of neighboring states. The financial motive is behind most of the corporate environmental crimes. To solve this issue, United Nations Organization addressed it, in late 1900. Different conventions and treaties held to discuss and make policies concerning the Biodiversity, Climate Change, Land,

Chemical and Hazardous waste and Sea. The purpose of all is to protect this universe from unacceptable human activities, and to maintain balance between the Environment and the Development. The literature witnesseth plenty of laws to protect environment, but the issue is in their enforcement. Regulators face number of challenges to implement these laws. These factors vary in different states. In developing countries lack of resources and political will, along with the element of corruption in bureaucracy, undermine the efforts to protect environment. The interdependence of economic growth, poverty alleviation, development and environment are the big challenges to address wisely. For sustainable development all these should done side by side. The main barriers in enforcement of environmental laws are insufficient data, plenty of laws, hidden victims, reliance on administrative sanctions rather than criminal punishments, and lack of cross border cooperation. In short, all efforts to protect environment from its degradation, will be futile without addressing the loopholes in enforcement of environmental laws.

Recommendations

Based on this study multiple complementary strategies are recommended across sources to address environmental degradation, with strong consensus on renewable energy, policy reform, and public engagement. It is further suggested that,

- Public awareness campaigns should start through social and mainstream media.
- The dire consequences of human activities must be conveyed to the general public.
- There shall be a compulsory subject of environment in school, college and university level.
- Heavy fines should be imposed to individuals, who degrade the environment.
- Financial rewards should be introduced who inform and protect environment from degradation.
- Strict compliance by individuals as well as corporates shall be ensured.
- For sustainable development, environment friendly project should be encouraged.
- The government should facilitate the public for switching towards renewable energy sources, rather than prioritizing the state revenue.
- The environmental issues shall be addressed on priority basis and there must be clarity in sanctions.
- Data mechanism must be developed so that the right action at right time may be taken.
- The violators must be dealt with strict punishments other than fine.
- Rather than administrative fines criminal actions shall be taken against corporates who violates the law and fails in compliance.
- The environmental laws must be amended as per current needs, and all environmental issues shall be address in one act rather than in different laws. The plethora of laws is the hurdle in implementation and prosecution.
- Strict laws be enacted and implemented to mitigate corruption.
- Not the executives or legislatures but the rule of law shall prevail.

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