Secondary Green Crime: Bangkok's PM2.5 Pollution and Policy Corruption

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Abstract

Air pollution has been widely studied as a primary green crime, but its relationship with secondary green crime has not been well investigated in Thailand. This article explores the link between particulate matter 2.5 (PM2.5) pollution in the Bangkok Metropolitan Area and policy corruption, treating it as a secondary green crime. The study conducted documentary research, in-depth interviews, focus groups and a qualitative content analysis. The findings indicate that certain human activities could subsequently enable air pollution to occur and that corruption between the government and corporations seeking economic gain under favourable policies is a significant contributing factor. Business elites also play a role in environmental policy deadlock. Four sectors (i.e., vehicles and traffic congestion, construction, industrial factories and power plants, and agricultural burning) were identified as sources of PM2.5 pollution related to policy corruption. This suggests that addressing policy corruption is a necessary part of preventing PM2.5 pollution.

Keywords: PM2.5; air pollution; secondary green crime; environmental crime; policy corruption.

Introduction

Air pollution, which is primarily caused by human activities, is a rising threat to human health and welfare (Manisalidis et al. 2020). In 2019, air pollution caused 6.7 million premature deaths, making it the leading cause of pollution-related deaths (Fuller et al. 2022). It is predicted that the healthcare costs related to air pollution will rise from 21 billion USD in 2015 to 176 billion USD in 2060 globally (Organisation for Economic Co-operation and Development 2016). Particulate matter (PM) is a primary type of air pollutant identified by the World Health Organization (WHO). It consists of small liquid or solid droplets that can quickly infiltrate lungs and bloodstreams after inhalation, causing severe health effects (Manisalidis et al. 2020; WHO 2021). PM pollution is responsible for approximately 6.5 million premature deaths annually worldwide (Fuller et al. 2022). A study conducted in China reported that an additional 100 micrograms of total suspended PM of all sizes (PM10 and PM2.5 combined) per cubic meter of air over a year could result in an average decrease in life expectancy of three years (Chen et al. 2013). PM2.5 (i.e., PM with a diameter of 2.5 micrometres or less) (Manisalidis et al. 2020) is regarded as one of the most harmful air pollutants that causes premature deaths (Emden and Murphy 2018). These particles are small enough to enter the respiratory system and cause severe health issues, such as lung cancer (Xing et al. 2016).

In Thailand, air pollution is accountable for the loss of 50,000 lives annually (Greenpeace Thailand 2018). It caused 32,200 premature deaths nationwide in 2019 (Nikam et al. 2021). It has been estimated that the average life expectancy of Thai citizens will decrease by two years due to air pollution (Roengjit 2019). The WHO recommends that the daily concentrations of PM10 and PM2.5 should not exceed 20 µg/m³ and 10 µg/m³ of air, respectively, as PM in such concentrations could have severe effects on human health (WHO 2006; see Table 1). However, Thailand sets its permissible PM2.5 levels at 25 µg/m³ and 50

µg/m³ per year and per day, respectively. These permissible targets are double that of the WHO's standards (Buakamsri 2019; see Table 2).

Table 1. PM Air Quality Standards Set by WHO (Measured in Micrograms per Cubic Meter)

PM	24-hour Average	Annual Average
PM2.5	25 µg/m³	10 µg/m³
PM10	50 µg/m³	20 µg/m³

Source: WHO (2006).

Table 2. Comparison of PM2.5 Standards between WHO and Thailand (Measured in Micrograms per Cubic Meter)

Organisations/Countries	24-hour Average	Annual Average
WHO	25 µg/m³	10 µg/m³
Thailand	50 µg/m³	25 µg/m³

Source: Buakamsri (2019).

Domestically, Bangkok is one of five cities in Thailand with the highest yearly average PM2.5 concentrations (Greenpeace Thailand 2018). The level of PM2.5 pollutants exceeded the 24-hour average standard (> 50 µg/m3) over 20% of the days per year in the city (Htwe et al. 2021). Several studies (ChooChuay et al. 2020; Chulalongkorn University 2019; Kanchanasuta 2020; Kundhikanjana 2019; Marks and Miller 2022; Pollution Control Department 2018; Sardar et al. 2019) have revealed that significant sources of PM2.5 emissions in Bangkok include exhaust gases from vehicles, dust generated by construction projects, emissions from industrial facilities and power plants, and agricultural burning. This indicates that PM2.5 pollution in Bangkok is not a natural phenomenon but the result of improperly and insufficiently regulated human activities.

From a green criminological perspective, environment crime refers to illegal or unethical acts causing damage to the environment, natural resources and species. It encompasses both primary and secondary human involvement in environmental degradation (Spapens et al. 2014), including violations, avoidance and evasion of environmental regulations by governments and corporations (Potter 2014). Sustainability neglect by state elites often leads to ignorance of environmental pollution and the systematic concealment or denial of environmental hazards (White 2009; 2010). As McGoey (2012: 571) notes, people collectively use ignorance as a shield to evade responsibility for causing a crisis, making it difficult to hold specific financial players accountable for their actions. Policymakers may employ strategic knowledge and claim ignorance, enabling issues to remain hidden, a lack of accountability and corruption. Meanwhile, large organisations, especially modern states, deliberately encourage ignorance to downplay and deny environmental crimes and harms, employing tactics that manipulate moral and legal norms (Paul and Haddad 2022: 222–223; Thiel and South 2022).

As reported by Transparency International (2021), under the 2020 Corruption Perceptions Index, Thailand ranked 104th out of 180 countries. The involvement of military officials, politicians and big corporations in corruption is fairly common (Crispin 2019; Pannasil et al. 2016). Due to their political and economic power, it is difficult to investigate and prosecute corruption cases involving them, as their actions or decisions are systematically justified by law or governmental officers who have corrupt intent. Mapreeda and KesaPradit (2019) defined 'policy corruption' as a new kind of corruption that is justified by legal loopholes and inappropriate public policies. The term has been widely used in Thailand over the past two decades; however, it is still rarely applied internationally.

Thus, this article examines PM2.5 pollution in the Bangkok Metropolitan Area (BMA) in association with policy corruption based on the concept of secondary green crime. It begins with an exploration of previous studies on PM2.5 pollution, environmental crime and policy corruption. Next, the research methodology is explained; a qualitative research approach was adopted, involving documentary research, in-depth interviews, and focus groups, and the data were comprehensively analysed by a content analysis. Then, using PM2.5 pollution in the BMA as a case study, the research results are discussed in terms of

the following two focal points: 1) policy corruption as a secondary green crime; and 2) examples of policy corruption in PM2.5-polluting sectors. Finally, the article concludes by summarising the key findings, which suggest the positive relationship between policy corruption and PM2.5 pollution. The conclusion also explains the significance and novelty of this study and outlines some directions for future research.

PM2.5 Pollution in the BMA

According to Thailand's Pollution Control Department (2018), the amount of PM2.5 in the BMA has surpassed the WHO's air quality standard of 50 mg/m3 during the early months (January–March) and the end of the year (December) for eight years in a row (2011–2019). That report and previous research (ChooChuay et al. 2020; Chulalongkorn University 2019; Kanchanasuta 2020; Kundhikanjana 2019; Marks and Miller 2022; Sardar et al. 2019) reveal that PM2.5 pollution is primarily caused by human activities.

Theoretically, the engagement in PM2.5 polluting activities at the individual level can be explained by the social disorganisation theory, which establishes a connection between crime in urban disorganised communities and conditions, such as poverty, restricted access to resources and ineffective social control mechanisms (Lynch 2020). The involvement of local farmers and laypeople in PM2.5 polluting activities, such as agricultural burning, a convenient approach for removing crop residues, and the exacerbation of traffic congestion are related to economic deprivation, inadequate land use planning, limited employment opportunities and reliance on private vehicles due to financial constraints (Rentschler and Leonova 2022; Singh et al. 2022).

Additionally, according to the rational choice theory, corporations participating in air-polluting activities are considered rational agents guided by self-interest. In accordance with theoretical concepts like 'strategic ignorance' (Mcgoey 2012) and the idea of 'corporate personality' (Clifford 2014), a corporate mindset undermining the realisation of human rights and the environment, these corporations tend to prioritise profit maximisation over environmental conservation. As rational actors, corporations engage in cost-benefit analyses, incorporating information gleaned from environmental laws and regulations (Lyman and Potter 2007; Ngamkaiwan 2015) that could potentially lead to the exploitation of valuable insights and the creation of favourable circumstances conducive to engaging in corrupt practices, as theorised within the framework of the elite theory (Gonzalez 2001; Kamieniecki 1995).

Unfortunately, Thailand's efforts to mitigate PM2.5 pollution are insufficient and required only minimal investigation and monitoring of air pollution sources. As Chaisamritpol (2019) reported, the Pollution Control Department has not implemented effective strategies to control air pollution emissions. Such measures could take the form of installing pollution monitoring equipment on power plant stacks or establishing industrial air pollution reporting regulations. The public sector's attitude towards environmental conservation and its potential effect on the country's business and industrial development may explain why such measures are not currently in place.

Primary, Secondary and Tertiary Green Crimes

Environmental crime, also known as green crime, generally refers to illegitimate acts that harm the environment and natural resources (White 2010). However, Walters (2009) suggested that the concept of environmental crime should be extended to include permitted or lawful acts of environmental degradation committed by states and enterprises for the pursuit of economic advantages. It is important to note that wrongdoings are often officially defined by nation states as civil rather than criminal matters, which enables powerful groups and organisations to avoid the criminalisation of their activities despite their ecologically disastrous effects (White 2014: 88). Moreover, environmental crime, which is estimated to generate billions of dollars annually, can lead to money laundering due to its profitability. Its convergence with other serious offenses, like waste trafficking and industrial pollution, further exacerbate the issue, fuelling corrupt practices (Financial Action Task Force 2021). According to Potter (2014: 9–10), there are three major types of green crime: primary, secondary and tertiary.

Primary green crime, which refers to direct harm to the environment and species, includes activities such as air pollution, deforestation, species depletion, animal abuse, water pollution and resource overconsumption (Carrabine et al. 2009: 389, 394). Many of these activities have been criminalised by legislative actions at the national level. For example, in the United Kingdom (UK), criminal law has been used to address public health concerns such as in the case of the *Clean Air Act 1956,* which was implemented after the London fog of 1952 (Potter 2014: 9). More recently, Global South countries have also enacted legislation to protect their natural environments, as exemplified by Vietnam's *2017 Law on Forestry* and *2017 Law on Fisheries* (Tatarski 2020) and Thailand's *2019 Wildlife Conservation and Protection Act* (Ngamkaiwan 2023). Despite efforts to criminalise certain environmental offenses, the lack of political will or corrupt practices can hinder the implementation of legislation, as seen in

Nigeria, where e-waste regulations remain unenforced due to a lack of political commitment and corruption (Sollund and Wyatt 2022).

Secondary green crime emerges from illegal or negligent government or corporate activities. This includes situations in which these entities ignore the rules they themselves have put in place to regulate environmentally sensitive actions (Carrabine et al. 2009: 394). Potter (2014) argues that secondary green crime also involves the concealment of pollution information by state agencies and corporations, as well as 'corruption' to avoid the introduction or enforcement of environmental legislation (10). Greenwashing, a type of secondary green crime, is another recent concern, with corporations using public relations as a primary tool to mislead the public. From a Southern perspective,[1] greenwashing is a subtype of secondary green crime that includes actions sustaining and enabling primary green crimes (Goyes 2019). For instance, in 2016, commonly consumed vegetables in Brazil contained numerous toxic elements from herbicides and pesticides that pose risks to human and animal life and biodiversity. However, regulatory agencies did not recommend banning the most poisonous products, while corporations influenced official reports and media campaigns to downplay the harms of agrotoxics and exaggerate the benefits of agribusiness (Budó 2017).

Tertiary green crimes go beyond primary and secondary offenses and emerge as deliberate responses by environmental victims. These reactions may involve property damage or violence, stemming from environmental harm and victimisation, and may sometimes escalate to riots or even armed resistance (Potter 2014: 11–12). According to Goyes (2019), tertiary green crimes also include further environmental destruction by victims. For example, the environmental harm caused by indigenous peoples' slash-and-burn practices is driven by structural changes imposed by broader societal forces, such as forced migration, land takeovers and market pressures (Goyes et al. 2022).

Policy Corruption

The term 'policy corruption' is seldom used internationally, but it has been frequently employed in Thailand for over a decade (Chaiumporn and Arunraur 2015; Mahakul 2017; Techaphira 2002). The closest term used by international scholars is 'systemic corruption', which refers to a situation in which corruption is the norm at all levels of society due to the contested legitimacy and authority of the government, weak rule of law, ineffective oversight bodies, the absence of merit culture and weak law enforcement (Laver and Safra 2014). Rathamarit et al. (2016) discovered similarities between policy corruption and systemic corruption where politicians or public officers create conditions to systematically corrupt the public policymaking process. The high potential for success of corrupt activities in an environment that is supportive of corruption and in which incentives for corruption appeal corporations, individuals and public officials contribute to the routine nature of corruption (Coetzee 2013: 2).

Chaiumporn and Arunraur (2015: 205) defined 'policy corruption' as a novel form of corruption where law or inappropriate public policies are wrongfully justified, which contradicts ethical principles and public interests. Mahakul (2017) described policy corruption as the use of political conditions or circumstances to benefit oneself or a group of people through conflicts of interest.[2] Such conflicts occur due to cooperation between politicians, governmental officers and businessmen or through the use of public policies or laws as profit-making instruments. In the end, the primary purpose of policy corruption is to provide legitimacy to the wrongful or harmful actions of elites and authorities. Technocrats, public officials responsible for academic services in the public sector, play a significant role in creating the conditions necessary to legitimise corrupt governmental projects and schemes (Sriphonkrang 2017).

The present study defines policy corruption as an outcome of the cooperation between economic monopolists and individuals with political or administrative power who legitimise illegal activities when implementing or enforcing laws, regulations and public policies.[3] Policy corruption usually occurs in the absence of transparency and accountability, which are typically achieved through mass media scrutiny or public participation.[4] Policy corruption typically arises when there is a legal justification for environmentally harmful activities, including a lack of laws or inappropriate laws, regulations and public policies (Mahakul 2017; Rathamarit et al. 2016; Sriphonkrang 2017; Techaphira 2002), as shown in Formula 1.

Formula 1. Policy Corruption

$$PCo = M + D + L - A$$

Where			
	PCo	=	policy corruption
	M	=	monopoly
	D	=	discretion
	L	=	legitimacy
	A	=	accountability

Source: Adapted from Klitgaard's (1998) Corruption Formula.

Policy corruption can only be achieved through economic and political influence, allowing exploitation of legal or policy gaps for personal gain. Environmental laws and regulations at the policy level face various enforcement challenges, as they reflect the interests of powerful groups (Lynch 2020; Sahramäki and Kankaanranta 2021). The relationship between weak air pollution control and policy corruption has also been established in previous studies from other countries, such as the United States (US) (Basseches et al. 2022; Gonzalez 2001; Scoville 2021), the UK (Walters 2009), China (Wang et al. 2019; Yan 2020) and Indonesia (Husin and Tegnan 2017; Muslihudin et al. 2018; United Nations Environment Program 2019).

According to Rathamarit et al. (2016), there are limited legal mechanisms to combat policy corruption. Parliamentary scrutiny is largely ineffective due to the parliamentary majority and the lack of election regulations on policy campaigns. As a result, investigating and prosecuting corruption in the Thai public sector can be challenging due to the wrongful justification of corruption by law or governmental officers with corrupt intent. In Thailand, corruption cases involving military officials and big corporations are prevalent. Bribery in the public services processes is widespread across various sectors (World Bank Group 2012). Under the National Council for Peace and Order (NCPO)[5] and the pro-junta government led by General Prayut Chan-o-Cha (2019–2023), granting of concessions was common, particularly among suppliers of products or services or contractors of government construction projects (Pannasil et al. 2016).

Meanwhile, Chinese and locally born Chinese business groups have dominated the Thai's economy and political arena for an extended period. Contracts and policy changes are secured by lobbying and donations to political candidates, elected politicians and political parties. In 1979, the top 20 large firms in Thailand all demonstrated the history of ownership concentration, trading network and political support to foster the expansion of their family businesses (Sitthipongpanich 2004). The five elite corporations, comprising the Charoen Pokphand (CP) Group, ThaiBev, King Power Group, Boonrawd Brewery and Central Group, had also accumulated power and profits throughout General Prayut's regime (Crispin 2019). This conforms to the concept of 'necropolitics' (Mbembe 2019), a situation that arises when business elites' influence over state decision making and public institutions undermine the realisation of human rights and the environment.

Research Methodology

This qualitative study sought to investigate the current situation of PM2.5 pollution and policy corruption in the BMA, using primary and secondary data gathered through documentary research, in-depth interviews and focus group discussions.

The documentary research involved the analysis of relevant data in both Thai and English languages from various secondary sources, such as laws, international treaties, policies, textbooks, journal articles, news articles, and domestic and foreign case studies. The obtained data were used to develop the research database and formulate questions for the in-depth interviews and focus group discussions.

The primary data were collected through 14 in-depth interviews and two focus group discussions with 26 key informants. The participants were selected using purposive sampling and snowball sampling techniques based on their professional roles and responsibilities related to air pollution or corruption control in Thailand (see Table 3). The research participants signed informed consent forms issued by the Institutional Review Board, Faculty of Social Sciences and Humanities (MU-SSIRB). To ensure the safety and privacy of the research participants, their identities were kept anonymous throughout the study, in accordance with ethical considerations and to mitigate potential risks they may face due to the sensitive nature of the research. This study was approved by the Committee for Research Ethics (Social Sciences) of Mahidol University, Thailand (COA No. 2021/103.0909).

Table 3. Research Participants

Method	Focus Group 1 (6)	Focus Group 2 (6)	In-depth Interviews (14)
Period	26 March 2022 (13.00–14.00)	26 March 2022 (15.00–16.00)	October 2021–December 2022
Participants	- 2 government officers - 1 Association of Southeast Asian Nations (ASEAN) environmental officer - 1 non-governmental organisation (NGO) officer - 1 economist - 1 local community representative	- 2 government officers - 1 ASEAN environmental officer - 1 NGO officer - 1 environmental health scientist - 1 local community representative	- 2 government officers - 2 political scientists - 2 environmental policy scholars - 1 private entrepreneur - 1 NGO officer - 1 ASEAN environmental officer - 1 local community representative - 1 economist - 1 environmental scientist - 1 public administrator - 1 geographer

To ensure data reliability, the data triangulation technique was used, employing multiple data sources and collection methods in a single study. The data were then classified into sub-themes and contextually analysed by a qualitative content analysis.

Results and Discussion

In reference to the findings derived from the focus group discussions, in-depth interviews and literature review, the relationship between PM2.5 pollution and policy corruption was investigated in the BMA based on the secondary green crime dimension. Evidence of policy corruption in PM2.5 pollution management in the study area is also provided in this section.

Secondary Green Crime: Policy Corruption

The presence of PM2.5 pollution in the BMA is caused by actions that enable primary green crimes, which highlights the involvement of policy corruption as a secondary green crime. Policy corruption in this aspect can take the form of actions, such as avoidance, negligence, the violation and insufficiency of air pollution–related laws, regulations, policies and standards, and can also include the preclusion of law introduction and enforcement, the oppression of oppositional groups and protestors, and licensed or lawful acts of environmental degradation committed by governments and corporations in the pursuit of economic interests (Finger and Zorzi 2013; Potter 2014; Spapens et al. 2014; Walters 2009).

According to the research findings, corruption among the state and corporations pursuing their own economic interests under favourable policy conditions is a significant cause of PM2.5 pollution. There were instances of bribery and corruption in government procurement bidding processes for local construction and public transport projects, as well as frequent reports of lobbying in government projects. This is consistent with previous research by Mbembe (2019), Rose-Ackerman (1996) and Daniels et al. (2012). The study also found evidence of favouritism and legal exemptions for certain groups, such as Chinese grey business operators or relatives of administrators. In Thailand, the cultural norm of patronage makes it difficult to deter the give-and-take relationship between those in power and their supporters through legal measures (Domhoff 1978; Kamieniecki 1995; Klitgaard 2017; Lowi 1979; Pannasil et al. 2016). As one of the research participants, a sociologist, elaborated:

> There is currently a situation involving 'Chinese Grey Investment' using Thailand as a hub to conduct unethical business practices. Researchers and locals have raised questions regarding the ability of Chinese factories engaging in environmentally detrimental activities to operate freely within the country. They believe that this is due to the licensing authorities who approve their licenses despite their unethical practices. (Personal communication, 6 December 2022)

As Binder (2003) noted, environmental policy stalemates can result from the influence of business elites' interests. This is demonstrated by the resistance of industries, such as automobiles, petrochemicals and agriculture, to the enactment of the Clean Air Act and upgraded emission standards. Policy corruption can enable environmentally harmful activities to be facilitated rather than prosecuted. For example, the junta government introduced a public policy promoting the rapid expansion of a cash-crop monoculture that typically involves agricultural burning (Voice Online 2020). Despite the negative consequences of

agricultural burning, the profit-driven nature of the major companies involved in cash-crop production, such as corn and chicken, continues to encourage land clearance for new crops and facilitate sugar processing (Phairuang et al. 2017). A research participant, an environmental scientist, stated:

> Who funds the government, particularly during election campaigns is a question worth pondering. While citizens may reap the benefits, particularly in terms of improved health outcomes, there are certain stakeholders who may stand to lose. For instance, the automobile industry has long prioritized cost minimisation, but now they are required to invest in expensive catalytic converters for their vehicles. Additionally, it is crucial to keep people in this region reliant on fossil fuels until the petrochemical industry has recovered its investments in infrastructure. Another example is agricultural burning, which has come under scrutiny due to its harmful impacts on air quality. Some companies have even threatened legal action against those who implicate them as the source of pollutants, despite the fact that they may purchase products derived from open burning. Clearly, there are complex factors at play when it comes to addressing environmental issues, particularly in regions where democracy may be limited. (Personal communication, 19 November 2021)

Thus, it is reasonable to suspect that data on the relationship between sources of pollution and private corporations may be concealed (Lefevre 2014). The case of the Mae Moh coal mine provides an example of greenwashing a polluting megaproject (Yoo 2018). As both the first-hand experiences of research participants and previous studies have confirmed, violence against local communities and researchers is sometimes used by polluters (Human Rights Lawyers Association 2019; Scott and Tollefson 2010; White 2003). As one research participant, a political scientist, disclosed:

> SLAPPs [Strategic Lawsuits Against Public Participation] have resulted in the murders, disabilities, and arrests of numerous environmental activists and victims. These lawsuits, which often accuse activists of defamation, nuisance, or trespass, are used as a tool to silence them. Although both sides may face financial consequences, the big corporations involved are generally less affected in the long run compared to their targets. (Personal communication, 1 November 2021)

Similarly, another research participant, a sociologist, noted:

> Around 3–4 years ago, a student of mine conducted research on corrupt power plants and was accompanied by a reporter to one of the research sites, where they were threatened with guns. The local politicians who were involved in illegal business with Chinese businessmen acted as a local mafia and protected the business. As a result, local people are too scared to speak up against them. Additionally, NGOs are hesitant to disclose information because of ongoing lawsuits, fearing that their opponents might gain access to the information and use it against them. In countries with lower levels of democracy, capitalists have an easier time exploiting the situation. (Personal communication, 6 December 2022)

Policy Corruption in PM2.5-Polluting Sectors
In the BMA, instances of PM2.5 pollution associated with policy corruption were identified in four key areas: 1) vehicles and traffic congestion; 2) construction; 3) factories and power plants; and 4) agricultural burning.

1) Vehicles and Traffic Congestion
The petrochemical and automobile industries are considered 'policy monopolies' that contribute to the environmental policy 'stalemate' by prioritising their interests, such as economic growth, as public interests (Baumgartner and Jones 1993: 5; Binder 2003: 21–22; Schattschneider 1960: 25–35). These industries have postponed the conversion of their oil refineries and engines to the Euro 5 or Euro 6 emission standards, indicating policy failures and corruption at the national level (Borirak 2019: 54). Additionally, the research reveals that traffic congestion in the BMA is a result of unequal economic development caused by policy failures and corruption (Mahakul 2017; Rathamarit et al. 2016; Sriphonkrang 2017; Techaphira 2002). Despite the poorly maintained public buses and footpaths, the BTS Skytrain[6] remains the primary mode of transportation for the working population in Bangkok. However, the government has not controlled increases in BTS fares, and members of the public have raised concerns about the maximum train fare and the extension of the concession contract for the BTS (Marks 2020; Norapoompipat 2017; Thai PBS World 2022). The Metropolitan Rapid Transit (MRT)[7] is another transportation system in the BMA that has also been accused of corruption in its bidding process (The Nation Thailand 2022). These instances of corruption in public infrastructure and policy enforcement demonstrate how policy corruption contributes to air pollution control problems in Bangkok.

2) Construction
Several public construction projects have been criticised for potential policy corruption due to the continuous release of fine dust despite numerous complaints from local communities. For example, the Rama II Road, also known as Highway 35, has been under construction and repairs since 1973, causing traffic congestion and dust pollution for over three decades (Onthaworn 2020). In addition, many public construction materials fail to meet standards, leading to the rapid deterioration of roads and footpaths and the need for countless repairs. Unfortunately, a recent tragic bridge collapse that resulted in two deaths suggests

that the elevated structure of the Rama II Road may be incomplete and construction should be halted for a safety review (Bangkok Post 2022).

These observations align with Watcharothai's (2018) findings that set-bidding corruption is prevalent in Thailand's public procurement process. The government regulatory framework necessitates technical product conditions that are sometimes falsified or justified by state technocrats, resulting in off-spec materials and equipment for completing government projects. Such findings are also consistent with the concept of policy corruption, wherein technocrats, individuals with scientific or technical expertise who hold critical positions in government or industries, are employed to increase the credibility and legitimacy of corrupt activities or projects (Sriphonkrang 2017).

3) Factories and Power Plants
The study found that during the National Council for Peace and Order (NCPO) regime, Type 1 factories and waste treatment/recycle plants were allowed to operate with less scrutiny, emitting air pollutants without proper state control. This was due in part to exemptions in urban planning and environmental impact assessments for these facilities (ENLAWTHAI Foundation 2015; Royal Thai Government Gazette 2016). The rising number of plastic and electronic recycling plants in Thailand between 2017 and 2018 was driven by the relocation of Chinese waste treatment plants to Thailand, as China implemented stringent bans on waste imports (Duggleby 2021). These e-waste factories were often exempt from pollution monitoring (Beech and Jirenuwat 2019) and benefited from weak policies and corruption (Nguyen 2020). Explosions at the Ming Dih Chemical polystyrene factory and the Wattana Footwear factory in 2021 were recent outcomes of the lack of environmental impact assessments and poor land use planning or zoning (Chayutworakan 2021; Thawan 2021). The *Factory Act of 2019* exempts factories with fewer than 50 employees from mandatory five-year licensing requirements, allowing them to avoid pollution inspections by the Department of Industrial Works (Macan-Markar 2019). This agency has been criticised for facilitating polluting firms (Marks and Miller 2022). The Power Development Plan of Thailand, which promotes the use of coal for many years despite campaigns for reduction, is also opposed to the principles of the Paris Agreement (Crispin 2019; Kumkongsak 2017), indicating the possible involvement of big corporations in energy policymaking and policy corruption in the industrial sector.

4) Agricultural Burning
According to key informants, an example of policy corruption lies in the promotion of economic plants by the NCPO. This is consistent with a study conducted by Kongkirati and Kanchoochat (2018). The current policy fosters the excessive expansion of sugarcane and corn fields, and frequently involves agricultural burning, which leads to significant environmental harm and adversely affects local communities. During the implementation of the policy, the chairman of a major sugar industry corporation was also the president of the NCPO's agriculture committee. The corporation signed a partnership deal supporting the junta Pracharath initiative, and private companies that joined the initiative received substantial business privileges, indicating a potential conflict of interest (Kongkirati and Kanchoochat 2018; Marks and Miller 2022). Some firms sued environmental activists and local communities that accused them of being the source of pollutants, even though the companies did not burn the crops themselves. These SLAPPs are a type of secondary green crime, as defined by Potter (2014), that aims to repress environmental activists and local communities who oppose polluting activities. Such companies are responsible as conspirators of the crime, similar to all stakeholders in the money laundering process (Ngamkaiwan 2015). Based on the deterrence theory that has been widely incorporated in anti-money laundering regulations (Akers 1990), under the Pinkerton Rule,[8] all individuals involved in the conspiracy bear responsibility for the crime and should face equal penalties as the main perpetrator (Singer and La Fond 1987).

Conclusions

Adopting a green criminological perspective, this study found that PM2.5 pollution in the BMA is linked to policy corruption, a type of secondary green crime. This research revealed that secondary human activities could lead to, facilitate and perpetuate primary green crime, such as air pollution, and that corruption between the government and corporations pursuing their own economic interests under favourable policy conditions is a significant factor in its occurrence. The influence of business elites can also cause environmental policy deadlocks. This study identified PM2.5 pollution cases related to policy corruption in four main sectors: vehicles and traffic congestion; construction; industrial factories and power plants; and open burning. This suggests that special regulations need to be implemented not only to address the sources of pollution but also to tackle policy corruption to address the issue of PM2.5 pollution effectively.

Significantly, this study addresses the scarcity of empirical research on air pollution crime and policy corruption in Thailand, making a valuable contribution to the field of green criminology. The findings not only reveal the complex connections between

human activities, secondary green crime and policy corruption but also establish a foundation for advancing green criminological theories and fostering global discussions on environmental crime and policy corruption.

This study's profound implications and potential effect also underscore the urgency of disseminating its findings to a broader international readership. In Thailand's political context, this research has the potential to drive the formulation of progressive policies to combat air pollution, which will resonate not only nationally but also internationally. Further exploration of the spatial diversity of PM2.5 sources and their intricate relationship with policy corruption, as seen in the cases of Chiang Mai and Bangkok, will be crucial in devising tailored strategies to effectively address air pollution. As air pollution knows no bounds, the nuanced understanding of environmental crime and policy corruption in Thailand provides invaluable insights that could benefit other countries facing similar environmental challenges.

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[1] Southern perspective, or Southern green criminology, is an approach emphasising the North-South division as a fundamental analytical category.

[2] This concept is similar to the concept of 'state-organised crime' (Chamblis 1989), which refers to crimes –'committed by state officials in the pursuit of their job as a representatives of the state' (184).

[3] Thus, apart from 'state-organised crime' (Chamblis 1989), which involves crimes committed by state officials, this concept also shares similarities with 'state-corporate crime' (Michalowski and Kramer 2006). 'State-corporate crime' denotes collaboration between government and corporate entities in criminal activities, highlighting the interplay between state power, corporate influence and illicit conduct.

[4] This conforms to Klitgaard's (1998) Corruption Formula that identifies corruption as the product of the monopoly of power, the discretion available to officials and the degree of accountability in a given context.

[5] The NCPO was the military junta that governed Thailand from the date of its coup d'état on 22 May 2014 until 10 July 2019.

[6] The BTS Skytrain, also referred to as the Bangkok Mass Transit System, is an elevated rapid transit network operating in BMA.

[7] The MRT is a mass rapid transit network that operates within the BMA.

[8] The Pinkerton Rule, also known as the Pinkerton Liability or Pinkerton Doctrine, is a legal principle derived from the US Supreme Court in the 1946 case, *Pinkerton v. United States* (Pauley 2005).

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