Jurnal Tata Sejuta Vol 11 No 1 April 2025
Jurnal Tata Sejuta STIA MATARAM
http://ejurnalstiamataram.ac.id
P-ISSN 2442-9023, E-ISSN 2615-0670

MENYEIMBANGKAN TRANSFORMASI HIJAU DAN PERTUMBUHAN: IMPLEMENTASI PAJAK LINGKUNGAN DALAM KONTEKS ASIA – STUDI KASUS VIETNAM, TIONGKOK, DAN MALAYSIA

Tusta Citta Ihtisan Tri Prasidya[1] Wirawan Suhaedi[2] M. Ali Fikri[3] Intan Rakhmawati[4]

[1,2,3,4] Universitas Mataram

Info Artikel

Sejarah Artikel:
Diterima: 12 Juni 2024
Disetujui: 19 April 2025
Dipublikasikan: 30 April 2025

Kata Kunci:
Perpajakan Lingkungan;
Pertumbuhan Hijau;
Pembangunan Berkelanjutan;
Keadilan Sosial

Abstrak

Penelitian ini bertujuan untuk mengkaji penerapan pajak lingkungan sebagai upaya menyeimbangkan pembangunan nasional dan perlindungan lingkungan dalam konteks Asia, serta menarik pelajaran yang dapat diterapkan di Indonesia. Pajak lingkungan, yang berakar dari teori eksternalitas Pigou, telah menjadi instrumen ekonomi yang populer untuk mendorong pertumbuhan hijau, terutama di negara-negara maju. Meskipun penerapannya masih relatif lambat, sejumlah negara berkembang di Asia mulai mengadopsi strategi serupa sebagai respons terhadap tantangan lingkungan yang semakin meningkat. Dengan pendekatan studi kasus kualitatif, penelitian ini menganalisis reformasi pajak lingkungan di Vietnam, Tiongkok, dan Malaysia—tiga negara dengan pendekatan kebijakan dan konteks ekonomi yang berbeda. Vietnam dan Malaysia fokus pada sektor-sektor tertentu seperti konsumsi bahan bakar dan ekstraksi sumber daya alam, dengan tujuan mengurangi polusi dan eksploitasi berlebihan sambil menghasilkan pendapatan untuk inisiatif berkelanjutan. Sebaliknya, Tiongkok menerapkan sistem pajak lingkungan nasional yang lebih komprehensif, yang diperkuat dengan implementasi sistem perdagangan emisi (Emissions Trading System/ETS) berbasis pasar untuk menekan emisi industri. Hasil kajian ini menyoroti sejumlah pelajaran penting bagi reformasi fiskal lingkungan ke depan. Di antaranya adalah pentingnya cakupan pajak yang luas untuk mengatasi berbagai bentuk kerusakan lingkungan, perlunya mekanisme penegakan hukum yang kuat untuk memastikan kepatuhan, serta strategi pengalokasian pendapatan pajak secara tepat ke proyek-proyek keberlanjutan seperti pengembangan energi terbarukan, pengendalian polusi, dan restorasi lingkungan. Investasi ulang pendapatan pajak ini dapat memperkuat pertumbuhan hijau dan menjamin manfaat lingkungan jangka panjang, sekaligus menjadi acuan bagi Indonesia dalam merancang kebijakan fiskal yang lebih berkelanjutan.

BALANCING GREEN AND GROWTH: EXPLORING THE IMPLEMENTATION OF ENVIRONMENTAL TAX IN ASIAN COTEXT – A STUDY CASE OF VIETNAM, CHINA, AND MALAYSIA

Keyword:
Environmental Tax, Green Growth, Sustainable Development, Social Equity

Abstract

This study aims to examine the implementation of environmental taxation as a means to balance national development and environmental protection within the Asian context, drawing lessons that may be applicable to Indonesia. Environmental taxes, rooted in Pigou's externality theory, have emerged as a prominent economic instrument to achieve green growth, particularly in developed countries. While adoption has been slower in the developing world, several Asian nations have begun to implement similar strategies in response to growing environmental challenges. Using a qualitative case study approach, this research analyzes environmental tax reforms in Vietnam, China, and Malaysia—three countries with differing economic and policy contexts. Each has adopted distinct approaches: Vietnam and Malaysia have introduced targeted environmental taxes on sectors such as fuel consumption and natural resource extraction, aiming to reduce pollution and overexploitation while generating revenue for sustainable initiatives. China, on the other hand, has implemented a more comprehensive national environmental tax system alongside a market-based Emissions Trading System (ETS) to curb industrial emissions. The findings underscore several critical lessons for future environmental fiscal reforms. These include the necessity of broad tax coverage that addresses diverse environmental harms, the importance of robust enforcement to ensure compliance, and the strategic reinvestment of tax revenues into sustainability initiatives such as renewable energy, pollution control, and ecosystem restoration. Together, these elements contribute to a more effective and equitable approach to environmental taxation, offering valuable insights for Indonesia's own path toward green development.

✉Alamat korespondensi:
tustaprasidya@unram.ac.id wirawan.suhaedi@gmail.com fikri.sampala@unram.ac.id
intanrakhmawati@unram.ac.id

INTRODUCTION

Following the World War II, many countries devastated both economically and infrastructurally engaged in aggressive development, marking the beginning of the industrial era. However, this rapid and massive growth has negatively impacted environmental quality, drawing global attention to environmental crises since the 1980s (P. He et al., 2021). To address human-induced environmental issues, a regulatory approach called command and control was adopted due to its precise administrative

nature. This approach was further strengthened by economic instruments, notably environmental taxation, which internalizes environmental externalities through its compulsory and law-based nature (Tan et al., 2022).

The concept of environmental tax can be traced back to the early 20th century when Pigou (1920) proposed a new tax scheme to mitigate environmental pollution, emphasizing that such a tax could influence a company's operations by increasing its production costs (Hsu et al., 2008). Despite this early idea, the enforcement of environmental legislation gained popularity only in the 1980s, with the establishment of International Environmental Law and the initiation of Environmental Tax Reform (ETR) in the European Union during the same decade (A. C. Pigou & Aslanbeigui, 2017). According to Kuralbayeva (2019), environmental taxation is considered as one of the most powerful tools for driving fundamental transformation towards a green economy. Thus, its implementation has grown in many countries.

Previous studies highlight the application of environmental taxation to manage and mitigate environmental pollution in countries such as Finland (Harju & Kari, 2016; Vehmas, 2005), Norway (Bruvoll & Larsen, 2004), the United Kingdom (Lasfer, 1996), and the United States (Borenstein & Davis, 2016). These studies also indicate a significant growth in ETR within advanced markets. However, ETR faces considerable resistance in emerging market such as that of Asian countries, even though regions suffer more severely from environmental degradation due to industrialization. Policymakers in developing countries argue that such taxes would increase business expenses, negatively impact profits, and reduce export competitiveness (Aldy et al., 2010; Liu, 2013).

When considering the implementation of environmental taxes, governments must weigh whether these taxes, in addition to contributing to environmental goals, can also achieve broader social and economic objectives, such as reducing unemployment. This complexity makes it politically challenging to implement environmental policies, rendering green tax reforms less socially acceptable, especially in developing countries (Kuralbayeva, 2019). Conversely, Heine and Black (2018) suggest that developing countries could gain enormous benefits from implementing ETR. They argue that the welfare impacts of ETR could be more favorable in developing countries than commonly perceived, offering substantial benefits beyond climate action, including a double dividend by reducing pollution and simultaneously boosting economic growth. ETR can serve as the financial foundation for developing nations to achieve both Sustainable

Development Goals (SDGs) and their Nationally Determined Contributions (NDCs) (Heine & Black, 2018).

Although progress has been slow, some emerging market in Asia like Vietnam, China, and Malaysia have gradually started implementing ETR in recent years. For instance, Vietnam officially implemented ETR on January 1, 2012, following an eight-year period of planning and design with assistance from three European Union countries. This effort culminated in the passage of the Environmental Protection Law, which received approval from over 98 percent of National Assembly members (Muhammad & Hasnu, 2020; Rodi et al., 2014). China took more than three decades to officially implement ETR by enacting the Environmental Protection Tax Law (EPTL), which took effect on January 1, 2018 (Tang & Yang, 2023). Malaysia began its efforts for ETR by implementing a carbon tax in 2021 (Muhammad et al., 2022). Using case studies from these three countries—Vietnam, China, and Malaysia—this article aims to (1) explore the nature of ETR implementation and (2) examine the role of ETR within the context of Asian countries. This exploration is expected to delve deeper into the complexities and impacts of ETR, offering insights into its potential for driving sustainable development in Asian emerging.

THEORETICAL BACKGROUND

Externality Theory

The externality within the context of economy was firstly coined by Alfred Marshall who described it as factors that influence a firm from the outside. Marshall specifically highlighted *better technology* as the outside element which could affect a firm – it related to the scale of production, greater efficiencies in the production process, and the utilization of what should be waste products (Boundreaux & Meiners, 2019). However, even though Marshall introduced the idea of externalities that impacting production, it was Pigou who commenced the widespread modern discourse of externalities. In his rather well-known *The Economic of Welfare (A. Pigou, 1920),* Pigou was the first to analyse externalities formally (Batabyal, 2023). Pigou argued that the price system, along with legal and social institutions, does not ensure that everyone acts in way that maximize social welfare (Boundreaux & Meiners, 2019; A. Pigou, 1920). There is a widespread market failure to capture the hidden cost or benefit that could be used to optimize social welfare. The market failure raised what it is called as externalities – a situation where individuals or organizations unintentionally affected, either positively or negatively, by the action of third party and this third party neither penalized for the harm nor rewarded for the benefit it causes to others (Batabyal, 2023).

Pigou (1920) also mentioned that this kind of market failure gave legitimacy to the government to exert correction. Hence, policy intervention can be formulated to address such hidden cost and/or benefit to promote the welfare of the citizen. The type of intervention taken by the government depended on what type of externalities existed – which Pigou classified into positive and negative externalities. Within the context of positive externalities where the action of certain parties resulting in unexpected advantages for individuals, groups, or organization, government could reward them by employing policies such as subsidy or incentive. On the other hand, in the case of negative externalities in which action of certain parties causes indirect harm, policymakers can take measure to penalize them. It is worth noting that dealing with negative externalities necessitates the use of regulatory tools to internalize associated costs (Batabyal, 2023).

Environmental tax, in this case, is rooted on these negative externalities, resulted from the process of internalizing the environmental costs brought by production, consumption, and investment activities. According to Williams (2016), environmental taxation that can also be referred to *pigouan taxes* is part of corrective taxes – a tool employed to correct negative environmental externalities. The basic concept is pretty simple. Economic activities – whether it be production, consumption, or investment, in one way or another, can cause harm to the environment. Factory production process, for instance, may produce wastes that pollutes water. On the consumption side, the increasing usage of private cars contribute to the rising carbon emission. These damages towards environment are externalities, the harm done are excluded from the cost paid by involved stakeholders. As a result, an unregulated free market will typically produce an inefficiently high quantity of goods with negative environmental externalities. Implementing a tax on these goods, therefore, can help correct these externalities (Williams, 2016).

Green Growth Paradigm

The concept of green growth emerged and expanded in response to worsening environmental degradation in the early 2010s. Recent economic development shows that despite the enormous progress, humanity has incurred substantial costs and now confronting various environmental issues, including ecosystem disruption, climate change, increasing global temperature, loss of biodiversity, and pollutions. These challenges have diminished nature's ability to support human life. Worse still, current economic practices continue to lead down a path of irreversible earth destruction,

sending grave warning to the global community about the urgent need to pursue new development track (Huang & Quibria, 2013). Green growth paradigm was then appeared as the manifestation of collective effort in redirecting the vision of global development by achieving balance between economic growth and environmental sustainability.

According to Smulders et al. (2014), proponents of green growth highlight the importance of safeguarding various types of natural capital to help maintain and enhance living standard over time. Further, Organization for Economic Cooperation and Development (OECD)(OECD, 2011) explained that green growth is about stimulating growth and development, all while ensuring that natural resources and environmental support, essential to human well-being, are preserved. It also involves encouraging investments and innovation that can support sustained growth and create new economic opportunities. It must be noted that this paradigm is differ from sustainable development – green growth is in a wider spectrum and require a systematic change. The employment of green growth marked the era of committed acts towards sustainability from the *elites* as in part of *realpolitik.* Green growth is greening the whole path of development, and the shifting is not only depending upon environmental policies. Green political vision is also needed to mainstream such paradigm into national development plan in order to generate strategic systemic change in consolidated, complementary, and mutually reinforcing approach (UNESCAP, 2012).

Green growth paradigm employed aiming at recalibrating the economy so it can better align sustainability objectives. The strategies within the grand design of green growth can help establish a *green economy,* marked by significantly increased investment in economic activities that both build on and enhance the earth's natural capital while minimizing ecological scarcities and environmental risks (UNESCAP, 2012). In the context of green growth, environmental taxation become the economic instrument that could encourage these green investments both by individuals or companies. By internalizing negative environmental externalities, the existence of environmental tax could increase the cost of production and consumption – hence, established a collective awareness of the tax subject regarding the consequences of their economic activities towards environmental. Theoretically, the increased costs could encourage individuals and/or companies to invests in a greener means of production and consumption, leading to a more sustainable practices of economic activities.

METHODOLOGY

This research utilized the Descriptive Explanatory Case Study method developed by Levy (2008) and Yin (2014) to investigate the role of environmental taxes in various

Asian countries. Specifically, Malaysia, Vietnam, and China were selected as case studies to provide a foundation for exploring the historical implementation of environmental tax policies. These nations were chosen due to the wealth of existing studies on environmental taxation, which enables researchers to more effectively analyze the historical context and development of such policies. In terms of data collection, the study employed a comprehensive literature review, a technique used to gather relevant documents related to the research. The data sources were secondary in nature, including materials such as academic journals, annual reports, and institutional publications that provide insights into the environmental tax policies of the selected countries. The analysis method follows a descriptive case study approach, as outlined by Levy (2008) and Yin (2014), which focuses on the historical aspect of an event or incident that is understood through contemporary analysis. This analysis will be conducted by examining literature related to environmental taxes in Malaysia, Vietnam, and China.

RESULT AND DISCUSSION

A Case Study of Environmental Taxation in Asia

In recent years, environmental tax has been seen as a crucial instrument in mitigating environmental degradation due to climate change and global warming. Chu's study (2024) for instance, highlighted the capacity of environmental taxation in the context of energy structure reform – how it acts as a driver for transition into cleaner energy. A study conducted by Sinha et al. (2023) using the data from OECD countries from 2000 to 2019 also reveal similar pattern of environmental tax's positive contribution towards energy sector. Further, environmental tax is also identified as an effective tool for alleviating climate change by reducing carbo emission. Study by Dogan et al., (2022) for instance, not only confirmed that environmental tax effectively lowers carbon dioxide emissions and ecological deterioration in G7 countries, the research also highlighted its moderating role in the relationship between traditional energy consumption, clean energy consumption, natural resource rents, and carbon emission.

In the context of implementing environmental tax reforms, advanced markets, particularly that in Europe, have been the leading actors for decades. Mainstreaming such tax policy in the developing countries is particularly challenging due to social and political resistance. However, with the growing concerns on the environmental degradation that threaten the trajectory of economic growth and social development, environmental tax become more popular albeit slow as the fiscal policy options in many emerging markets, including Asian region. Cottrell et al.,(2017) mentioned that several

emerging markets in Asia have begun eliminating fuel subsidies and are progressing towards further reforms. The efforts aim to modernize their fiscal governance and tax practices, increasingly incorporating Environmental Tax Reform (ETR) as a key element of their national development strategies. This section will provide a deeper exploration of the implementation of Environmental Tax Reform (ETR) through study case in three leading Asian nations renowned for their progressive approaches to environmental taxation: Vietnam, China, and Malaysia. It will examine each country's strategies, challenges, and successes in integrating environmental considerations into their tax systems.

Vietnam ETR: A Case of Limited Scope

The World Bank has recognized Vietnam as "*one of the top-performing developing economies globally.*" The country is experiencing a significant shift from a centrally planned economy to a globalized, market-driven economy. This transformation has been marked by rapid economic growth, with Vietnam's real gross domestic product (GDP) increasing by 8.5 percent in 2007, 6.3 percent in 2008, 5.3 percent in 2009, 6.8 percent in 2010, and 5.8 percent in 2011 (Rodi et al., 2012). While rapid economic growth has been essential in propelling Vietnam's development, it has also brought significant environmental challenges. The country's industrial expansion, urbanization, and increasing energy demands have placed tremendous pressure on natural resources, leading to issues such as deforestation, air and water pollution, and rising carbon emissions. This environmental strain not only threatens Vietnam's natural ecosystems but also poses a substantial risk to the sustainability of its long-term economic growth.(Truong, 2021) In response to these concerning side effects, the government took corrective steps by implementing a series of legal measures. One of these actions was the implementation of an environmental tax scheme, which came into effect in 2012 through *Environmental Protection Tax* (EPT).

The adoption of the Environmental Protection Tax (EPT) represents a key component in Vietnam's broader effort to transition to a greener economy. Although it was only officially implemented in 2012, regulations regarding the environmental tax in Vietnam can be traced back to the early years of Socialist Republic of Vietnam. The country's journey toward environmental taxation began with the 1980 Constitution, which established environmental protection as a national duty. In 1993, the National Environmental Agency was created, and the country's first *Law on Environmental Protection* came into effect in 1994. These early efforts laid the groundwork for future reforms (Rodi et al., 2012).

In 2002, the Ministry of Natural Resources and Environment (MONRE) was established, reflecting the growing importance of environmental issues. By 2007, the *Environmental Protection Tax Law* was included in the national legislative agenda as part of the broader economic reforms under the *Doi Moi* policy. Prime Minister Nguyen Tan Dung pushed for the tax reform, and by 2010, a committee led by the Tax Policy Department was tasked with drafting the framework. With support from the European Union and the German Development Agency (GTZ), the tax law was developed despite challenges due to Vietnam's limited experience in this area. The Law on Environmental Protection Tax was passed with overwhelming support in 2010, with 98.7% approval from the National Assembly(Rodi et al., 2012) and took effect by 2012.

According to Rodi et al. (2012), EPT adopted by Vietnamese Government focused on several key areas as follows:

1. Governing Scope – The tax system was designed to cover all entities involved in the production, processing, use, or storage of goods that contribute to environmental pollution. The objective was to establish clear and concrete criteria for determining which goods and services related to polluting activities would be taxable.
2. Tax Base and Tax Rate – The tax base was determined by the quantity, not the value, of products and goods that have a negative environmental impact. The tax obligation was to be set at an amount equal to or greater than the environmental damage caused by the product. Transparent guidelines were provided to ensure that the tax system would not unduly affect the investment environment.
3. Tax Administration – Tax collection was to be organized based on the category of environmental pollution—whether from production, processing, storage, or use. The administration of environmental taxes would be closely coordinated with the overall management of environmental pollution.

Initially, revenue generated from this tax was designated exclusively for environmental protection and could not be diverted to other areas of the state budget. Additionally, under the Plan for Tax System Reforms and Modernization (2005–2010), the environmental tax law was to apply to all entities engaged in activities that caused environmental pollution. The tax amount was to be proportional to, or exceed, the extent of the environmental damage caused by each product or service, with a tax base determined on an individual basis. Article 3 of the *Law on Environmental Protection Tax* also outlines eight categories of goods subject to environmental protection tax, which are

considered essential items. These include: (1) gasoline, oil, grease, and lubricants; (2) coal; (3) HCFC solutions; (4) plastic bags; (v5 restricted-use herbicides; (6) limited-use termiticides; (7) limited-use forest product preservatives; and (8) limited-use stock disinfectants. The initial selection of these taxable items was appropriate and feasible given their environmental impact, but further study is needed to amend and expand the list to reflect the actual production and consumption of environmentally harmful goods (Truong, 2021).

Further, according to Truong (2021) the tax is designed to be flexible, allowing for easier adjustments over time. Economic modelling suggests that, compared to a "business-as-usual" (BAU) scenario, the Environmental Protection Tax (EPT) may have had minor negative effects on GDP growth and employment. However, these impacts are mitigated by the fact that between 2015 and 2025, Vietnam's GDP has grown by an average of 6 percent annually, and employment has risen by 1 percent. These modest economic impacts are offset by overall improvements in the economy.

However, the EPT has raised concerns about social justice, as a larger proportion of the tax revenue comes from lower-income households. Even a small decrease in household income can significantly affect the ability of low-income families to afford basic goods and services. While data on the exact magnitude of these effects are not yet available, policymakers must carefully consider the equity impacts of increasing tax rates and ensure targeted social measures are in place to mitigate these effects. Despite these challenges, Truong (2021) highlighted that environmental taxation in Vietnam has proven to be a cost-effective tool for improving environmental standards and reducing pollution. It demonstrates that well-structured environmental taxes can lead to both environmental benefits and social equity, particularly if they consider both the environmental and equity consequences.

China's Comprehensive Approach on Environmental Tax

Similar to Vietnam, the decision to enable environmental tax scheme in China was encouraged by the growing concern on the rapid environmental degradation. This is largely attributed to the robust economic growth and industrialization, which have contributed to the significant level of greenhouse gas emissions and environmental pollution (Deng & Hao, 2024). The Chinese government recognized the need to address these environmental challenges and has subsequently implemented a comprehensive policy framework to promote green development and sustainability (K. Zhang & Wen, 2008). The introduction of Environmental Protection Tax Law in 2018 was considered as a solid move. It aims to incentivize firms to adopt green technologies and invest in

environment-friendly practices. Unlike Vietnam, the Chinese Government take a more comprehensive approach in adopting this tax scheme. In contrast to Vietnam, the Chinese government has implemented a more comprehensive strategy in adopting this tax system. The tax is levied on the release 117 major pollutants in four categories: air pollutants, water pollutants, solid waste, and noise pollution (H. Chen et al., 2022; Deng & Hao, 2024; Ren & Chen, 2023; K. Zhang & Wen, 2008).

The effectiveness of this policy has been observed in multiple sectors. Industries, particularly those in high-polluting sectors such as steel, cement, and chemicals, have been compelled to reduce their emissions in order to mitigate the tax burden.(Deng & Hao, 2024; Ren & Chen, 2023) This has led to a surge in green technology innovation, as firms seek to enhance their production efficiency and environmental performance. Additionally, the Chinese government has implemented a range of complementary policies to support the transition towards sustainable development. For instance, In tandem with the introduction of the environmental tax, the Chinese government has significantly increased its fiscal spending on environmental protection. The country's environmental protection expenditure has totaled a staggering 3 trillion yuan over the 13th Five-Year Plan period, with an average annual growth rate of 7.47 percent (Ren & Chen, 2023). There are at least three elements in China's environmental tax policy that set it apart from other countries.

First, the depth and breadth of its environmental tax system. Rather than focusing narrowly on a few products or sectors, China's tax is designed to target specific pollutants based on the volume and type of emissions (C. Zhang et al., 2022). This allows for a more targeted approach, where businesses are penalized directly for the pollutants they emit, creating financial incentives to adopt cleaner technologies. *Second,* its decentralized approach. Local governments are given the discretion to adjust tax rates within specific ranges, allowing for regional variation based on local environmental conditions. This flexibility has enabled China to address the unique environmental challenges faced by different provinces. For example, industrial-heavy regions like Hebei, which suffers from severe air pollution, can impose higher taxes on air pollutants than regions with less industrial activity (Q. He, 2015; Ran, 2017). *Third,* the application of *Emission Trading System* (ETS). In addition to its environmental tax, China has been a global leader in integrating market-driven mechanisms like the ETS which launched in 2021. The ETS complements the environmental tax by creating a market for carbon emissions, allowing industries to trade emissions permits (Wang & Zhang, 2022). This

dual strategy—environmental taxation coupled with emissions trading—reflects China's commitment to aligning its fiscal policies with broader climate goals.

However, China's environmental taxation strategy is not without its challenges. Regional disparities in enforcement have resulted in uneven progress across the country. In some regions, enforcement remains weak due to the influence of local industries that resist stringent environmental measures. Additionally, while the environmental tax has been effective in reducing traditional pollutants, its focus on pollutants rather than carbon dioxide has limited its direct impact on mitigating climate change. The ETS addresses this gap to some extent, but further integration is needed to create a unified system for both pollutants and carbon emissions (Z. Chen et al., 2022). Despite these challenges, China's environmental tax has been a success in reducing pollution and generating significant revenue. By 2021, the tax had raised more than 15 billion yuan (about USD 2.3 billion), which is a testament to its wide-reaching impact (Wei et al., 2022; Xu et al., 2023). The combination of taxation and emissions trading has made China a leader in environmental fiscal policy, offering valuable lessons for other countries in the region.

Malaysia's Green Challenge: Narrow Tax, Broader Impact Needed

As a resource-abundant country, Malaysia has taken a sector-specific approach to environmental taxation, focusing primarily on managing the extraction of natural resources (Loganathan et al., 2020). The country's strategy centres around taxing industries such as palm oil, timber, and mining, which have long contributed to environmental degradation, particularly deforestation. Additionally, Malaysia has imposed taxes on water usage and pollution charges, making resource-based taxation the cornerstone of its environmental policy.

While these natural resource taxes have contributed to managing resource exploitation, their overall environmental impact remains limited due to the narrow focus of the tax system. Unlike Vietnam and China, which have implemented more comprehensive environmental taxes covering multiple sectors and pollutants, Malaysia's taxes are primarily focused on a few industries. Moreover, carbon pricing, a critical tool for combating climate change, has yet to be introduced, although discussions about a potential carbon tax are ongoing (Oh & Chua, 2010). As of 2023, Malaysia is still in the early stages of exploring how to integrate carbon pricing into its fiscal policies. A major challenge Malaysia faces is the enforcement of its resource-based taxes (Loganathan et al., 2020). Illegal logging, unregulated mining, and other illicit activities continue to hinder the country's environmental protection efforts. Without stronger enforcement, Malaysia's resource taxes are unlikely to fully achieve their intended goal of mitigating

environmental damage. Additionally, while these taxes generate revenue, there is a lack of transparency in how the funds are allocated, with insufficient earmarking for environmental protection projects, reducing the taxes' overall effectiveness.

Despite these challenges, Malaysia has made progress in promoting green technologies through fiscal incentives like the Green Technology Financing Scheme (GTFS) (Chua & Oh, 2011). While not a direct tax, the GTFS provides subsidies and financial support for businesses adopting clean technologies, reflecting Malaysia's commitment to sustainability. However, for Malaysia to fully realize its potential in environmental taxation, it will need to broaden its tax base to cover a wider range of environmental harms and implement a carbon tax to align with international climate commitments.

The examination of environmental taxation strategies in Vietnam, China, and Malaysia reveals several common themes and lessons for developing countries seeking to implement or improve environmental tax systems. These countries have all introduced environmental taxes to address pollution and resource degradation, but their approaches, challenges, and outcomes provide valuable insights into how such systems can be more effective. There are at least three important findings from the study case presented in this paper. *First,* the importance of broadening scope of environmental taxes. Each country, to varying degrees, has focused on specific sectors or pollutants, limiting the overall impact of their environmental tax systems. In Vietnam, the Environmental Protection Tax primarily targets fuels, plastics, and chemicals, leaving out many industrial pollutants. China, while more comprehensive, focuses heavily on conventional pollutants and less on carbon emissions, even though carbon dioxide is a major contributor to climate change. Malaysia has taken a sector-specific approach, concentrating on natural resource extraction industries like timber, palm oil, and mining, but lacks a comprehensive system that addresses broader environmental harms.

Second, regarding social equity and economic impact. A common challenge in all three countries is managing the social equity implications of environmental taxes. While these taxes are effective in raising revenue and incentivizing cleaner behavior, they often place a disproportionate burden on low-income households. In Vietnam, for example, the revenue from the Environmental Protection Tax has been shown to come largely from lower-income populations, raising concerns about fairness. Similarly, Malaysia faces challenges in ensuring that resource-based taxes do not exacerbate economic inequality, especially given the uneven distribution of benefits and costs across different population groups (Cottrell & Falcão, 2018; Doraisami, 2015). Economic

modelling suggests that while environmental taxes may have minor negative effects on GDP growth and employment, these impacts are generally offset by the broader benefits of cleaner production and environmental sustainability (Doraisami, 2015; Lans Bovenberg & de Mooij, 1997). However, to ensure social justice, governments must implement compensatory measures, such as targeted subsidies or social welfare programs, to help vulnerable populations cope with the costs of environmental taxation. Balancing economic growth with environmental protection and social equity is essential for the long-term success of these policies.

Third, enforcement and institutional capacity. The success of environmental tax systems depends not only on their design but also on their enforcement and administration. One of the major challenges in China, Vietnam, and Malaysia has been the uneven enforcement of tax laws across regions and industries. For example, China's decentralized approach allows local governments to adjust tax rates based on regional environmental conditions, but this has led to disparities in enforcement, with some regions prioritizing economic growth over environmental protection. Similarly, in Malaysia, weak enforcement of resource-based taxes has allowed illegal logging and unregulated mining activities to persist, undermining the country's environmental goals. Strengthening institutional capacity is crucial to ensuring that environmental taxes are properly enforced and that tax revenues are effectively allocated to environmental protection projects. This includes investing in regulatory bodies, improving transparency, and ensuring that tax collection systems are efficient and robust.

CONCLUSION AND POLICY IMPLICATION

In the early 2000s, Vietnam faced a difficult choice: continue on a path of unchecked development that would likely lead to environmental collapse or take decisive action to protect its natural resources. The government chose the latter, introducing the *Environmental Protection Tax* (EPT) in 2012. This move was bold for a country that, only decades prior, had been a largely agrarian, centrally planned economy. The EPT targeted goods that contributed to environmental degradation—fuels, plastics, and certain chemicals—hoping to both reduce pollution and generate revenue for environmental restoration. But like a house with only one wall, the tax was incomplete. It focused on a narrow set of goods, leaving out larger environmental offenders like industrial pollution and deforestation. Without a broader scope, the impact of the EPT was limited, as if Vietnam had attempted to slow a flood with a handful of sandbags.

Despite these limitations, the tax did have notable successes. It raised awareness. Across the country, more people began to think critically about the

environmental cost of their consumption. Conversations in coffee shops shifted from just business to include discussions on pollution and plastic waste. And the tax did what it was designed to do: generate revenue—1.4% of the nation's GDP in 2020. But much of this money wasn't funnelled back into environmental projects, reducing its potential impact. The absence of comprehensive carbon pricing also left Vietnam vulnerable to climate risks that could undo the economic gains of recent years.

Meanwhile, to the north, China was taking a different path. The country's environmental challenges were staggering—dense smog in cities, polluted rivers, and an ever-growing industrial footprint. But China had the resources and the political will to attempt something larger. In 2018, China launched its Environmental Protection Tax Law, a robust framework targeting a wide array of pollutants, from air and water pollution to industrial waste. China had learned from decades of unchecked industrialization that without regulation, its economic engine would burn itself out, leaving a trail of destruction in its wake. Unlike Vietnam, China's environmental tax was broad in scope, and it didn't stop there. The government introduced an *Emissions Trading System* (ETS) in 2021, a market-based mechanism that allowed industries to buy and sell emission permits. The system was a game-changer, offering a flexible, market-driven approach to pollution reduction. This combination of regulatory oversight and market innovation helped China to reduce pollution, especially in the most heavily industrialized regions.

Yet, even with all its resources, China faced challenges. Enforcement of environmental regulations was uneven. In some provinces, local governments prioritized economic growth over environmental protection, leading to regional disparities in the effectiveness of the tax. The ETS, while promising, still had growing pains. And while China's efforts were groundbreaking in reducing pollution, the focus on pollutants rather than carbon emissions meant that climate change remained a looming threat. China's story is one of ambition—of a country trying to balance its desire for economic dominance with the pressing need to safeguard the environment. But the lesson here is clear: even the most comprehensive policies must be implemented uniformly to ensure real change.

Further south, Malaysia was grappling with its own environmental dilemmas. Known for its rich biodiversity and natural resources, Malaysia had long relied on resource extraction—palm oil, timber, and minerals—to fuel its economy. The consequences were severe: deforestation, habitat loss, and soil erosion were rampant. In response, the government introduced resource-based taxes, designed to regulate industries like logging and palm oil production. However, much like Vietnam, Malaysia's efforts remained too narrowly focused. The country had yet to implement a carbon tax,

and while discussions were underway, action was slow. What set Malaysia apart, though, was its investment in green technology. Through the Green Technology Financing Scheme (GTFS), the government provided subsidies and financial support to companies adopting sustainable practices. This focus on incentivizing cleaner industries showed promise, but without broader, more comprehensive environmental taxes, Malaysia's sustainability efforts remained piecemeal. Malaysia's story is one of potential. The country has made strides, but it's still in the early stages of what could be a far-reaching environmental transformation. The lesson here is one of timing and scope: tackling environmental issues one sector at a time is not enough. A more holistic approach is required to drive lasting change.

The experiences of Vietnam, China, and Malaysia with environmental taxation provide valuable lessons for other Asian nations aiming to implement similar policies. A key takeaway is the need to broaden the scope of environmental taxes. Vietnam's Environmental Protection Tax, while a positive step, was too narrowly focused on specific goods like fuel and plastics to have a large-scale impact. Countries must adopt more comprehensive tax systems that cover a wider range of pollutants, including industrial emissions and carbon, following China's example of integrating carbon pricing mechanisms like the Environmental Protection Tax and Emissions Trading System (ETS) to address broader environmental challenges such as climate change.

Enforcement is another critical factor. China's experience highlights the importance of consistent enforcement across regions. Without a strong institutional framework, even well-designed policies risk falling short. Asian nations must invest in their regulatory capacity, ensuring the proper monitoring and enforcement of environmental taxes by providing the necessary technological, educational, and infrastructural support. In addition to enforcement, market-based solutions like China's ETS offer a promising way to incentivize industries to reduce emissions while encouraging innovation and cost-effective solutions. Finally, environmental taxes should not exist in isolation but as part of a broader, long-term strategy for sustainable development. The cases of Vietnam, China, and Malaysia show the importance of integrating these taxes into national development plans that balance economic growth with environmental preservation. This holistic approach ensures that vulnerable populations are not disproportionately affected by the costs of these taxes, aligning environmental goals with social and economic priorities for the long-term sustainability of the region.

REFERENCES

Aldy, J. E., Krupnick, A. J., Newell, R. G., Parry, I. W. H., & Pizer, W. A. (2010). Designing Climate Mitigation Policy. *Journal of Economic Literature*, *48*(4), 903–934. https://doi.org/10.1257/jel.48.4.903

Batabyal, A. (2023). *The Theory of Externalities* (119233; MPRA Paper). https://mpra.ub.uni-muenchen.de/119233/1/MPRA_paper_119233.pdf

Borenstein, S., & Davis, L. W. (2016). The Distributional Effects of US Clean Energy Tax Credits. *Tax Policy and the Economy*, *30*(1), 191–234. https://doi.org/10.1086/685597

Boundreaux, D. J., & Meiners, R. (2019). Externality: Origins and Classifications. *Natural Resources Journal*, *59*(1), 1–34.

Bruvoll, A., & Larsen, B. M. (2004). Greenhouse gas emissions in Norway: do carbon taxes work? *Energy Policy*, *32*(4), 493–505. https://doi.org/10.1016/S0301-4215(03)00151-4

Chen, H., Yang, Y., Yang, M., & Huang, H. (2022). The impact of environmental regulation on China's industrial green development and its heterogeneity. *Frontiers in Ecology and Evolution*, *10*. https://doi.org/10.3389/fevo.2022.967550

Chen, Z., Zhang, R., Wang, F., Xia, F., Liu, B., & Zhang, B. (2022). The distributional effects of China'senvironmental taxation: A multi-regional analysis. *Journal of Environmental Management*, *324*, 116276. https://doi.org/10.1016/j.jenvman.2022.116276

Chu, L. K. (2024). Towards achieving energy transition goal: How do green financial policy, environmental tax, economic complexity, and globalization matter? *Renewable Energy*, *222*, 119933. https://doi.org/10.1016/j.renene.2023.119933

Chua, S. C., & Oh, T. H. (2011). Green progress and prospect in Malaysia. *Renewable and Sustainable Energy Reviews*, *15*(6), 2850–2861. https://doi.org/10.1016/j.rser.2011.03.008

Cottrell, J., & Falcão, T. (2018). *A Climate of Fairness, Environmental Taxation and Tax Justice in Developing Countries*.

Cottrell, J., Ludewig, D., Runkel, M., Schlegelmilch, K., & Zerzawy, F. (2017). *Environmental Tax Reform in Asia and the Pacific* (WP/17/05; MPFD Working Papers).

Deng, Z., & Hao, Y. (2024). Energy price uncertainty, environmental policy, and firm investment: A dynamic modeling approach. *Energy Economics*, *130*, 107306. https://doi.org/10.1016/j.eneco.2024.107306

Doğan, B., Chu, L. K., Ghosh, S., Diep Truong, H. H., & Balsalobre-Lorente, D. (2022). How environmental taxes and carbon emissions are related in the G7 economies? *Renewable Energy*, *187*, 645–656. https://doi.org/10.1016/j.renene.2022.01.077

Doraisami, A. (2015). Has Malaysia really escaped the resource curse? A closer look at the political economy of oil revenue management and expenditures. *Resources Policy*, *45*, 98–108. https://doi.org/10.1016/j.resourpol.2015.03.008

Harju, J., & Kari, S. (2016). Dividend Taxes and Decisions of MNEs: Evidence from a Finnish Tax Reform. *CESifo Economic Studies*. https://doi.org/10.1093/cesifo/ifw001

He, P., Ya, Q., Chengfeng, L., Yuan, Y., & Xiao, C. (2021). Nexus between Environmental Tax, Economic Growth, Energy Consumption, and Carbon Dioxide Emissions: Evidence from China, Finland, and Malaysia Based on a Panel-ARDL Approach. *Emerging Markets Finance and Trade*, *57*(3), 698–712. https://doi.org/10.1080/1540496X.2019.1658068

He, Q. (2015). Fiscal decentralization and environmental pollution: Evidence from Chinese panel data. *China Economic Review*, *36*, 86–100. https://doi.org/10.1016/j.chieco.2015.08.010

Heine, D., & Black, S. (2018). Benefits beyond Climate: Environmental Tax Reform. In *Fiscal Policies for Development and Climate Action* (pp. 1–63). The World Bank. https://doi.org/10.1596/978-1-4648-1358-0_ch1

Hsu, S.-L., Walters, J., & Purgas, A. (2008). Pollution tax heuristics: An empirical study of willingness to pay higher gasoline taxes. *Energy Policy*, *36*(9), 3612–3619. https://doi.org/10.1016/j.enpol.2008.06.010

Huang, Y., & Quibria, M. G. (2013). *Green Growth: Theory and evidence* (2013/056; WIDER Working Paper).

Kuralbayeva, K. (2019). Environmental Taxation, Employment and Public Spending in Developing Countries. *Environmental and Resource Economics*, *72*(4), 877–912. https://doi.org/10.1007/s10640-018-0230-3

Lans Bovenberg, A., & de Mooij, R. A. (1997). Environmental tax reform and endogenous growth. *Journal of Public Economics*, *63*(2), 207–237. https://doi.org/10.1016/S0047-2727(96)01596-4

Lasfer, M. A. (1996). Taxes and dividends: The UK evidence. *Journal of Banking & Finance*, *20*(3), 455–472. https://doi.org/10.1016/0378-4266(95)00012-7

Levy, J. S. (2008). Case Studies: Types, Designs, and Logics of Inference. *Conflict Management and Peace Science*, *25*(1), 1–18. https://doi.org/10.1080/07388940701860318

Liu, A. A. (2013). Tax evasion and optimal environmental taxes. *Journal of Environmental Economics and Management*, *66*(3), 656–670. https://doi.org/10.1016/j.jeem.2013.06.004

Loganathan, N., Mursitama, T. N., Pillai, L. L. K., Khan, A., & Taha, R. (2020). The effects of total factor of productivity, natural resources and green taxation on CO2 emissions in Malaysia. *Environmental Science and Pollution Research*, *27*(36), 45121–45132. https://doi.org/10.1007/s11356-020-10291-4

Muhammad, I., & Hasnu, N. N. M. (2020). Developing an Environmental Tax Framework for Malaysia: Learning from Vietnam's Environmental Tax Implementation Experiences. *PROCEEDINGS – 4th International Conference on Sustainable Innovation* , 188–191.

Muhammad, I., Mohd Hasnu, N. N., Ibrahim, M. A., Abdul Hamid, S., & Mohd Hanefah, M. (2022). Trust in Government and Its Determinants: An Empirical Study of Public Acceptability for Carbon Tax in Malaysia. *Sustainability*, *14*(23), 15684. https://doi.org/10.3390/su142315684

OECD. (2011). *Towards Green Growth*. OECD Publishing. https://doi.org/10.1787/9789264111318-en

Oh, T. H., & Chua, S. C. (2010). Energy efficiency and carbon trading potential in Malaysia. *Renewable and Sustainable Energy Reviews*, *14*(7), 2095–2103. https://doi.org/10.1016/j.rser.2010.03.029

Pigou, A. (1920). *The economics of welfare*. MacMillan.

Pigou, A. C., & Aslanbeigui, N. (2017). *The Economics of Welfare*. Routledge. https://doi.org/10.4324/9781351304368

Ran, R. (2017). Understanding Blame Politics in China's Decentralized System of Environmental Governance: Actors, Strategies and Context. *The China Quarterly*, *231*, 634–661. https://doi.org/10.1017/S0305741017000911

Ren, G., & Chen, Y. (2023). Is the impact of environmental regulation on enterprise green technology innovation incentives or inhibitions? A re-examination based on the China meta-analysis. *Frontiers in Environmental Science*, *10*. https://doi.org/10.3389/fenvs.2022.1038607

Rodi, M., Schlegelmich, K., & Mehling, M. (2014). Designing environmental taxes in countries in transition: a case study of Vietnam. In J. E. Milne & M. S. Andersen (Eds.), *In Handbook of Research on Environmental Taxation* (pp. 122–138). Edward Elgar Publishing Limited.

Sinha, A., Bekiros, S., Hussain, N., Nguyen, D. K., & Khan, S. A. (2023). How social imbalance and governance quality shape policy directives for energy transition in the OECD countries? *Energy Economics*, *120*, 106642. https://doi.org/10.1016/j.eneco.2023.106642

Smulders, S., Toman, M., & Withagen, C. (2014). Growth theory and 'green growth'. *Oxford Review of Economic Policy*, *30*(3), 423–446. https://doi.org/10.1093/oxrep/gru027

Tan, Z., Wu, Y., Gu, Y., Liu, T., Wang, W., & Liu, X. (2022). An overview on implementation of environmental tax and related economic instruments in typical countries. *Journal of Cleaner Production*, *330*, 129688. https://doi.org/10.1016/j.jclepro.2021.129688

Tang, W., & Yang, X. (2023). Is environmental tax legislation effective for pollution abatement in emerging economies? Evidence from China. *Frontiers in Environmental Science*, *10*. https://doi.org/10.3389/fenvs.2022.1113383

Truong, D. D. (2021). Economic Instrument in Environmental Management: A Case Study of Environmental Protection Tax in Vietnam. *Environment and Ecology Research*, *9*(5), 300–313. https://doi.org/10.13189/eer.2021.090509

NESCAP. (2012). *Green Growth, Resources and Resilience - Environmental Sustainability in Asia and the Pacific*. United Nations and Asian Development Bank Publication.

Vehmas, J. (2005). Energy-related taxation as an environmental policy tool—the Finnish experience 1990–2003. *Energy Policy*, *33*(17), 2175–2182. https://doi.org/10.1016/j.enpol.2004.04.015

Wang, W., & Zhang, Y.-J. (2022). Does China's carbon emissions trading scheme affect the market power of high-carbon enterprises? *Energy Economics*, *108*, 105906. https://doi.org/10.1016/j.eneco.2022.105906

Wei, R., Ayub, B., & Dagar, V. (2022). Environmental Benefits From Carbon Tax in the Chinese Carbon Market: A Roadmap to Energy Efficiency in the Post-COVID-19 Era. *Frontiers in Energy Research*, *10*. https://doi.org/10.3389/fenrg.2022.832578

Williams, R. C. (2016). *Environmental Taxation* (22303).

Xu, Y., Wen, S., & Tao, C.-Q. (2023). Impact of environmental tax on pollution control: A sustainable development perspective. *Economic Analysis and Policy*, *79*, 89–106. https://doi.org/10.1016/j.eap.2023.06.006

Yin, R. K. (2014). *Case Study Research Design and Methods* (5th ed.). Sage.

Zhang, C., Zou, C. F., Luo, W., & Liao, L. (2022). Effect of environmental tax reform on corporate green technology innovation. *Frontiers in Environmental Science*, *10*. https://doi.org/10.3389/fenvs.2022.1036810

Zhang, K., & Wen, Z. (2008). Review and challenges of policies of environmental protection and sustainable development in China. *Journal of Environmental Management*, *88*(4), 1249–1261. https://doi.org/10.1016/j.jenvman.2007.06.019