



Legal frameworks for green budgeting in the twin transition: Comparative insights and implications for Vietnam

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Abstract

As countries navigate the twin transition, green budgeting has emerged as a vital instrument for aligning fiscal governance with sustainability goals. In Vietnam, green budgeting is officially recognized as a strategic objective under Decision No.1658/QĐ-TTg (2021), which outlines the National Strategy on Green Growth for 2021-2030. The approach draws inspiration from OECD principles that emphasize transparency, accountability, and performance-based fiscal planning. However, the legal foundations and institutional mechanisms necessary to operationalize these principles remain underdeveloped. This paper investigates the current state of Vietnam's legal framework for green budgeting, including the analysis of the Law on State Budget (2015), the Law on Environmental Protection (2020), and related secondary regulations. It also draws comparative insights from international legal frameworks in jurisdictions such as the European Union, Indonesia, the United States, and Japan - countries that have pioneered structured and transparent models for green public finance. The study finds that while Vietnam's legal system acknowledges the importance of green budgeting in principle, it lacks enforceable criteria for green expenditure classification, coherent integration across fiscal levels, and robust oversight mechanisms. To address these gaps, the paper proposes a set of legal reforms: (i) developing unified legal definitions and criteria for green budgeting; (ii) establishing binding transparency requirements; (iii) adopting performance-based budget evaluation; and (iv) strengthening multi-level fiscal coordination. By emphasizing legal and institutional dimensions over economic modeling, the paper contributes to the emerging discourse on sustainable fiscal governance and offers practical legal pathways for enhancing Vietnam's capacity to support a just and efficient twin transition.

Keywords: Green budgeting, twin transition, legal reform, public finance law, vietnam sustainable development

Introduction

In recent years, sustainable development has been a great topic of concern in numerous countries in the world, including the emergence of the term "twin transition". The concept of the twin transition refers to the simultaneous green and digital transformation that is reshaping the global economy. The green transition focuses on achieving environmental protection goals, while the digital transition leverages technology to enhance the quality of life and drive economic development. In this process, green budgeting plays a crucial role as a fiscal tool that integrates environmental considerations into public financial management. It ensures that national resources are allocated in alignment with sustainable development goals, thereby supporting green growth rationally and effectively.

In Vietnam, green budgeting is not merely a financial trend but an urgent necessity to address climate change and ensure sustainable economic growth. Decision No. 1658/QĐ-TTg, issued on October 1, 2021, approving the National Strategy on Green Growth for the 2021-2030 period with a vision to 2050, emphasizes that the state agencies must review, revise, and supplement policies on the management and use of state budget expenditures to promote green growth. To analyze the impact of green budgeting on Vietnam in the context of the twin transition, it is essential to clarify the role of green budgeting in promoting sustainable development in the country, institutional and financial factors influence the effectiveness of green budgeting in achieving environmental goals and how can Vietnam's current budgeting practices be reformed to integrate environmental concerns into public finance better.

Therefore, this paper focuses on examining the legal framework for green budgeting to ensure the effectiveness of sustainable development in Vietnam, especially in the current context of the twin transition. In addition, the paper also explores the legal frameworks governing this fiscal policy at the international level, aiming to provide a comparative perspective and accurate assessments, thereby contributing to the development and improvement of Vietnam's legal framework on green budgeting.

Literature Review, Research Scope and Methods

1. Literature Review

In recent years, green budgeting has been recognized as a critical approach to aligning public financial management with SDGs. Since the launch of the Paris Collaborative on Green Budgeting, the concept has attracted particular attention due to a growing body of research published by the OECD and the European Commission from 2018 onward, such as Green Budgeting: Towards Common Principles (2021) ^[1], How Green Budgeting is Embedded in National Budget (2023) ^[2], and Green Budgeting: A Way Forward (2022) ^[3]. These publications primarily provide information on the mechanisms for designing, implementing, and monitoring green budgets. Meanwhile, academic studies on green budgeting remain limited ^[4], with a notable example being Green Budgeting (2008) ^[5], in which the authors describe the implementation of green budgeting through a five-step budgetary "life cycle" process.

Although Vietnam is considered to have strong potential for green and sustainable economic growth ^[6], and the

Government allocates annual budget revenues and expenditures for green development and environmental protection, the number of comprehensive scientific studies on green budgeting remains very limited. Most existing studies focus on a single aspect, such as budget expenditures for environmental protection in State Budget Expenditures for Green Growth in Countries Worldwide [7] or budget revenues for green growth in Mobilizing Resources for Green Growth in Vietnam [8].

While the current literature addresses green budgeting from different perspectives, there is still a gap in analyzing Vietnam's green budgeting system from a dual perspective including both revenues and expenditures. This paper aims to fill that gap by assessing the policies, implementation mechanisms, and prospects of green budgeting in Vietnam, while drawing lessons from international experience.

2. Research Scope

Geographical Scope: This study focuses on Vietnam while drawing comparative insights from the European Union, Indonesia, Japan and the United States. These countries have different legal systems, which helps in studying and comparing green budgeting models.

Legal Scope: The research focuses on Vietnam's main laws on green budgeting, such as the Law on State Budget 2015, the Law on Environmental Protection 2020, the Law on Public Investment 2019, and related decrees and policies. For comparison, it also reviews the EU Green Budgeting Reference Framework 2022, Indonesia's Law No. 32/2009 on Environmental Protection and Management, Japan's Act on Promotion of Global Warming Countermeasures and Act on Promotion of Procurement of Eco-Friendly Goods and Services, as well as the US Constitution and the Inflation Reduction Act 2022.

Temporal Scope: The study covers Vietnam's legal framework from its early stages to the present, focusing on data from 2019 onwards, when Vietnam formally established green budgeting in each fiscal year. It also includes recent reforms and the latest international recommendations.

3. Research Methods

This study employs a qualitative methodology, combining two primary methods

Desk Review: The desk review synthesizes existing academic literature, legal documents, government policies, and international reports to assess the current state of Vietnam's green budgeting. It helps identify institutional and normative gaps and contextualize Vietnam's system within broader international trends.

Legal and Comparative Analysis: Legal analysis is used to assess the structure, coherence, and effectiveness of Vietnam's green budgeting. Comparative analysis with the European Union, Indonesia, Japan, and the United States provides insights into different models of green budgeting governance and highlights lessons for Vietnam.

Theoretical and Conceptual Framework of Green Budgeting in the Twin Transition

In recent years, sustainable development has been a great topic of concern in numerous countries in the world,

including the emergence of the term "twin transition". Twin transition is defined by the number of international organizations and scholars. According to the World Economic Forum (2022), twin transition refers to the strategy that combines the digital transition and sustainable growth to unlock huge benefits in terms of efficiency and productivity [9]. Fouquet and Hippe define twin transition as a long-term economic policy approach designed to facilitate the decarbonization and digital transformation of the global economy [10]. In general, twin transitions can be introduced as a strategic policy allowing promotion of a low-carbon economy simultaneously with the development of digital technology. The combination of these two processes is expected to create new opportunities, promote sustainable growth, and address pressing environmental challenges.

In order to implement this transition, governments need to adjust macro policy, especially fiscal policy. In particular, green budgeting has surfaced as an essential tool. This is a practice to allocate financial resources of a nation to obtain environmental goals and sustainable growth [11]. Green budgeting involves applying fiscal policy instruments to assess the environmental consequences of expenditure decisions and to align public financial planning with climate and environmental goals [12]. A green budget is far more than just setting aside money for eco-friendly initiatives; it is an all-encompassing framework that weaves environmental and climate priorities through every step of the budgeting journey-starting with early planning and continuing through the drafting phase, then moving to approval, implementation, and finally careful monitoring and evaluation.

This can be observed that the linkage between green budgeting and the twin transition is symbiotic and mutually reinforcing. By prioritizing public budget allocations for green projects, the green dimension of the twin transition can be implemented more effectively, while also fostering the parallel development of the digital environment. For instance, green budget expenditures may be used to support the development of energy-efficient digital infrastructure, promote the use of renewable energy, and reduce the carbon footprint of digital activities. At the same time, digital transformation facilitates the planning, implementation, and monitoring of green budgets through technological advancements such as artificial intelligence (AI) and big data.

Green budgeting offers numerous benefits for both economic development and environmental sustainability, specifically as follows

Firstly, green budgeting promotes environmental protection and climate adaptation by directing funds to projects such as renewable energy and emission reduction, accelerating the low-carbon transition and improving environmental quality. Secondly, it boosts economic efficiency by allocating public resources to achieve both economic and environmental goals, fostering innovation, research, and green industries. Thirdly, it strengthens transparency and accountability by requiring clear reporting of environmental spending and specifying responsible actors.

Finally, it helps nations meet international environmental commitments, align with global trends, and support sustainable agreements and treaties.

It is recommended that green budgeting be incorporated with a country's budgetary framework [13], because environmental goals are often designed within a medium- to

long-term context. As a result, to adapt to environmental policies, green budgeting must be stimulated with a long-term vision. The following components should clearly define a green budget: (i) the governing authority responsible for managing the green budget; (ii) the scope of green budgeting, including its spending objectives; (iii) the process of formulating, implementing, and reporting the green budget; and (iv) the mechanisms for monitoring and evaluating green budget performance.

Current Legal Framework for Green Budgeting in Vietnam

1. Current legal regulations on Green Budgeting in Vietnam

In general, Vietnam has consistently prioritized green and sustainable development, as evidenced by its ratification of the Paris Agreement on Climate Change in 2016. Subsequently, at the 26th United Nations Climate Change Conference (COP26) in 2021, Vietnam pledged to achieve net-zero emissions by 2050. This conference marked a pivotal moment in the global effort to address climate change, aiming to strengthen national commitments and actions toward fulfilling the objectives of the Paris Agreement.

In the domestic context, green budgeting is officially recognized as a strategic objective under Decision No. 1658/QĐ-TTg of the Prime Minister, which approved the National Green Growth Strategy for the period 2021 - 2030, with a vision to 2050. The Decision emphasizes: "Priority shall be given to the allocation of public investment resources from the state budget, with a focus on capital under public investment plans and recurrent expenditures for programs, schemes, projects, and tasks related to green growth". In addition, green budgeting practices are implemented in accordance with the principles laid out in the State Budget Law 2015 and are aligned with the Law on Environmental Protection 2020, which provides a legal basis for environmentally oriented public spending.

2. Content of green Budgeting legislation in Vietnam

2.1. Legal regulations on green budget management

Green budget management in Vietnam is a process involving many sectors and levels, where the National Assembly sets direction and the Government puts it into action. The National Assembly and the Government are two main agencies responsible for making decisions and managing the entire process of planning, allocating, and using the state budget, including green budget revenues and expenditures. According to the Law on State Budget 2015, the National Assembly has the authority to decide the total amount of money the state collects and spends, including detailed spending on development and regular activities in different sectors.

According to Article 166 of the Law on Environmental Protection 2020, the Ministry of Natural Resources and Environment is responsible for consolidating and proposing state budget estimates for environmental protection activities conducted by ministries, ministerial-level agencies, and provincial-level People's Committees. The Ministry is also tasked with providing guidance on the implementation of budget allocation in accordance with the Law on State Budget and issuing instructions for compiling statistics, monitoring, and publicizing budget allocations for environmental protection.

At the local level, People's Committees at all levels are entitled and obligated to mobilize and utilize resources for environmental protection in accordance with legal regulations. They must also submit to the same-level People's Councils proposals for budget allocations to perform environmental protection tasks under the current decentralized budgeting framework.

2.2. Legal regulations on green budget subjects

The green budget covers fields, programs, and activities that use state funds to achieve goals such as protecting the environment, responding to climate change, and promoting sustainable development. According to the Law on State Budget 2015, both the central and local budgets are responsible for regular spending on environmental protection.

Specifically, under Article 153 of Decree No. 08/2022/ND-CP, the State Budget is allocated to environmental activities through the following main categories:

1. Waste management and treatment support;
2. Environmental remediation, rehabilitation, and quality restoration;
3. Developing environmental protection infrastructure; procurement of environmental protection equipment; and implementation of environmental monitoring activities;
4. Inspection, examination, and supervision of environmental protection and climate change response activities under the responsibility of the central government and as decided by competent authorities;
5. Conservation and sustainable development of biodiversity.

In addition, the State budget provides direct interest rate support to investors after the settlement of medium- and long-term credit loans used for implementing environmental protection activities, as stipulated in Article 133 of Decree No. 08/2022. Price subsidies for environmental protection products and services are also among the categories eligible for State budget funding under Decree No. 08/2022, such as the collection and treatment of domestic wastewater in urban areas and concentrated residential zones.

Besides regular spending, the green budget also supports public investment projects that aim to protect the environment. These are integrated into national policy documents such as the National Green Growth Strategy for 2021 - 2030 (Decision No. 1658/QĐ-TTg) and the National Green Growth Program (Decision No. 167/QĐ-TTg). These documents identify priority areas for green spending, including renewable energy, green transportation, sustainable urban development, clean production, and efficient use of natural resources.

2.3. Legal regulations on building and implementing green budgets

First, at the budget planning stage, according to Articles 43 and 45 of the Law on State Budget, government agencies and departments prepare their annual state budget estimates, including expenses for environmental protection. These proposed expenditures are submitted to the Ministry of Finance, which compiles and submits them to the Government. Under Article 153 of Decree No. 08/2022/ND-CP, the Ministry of Finance shall issue, or submit to competent authorities for promulgation, guidelines on the

formulation and allocation of the State budget estimates for environmental protection in accordance with the provisions of the Law on State Budget and the Law on Environmental Protection. The Government then submits the central budget allocation plan to the National Assembly.

Second, at the implementation stage, after the budget estimates are approved by the National Assembly, the Government assigns revenue and spending tasks to each ministry, sector, and local authority, as stated in Article 49 of the Law on State Budget 2015. These agencies are responsible for using the allocated budget properly, including both regular and development spending in the environmental sector. Additionally, according to Article 164 of the Law on Environmental Protection 2020, government agencies must allocate sufficient state budget funds for environmental protection based on the current budget decentralization system.

Finally, in the reporting and disclosure stage, according to the Law on State Budget 2015, all budget-using agencies must report and publish their budget results, including environmental revenues and expenditures. The law also requires transparency and public participation in monitoring the budget. In particular, Article 164 of the Law on Environmental Protection requires government agencies to keep records, track, and publicly report spending on environmental protection, which lays the groundwork for developing tools to monitor green budget implementation in the future.

2.4. Mechanism supporting green budget

Vietnam has established specific legal provisions to support the effective implementation of green budgeting. According to Article 5 of the Law on Environmental Protection, the State shall: (i) diversify investment sources for environmental protection; (ii) allocate a separate line item in the State budget for environmental protection with an increasing proportion based on the State's budget capacity and the demands and tasks of environmental protection; and (iii) prioritize funding for key environmental protection tasks. According to the 2019 Law on Public Investment, projects that are environmentally friendly or have low environmental impact are given priority in the planning and approval of public investment plans.

The National Strategy on Green Growth (Decision No. 1658/QD-TTg) and the National Program on Green Growth (Decision No. 167/QD-TTg) also encourage ministries, sectors, and local authorities to develop financial and budget plans that focus on green public spending. Additionally, Article 164 of the Law on Environmental Protection 2020 states that the reporting, tracking, and public disclosure of environmental spending is required. This helps improve transparency and accountability in managing public finance. These mechanisms help motivate government agencies and local authorities to include environmental goals in their budgeting process, supporting the shift toward a greener and more sustainable financial system.

3. Practical Implementation of Green Budget in Vietnam

3.1. Achievements in Green Budget

The implementation of the green budget in Vietnam has achieved certain notable results. According to reports, state budget expenditure for environmental protection has been allocated in accordance with regulations, with the absolute

amount increasing year-on-year, reaching approximately 1.2% of total state budget expenditure. On average, from 2019 to 2023, the state budget allocation for environmental protection reached over 21,000 billion VND annually ^[14]. During the 2020 - 2022 period, the proportion of budget expenditure for environmental protection compared to revenue from environmental protection taxes averaged 44%, a significant increase from the 11% average during the 2016 - 2019 period. Specifically, this ratio was 43% in 2020, 37% in 2021, and 52% in 2022 ^[15].

Additionally, international organizations have recognized Vietnam's rapid growth in the scale of capital markets, supporting sustainable development compared to the region. The total value of Vietnam's green, social, and sustainable bond market reached 1.5 billion USD in 2021, nearly five times higher than in 2020, and maintained stable growth over three consecutive years. Vietnam is the second-largest issuer of green bonds in ASEAN, reaching 1 billion USD, following only Singapore ^[16].

3.2. Limitations in Green Budget

Firstly, lack of a clear and unified legal framework. Vietnam currently lacks a specific legal definition of a green budget and a classification system for green expenditure items within the national budget. The absence of a binding legal framework creates difficulties in identifying and allocating funds for environmental objectives. According to a report from the Ministry of Natural Resources and Environment, over the past five years, the state budget allocated an average of over 21,000 billion VND annually for environmental protection ^[17]. However, the lack of specific classification criteria makes it challenging to accurately assess the actual environmental impact of these expenditures.

Secondly, the absence of a comprehensive green tagging system. Although Vietnam has incorporated provisions on green budget expenditure categories in the Law on Environmental Protection, the current list remains overly general and insufficiently detailed. Vietnam has not fully adopted a green tagging system to classify budget revenues and expenditures based on their environmental impact. This absence hinders the ability to track, evaluate, and report on the effectiveness of environmental spending.

Thirdly, limited transparency and accountability in green budget reporting. Vietnam's green budget reporting system lacks transparency and accountability, which are prioritized in many countries when developing green budgets. Current Vietnamese legal regulations do not mandate detailed reporting on green budget utilization, including total amounts, the proportion of green spending, environmental impact analysis, and performance indicators for environmental outcomes. This creates an information gap, making it difficult to monitor and evaluate effectiveness.

Fourthly, lack of a specialized performance evaluation system. There is no dedicated performance evaluation system for green budget implementation. The absence of an independent and objective evaluation framework reduces the effectiveness of environmental policies. According to a World Bank report, without appropriate adaptation and mitigation measures, climate change is estimated to cost Vietnam approximately 12 - 14.5% of GDP annually by 2050 and could push up to one million people into extreme poverty by 2030 ^[18]. This underscores the importance of an effective evaluation system to ensure green investments achieve their intended goals.

Fifthly, lack of coordination among relevant agencies. The green budget is a macro-level policy requiring coordinated management from multiple sectors. However, coordination among relevant ministries, agencies, and between central and local governments in implementing the green budget remains limited.

Comparative Insights: International Legal Frameworks

1. European Union

Green budgeting in Europe is regarded as a key instrument for redirecting public investment, consumption, and taxation toward environmentally sustainable sectors. According to the European Commission, green budgeting is “a budgetary process whereby the environmental contributions of budgetary items are identified and assessed with respect to specific performance indicators, with the objective of better aligning budgetary policies with environmental goals^[19]”.

European Union member states have collaborated with the European Commission to screen and assess standards for developing a coherent and appropriate legal framework for green budgeting, in line with the European Green Deal (2019). These provisions are reflected in the European Union Green Budgeting Reference Framework (“GBRF”), issued in 2022. The GBRF published by the European Commission, jointly with the EU Member States, offers EU Member States a comprehensive guide for weaving environmental priorities into public budgeting. Key aspects in the GBRF include^[20]

1. the coverage of environmental objectives, of budgetary items, and of public sector entities. Under GBRF, green budgeting covers from land and water conservation to waste management, climate change mitigation and adaptation, as well as environmentally harmful expenditures and revenues. Moreover, the European Commission classifies the scope of environmental objectives into three levels. This first level includes only climate change mitigation and adaptation. The second level expands to include additional environmental goals aimed at sustainable development. The third level represents a comprehensive and advanced framework covering all relevant environmental domains.
2. The GBRF recommends that nations adopt a methodology for evaluating the alignment of budgetary policies with long-term environmental objectives. In particular, the basic stages should have a method for identifying which budget items are environmentally positive or negative - this process is known as green budget tagging. At a more advanced level, the framework should demonstrate methodology to carry out both ex-ante (before implementation) and ex-post (after implementation) assessments of the environmental impact of these policies;
3. The deliverables. According to this criterion, each country is required to develop its own roadmap for implementing green budgeting, along with legal regulations tailored to its national context. Particular attention should be given to the issuance of green and brown taxonomies in order to guide and harmonize public spending. To support Member States in developing their own green budgeting methodologies, the Directorate-General for Economic and Financial Affairs (DG ECFIN) has compiled two reference lists

of budget items that are considered to have a net environmental impact, either "green" or "brown."

4. The governance, setting responsibilities for each player. The GBRF recommends that institutions such as the Ministry of Finance should be assigned primary responsibility for coordinating the budgeting process. In addition, other relevant government bodies with sector-specific expertise - such as the Ministry of Environment - and non-governmental stakeholders should also be assigned clear and specific responsibilities within the framework.
5. And the transparency and accountability of the process. This is an important factor in designing a legal framework for green budgeting. The GBRF states that such third-party oversight may be carried out by courts, national audit institutions, or other independent bodies under parliamentary supervision. Disclosure of information must be accurately assessed and made transparent and publicly available on a regular basis.

Regarding the implementation status, according to statistical reports by the European Commission, as of 2023, 10 EU member states had introduced green budget tagging to assess environmentally friendly projects for the purpose on green public spending. Meanwhile, more technically advanced tools, such as ex-ante environmental impact assessments and ex-post evaluations, have been implemented to a much more limited extent, with only 6 and 3 countries, respectively, applying these methods. This indicates that although awareness of green budgeting is increasing, the effective enforcement of such policies remains limited. Furthermore, 11 countries, including Germany, Belgium, and Poland, have not yet implemented any form of green budgeting, highlighting significant disparities in the level of commitment and policy uptake across the EU^[21].

2. Indonesia

Indonesia is one of the Southeast Asian countries that has been actively participating in the green transition and the pursuit of sustainable economic development. The country has pledged an unconditional reduction of 26% in greenhouse gas emissions compared to its 2020 baseline, using domestic resources, and up to 41% with international support, through budget allocation and other green financial initiatives^[22]. Green budgeting in Indonesia is regulated under Law No. 32/2009, which serves as the legal basis affirming the role of green budgeting as a fiscal tool for environmental protection. Under this law, local governments and the Regional House of Representatives (DPRD) are required to allocate appropriate budgets to fund environmental protection and management programs, as well as environmentally friendly development initiatives^[23]. Regarding the entities responsible for managing green budgets, Article 45(1), Chapter 10 of Law No. 32/2009 on Environmental Protection and Management provides that the Government and the People's Representative Council of the Republic of Indonesia, as well as regional governments and their respective representative councils, are obliged to allocate sufficient funds to support: (a) environmental preservation and protection activities, and (b) programs for developing environmentally sound approaches. This indicates that both national and regional governments, along with their representative bodies, are responsible for

adequately funding environmental management, protection, and environmentally oriented development initiatives.

In terms of the scope of expenditures under the green budget, Indonesia focuses on six priority programs: natural resource protection, agriculture, energy and industry, transportation and urban planning, education and health, and other supporting policies such as disaster risk reduction and management ^[24].

As for the method of assessing environmental objectives in the national budget, Indonesia is implementing the Climate Budget Tagging (CBT) approach. This is a green budgeting tool that identifies all budget items contributing to climate mitigation and adaptation. The analytical grid used in CBT is a data table that maps out the potential social benefits or negative social and environmental impacts of each budget item ^[25]. CBT helps to: (i) facilitate access to international climate finance, (ii) improve transparency in green spending, (iii) ensure alignment of the budget with national environmental plans, and (iv) enhance the efficiency of spending on green projects ^[26]. Thanks to this tool, the Indonesian government has cut approximately USD 10 billion in fossil fuel subsidies and redirected those funds toward environmental initiatives ^[27].

Despite certain achievements, the implementation of green budgeting in Indonesia still faces several limitations, such as First, the lack of strict regulations on a minimum budget allocation for environmental management ^[28] results in inconsistent and arbitrary budget allocations due to the absence of a mandatory baseline.

Second, the lack of coordination among stakeholders in environmental management ^[29] undermines the effectiveness of green budgeting implementation, leading to significant gaps throughout the planning, budgeting, execution, and monitoring stages.

3. Japan

In October 2020, the Japanese government announced its plans to achieve net-zero carbon emissions by 2050. Moreover, in April 2021, it raised its previously set goal of reducing emissions by 2030 to 46% compared to 2013 levels, stepping up its efforts to reach carbon neutrality ^[30]. To achieve this goal, Japan has introduced green fiscal policies and used the national budget to support efforts to improve the environment, reduce greenhouse gas emissions, and deal with climate change. These efforts are mainly regulated under two key laws: the Act on Promotion of Global Warming Countermeasures and the Act on Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities.

First, under the Act on Promotion of Global Warming Countermeasures, the Cabinet, led by the Prime Minister through the Global Warming Prevention Headquarters, coordinates national climate change actions. This high-level, cross-ministerial body drafts the national plan, works with ministries and local governments, and allocates budgets for environmental and greenhouse gas reduction programs. The Ministries of the Environment and Finance also propose policies, coordinate funding, and guide budget use. Similarly, under the Act on Promotion of Procurement of Eco-Friendly Goods and Services, the Environment Minister compiles green procurement budgets from ministries and agencies and submits the final plan to the Cabinet for approval.

Second, following the Act on Promotion of Global Warming Countermeasures, Japan's national budget is used to support actions such as reducing greenhouse gas emissions, developing renewable energy, improving energy efficiency, building low-emission infrastructure, and organizing education and awareness activities on climate change. In addition, Japan also uses its budget to help local governments carry out climate action plans and to support international cooperation in environmental protection. Moreover, the green budget also includes spending on green public procurement, that is, purchasing eco-friendly products and services in government agencies, as stated in the Act on Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities (2000). This helps promote the green goods market and encourages sustainable lifestyles.

Third, Japan has built a comprehensive and well-coordinated system to support green budgeting, clearly reflected in its legal framework. Japan promotes green finance by issuing Green Transformation Bonds (GX Bonds), developing a carbon tax system, and providing guidelines for issuing green bonds to attract private investment toward the goal of carbon neutrality. Importantly, tools like the Green Bond Guidelines and Climate Transition Bond Framework help increase transparency, reduce the risk of greenwashing, and support public monitoring and accountability in managing green public finance.

In addition, the Ministry of Economy, Trade and Industry decided to create a Green Innovation Fund of 2 trillion yen (in 2024), managed by the New Energy and Industrial Technology Development Organization (NEDO) ^[31]. This fund will support companies and organizations for ten years, helping them meet ambitious environmental goals through research, development, pilot projects, and the practical use of results in society. These efforts show that Japan has established an effective, flexible green budgeting mechanism that supports its long-term goals for sustainable development.

4. United States

Article I, Section 8, Clause 1 of the U.S. Constitution gives Congress the power to collect taxes and allocate funds for national purposes. Based on this, Congress determines annual revenue and spending through legislative actions. The President first submits a Budget Request detailing revenues, expenditures, and environmental programs. Congress reviews it in hearings, then adopts a Budget Resolution and enacts Budget Legislation, drafted and enforced by the House and Senate Budget Committees. Once enacted, agencies such as the DOE, EPA, and DOT implement green spending through specific projects and programs. These agencies also have the responsibility to report the results of how they used the funds ^[32]. For instance, the United States has a system to make federal budget spending and revenue public each fiscal year. In 2025, the U.S. spent \$85 billion (about 1.1% of the federal budget) on natural resources and the environment, and \$54.1 billion (about 0.7% of the budget) on energy (USA Spending, 2025) ^[33].

In the US, green budget revenues and expenditures mainly support clean energy subsidies, green investments, and reducing greenhouse gas emissions. These goals are outlined in the Inflation Reduction Act (2022) - one of the

largest green fiscal policies in U.S. history. Previously, the Investment Tax Credit (ITC) and Production Tax Credit (PTC) allowed taxpayers to deduct a percentage of renewable energy system costs from their federal taxes. The ITC was for businesses investing in energy storage technologies, fuel cells, and geothermal systems, while the PTC supported businesses using biomass, landfill gas, hydroelectric, and marine energy. Starting in 2025, the Inflation Reduction Act will replace the PTC with the Clean Electricity Production Tax Credit and the ITC with the Clean Electricity Investment Tax Credit. They apply to all electricity-generating facilities (and energy storage systems under ITC) with zero expected greenhouse gas emissions [34].

The Inflation Reduction Act (IRA) supports green investment through strong funding for clean energy infrastructure. Under its energy and climate provisions, the IRA allocates about \$11.7 billion to the Loan Programs Office (LPO) to help issue new loans. A key program created is the Energy Infrastructure Reinvestment (EIR) program, which provides loan guarantees for projects that repurpose, reuse, or replace retired energy infrastructure or upgrade operating facilities to reduce air pollution or greenhouse gas emissions. The IRA sets aside \$5 billion through September 30, 2026, allowing up to \$250 billion in loans. Eligible projects include transforming closed fossil fuel plants into clean energy sites, upgrading old power plants to use renewable energy, or improving active facilities with carbon capture, use, and storage technologies [35]. This shows how the U.S. uses budget tools to support long-term green goals.

Legal Reform Proposals for Vietnam

Based on the current status of green budgeting in Vietnam and drawing on relevant lessons learned, the authors propose the following solutions to improve and enhance the effectiveness of green budget implementation in the country. First, a legal definition of green budgeting should be established, along with a classification list of green expenditures within the national budget. Lessons can be drawn from the European Union and France in categorizing environmental objectives and applying technical screening criteria for effective environmental impact assessments. It is recommended to incorporate these regulations into the Law on the State Budget and the Law on Environmental Protection with binding legal effect. The classification list must include specific criteria for identifying economic activities, projects, and expenditures considered “green,” as well as those deemed environmentally harmful. Particular attention should be paid to international standards to ensure alignment with global practices.

Furthermore, a green tagging system should be gradually introduced and implemented. Experiences from countries such as Indonesia or EU countries demonstrate that green tagging is an effective approach to building a green budget. This model should be designed to link state budget revenues and expenditures to green or brown tags, indicating the level of environmental protection associated with each activity. Detailed guidance on the tagging methodology should be developed, including a scoring system (e.g., beneficial, neutral, harmful, or mixed), similar to the French approach, to assess the environmental impact of each budget item. This regulation should be uniformly applied across central and local levels in the budget allocation process.

Second, mandatory requirements for accountability and transparency should be established throughout the budgeting process - from planning and allocation to post-expenditure reporting. Each year, ministries, ministerial-level agencies, and relevant institutions should be required to submit green budget reports based on clearly defined criteria. These reports should include: the total amount and proportion of green spending in the budget, categorized by environmental objectives and sectors; an analysis of the environmental impacts (both positive and negative) of expenditures; the implementation status of green spending across different budget levels; and performance indicators on environmental outcomes achieved.

Third, a performance evaluation system for green budget implementation should be adopted. Based on annual disclosures, competent agencies should assess the effectiveness of green budgeting using a dedicated evaluation framework. At the same time, the status of Vietnam’s international commitments on emissions reduction and green growth should be regularly updated, along with forecasts regarding the likelihood of meeting these targets. This would support the development of an appropriate roadmap for green development. It is also recommended to assign the evaluation function to an independent third party. Vietnam can learn from the EU’s approach of entrusting this task to the national audit institution to ensure maximum efficiency and objectivity, or Japan’s monitoring system. Vietnam can also learn from the US by publicly disclosing all budget revenues and expenditures on a national website, ensuring that all citizens can access and understand this information.

Fourth, coordination among relevant ministries and agencies, and between central and local governments, must be strengthened. The Ministry of Finance and the State Bank of Vietnam should actively collaborate in developing a green taxonomy and providing interest rate support for green projects. Local governments should also take the initiative to develop budget spending plans that are aligned with both national and local green budgeting objectives. On this issue, Japan has a streamlined and effective inter-agency coordination mechanism that ensures the full and proper involvement of relevant authorities at each stage, from planning and approval to implementation and monitoring.

Additionally, science and technology should be integrated into the implementation of green budgeting. Many countries have successfully adopted public financial management information systems (FMIS) to track green budget flows. Vietnam can improve its FMIS to enable more effective collection, analysis, and reporting of green expenditure data. This includes the capacity for automatic tagging and customized reporting on environmental spending.

Conclusion

In summary, it is evident that green budgeting has become a prevailing trend adopted by many countries to allocate resources efficiently and promote sustainable national development. Numerous countries around the world have successfully implemented this policy, with a particular focus on ensuring clarity, transparency, and accountability in green budget processes. Additionally, the establishment of a green budget classification or the adoption of green tagging mechanisms has become increasingly popular, as seen in regions such as the European Union and countries like

Indonesia. Although green budgeting in Vietnam is still in its early stages, it has achieved certain notable results, contributing to the country's dual transformation goals. In order to further enhance its green budgeting framework, Vietnam should introduce foundational legal provisions, including a clear definition of green budgeting and a standardized implementation process. Moreover, these efforts should be accompanied by inter-agency coordination and the application of science and technology to achieve the optimal outcomes.

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