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A CROSS-COUNTRY ANALYSIS OF GREEN PUBLIC FINANCE MANAGEMENT AND BUDGETING IN SUPPORTING SUSTAINABLE DEVELOPMENT

SÜRDÜRÜLEBİLİR KALKINMAYI DESTEKLEMEDE YEŞİL KAMU MALİ YÖNETİMİ VE BÜTÇELEMENİN ÜLKELER ARASI BİR ANALİZİ

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ABSTRACT

The fact that global warming and related environmental problems pose a serious threat to our planet has accelerated initiatives to support sustainable development (SD). Green public finance management (PFM) and budgeting practices have recently gained importance in this context. This study analysed green PFM and emphasised its stages in supporting SD. It aimed to explore the practices of green PFM and budgeting in the member countries of the Organization for Economic Co-operation and Development (OECD) and the European Union (EU). Therefore, a comparative cross-country analysis was performed using the data from "the Joint Survey on Emerging Green Budgeting Practices" conducted by OECD and EU. In addition, it evaluated government expenditures and tax revenues on environmental protection in member countries. It concluded that green PFM and budgeting are the new implementation in limited countries or have not

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been put into practice in most of them efficiently yet. It is considered that green PFM and budgeting will become more crucial in the future because of the effects of climate change and environmental degradation. The study is one of the limited studies that focused on the main stages of the green PFM in meeting the United Nations Sustainable Development Goals (UN SDGs) regarding climate change and environmental issues.

ÖZ

Küresel ısınma ve bağlantılı çevresel sorunların gezegenimiz için ciddi tehdit oluşturması, sürdürülebilir kalkınmayı desteklemeye yönelik girişimlere hız kazandırmıştır. Bu kapsamda yeşil kamu mali yönetimi (KMY) ve bütçeleme uygulamaları son yıllarda önem kazanmıştır. Çalışmada yeşil KMY analiz edilmekte ve sürdürülebilir kalkınmayı desteklemede aşamaları vurgulanmaktadır. Ayrıca Ekonomik İşbirliği ve Kalkınma Teşkilatı (EİKT) ile Avrupa Birliği'ne (AB'ye) üye ülkelerde yeşil KMY ve bütçeleme uygulamalarının incelenmesi de amaçlanmaktadır. Bu nedenle, OECD ve AB tarafından yürütülen "Gelişmekte Olan Yeşil Bütçeleme Uygulamalarına İlişkin Ortak Anket" aracılığıyla elde edilen veriler kullanılarak karşılaştırmalı ülkeler arası bir analiz yapılmıştır. Çalışma ayrıca üye ülkelerde çevre korumaya yönelik devlet harcamalarını ve vergi gelirlerini de değerlendirmiştir. Yeşil KMY ve bütçelemenin sınırlı ülkelerde yeni bir uygulama olduğu veya birçoğunda ise henüz etkin bir şekilde uygulanmadığı sonucuna varılmıştır. İklim değişikliği ve çevresel bozulmanın etkisi nedeniyle gelecekte yeşil KMY ve bütçelemenin daha da önemli hale geleceği düşünülmektedir. Çalışma, iklim değişikliği ve çevre sorunlarıyla ilgili Birleşmiş Milletler Sürdürülebilir Kalkınma Amaçlarına (BM SKA'lara) ulaşmada yeşil KMY'nin ana aşamalarına odaklanan sınırlı araştırmalardan biridir.

Keywords: Green Public Finance Management, Budgeting, Climate Change, Environmental Degradation, Sustainable Development

Anahtar Kelimeler: Yeşil Kamu Mali Yönetimi, Bütçeleme, İklim Değişikliği, Çevresel Bozulma, Sürdürülebilir Kalkınma

INTRODUCTION

Climate and environmental issues have drawn considerable attention in recent decades as global temperatures are already 1°C warmer than pre-industrial levels, rising by an average of 0.1°C per decade (Dabla-Norris et al., 2021). They are expected to rise by 1.5°C between 2030 and 2052 (IPCC, 2018). Several consequences have emerged because of global warming, such as waves, droughts, floods, storms, and rising sea levels. The national and international attempts in the various platforms have been accelerated to deal with their adverse effects on human life. Therefore, most countries have set national goals and have committed to dealing with climate change and environmental degradation (Battersby et al., 2021).

The idea of SD that aimed to meet the requirements of people emerged at the end of the 20th century and gained importance globally (Candan and Cengiz Toklu, 2022). It includes the sustainability of society, the economy, governance, and environment, i.e., climate change mitigation, adaptation, and other environmental issues[2]. The SD was based on the report Our Common Future by the World Commission on Environment and Development in 1987. Enhancing human well-being while reducing or regulating the adverse effects of human activity on the environment is a critical component of SD (European Parliament, 2021).

While governments have critical roles and responsibilities in this issue, international organizations have also dealt with these problems. In 2015, the UN and 195 nations agreed on the SDGs, a set of 17 global goals, 169 targets, and 241 indicators to eradicate poverty, safeguard the environment, and secure peace and prosperity for everyone by 2030 (Zarali, 2021). Accordingly, governments declared that they have the primary responsibility for monitoring and reviewing the SDGs and progress in their implementation over the next fifteen years (Sunbul, 2020). In the same year, the Paris Agreement, which accepts public expenditures, revenues, and decision-making addressing the effect of climate changes, was adopted by the United Nations Framework Convention on Climate Change (UN, 2015). In 2017, the OECD launched the Paris Collaborative on Green Budgeting, which aimed to design new, innovative tools to assess and drive improvements in the alignment of national expenditure and revenue processes with climate and other environmental targets (OECD, 2018). In 2018, the Coalition of Finance Ministers for Climate Actions was organized with the support of the Climate Action Peer Exchange of the World Bank (WB) (WB, 2019) to lead global climate response and secure a just transition to low-carbon resilient development (OECD, 2021a). Another critical attempt is that the Secretariat for Public Expenditure and Financial Accountability (PEFA), a partnership program of the European Commission (EC), the International Monetary Fund (IMF), the WB, and the governments of France, Luxembourg, Norway, the Slovak Republic, Switzerland, and the United Kingdom, developed a module to evaluate PFM regarding the climate crisis (Bova, 2021). Recently, the EC announced the "Fit for 55" legislative package, which seeks to make the EU's climate, energy, land use, transportation, and taxation policies fit to decrease net

2- "Green" refers to climate change mitigation, adaptation, and other environmental deterioration.

greenhouse gas emissions by at least 55% by 2030 when compared to 1990 levels. The legislation also aims at zero net emissions of greenhouse gases by 2050 (EC, 2021a; 2019).

Green finance has recently become an essential strategy in the financial sector and government policies (Dziwok and Jäger, 2021). Even though green finance stems from the private sector, green PFM plays a fundamental role in reducing the effects of climate and environmental degradation. Green PFM, a recent phenomenon in meeting green commitments, has gained more exposure based on innovative global cooperation. It aims at adapting public finance practices to promote climate-sensitive and environmental policies (Gonguet et al., 2021). It ensures that green policies are effective and funded within fiscal constraints by establishing analytical requirements toward the green impact of new policies, ensuring fiscal policy accountability for the climate impact, and incorporating climate change considerations into infrastructure project appraisal and selection (Moretti, 2021).

Recent years have witnessed a growing academic interest in climate and environmental challenges, but the studies examining green PFM and budgeting within the SD are limited. This study aimed to address the existing gap in the literature by detailing the stages of green PFM and comparing green budgeting practices in various countries. While Macfarlane and Kumar (2021) investigated green PFM in the United Kingdom, Zhang et al. (2021) analysed public spending and green economic growth in the Belt and Road Initiative (BRI) region in China. Gonguet et al. (2021) addressed a comprehensive framework for green PFM and emphasised the need for an approach stemming from the budget cycle. Lamperti (2019) highlighted green PFM in public policy, finance, and the roles of states. Khan (2018) addressed the green PFM for the SD in Bangladesh. Carraro et al. (2012) also reported the effects on investments and public finance of transitioning to a green, low-carbon economy induced by carbon taxation. Jones (2011) examined the green economy through public finance and fiscal policy reform. Bovenberg and Van Der Ploeg (1994) explored green policies and public finance in a small open economy. In addition, the relationship between global warming and public finances was addressed by Poterba (1993).

Green budgeting research has focused on the international, national, and local contexts. While Bova (2021) examined green budgeting practices in a few European countries, Afanasiev and Belenchuk (2021) studied it in Russia, and Fernandez (2018) investigated Spain. Petrie (2021) studied green budgeting and concluded with an evaluation of how green the initial COVID-19 pandemic responses by countries were. Kurniawan et al. (2020) investigated green budgeting implementations in Gresik Regency. Faqih et al. (2017) analysed green budgeting in Central Java province from 2010 to 2014 in Indonesia. Russel and Benson (2014) developed an analytical framework to explain green budgeting practices in the United States and the United Kingdom. From a different view, Siddikee (2018) searched for green capital budgeting methodologies and an emerging structural model of its decisions by adjusting environmental degradation pressures to the inflows and outflows of specific investment projects. Cimpoeru (2012) also examined green budgeting implementations and suggested several ways to ensure consistency in implementing key elements of a sustainable economy. Zhou and Segerson (2012) debated environmental taxes to decrease budget deficits in the United States. A few studies in the literature have considered the role of green PFM in supporting SD.

Unlike other studies, this paper investigated the importance of green PFM and budgeting in meeting the SDGs related to climate and environmental issues by presenting the good practices from selected countries. It is organized as follows: The next section presents the theoretical framework of green PFM and budgeting. The third section analyses the main results of the Joint Survey on Emerging Green Budgeting Practices and gives examples from OECD and EU countries regarding good practices. It also analyses these countries' government expenditures and tax revenues on environmental protection. The last section makes a synthesis of the conclusion and recommendations.

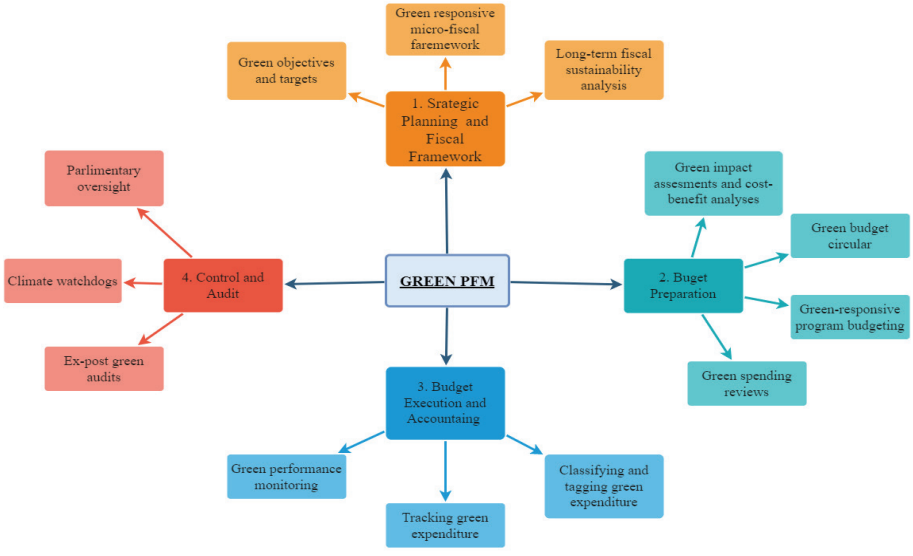
1. THEORETICAL FRAMEWORK OF GREEN PUBLIC FINANCE MANAGEMENT

Although Green PFM, basically defined as a process that promotes the performance of climate and environmental goals (Battersby et al., 2021), is a concept similar to green budgeting, it goes beyond budgeting (Gonguet et al., 2021). It analyses the effects of the budgetary process and fiscal policy on the transition to a more environmentally and climate-friendly economy (O'Sullivan

and Joyce, 2021). It involves assessing the environmental impacts of budgetary and fiscal policies and their coherence to meeting national and international commitments (OECD, 2020a). It helps policymakers understand the overall impact on the climate and environment of the budgetary process (Nicol and Parker, 2021). Notwithstanding the idea of green PFM dating back to the late 1980s in some industrialised countries, e.g., Norway, its practices have just been implemented in most countries, including advanced states (Gonguet et al., 2021).

Climate change and environmental degradation are significant issues for fiscal policies. On the other hand, fiscal policies are effective in climate change mitigation and adaptation (Baur et al., 2021). Therefore, it is crucial to establish a green PFM for climate and environmental sustainability. From this perspective, the cornerstones of green PFM are (i) determining strategic planning and fiscal policy goals; (ii) Preparing the yearly budget and having it passed by the legislature; (iii) Executing the approved budget and producing accounts and financial reports; and (iv) Independent supervision and auditing of the budget (Gonguet et al., 2021). Figure 1 demonstrates the general structure of green PFM along with main stages and sub-stages.

Figure 1: General structure of green PFM



Source: Adapted from Gonguet et al. (2021).

Each stage explains the approaches connected to the budget process and building a green PFM in the medium and long terms. First, governments should plan based on their national strategies regarding climate change and the environmental crisis by focusing on financial planning and guiding public policies, investments, and decisions about expenditures and revenues at the stage of the strategic plan. In the second stage, informed and evidence-based decision-making, cost-benefit analyses, green-responsive program budgeting, and green spending reviews are significant. In the third stage, strengthening monitoring and reporting, tracking and tagging green expenditures, institutional design, and a robust institutional environment should be designed. The control and audit stage should contain the ex-post reporting, transparency, and accountability practices and provide comprehensive, helpful, and accessible information to parliament and citizens (OECD, 2021a; 2020a; Nicol and Parker, 2021).

Green PFM and budgeting should be grounded in robust legal foundations (Gonguet et al., 2021). For example, green budgeting has been integrated into the national budget laws of Austria, Bulgaria, Colombia, Denmark, France, Finland, Italy, Mexico, the Netherlands, and Sweden (Nicol and Parker, 2021). France approved "the Yellow Book on the Environmental Impact of the State" as an annex of the Budget Law. The Italian law 196/2009 obligated the eco-report to be added to the budget execution statement. The 2017 Climate Act in the Netherlands required the government to report on progress toward the goals outlined in the climate law annually, including the economic effect of climate and energy-related initiatives. The 2018 Climate Act in Sweden mandated that the government provide a climate report in its Budget Bill (Bova, 2021). The Danish government approved the climate law with a commitment to decrease greenhouse gas emissions by 70% until 2030 (OECD, 2021a). Bulgaria approved a regulation adopted by Decree 301 of the Council of Ministers of 2016. The government of Finland included the national strategy for green budgeting into budget preparation in 2020 and a budget circular in 2018 (EC, 2021b). In addition to these implementations, it set a 30% target for climate expenditures and a higher ambition for biodiversity expenditures in the 16th (d), (e) articles of the Inter-institutional Agreement of the European Parliament, the Council of the European Union, and the European Commission on Budgetary Discipline (EU, 2020).

1.1. Stage 1: Strategic Planning and Fiscal Policies Goals

The environmental impact potential of policy decisions should be evaluated in developing any policy at the national or sectorial level (Khan, 2018). The strategic planning stage emphasizes the strategies, programs, and plans for the policies regarding climate and environmental goals. This stage is an ex-ante budgetary process and needs to be detailed for directing budget allocations, reasonable cost projections, and a framework for operations (OECD, 2020a). First, governments should have national plans and strategies to deal with climate and environmental challenges since such plans/programs assist in guiding fiscal planning, policies, investment, and other revenue and expenditures supporting green priorities (OECD, 2021a).

Robust institutional arrangements are necessary for a strategic framework that underlies green PFM (Nicol and Parker, 2021). Hence, this stage contains environmental objectives, a climate-responsive macro-fiscal framework, and medium and long-term sustainability analysis regarding fiscal rules (Moretti, 2021). Environmental impact evaluation, economic valuation of environmental costs vs. benefits, and assessment of economic costs of adverse effects of different implementation scenarios should be a part of the policy-making and planning process (Khan, 2018). Medium-term frameworks that comprise short-and long-term targets should be consistent with environmental strategies, including macroeconomic and fiscal forecasts in building green PFM (OECD, 2021a), as the formulation process of medium-term framework plays an essential role in establishing budget ceilings and coordinating budget re-structuration (Kang, 2015). Austria, Canada, China, Colombia, France, Greece, Indonesia, Ireland, Lithuania, Korea, Mexico, Nepal, Portugal, Spain, Slovenia, South Africa, and Turkiye included the climate and environmental-relevant medium and long-term targets in their national strategic plans (EC, 2021b; Gonguet et al., 2021; Nicol and Parker, 2021).

Finance ministries, which have steering roles in improving development strategies by incorporating climate actions and environmental protection efforts within the planning stage, i.e., Denmark, Ireland, and Mexico (Shah et al., 2021; Nicol and Parker, 2021), should collaborate with line ministries, departments, and agencies. The finance ministry shares leadership with other governmental actors in Austria, Canada, Colombia, France, Italy, the Netherlands, Portugal, Sweden, and the United Kingdom (Battersby et al., 2021). The strategic drivers

play a significant role in the strategic planning stage to establish green PFM and budgeting. Different strategic drivers were preferred by the countries (EC, 2021b; Nicol and Parker, 2021):

i. Promoting environmentally responsive policy-making in Bulgaria, Denmark, Greece, France, Italy, Lithuania, Luxemburg, Poland, Slovenia, Spain, and Sweden;

ii. Integrating the SDGs in the context of budgeting approaches in Finland, and Slovenia;

iii. Achieving international/national commitments and goals in Austria, Bulgaria, Denmark, Greece, Finland, France, Ireland, Lithuania, Luxemburg, the Netherlands, Poland, and Sweden;

iv. Supporting budget transparency in Austria, France, Ireland, Italy, Lithuania, Slovenia, and Spain;

v. Enabling the issuance of green bonds in Ireland, Luxemburg, the Netherlands, and Spain.

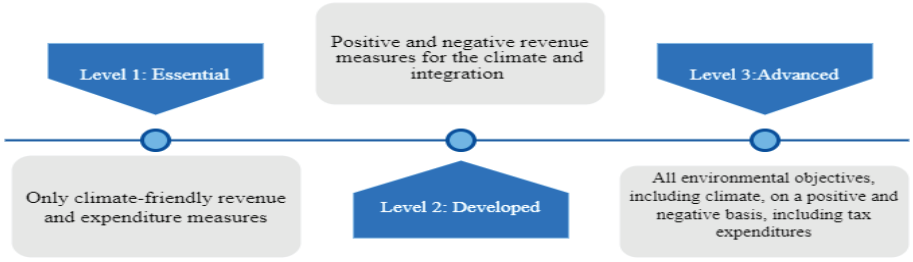
1.2. Stage 2: Preparing the Yearly Budget

Market forces cannot achieve environmental protection that includes public benefit as a positive externality and hence falls under government responsibility, which is carried out through the state budgets (Moshiri and Daneshmand, 2020). Green budgeting has acquired importance and is the most crucial instrument in designing green PFM in dealing with climate and environmental problems. It is a priority-based or outcome-based budgeting type that also emphasizes specific outcomes (Bova, 2021; OECD, 2021a). It means directing resources and incentives towards specific priorities, signalling the political importance of these priorities, and mobilizing a comprehensive response (OECD, 2019). "Green budgeting establishes a methodology by which governments can measure and design fiscal policy, including tax and expenditure measures, to influence individual and business behaviours towards supporting climate and environmental targets and to influence behaviour away from harmful climate and environmental activities" (O'Sullivan and Joyce 2021: 6).

Green budgeting helps governments achieve their climate and environmental objectives by assessing the environmental impacts of budgetary and public fiscal policies, evaluating their harmony with submitting national

and international commitments, and contributing to the informed, evidence-based discussion on sustainable growth (OECD, 2018). It also provides an analytical framework to comprehend the similarities and differences in countries' approaches (Nicol and Parker, 2021). It is accepted that well-designed expenditure and revenue have medium and long-term benefits regarding citizens' well-being, environmental protection, and resilience to climate and future shocks (OECD, 2020b). The fundamental cornerstones of green budgeting generate a robust framework, instruments for evidence creation, and policy consistency, reporting to encourage accountability and transparency, and an enabling budgetary governance structure (OECD, 2020a). Additionally, the significant elements in budget preparation are environmental impact assessments, cost-benefit analysis, green spending reviews, green budgeting circulars, and green-responsive program budgets (Moretti, 2021). In developing a national green budgeting reference framework (GBRF), the EC has suggested a three-level approach shown in Figure 2.

Figure 2: Levels of a national green budgeting reference framework



Source: Adapted from O'Sullivan and Joyce (2021).

Establishing a robust framework is administratively complex and not practicable in the immediate term. Hence, many EU members lack green budgeting approaches, as investigated in the next part. Table 1 presents a comprehensive overview of the three levels in Figure 2 (EC, 2022).

Table 1: Elements of GBRF improved by the EC

Elements	Level 1 Essential	Level 2 Developed	Level 3 Advanced
1. Coverage Environmental objectives	Climate-related	Climate-related; Some other objectives	All objectives
Budgetary Items	Favourable expenditure and revenue	Favourable items; Unfavourable items	Favourable items; unfavourable items; Tax expenditure
General Government	State (incl. social security)	State (incl. social security); Subnational government	State (incl. social security); Subnational governments; Other (e.g. SOEs + extra-budgetary)
2. Methodology	Tagging methodology	Tagging methodology	Tagging methodology; Impact assessment of policies methodology
3. Deliverables	Identification in annual budget; Reporting on budget execution	Identification in annual budget; Reporting on budget execution; Estimates in multi-annual plans	Identification in annual budget; Reporting on budget execution; Estimates in multi-annual plans; Extra-budgetary spending reports
4. Governance	Ad-hoc central task force	Permanent central structure (not necessarily separated)	Permanent central structure (not necessarily separated); Green budgeting correspondents in various ministries/agencies
5. Transparency & Accountability	All deliverables public; Independent expert assessment of methodology	All deliverables public; Independent expert assessment of methodology; Independent assessment of deliverables; Parliamentary discussion	All deliverables public; Independent expert assessment of methodology; Independent assessment of deliverables; Parliamentary discussion; Ex-post review

Source: Adapted from EC (2022: 3).

Green budgeting tools have different functions in a budget cycle, including planning, approval, implementation, and audit. They include: informing budget planning and allocation decisions in the planning stage, instilling greater transparency and accountability in the approving stage, informing in-year adjustments in the implementation stage, scrutinizing budget execution, and following-up decisions in the audit stage (Nicol and Parker, 2021). In addition to this, green budgeting tools, such as environmental impact assessments, ecosystem services, including carbon, green perspective to spending review, and green perspective in a performance setting, should build on the PFM while handling climate and environmental challenges (Shah et al., 2021). Governments use green budgeting tools to evaluate the effects of budget measures on green goals, support low-carbon friendly investments, meet green objectives and indicate the impact of stimulus packages on creating jobs and economic demand.

Green budgeting measures also help redirect public investment, consumption, and taxes toward green goals while avoiding detrimental subsidies (EC, 2019; OECD, 2020b). For example, "the French government set a target of having 30% of the EUR 1000 billion "Plan de Relance" allocated explicitly to green measures." (OECD, 2020a: 5). Cambodia classified fiscal measures to mitigate GHG emissions or improve GHG sequestration. Bangladesh and Nepal also arranged their national budgets by focusing on climate change (Eltokhy et al., 2021).

1.3. Stage 3: Budget Execution, Accountability, and Reporting

The budget execution, accountability, and reporting stage includes tagging environmental expenditure, green trackers, and green performance monitoring (Moretti, 2021). Green budget tagging (GBT) helps governments identify areas of expenditure and income that are beneficial or destructive to green targets. Regarding budget policy transparency, the information offered by tagging provides tangible evidence that supports governments in building consistency between budget measures and green objectives (OECD, 2020a). In other words, GBT is a budget management tool that detects, classifies, weighs, and labels government climate action or environmental protection expenditures and income. Therefore, budget items are identified as the environmental budget markers, such as a tag or account number, by GBT. It must be noted that GBT cannot ensure that governments are motivated to pursue green policies or are

held responsible for the environmental consequences of their actions on their own. A complete approach to green budgeting is required to ensure incentives and responsibility. GBT should be supplemented with other PFM techniques, such as green budgeting statements and environmental cost-benefit analysis, and incorporated into every step of the budget cycle, from policymaking to budget planning to budget implementation (Eltokhy et al., 2021).

The information obtained through tagging is a piece of valuable evidence to help governments advance the coherence between green objectives, fiscal measures, and the transparency of the budgetary process (OECD, 2020a). Regarding this, the EC and OECD encouraged their members to use green budgeting tools and suggested a national green framework, which contains a mechanism that prioritizes GBT for analysing budgetary measures' compliance with long-term environmental goals (O'Sullivan and Joyce, 2021). To track and statistically report on the development finance flows aimed toward the subjects of the Rio Conventions, the Development Assistance Committee of the OECD initially established the Rio markers system in 1998, consisting of policymakers (Petri, 2021). The EC uses the Rio Markers System, which generates three values/scores within GBT, too. According to Rio Markers, climate or environmental objectives point to 0%, 40%, and 100%, respectively, as "not targeted", "a significant aim", and "a principal aim of the action or expenditure in question" (Bova, 2021). Bangladesh, Cambodia, Colombia, Ethiopia, Ghana, Honduras, India (Odisha), Indonesia, Kenya, Moldova, Nepal, Nicaragua, Pakistan, Philippines, and Uganda adopted GBT in national budgets. However, the limited developed countries, Estonia, Finland, France, Iceland, Ireland, Italy, Luxemburg, Norway, and Sweden, implemented GBT (Eltokhy et al., 2021). Another remarkable example is that while Bangladesh, Ireland, and Colombia focused on budget items related to climate change, France, Italy, and the Philippines considered budget items regarding climate change and other environmental issues (OECD, 2021b).

Performance-based budgeting (PBB) supports determining a set of indicators and targets regarding the environmental goals in budget execution. In this context, it is underpinned by a programme structure that facilitates green budgeting by defining how spending should be allocated to governments' policies (OECD, 2021a). Countries with a robust PBB system should try to link performance targets to national climatic and environmental objectives (Shah et al., 2021). Programme budgeting (PB) also encourages GBT, allowing countries to identify revenues and expenditures toward green objectives (Kang, 2015).

1.4. Stage 4: Control and Audit

Green public auditing or environmental auditing is a technique for detecting the environmental impacts of government activities and determining whether they conform to applicable environmental laws and regulations (Khan, 2018). It is an impartial ex-post examination of the extent to which proposed policies in the annual budget and multiannual documents effectively promote environmental objectives, done inside the budgeting process by a competent authority other than the central budgetary authority (Nicol and Parker, 2021). Green auditing also assists governments in developing strategies and programs to achieve the SDGs (INTOSAI, 2016). To investigate, measure, and monitor the efficiency and effectiveness of environmental policies, control and audit mechanisms, e.g., ex-post green audits, ecological and climate watchdogs, and parliamentary oversight, are necessary (Moretti, 2021). Ex-post audits are divided into internal and external audits. In terms of internal audit, the ministry of finance, line ministries, and other public departments and agencies follow and assess the environmental outcomes of the budget decisions. Internal auditing or inspection organizations can also incorporate a green component into work programs. Regarding external audits, the Supreme Audit Institutions (SAIs) appoint qualified auditors to audit government programs/projects and transactions in terms of environmental objectives and regulations (Gonguet et al., 2021).

SAIs conduct financial, compliance, and performance audits or their combinations within environmental auditing. While financial auditing applies to whether the environmental obligations of a country have been correctly and wholly integrated into the financial accounts, compliance auditing focuses on whether a country has met the obligations determined in legislation, regulations, and laws toward environmental evaluations (INTOSAI WGEA, 2012). Performance audit (value for money), the most preferred environmental auditing type, measures the effectiveness, efficiency, or economy of public funding allocated to environmental protection and sustainable development (INTOSAI WGEA, 2022). Climate and environmental issues should be included in performance auditing, and auditors should go beyond specific auditing abilities and be focused on environmental challenges (Gonguet et al., 2021).

Since 1992, the International Organization of Supreme Audit Institutions Workgroup on Environmental Auditing (INTOSAI WGEA) has surveyed global

and regional trends and challenges in environmental auditing with over 80 SAIs every three years. In 2021, it detected that the percentage of environmental auditing and environmental auditors had increased by 42% and 32% worldwide, respectively, compared to 2018. Furthermore, 63% of the SAIs stated that while they used the SDGs in selecting audit topics, 54% of the SAIs determined the SDGs as audit criteria. On the other hand, 44% of the SAIs integrated the SDGs into their audits, or 42% of them included Agenda 2030 in other non-environmental audits. However, only 6% of the SAI reported that Agenda 2030 did not influence audit practices (INTOSAI WGEA, 2021). The most audited subjects by SAIs were protected areas, forestry and forest products, and wastewater treatment between 2018 and 2020. On the other hand, "adaptation to climate change" was the most popular subject among the planned audits for the 2021-2023 period (Atli, 2021).

2. ANALYSING OF GREEN PFM AND BUDGETING IN OECD AND EU COUNTRIES

Although green PFM and budgeting practices remain insufficient in many countries (Wang et al., 2020), green budgeting practices have become mainstream in limited countries, such as France, Ireland, Italy, and the United Kingdom (OECD, 2021a). On the other hand, interest in green budgeting is increasing in many European countries in response to the European Green Deal (Nicol and Parker, 2021), which aims to turn Europe into a resource-efficient and competitive economy by 2050 with no net greenhouse gas emissions (EC, 2019), and also to other green commitments in policy debates. This section analyses the main results of the Joint Survey on Emerging Green Budgeting Practices in detail to present the implementation of green PFM and budgeting in the OECD and EU countries. Then, it presents the governments' environmental expenditures and tax revenues for environmental protection as a percentage of GDP in these countries to compare them.

2.1. Results of the Joint Survey on Emerging Green Budgeting Practices

The Joint Survey on Emerging Green Budgeting Practices[3] was conducted in 2020 by the OECD and EU to analyse green PFM and budgeting

3- The data includes the responses from all EU and OECD members, except for Israel, the USA, and Romania (EC, 2021b; Nicol and Parker, 2021).

practices in the member countries. However, the EC launched the survey on 31 May 2021 again and updated the 2020 results for the EU members. According to the 2020 results, 14 OECD countries, equal to 40% of all members, reported practising green budgeting (OECD, 2021a). When analysing 2021 results, only ten countries of the EU, equal to 37% of the total 27 members, declared their intention to implement it. The main reasons for the low level of green budgeting practices are listed as follows (EC, 2021b; Nicol and Parker, 2021):

i. The lack of methodology;

ii. The lack of a modern multi-annual budgetary framework linking strategic plans;

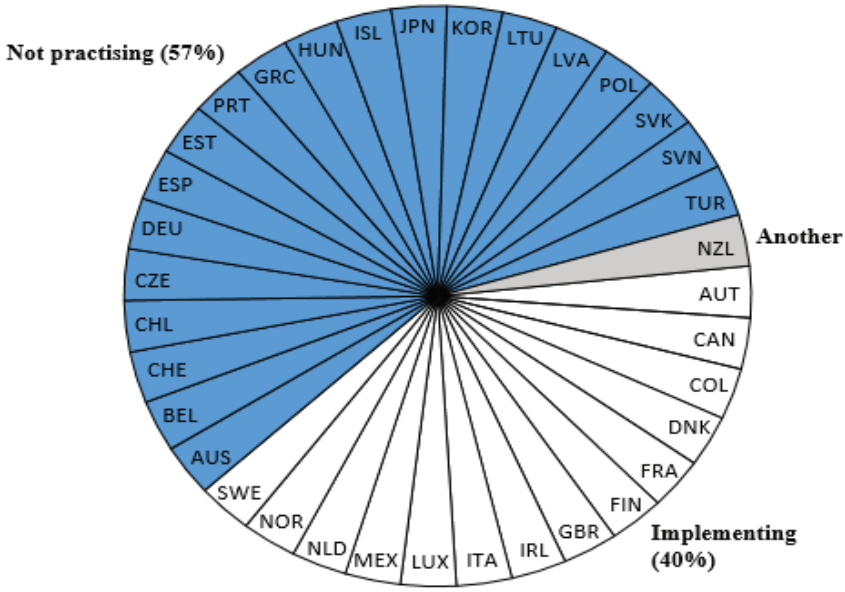
iii. The lack of political will, the lack of resources and sufficient research;

iv. The lack of knowledge and technical expertise;

v. The lack of administrative leadership and capacity across government; and

vi. The lack of adequate information and communication technology.

Figure 3: The availability of green budgeting in OECD countries



Source: Adapted from EC (2021b); Battersby et al. (2021).

Figure 3 details the OECD countries that have implemented green budgeting. It was updated with the 2021 survey results. Austria, Bulgaria, Canada, Colombia, Denmark, France, Finland, Ireland, Italy, Luxemburg, Mexico, the Netherlands, Norway, Sweden, and the United Kingdom have implemented green budgeting. However, Chile, Cyprus, Greece, Latvia, Poland[5], Spain (in October 2023), and Slovenia (by the end of 2023) planned to implement it soon (EC, 2021b; OECD, 2021a). Except for Italy, practising green budgeting since the 2000s, most countries have implemented it for the last five years or later. New Zealand, categorized under another option, implements a well-being budget to evaluate the environment as natural capital in the context of the wellness approach (Bova, 2021). Additionally, most governments prefer receiving support from international institutions to identify good global practices, convene meetings to share experiences, and develop international recommendations (EC, 2021c).

While Austria and Colombia implement green budgeting in central/federal and local governments, Canada, Denmark, France, Finland, Italy, Ireland, Luxembourg, the Netherlands, Mexico, Norway, Sweden, and the United Kingdom reported their practices being at the central/federal government level. Even though there is no practice at the central level in Spain, the Andalusia administration have efforts to include green perspectives in the budget process (EC, 2021b; OECD, 2020a). Moreover, green budgeting information is included in the multi-annual budgetary plans in Austria, Finland, France, Italy, and Luxembourg, annual budgetary plans in Finland, Italy, Ireland, Luxembourg, and Sweden, and the budget execution reports in Italy, the Netherlands, and Sweden (EC, 2021b). Its methods and procedures are also helpful for governments in determining how budget items align with green goals in strategic plans and programs. Table 2 presents the green budgeting tools used in the member countries.

Table 2: Green budgeting tools in the various countries

	Environmental impact assessments	Environmental cost-benefit analysis*	Carbon assessments	Carbon pricing instruments **	Environmental tax reform	Green budgeting tagging	Light tagging***	Using a shadow price of carbon	Regular review of environmentally relevant tax expenditures and subsidies	Statistical green tagging/reporting	Green perspectives in spending review	Climate considerations in long term fiscal sustainability analysis	Green perspectives in performance budgeting	Green conditionality	Audit on support for national climate and environmental objectives	Published statement on how package supports green objectives	Training or capacity building	Support for subnational governments	Other
Austria	✓		✓				✓						✓						
Bulgaria	✓																		✓
Canada	✓	✓		✓					✓	✓		✓		✓					
Colombia	✓	✓	✓	✓	✓	✓												✓	
Croatia									✓										✓
Czech Republic																			
Denmark	✓	✓	✓	✓	✓			✓			✓								
Estonia						✓			✓										✓
Finland	✓					✓	✓												✓
France	✓	✓	✓	✓		✓		✓	✓	✓		✓	✓	✓		✓			
Germany																			✓
Greece													✓						✓
Hungary																			
Iceland						✓													✓

Ireland	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓				✓
Italy	✓	✓	✓			✓			✓					✓			✓
Japan																	✓
Luxembourg						✓	✓								✓		✓
Malta												✓					✓
New Zealand	✓																
Mexico						✓											
Netherlands	✓	✓	✓	✓	✓				✓			✓					✓
Norway	✓	✓	✓	✓	✓	✓				✓							✓
Portugal	✓			✓	✓				✓		✓		✓			✓	✓
Poland																	✓
Romania											✓						
Slovenia																	✓
Spain																	✓
Sweden	✓	✓	✓	✓	✓	✓								✓			✓
Turkiye	✓																
United Kingdom	✓	✓	✓	✓	✓				✓		✓	✓	✓				

Note: * Individual or all measures, ** Including fuel and carbon taxation, and emissions trading systems, *** Identifying a list of budget measures/policies in accordance to their positive or negative environmental impact. Compared to green budgetary tagging, the scope of light tagging is much narrower as it only identifies specific items and not the entirety of the budget.

Source: Battersby et al. (2021); EC (2021b); Nicol and Parker (2021); OECD (2021a).

It is noteworthy that green budgeting tools can attach green dimensions to policies and budget decision-making at all stages of the budget cycle (Nicol and Parker, 2021). Table 2 indicates that the most used tools in the analysed countries are environmental impact assessments, GBT, environmental cost-benefit analysis, carbon assessments, carbon pricing instruments, and others. The green budgeting tools under others in the table vary by country. In detail, while Germany's recovery after COVID-19 contained measures to promote structural transformation of the automotive industry and future-proof value chains, Japan's efforts included environmentally friendly measures like solar power generation facilities and high-performance ventilation equipment in public places. Norway's government actions were subject to environmental consequences analysis. Moreover, Slovenia's government prepared the recovery plan to include a green transition into its growth strategy. The Spanish Ministry of Ecological Transition promoted some measures related to COVID-19, e.g. sanitary waste management (OECD, 2021a). In addition, Belgium, the Czech Republic, Germany, Estonia, Hungary, Ireland, Italy, Luxemburg, Malta, and Sweden reported that they applied environmental components to regulatory impact assessment as a green budgeting tool. Using green balance sheets by Italy and Portugal and the strategic environmental assessment by Belgium are also classified here. Other examples of tools are climate-related reports in the Netherlands and the green bond framework in Poland (EC, 2021b).

Another critical issue is that although green budgeting has not been implemented in Croatia, the Czech Republic, Germany, Greece, Hungary, Iceland, Japan, Malta, New Zealand, Portugal, Poland, Romania, and Turkiye hitherto, the green budgeting tools were used within the budget execution process. However, these countries, except for Portugal, favoured a few budgeting tools. Contrarily, Portugal used a series of tools, e.g., environmental impact assessments, carbon pricing instruments, environmental tax reform, regular review of environmentally relevant tax expenditures and subsidies, green perspectives in the spending review, and green perspectives in performance budgeting, and training or capacity building.

While the most investigated countries preferred green budgeting tagging for supporting sustainable development, Austria, Finland, Ireland, and Luxembourg preferred light tagging, which is identified as a list of budget measures/policies according to positive or adverse environmental impacts.

Moreover, environmentally favourable expenditure items, environmentally favourable revenue items, environmentally favourable tax expenditure items, environmentally unfavourable expenditure items, environmentally unfavourable revenue items, and environmentally unfavourable tax expenditure items were classified as budgeting tagging in France, Finland, Ireland, Italy, and Luxembourg. These countries highlighted the effects of green budgeting tagging on biodiversity/protection of ecosystems, climate change mitigation and adaptation, pollution abatement, sustainable waste management/circular economy, sustainable water management, all the activities regarding the environmental protection and management of natural resources, as well as other things that promote the green government agenda (EC, 2021b). In addition, the member countries paid attention to the different elements to support the environment and efforts for sustainable development and to improve and promote a national GBRF. Table 3 depicts the relevant elements by country in detail.

Table 3: Elements in supporting green budgeting used by various countries

Elements	AT	BE	BG	CA	CY	CO	DE	DK	EE	EL	ES	FI	FR	HR
• Details and instructions in the annual budget circular												✓	✓	
• Training and skills development for the ad-hoc task force and/ or the central budget authority		✓		✓	✓					✓			✓	✓
• Inter-agency group to ensure co-ordination across government				✓		✓	✓			✓				✓
• Standard guidelines from the central budget authority on how to apply green budgeting tools				✓	✓	✓								✓
• Training and skills development for the Ministry of Environment										✓				✓
• Training and skills development for line ministries				✓						✓				✓
• Performance budgeting	✓	✓					✓		✓	✓				
• Programme budgeting			✓		✓				✓	✓	✓			
• An expert advisory group that provides implementation support to government stakeholders														
• Others								✓		✓				

Elements	HU	IE	IT	LI	LT	LU	MX	NO	PL	PT	RO	SE	SI	UK
• Details and instructions in the annual budget circular			✓			✓	✓	✓		✓		✓		
• Training and skills development for the ad-hoc task force and/ or the central budget authority		✓				✓	✓		✓	✓	✓			✓
• Inter-agency group to ensure co-ordination across government	✓						✓				✓			
• Standard guidelines from the central budget authority on how to apply green budgeting tools			✓											✓
• Training and skills development for the Ministry of Environment		✓			✓					✓				
• Training and skills development for line ministries				✓	✓					✓				✓
• Performance budgeting		✓		✓	✓		✓					✓	✓	
• Programme budgeting			✓	✓	✓		✓			✓		✓	✓	
• An expert advisory group that provides implementation support to government stakeholders														✓
• Others														

Source: Prepared by using the data from the EC (2021b); OECD (2021a).

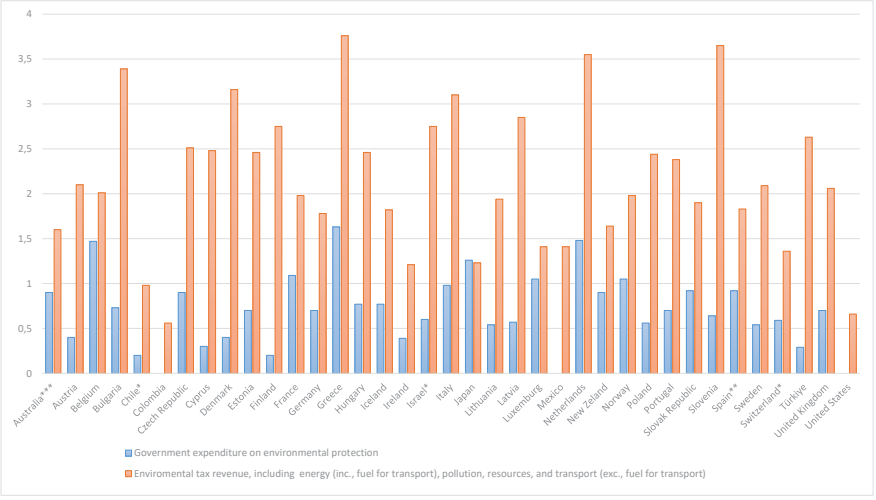
These supportive elements are critical given how green budgeting is a new phenomenon in many countries. First, the elements of a modern budgeting framework, such as performance and program budgeting, are considered supportive of green budgeting (Nicol and Parker, 2021). Except for the ninth and tenth elements in the table, other elements are preferred to support green budgeting by many OECD and EU members. On the other hand, even if Greece, Romania, Germany, Hungary, Lithuania, Portugal, and Slovenia have not implemented green budgeting hitherto, they have preferred green elements for green commitments and improvements in the future. Second, no countries practising green budgeting reported using any tools or processes to measure its impact. Within the context of other elements, Denmark's government developed a green macroeconomic model supported by an independent institution. This model can forecast economic policy's climate and environmental impacts. Greece's government also made the first moves to incorporate a green viewpoint while establishing program/performance budgets and expenditure assessments.

The Finance Ministry and Environment Ministry have collaborated since 2020 to develop green budgeting (EC, 2021b).

2.2. Government Expenditures and Tax Revenues on Environmental Protection

Governments use public expenditures and revenues for environmental protection as a policy tool to meet environmental standards and objectives (Moshiri and Daneshmand, 2020). While public environmental expenditures are significant for protecting, restoring, and managing the environment sustainably, environmental taxes are preferred to decrease the severity of problematic environmental activities. The environmental tax is the taxation that a country imposes on undesirable environmental consequences and also a charge levied on a physical unit of an item that has a proven negative impact on the environment. Graph 1 presents the governments' environmental expenditures on environmental protection as well as environmental tax revenues as a percentage of GDP in OECD and EU member countries.

Graph 1: Government expenditures and tax revenues on environmental protection (% of GDP, 2020)



Note: (*) mark includes the environmental tax data for 2019, (**) for 2018, and (***) for 2016.

Source: Prepared by using the data from IMF (2022).

As a percentage of GDP, the government expenditures on environmental protection were lower than the environmental tax revenues in all the countries. Countries preferred revenue-generating transactions rather than expenditure policies in dealing with climate change and environmental problems. Accordingly, Belgium (1.47%), France (1.06%), Greece (1.63%), the Netherlands (1.48%), and Norway (1.05%) were the top countries that reached the maximum expenditure percentages, while Austria (0.4%), Chile (0.2%), Finland (0.2%), and Denmark (0.4%) were the countries that had the minimum expenditure percentages among these countries.

An environmental tax is a fee placed on a physical unit of an item that has been shown to have a detrimental environmental impact. Collecting environmental tax revenue is closely correlated with the distributional implications of taxes and provides wealth-increasing funds for public investment in green activities. They are expected to struggle with environmental problems effectively (Dziwok & Jäger, 2021; Semmler et al., 2021). The data on environmental taxes in the graph includes the percentages of the taxes on energy (incl., fuel for transport), pollution, resources and transport (excl., fuel for transport) in GDP in the relevant countries. According to the graph, Bulgaria (3.39%), Denmark (3.16%), Greece (3.76%), Italy (3.1%), and Slovenia (3.65%) were the best-performing countries that reached the maximum environmental tax revenues as percentages of GDP. However, Chile (0.98%), Colombia (0.56%), Ireland (1.21%), Japan (1.23%), Switzerland (1.36%), and the United States (0.66%) were listed among the lowest-performing countries in terms of collecting the environmental revenues.

CONCLUSION AND RECOMMENDATIONS

The study's results indicated that the growing efforts to decrease the effects of climate and environmental problems on the planet are not enough as only 14 OECD and ten EU countries have implemented green budgeting until 2021. On the other hand, the attempts of international organizations, such as the EU, IMF, OECD, and UN, to guide and promote their member countries have increased. According to the main results, while Austria, Bulgaria, Canada, Colombia, Denmark, France, Finland, Ireland, Italy, Luxemburg, Mexico, the Netherlands, Norway, Sweden, and the United Kingdom implemented green budgeting, Chile, Cyprus, Greece, Latvia, Poland, and Spain have planned to

practice it in the future. They are closer than other countries, which have not established green PFM and have not put green budgeting into practice yet, in meeting the climate and environmental SDGs.

For green PFM and budgeting, countries should include climate and environmental-sensitive policies in all stages of the budget cycle, such as strategic planning, budget preparation, budget execution and control, and audit. First, countries should support green PFM and budgeting with the necessary legal foundations and laws. Second, countries should include the medium and long-term targets in their top policy documents in the strategic planning stage. At the same time, finance ministries should offer the best possible funding for governments to adopt economic policies that increase growth and productivity and promote climate and environmental sustainability by collaborating with other government agencies. In the budget preparation process, governments should prepare their budgets by considering a series of green budgeting elements, measures, and tools. Another recommendation is that countries develop their own national GBRFs containing climate and environmental objectives, budgetary items, and public institutions, departments, and agencies. The content and timetable for green budgeting deliverables should be detailed in a national law provision or administrative document. The roles and duties of various participants should be clearly defined, and the necessary human and administrative resources should be provided according to national green budgeting frameworks.

In budget execution, accountability, and reporting, GBT plays a crucial role in identifying expenditures and revenues regarding green commitments and targets. Governments should first consider GBT to provide coherence between budget measures and green targets. Robust performance and program budgeting should also be designed. The relevant budgeting types should be implemented to determine climate and environmental indicators for beneficial and harmful green objectives. In the last stage, control and audit, green or environmental auditing, has recently become more of an issue. The environmental audits and the auditors increased by 42% and 32%, respectively, in 2021.

Consequently, more outstanding efforts are needed to ensure climatic and environmental sustainability worldwide, despite the increasing climate and environmental consciousness. Although the study has presented comprehensive information about good practices in different countries about

green PFM and budgeting, it has some limitations. First, it did not analyse whether countries met the green commitments in international agreements. Second, it did not directly reveal the achievement levels of countries in dealing with climate change and environmental degradation. In other words, it did not measure the effectiveness and performance of green PFM and budgeting implementations. However, it depicted a general view about green decisions and implementations in supporting SD. Future studies can be improved with new outcomes to detect countries' performances in meeting green commitments.

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SÜRDÜRÜLEBİLİR KALKINMAYI DESTEKLEMEDE YEŞİL KAMU MALİ YÖNETİMİ VE BÜTÇELEMENİN ÜLKELER ARASI BİR ANALİZİ

Gonca GÜNGÖR GÖKSU

GENİŞLETİLMİŞ ÖZET

Son 30 yıldır küresel ısınma ve bununla ilişkili olarak ortaya çıkan diğer çevresel sorunlar, gezegenimizdeki milyarlarca canlının hayatında ciddi risk oluşturmaktadır. Bu nedenle birçok ulusal ve uluslararası platformda sorunun çözümüne yönelik girişimler hızlanmıştır. Bu girişimlerin en önemlilerinden biri, 2015 yılında Birleşmiş Milletler ve 195 üye ülke tarafından kabul edilen Dünyamızı Dönüştürmek: Sürdürülebilir Kalkınma için 2030 Gündemi'dir. Bu belgeye onay veren taraflar, 2030 yılına kadar 17 sürdürülebilir kalkınma amacına (SKA) ulaşmayı taahhüt etmişlerdir. "Kimseyi geride bırakmama" ana fikrinden hareketle belirlenen 17 amaç arasında SKA 6, 7, 11, 12, 13, 14 ve 15 çevresel kalkınma ile doğrudan ilişkilidir.

Çevresel sürdürülebilir kalkınmayı desteklemek için kamu yönetimi kapsamında yeşil kamu mali yönetimi (KMY) ve bütçeleme konusu giderek önem kazanmıştır ve birçok ülkede konuyla ilgili farkındalık oluşmuştur. Ulusal stratejik planların hazırlanmasından bütçenin uygulama sonrası dış denetimine kadarki tüm aşamalarda, yeşil KMY sisteminin kurulması için başta AB ile EİKT olmak üzere, uluslararası mali kuruluşların yönlendirmeleri büyük etkiye sahiptir. Etkin bir yeşil KMY sisteminin kurulabilmesi için öncelikle üst politika belgelerine ve devlet bütçelerine çevresel amaç ve hedefler dâhil edilmelidir. Çünkü yeşil bütçeleme, yeşil KMY'nin özünü oluşturmaktadır. Bu nedenle politika yapıcıları, uygulayıcılar ve denetçiler gibi aktörler tarafından çeşitli yeşil araçlar, unsurlar, etiketlemeler ve denetimler bütçe yaşam döngüsü boyunca dikkate alınmalıdır.

Literatür taraması yapıldığında, özel sektörde yeşil finansman konusu birçok çalışmada incelenmesine rağmen, yeşil KMY'nin gelişmekte olan bir alan olduğu ve hakkında az sayıda araştırma yapıldığı tespit edilmiştir. Bu bilgiden hareketle çalışmanın orijinal tarafı, iklim değişikliği ve çevre sorunlarına yönelik SKA'lara ulaşmada yeşil KMY'yi analiz eden sınırlı araştırmalardan biri olmasıdır. Çalışmada yeşil KMY analiz edilmiş ve sürdürülebilir kalkınmayı desteklemek için aşamaları detaylandırılmıştır. Ayrıca AB ve EİKT'ye üye ülkelerde yeşil KMY ve

bütçeleme uygulamalarının geniş bir bakış açısıyla incelenmesi de hedeflenmiştir. Belirlenen amaca ulaşmak için 2020 ve 2021 yıllarında bu iki kuruluşun yürüttüğü "Gelişmekte Olan Yeşil Bütçeleme Uygulamalarına İlişkin Ortak Anket" aracılığıyla elde edilen veriler kullanılarak, karşılaştırmalı ülkeler arası bir analiz yapılmıştır. Bununla birlikte incelenen ülkelerde çevre korumaya yönelik kamu harcamaları ve vergi gelirlerinin milli gelir içerisindeki payları da karşılaştırılmıştır.

Ulaşılan bulgulara göre Yeşil KMY ve bütçelemenin sınırlı sayıdaki ülkede tüm unsurlarıyla birlikte hayata geçirildiği ancak birçok ülkede ise henüz etkin bir şekilde uygulanmadığı sonucuna varılmıştır. 2021 yılında yeşil bütçelemenin Avusturya, Bulgaristan, Kanada, Kolombiya, Danimarka, Fransa, Finlandiya, İrlanda, İtalya, Lüksemburg, Meksika, Hollanda, Norveç, İsveç ve Birleşik Krallık tarafından uygulandığı belirlenmiştir. Diğer taraftan Şili, Kıbrıs, Yunanistan, Letonya, Polonya ve İspanya ise yakın gelecekte yeşil bütçelemeyi kamu mali yönetim sistemlerine dâhil etmeyi planlamışlardır. Ayrıca yeşil bütçelemeyi hayata geçirmeyen Almanya, Çek Cumhuriyeti, Estonya, Hırvatistan, İzlanda, Japonya, Macaristan, Malta, Portekiz, Türkiye, Slovenya ve Yeni Zelanda da yıllık bütçelerini uygularken zaman zaman yeşil bütçeleme araçlarına ve unsurlarına başvurmuştur. İklim değişikliği ve çevresel bozulmanın etkisiyle gelecekte yeşil KMY ve bütçelemenin daha da önemli hale geleceği tahmin edilmektedir. Sonuç olarak etkin bir yeşil KMY ve bütçeleme pratiği bulunmayan ülkelerin, diğer ülkelerdeki iyi uygulama örneklerini ve önerileri dikkate alarak mali yönetim sistemlerini revize etmesi tavsiye edilmektedir.