

Green Budgeting in Morocco: The Approach and Challenges of Integrating Climate Change into Public Management

Rachid El-Oud^{1,*}, Anass Mekdad², and Youssef Rafik³

¹*Hassan First University, Settat, Morocco*

²*Hassan II University of Casablanca, Casablanca, Morocco*

³*Mohammed V University in Rabat, Rabat, Morocco*

*Corresponding author: eloudrachid@gmail.com

Abstract. This article examines Morocco's approach to green budgeting, drawing on the framework of the Organisation for Economic Co-operation and Development (OECD), with a view to integrating climate considerations into public financial management. It analyzes the progress made, particularly in the development of the legislative and institutional framework, medium-term budgetary planning, and oversight and transparency mechanisms. Morocco has also introduced tools such as the E-budget system to monitor expenditure. However, challenges remain, particularly in climate risk management, technical capacity-building, and inter-institutional coordination. The study concludes that strengthening green budgeting requires improvements to governance and monitoring tools, as well as the development of specialist skills, to support a transition toward sustainable growth that is resilient to climate change.

Keywords. Climate finance; green budget; Sustainable Development Goals (SDGs)

I. INTRODUCTION

Climate change has become one of the major global challenges affecting economic development, biodiversity, public health, and public finance systems. In response, governments are increasingly integrating environmental considerations into budgetary policies through the adoption of green budgeting approaches.

Green budgeting refers to the integration of climate and environmental objectives into public financial management in order to align public expenditure with sustainable development objectives and climate commitments. This approach has gained importance following international agreements such as the Paris Agreement and the Sustainable Development Goals (SDGs).

Morocco, which is highly vulnerable to climate change, has progressively adopted several legal and institutional reforms aimed at strengthening environmental governance and integrating sustainability into public policies. These reforms include the National Sustainable Development Strategy (SNDD) [1], the National Climate Plan, and Framework Law 99-12 on the National Charter for the Environment and Sustainable Development.

This paper analyzes Morocco's green budgeting approach through the Green Budgeting Framework of the Organisation for Economic Co-operation and Development (OECD). It examines the institutional arrangements, methods and tools, accountability mechanisms, and enabling conditions needed to integrate climate considerations into the budgetary process. The study also highlights the main

challenges that Morocco faces in implementing an effective green budgeting system.

II. LITERATURE REVIEW

Climate change represents a significant threat to economic and social stability worldwide. According to the Intergovernmental Panel on Climate Change (IPCC), greenhouse gas emissions generated by human activities are responsible for irreversible climate disturbances that require urgent policy interventions [2].

International climate governance has evolved considerably since the Paris Agreement (2015), which called on countries to align financial flows with low-carbon development pathways [3]. Climate finance and green finance have since become essential mechanisms for supporting mitigation and adaptation policies [4].

Several studies emphasize that effective climate governance depends on strong institutional arrangements, political commitment, legal frameworks, and stakeholder engagement. Rocha and Falduto [5] argue that successful climate governance requires coordination among institutions and long-term strategic planning. Similarly, Elliott, Worker, Levin, and Ross [6] highlight the importance of governance quality, technical capacities, and evaluation systems in ensuring successful environmental policies.

Green budgeting has therefore emerged as an important instrument for integrating environmental objectives into fiscal policies and improving the efficiency of public expenditure.

III. GREEN BUDGETING APPROACHES

Green budgeting can take different forms depending on institutional contexts and policy priorities. According to the OECD, green budgeting consists of using budgetary tools and public finance policies to achieve environmental and climate objectives [7]. The literature identifies several approaches used internationally:

- carbon budgeting, which determines allowable greenhouse gas emissions;
- green budget tagging, which classifies expenditures according to their environmental impact;
- weighted budgeting, which is based on environmental impact coefficients;
- climate budgeting, which focuses on expenditures dedicated to climate objectives;
- SDG-based budgeting, which aligns budgets with the SDGs; and
- socio-environmental accounting, which integrates financial, social, and environmental dimensions.

These approaches allow governments to monitor climate-related expenditures, improve policy coherence, and support sustainable public investment strategies.

IV. RESEARCH METHODOLOGY

This study adopted the OECD Green Budgeting Framework as its analytical reference. The framework is based on four main dimensions: (1) institutional arrangements, (2) methods and tools, (3) accountability and transparency, and (4) the enabling environment.

The analysis focused on Moroccan public finance documents published by the Ministry of Economy and Finance between 2021 and 2025, including finance laws, triennial budget programming reports, performance plans, and performance reports. The sample included 36 Moroccan public administrations that apply the provisions of Organic Law 130-13 on the Finance Act [8].

V. RESULTS AND DISCUSSION

A. Institutional Arrangements

1) *Legal framework*: Morocco has progressively strengthened its environmental legal framework through several strategic reforms. The most important include:

- Framework Law 99-12 on the National Charter for the Environment and Sustainable Development;
- the SNDD [1];
- the National Climate Plan 2030; and
- Morocco's updated Nationally Determined Contribution (NDC).

These reforms demonstrate Morocco's commitment to reducing greenhouse gas emissions and integrating sustainability into public policies.

2) *Budgetary framework*: The Moroccan budgetary system has been modernized through Organic Law 130-13 [8], which introduced program-based budgeting and strengthened parliamentary oversight. Several budgetary documents now support performance evaluation and transparency, which helps to integrate climate objectives into the public finance system.

3) *Governance*: Morocco has adopted a collaborative governance approach involving different ministries and public institutions. Budget circulars issued by the Ministry of Economy and Finance increasingly incorporate environmental priorities consistent with the objectives of the SNDD. However, a dedicated governance mechanism for green budgeting would further improve coordination and policy implementation.

B. Methods and Tools

1) *Medium-term budgetary planning*: Morocco uses multi-year budget programming to integrate long-term climate objectives into public expenditure planning. The updated NDC sets out a portfolio of 61 mitigation projects whose total cost is estimated at approximately USD 38.8 billion [9].

2) *Budgetary risk management*: Despite progress in budget planning, Morocco still lacks a complete framework for managing climate-related fiscal risks. Integrating climate risks into public financial management therefore remains necessary to strengthen fiscal resilience and sustainability.

3) *Budget classification*: The Moroccan budget classification system is highly detailed and includes functional, economic, program, and regional classifications. This structure creates favorable conditions for implementing green budget tagging mechanisms.

C. Accountability and Transparency

1) *Monitoring and evaluation*: Morocco has developed an integrated information system, E-budget, which supports the monitoring of public expenditure and project implementation. This system could support future mechanisms for monitoring climate-related spending.

2) *Budgetary control*: Several institutions contribute to budgetary oversight, including the Budget Directorate, the Court of Auditors, and the General Inspectorate of Finance. These institutions strengthen accountability and could play an important role in evaluating the environmental effectiveness of public expenditure.

3) *Budgetary transparency*: The Ministry of Economy and Finance regularly publishes budget reports and financial documents that are accessible to citizens and stakeholders, reinforcing the principle of transparency.

D. Enabling Environment

1) *Program-based budgeting*: Morocco has adopted program- and performance-based budgeting consistent with international standards of public financial management. This approach makes climate-related expenditure easier to identify and evaluate.

2) *Guidance resources*: Morocco has a substantial set of legal and regulatory instruments that support the integration of environmental concerns into public policies. These include laws, strategies, circulars, and implementation guidelines inspired by international best practices.

3) *Skills and capacities*: One of the major challenges remains the limited availability of expertise in environmental economics and climate finance. Strengthening institutional capacities and inter-ministerial cooperation is therefore essential for the successful implementation of green budgeting.

VI. CONCLUSION

Green budgeting is an important strategic tool for integrating climate and environmental objectives into Morocco's public financial management system. Morocco has already established significant legal, institutional, and budgetary foundations to support this transition.

However, several challenges remain, particularly in climate risk management, technical expertise, and inter-institutional coordination. Strengthening governance mechanisms, improving budgetary monitoring tools, and developing specialized capacities will be essential for consolidating Morocco's green budgeting framework.

Effective green budgeting can contribute to environmental sustainability, improved public governance, economic resilience, and long-term sustainable development.

AUTHOR CONTRIBUTIONS

All authors contributed to the conception and preparation of this work and approved the final version of the manuscript.

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DECLARATION OF GENERATIVE AI USE

The authors declare that no generative artificial intelligence tools were used in the preparation of this manuscript. The authors take full responsibility for the content of the publication.

DATA AVAILABILITY

This study used publicly available public finance documents (finance laws, triennial budget programming reports, performance plans, and performance reports) published by the Moroccan Ministry of Economy and Finance.

ETHICS STATEMENT

This study used publicly available, de-identified data and did not involve direct interaction with human participants or animals; ethical approval was therefore not required.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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