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Simona Pojar

Abstract

Environmental assessments are a crucial aspect of green budgeting as they help to understand the impact and effectiveness of government policies in reaching the climate and environmental objectives. They are also useful to better grasp the link between inputs and outputs within the budgetary process. This paper presents an overview of such practices across EU Member States, covering both ex-ante impact assessments and ex-post evaluations. It also demonstrates how other green budgeting tools, such as environmental performance and impact indicators and sovereign green bonds, can help developing environmental assessment methodologies. Overall, only few Member States have incorporated environmental assessments into their regular budgeting cycle, highlighting their extensive resource requirements. Building environmental assessment methodologies on already existing green budgeting tools can ease the process. It also helps ensuring consistency between different green practices and definitions at the national level and avoiding duplication of efforts.

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ABBREVIATIONS

APP	Annual performance plans
APR	Annual performance reports
DPER	Department of Expenditure and Reform Ireland
EIA	Environmental Impact Assessment
LIFE	Programme for the Environment and Climate Action
SEA	Strategic Environmental Assessment
OECD	Organisation for Economic Co-operation and Development
IMF	International Monetary Fund
DREAM	Danish Research Institute for Economic Analysis and Modelling
ICMA	International Capital Market Association
KPI	Key performance indicator

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1. INTRODUCTION

Environmental assessments are a crucial aspect of green budgeting as they help to understand the effectiveness of government policies in reaching the green objectives. Green budgeting is here defined as “*a process whereby the environmental contributions of budgetary items are identified and assessed with respect to specific performance indicators.*” Identifying and tracking those budgetary items that may have an impact on the environment (i.e., green budget tagging) can provide an overarching view of how green a budget is. However, to better understand the impact of various policies on the environment and how they ultimately contribute to the overall green goals, more in-depth analysis, both before and after the adoption of measures, is crucial.

Such practices can help to better grasp the link between inputs and outputs within the regular budgeting process. Green tagging is a first step in identifying which budgetary items – *the input* – are likely to have effects, positive or negative, on the environment. A subsequent step could then be to assess in more detail such potential impacts, particularly when they appear to be significant. In this context, assigning environmentally-related performance indicators to various policies can help monitor their implementation and measure their impact on the environment – *the outcome*.

This paper is structured as follows: Section 2 provides a review of concepts and definitions of environmental assessment processes; some country practices are then illustrated in Section 3. Section 4 looks into how reporting on ‘green’ performance, including the use of environmental indicators, is conducted within other green budgeting processes; Section 5 concludes.

2. CONCEPTS AND DEFINITIONS

Within the green budgeting process, this paper looks at two types of environmental assessments. First, the assessment of measures/policies *in advance* of their inclusion in the budget, which allows governments to incorporate considerations on the impact of measures on climate and environmental goals, referred to as ‘*environmental impact assessment*’¹. Second, the assessment of measures after their implementation to help understand how effective they have been in reaching the green objectives, referred to as ‘*environmental evaluation*’. In this study, the two types of environmental assessments should be seen within the context of the EU Green Budgeting Reference Framework, and they do not refer strictly to already established international practices.²

Conducted *ex-ante*, environmental impact assessments can contribute to policy development by better-informed policy design and decision-making. Such analysis can be seen as a form of impact assessment. An impact assessment is “*a process that prepares evidence for political decision-makers on the advantages and disadvantages of possible policy options by assessing their potential impacts*” (European Commission, 2009). While impact assessments can provide guidance and facilitate political decision-making, they are no substitute for it. The OECD defines impact assessments as “*approaches [that] evaluate a proposed policy or project by assessing its impacts on selected factors*”, some examples being: social-accounting and input-output matrix, cost-benefit analyses, modelling, forecasting, and back-casting, including with an environmental perspective (OECD, 2010). Such assessments help strengthen the efficiency and transparency of decision-making and build public trust around the budget. Requiring environmental impact assessments to accompany new budget measures

¹ This process is not the same as the impact assessment conducted in the context of the EU ‘Environmental Impact Assessment’ Directive 2011/92/EU: [Environmental Impact Assessment - EIA - Environment - European Commission \(europa.eu\)](https://ec.europa.eu/eia/).

² See here for a description of the EU Green Budgeting Reference Framework https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/green-budgeting-eu_en.

allows governments to incorporate considerations on the impact of measures on climate or environmental goals at early stages (European Commission, IMF, OECD, 2021). This can help better understand the environmental risks and options in achieving green commitments.

Ex-post, environmental evaluations are crucial in assessing how effective (or harmful) various policies have been in reaching the green objectives. Such evaluations help assess whether the measures and policies included in past budgets delivered on the environmental impact estimated or expected in their design phase. Furthermore, they enable governments to understand how appropriate the interventions have been, the cost and efficiency of the various policies, and any unintended effects. Finally, they also promote a learning-by-doing approach, by using the experience from previous interventions to improve the design of future policies and budget allocation decisions (European Commission, IMF, OECD, 2021).

At the EU level, several Directives aim to ensure that environmental implications are taken into account before decisions are made. They set an obligation to undertake impact assessments for plans, programmes and projects that may have *significant environmental effects* before their approval. For *individual projects* (e.g., dam, motorway, airport), a country should perform environmental assessments based on the ‘Environmental Impact Assessment’ (EIA) Directive³. For certain *public plans* or *programmes* (e.g., land use, transport, energy, waste management, agriculture), assessments should be conducted under the ‘Strategic Environmental Assessment’ (SEA) Directive⁴. While the SEA does not apply to financial or budget plans and programmes any government can decide to conduct assessments under the SEA for the whole budget or specific budgetary policies, should these fulfil the criteria set in the SEA Directive.

Green budgeting calls for environmental impact assessments and evaluations of budget measures to be integrated systematically in the ordinary budgeting process. The environmental assessments outlined above, under the EIA and SEA Directives, are not necessarily linked to the regular budgeting cycle. In the context of green budgeting and in line with the European Commission Green Budgeting Reference Framework (European Commission, 2022a), *assessments of the impact of budget measures and policies on the environment and climate would be conducted systematically as part of the regular budgeting process.*

3. PROCESSES AND COUNTRY PRACTICES

Several approaches can be used to select measures and policies that would be subject to environmental assessments. As regards the coverage of the budget items, such assessments may be conducted either routinely for major policies or selectively to specific policies that are likely to have a significant impact on the environment. Green budget tagging can be an important first step in screening and selecting those budget measures that need deeper evaluation. For sustainability impact assessments, which include environmental, social and economic aspects, the OECD recommends conducting such analyses depending on the type of the budgetary measure, its content and how far reaching its possible impacts are. As such, it recommends a preliminary screening, or relevance test, to determine which proposals need further examination, based on various rules, criteria or thresholds (OECD, 2010). Resources at the government level also play an important role when selecting which measures warrant an in-depth assessment as the process involves extensive staff and expertise, time

³ Directive 2011/92/EU: [Environmental Impact Assessment - EIA - Environment - European Commission \(europa.eu\)](https://eur-lex.europa.eu/eli/dir/2011/92/oj). Annexes I and II of the Directive define the ‘public and private projects’ that fall under its scope.

⁴ Directive 2001/42/EC: [Strategic Environmental Assessment - SEA - Environment - European Commission \(europa.eu\)](https://eur-lex.europa.eu/eli/dir/2001/42/oj). In comparison to the project categories listed in Annex I and Annex II of the EIA Directive, the SEA Directive does not determine a list of plans and programmes to which the directive applies. Instead, Article 1 of the SEA Directive defines the objective of the SEA procedure, while Article 2 and Article 3 elaborate on the scope of its application.

and financial resources. The methodology, staff and knowledge requirements used in selecting the projects and programmes that have to go through an in-depth evaluation under other already existing practices, such as the EIA and SEA Directives, can serve as guidance.

The scope and depth of the analysis vary, depending on the initial expected effects of a measure.

After identifying those policies that require more rigorous assessments, the depth and scope of the analyses tend to be proportionate to their *prima facie* expected impacts, and their political and legal nature and sectoral specificities. This is in line with the so-called ‘proportionate level of analysis’ concept in the European Commission’s Impact Assessment Guidelines (European Commission, 2009), which aims to avoid committing excessive resources to the estimation of relatively minor impacts. The concept not only refers to the depth and scope of the analysis, but to the entire process, including the arrangements for monitoring and evaluation. The depth of the analysis also depends on the capacity, staff and financial resources at a given moment and could expand over time as these resources develop.

A few Member States conduct regularly environmental assessments to support budgetary decision-making. Yet, it is not always straightforward how these analyses fit into the regular budgeting process:

- In **Denmark**, the Danish Energy Agency⁵, an agency under the Ministry of Climate, Energy and Utilities, in collaboration with the relevant ministries, assesses the impact on CO₂-emissions of those *new policy initiatives that are expected to have an effect on climate*. Furthermore, when possible, shadow prices of new policy initiatives are also calculated (European Commission, 2021c). Two annual reports evaluate the progress towards EU and national climate obligations. First, the Ministry of Climate, Energy and Utilities publishes the ‘Climate Programme’, which provides a status of how far Denmark is from reaching the EU and national targets; the impact of proposed policy initiatives and shadow prices are also included in this report. Second, the Danish Energy Agency publishes the ‘Climate status and forecast’ report, which includes projections on national emissions based on a ‘no-policy change’ scenario.
- **Finland** requires regulatory impact assessments for *law proposals* including with a view on the environment. Such assessments also cover those policies that affect the budget in which case they are assessed by the parliament during the budgetary discussions. Several climate and environmental sub-categories are comprised, e.g., biodiversity, land, water (classification under consultation). In addition, within the state budget proposal process, each line ministry reports on how their proposed measures support the sustainable development of the budget as a whole. This assessment is mostly qualitative, and the steering impact depends on political pre-commitments.
- In the annual report on the environmental impact of the budget (i.e., green budgeting report), **France** includes environmental performance indicators for *some of the budget elements, mainly favourable to the environment*, captured in the green tagging exercise. In addition, the report includes a separate section on detailed impact assessment of the *environmental taxation* on households and businesses, with a focus on energy taxation (Government of France, 2021).
- In the **Netherlands**, through the Dutch Multi-Year Programme for Infrastructure, Spatial Planning, and Transport, the government requires *ex-ante* analysis of the potential effects of *infrastructure projects and “projects of national importance”* on climate change mitigation and adaptation, a carbon-neutral energy system, the circular economy, environmental sustainability, and a healthy living environment. These reviews are usually conducted by the Ministry of Infrastructure and the Environment. They provide estimates of the net present

⁵ <https://ens.dk/en/our-responsibilities/energy-climate-politics/danish-climate-policies>.

social cost/benefit of a proposed government intervention, including analysis of alternative project designs.

- The **Swedish** budget law requires the government to report to the parliament on the progress towards achieving the environmental goals. This includes an overarching environmental goal and 16 environmental quality objectives (Box 7). To facilitate progress towards the goal and the environmental quality objectives, the government adopts milestone and targets in priority areas. As such, the government submits annually a ‘climate report’ to the parliament included in the budget bill, which presents: (i) the evolution of greenhouse gas emissions; (ii) the *major policies* taken over the last year with their potential impact on emissions, and (iii) an assessment of the need for further actions, and when and how decisions on such actions can be taken. The report covers *measures under the spending area ‘general environment and nature conservation’*, therefore with a *clear link to climate and environment*. Also, it includes mostly measures already adopted and some planned. In addition, every four years, the government must present to the parliament a climate policy action plan, setting out plans for the term of office, assessing their impact on achieving climate objectives and further action needed (Government of Sweden, 2021a).

While the existing good practices could serve as guidelines for other countries, some limitations nevertheless exist, given the complexity of the exercise. For example, the experiences outlined above show that the environmental assessments tend to centre on new measures (i.e., the marginal policy) rather than on the overall effect of policies. While understanding the incremental effects of measures is an important input for preparing the budget, a comprehensive assessment of whether the green objectives can be reached would also imply looking at what is already established. In addition, most practices have been developed around the assessment of favourable impacts (European Commission, 2021c). Yet, a thorough assessment of budgetary policies would also imply a look at possibly harmful impacts on the environment of specific policies.

The governance of the process varies across countries and often other stakeholders are also involved. Such external experts are sometimes key to the process as they can bring in-depth environmental knowledge and expertise on conducting impact assessments when environmental understanding and capabilities are not always well-developed across line ministries and sectors.

- In **Denmark**, the Ministry of Climate, Energy and Utilities, and the Energy Agency, part of the ministry, conduct multiple analyses in collaboration with the relevant ministries. The Ministry of Finance published guidelines for socio-economic evaluation, with particular focus on environmental effects. In addition, the Ministry of Climate, Energy and Utilities prepared a more detailed, technical guidance on estimating environmental impacts (Danish Ministry of Climate, Energy and Utilities, 2020). In addition, an independent governmental institution, the Danish Research Institute for Economic Analysis and Modelling, has developed a tool for evaluating environmental impacts of policies in the long term (Box 1).

Box 1. AN INTEGRATED CLIMATE IMPACT ASSESSMENT MODEL IN DENMARK

The Danish Research Institute for Economic Analysis and Modelling (DREAM), an independent governmental institution which conducts a variety of statistical analyses of the Danish economy, has developed an environmental and climate-economic model called GreenREFORM. It provides a tool that allows for an integrated and consistent assessment of the environmental and climate effects of economic policies, as well as the socioeconomic effects of environmental, energy and climate policies. It produces annual projections to 2100, which provide a platform for medium-to-long-term fiscal and economic analysis. The projections allow an assessment of the effect of future economic developments on the climate and environment and of whether these developments are consistent with climate and environmental targets.

Source: European Commission (2021c), <https://dreamgroup.dk/>.

- In **Finland**, line ministries are responsible for conducting impact assessments on their proposed policies. Sometimes, they outsource such sectoral studies, modelling and other impact analyses to external experts. When these assessments relate to policies affecting the budget, they are assessed by the parliament during the budgetary discussions. Overall, energy and climate policy measures are coordinated across ministries in the preparatory phase and involve an inter-ministerial task-force for cross-sector climate policy integration and discussion. This process also includes dedicated regularly convening forums for policy discussion. Other expert stakeholders are often involved to better understand the several inter-linkages between the possible impacts in different sectors. For example, scientific panels (e.g., the Finnish Climate Change Panel) and research institutes (e.g., Finnish Environment Institute) provide expert support and produce knowledge on environmental impacts for working groups on selected government proposals. The Finnish Council of Regulatory Impact Analysis reviews some government proposals, including their environmental assessments.
- In **France**, an ad-hoc temporary task force was set up to conduct the green budgeting process and is comprised of various actors, e.g., Ministry of Economy, Ministry of Ecological Transition, and Budget Directorate. The central budget authority and the line ministries are also involved. The Budget Directorate created in 2021 a new sub-section in the relevant green budgeting report presenting various environmental impact indicators pertaining to a selection of measures. These indicators come from the annual performance plans and reports prepared by the relevant ministries and programme managers.
- In the **Netherlands**, the Ministry of Infrastructure and the Environment is responsible for conducting impact analysis of infrastructure projects and it uses research and policy analyses from independent institutions, including the independent climate-fiscal councils.
- In **Sweden**, the Ministry of the Environment is in charge of reporting on the environmental impact of the government's policies in the budget bill (Box 7). The reporting is prepared based on the analyses conducted by the Swedish Environmental Protection Agency that liaises with relevant government agencies (e.g., the Energy Markets Inspectorate, the National Board of Housing, Building and Planning). Over the last years, the government has provided more resources to these agencies and expanded their remits to receive more thorough analysis (Government of Sweden, 2021a).

Box 2. GOVERNANCE APPLIED UNDER THE EU DIRECTIVES ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

The procedures under the EIA and SEA include similar steps, regarding plan, programme or project screening and assessment. First, the EIA Directive applies to a range of (pre)defined public and private projects, as per its Annex I. For other projects listed in Annex II, the national authorities have to decide whether an EIA is needed. This is done by the ‘screening procedure’, which determines the effects of projects on the basis of thresholds/criteria, which are laid down in Annex III, or a case-by-case examination. A developer may consult the national competent authority on the EIA report to be prepared for a given project subject to EIA. The SEA Directive does not have a list of defined plans and programmes. Instead, the competent national authorities should examine whether a certain public plan or programme meets the criteria laid down in Article 2(a) and Article 3 and if so then SEA should be performed. Unlike in the EIA Directive, according to the SEA Directive the authorities have limited discretion to subject plans and programmes to screening and if applicable the authorities should ensure that the objective of the SEA Directive is attained. In the SEA screening process the authorities should take due account of the criteria listed in Annex II of the SEA Directive and consult the environmental authorities.

Both Directives aim to ensure high public engagement, increasing the transparency and enhancing the decision-making process. Both directives require that the environmental authorities and the public are informed and consulted on the draft project/plan/programme and the related environmental report. Consultation with the public is a key feature of the Directives and it is seen as strengthening the quality of decisions. In case of EIAs, the public can challenge decisions authorising projects before the courts.

Source: Directive 2011/92/EU: [Environmental Impact Assessment - EIA - Environment - European Commission \(europa.eu\)](https://eur-lex.europa.eu/eli/dir/2011/92/oj). Annexes I and II of the Directive define the ‘public and private projects’ that fall under its scope.

Directive 2001/42/EC: [Strategic Environmental Assessment - SEA - Environment - European Commission \(europa.eu\)](https://eur-lex.europa.eu/eli/dir/2001/42/oj). The SEA Directive does not have a list of plans/programmes similar to the EIA. Articles 2 and 3 of the Directive define the scope of application and clarify for which types of plans and programmes an SEA should be conducted.

In all these countries, national climate councils, acting as advisors to the government, conduct independent environmental assessments of the overall government climate policy, enhancing the transparency and accountability around the climate efforts.

- In **Denmark**, the *Council on Climate Change* is an independent body of experts that acts as an adviser to the government.⁶ It assesses the cost-effectiveness of climate policies for the transition to a low-carbon economy, based on analyses with a short-, medium- and long-term strategy horizon. It also evaluates the implementation of national and international climate goals and contributes to the public debate. The ‘status outlook’ report, which assesses whether the government’s efforts are sufficient for reaching the climate targets, is the starting point of the annual ‘climate cycle’ in Denmark.
- The **Finnish Climate Change Panel**⁷ assesses the coherence of climate policy and the sufficiency of the implemented measures to answer climate challenges. It provides its opinion on climate policy plans and serves as an advisor to the Finnish ministerial working group on energy and climate policy.

⁶ <https://www.klimaraadet.dk/en/about-danish-council-climate-change>.

⁷ <https://www.ilmastopaneeli.fi/en/>.

- In **France**, the *High Council for Climate*⁸, an independent body attached to the office of the prime minister, provides advice on the coherence of public policies with respect to the Paris agreement. It publishes annual reports on greenhouse gas emissions and compliance with the reduction targets. The reports also assess current and planned policies and provide recommendations.
- In the **Netherlands**, two independent institutions conduct environmental assessments. The *Netherlands Environmental Assessment Agency* is the national institute for strategic policy analysis in the field of environment, nature and spatial planning. Its core task is to assess whether the government remains on track to reach its emission reduction targets, by providing emission forecast estimates. Upon request, it also assesses climate and environmental impacts of political parties' election plans. Complementary, the *Dutch Bureau for Economic Policy Analysis*, a partner of the Environmental Agency, assesses the fiscal, macroeconomic and distributional impacts of climate policy measures.⁹
- The **Swedish Climate Policy Council**¹⁰, an independent expert body, produces annual reports evaluating how well the government overall policy is compatible with the climate goals, and an assessment of the progress of climate action and emission developments (Box 3). It also analyses how climate objectives could be achieved in a cost-efficient way, identifying policy areas where further action is needed. Lastly, it also provides recommendations on how the government can improve its climate impact assessment and reporting, for example: (i) the climate report should be presented at the same level of appropriations as the budget statement, to cover all policy areas not only those under the environment spending area; (ii) the assessment should include also proposals that counteract climate policy; (iii) a decision on monitoring and evaluating plans should be taken before implementing new policy instruments.

⁸ [Haut Conseil pour le Climat \(hautconseilclimat.fr\)](https://hautconseilclimat.fr).

⁹ <https://www.pbl.nl/en/about-pbl>, <https://www.cpb.nl/en>.

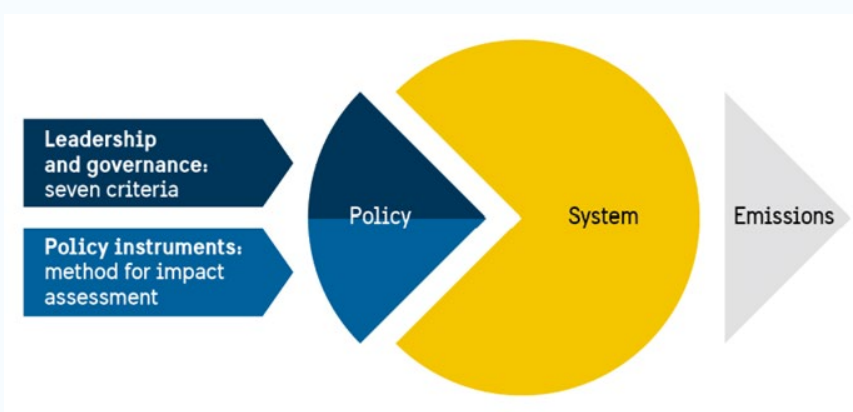
¹⁰ <https://www.klimatpolitiskaradet.se/en/>.

Box 3. AN ANALYTICAL FRAMEWORK FOR ASSESSING GOVERNMENT POLICY BY THE SWEDISH CLIMATE POLICY COUNCIL

In Sweden, the Climate Policy Council developed an analytical framework for evaluating the compatibility of government overall policy with the climate targets, based on two pillars.

Firstly, it contains a set of seven criteria for assessing government leadership, considered as essential for national policies to create the conditions for an economically, environmentally and socially sustainable transition. They include elements such as ‘common goals and vision’ firmly anchored among all stakeholders, ‘cost-effectiveness’ of policies, and ‘a long-term approach, with learning and flexibility’.

Analytical framework of the Climate Policy Council



Secondly, the framework includes a bottom-up methodology for impact assessment, containing four steps: (i) analysing and mapping the solutions available to reduce greenhouse gas emissions; (ii) mapping the factors that hinder the solutions; (iii) analysing the extent to which the existing instruments tackle these obstacles, and (iv) assessing how much potential can be realised with the existing instruments.

Source: Swedish Climate Policy Council, 2021, Annex 2.

Environmental assessments are conducted mostly for broader policies and government programmes. In Sweden, the government presents estimates of the impact of some individual instruments on emissions in 2030, as well as an estimate of the overall impact of measures on emissions trends. For each environmental objective a set of performance indicators is defined and examined, with details on those policies that support reaching each objective’s targets and an assessment on whether the target would be achieved. Most times, the analyses focus on broad policies, such as in France, where impact analyses are presented by mission for selected budget programmes, or in Denmark, where the Climate Council focuses on central areas for climate policy and most relevant policies that contribute to reaching national targets. Similarly, in the Netherlands the independent councils assess the government climate and energy policy efforts, packages targeted to specific environmental objectives or government plans.

Environmental assessments of policies are rarely conducted *ex-ante*. In Finland, impact assessments are conducted for policies before their approval by the parliament, therefore informing the budget decision-making process. Similarly, in France, the Green Budget Report comprises impact assessments of some planned policies, it is attached to the draft budget and subject to a parliament vote. In Sweden, impact assessments concern planned measures in some cases, including larger decisions preceded by public inquiries, and policies already adopted. Finally, climate councils are in general assessing the effectiveness of ongoing and new measures, in relation to future long-term targets. Even though such analyses look into already decided policies, they nevertheless inform future policies and their design.

Other countries also conduct a form of impact assessment, which is not always part of the regular budgeting process. For example, Belgium conducts an *ex-ante* regulatory impact assessment of potential consequences (i.e., collateral impacts) of regulatory projects, including on the environment. The assessment covers 21 themes including climate change and examines whether, before their approval by the Council of Ministers, the regulations have an impact (positive or negative) on climate change or if they increase the vulnerability to climate change. Furthermore, the region of Flanders has integrated sustainability criteria into an existing impact assessment system. Italy presents in the context of its Stability Programme a Climate Annex that provides assessments of how policies are meeting emission reduction targets and presents the effects of specific measures included in the National Energy and Climate Plan. Italy also prepares an annex on equitable and well-being indicators with two indicators related to emissions and land protection. Some other countries reported having incorporated a form of environmental impact assessment into their policy development, which is not necessarily linked to the budgetary process (CZ, EE, HU, IE, MT, LU). (European Commission, 2021c)

4. REPORTING ON 'GREEN' PERFORMANCE – EVALUATIONS AND INDICATORS

Performance frameworks enhance the effectiveness of public policy by linking inputs to socio-economic outcomes. Within these frameworks, performance-based budgeting is the systematic use of performance information in budget decisions (OECD, 2019a). More concretely, it aims to improve the effectiveness and efficiency of public expenditure by linking public sector funding with the results they deliver (Robinson, M., 2011). However, these practices may encounter some challenges in delivering on the expected results such as: (i) defining complex or unclear objectives and translating them into quantifiable indicators, and (ii) the risk of greenwashing, linked to difficulties with assessing whether the objective has eventually been achieved when there are no well-defined quantifiable performance indicators or when there are asymmetries in information between those in charge of implementing the programme and those overseeing the implementation.

Performance indicators are a strong tool to provide information on progress towards climate and environmental objectives. Such indicators are crucial to measure the performance, outcomes and results of formulated policy targets or goals (OECD, 2010) and help assess the effectiveness of public expenditure, its efficiency and the quality of public services in relation to the resources allocated (Government of France, 2021). They can perform several functions: aggregating information, measuring progress towards (green) objectives, providing early indication on plans/programmes implementation, and communicating about the budget (European Commission, 2020).

In the long run, comprehensive performance information can play a vital role in the design of future budgets. Environmental performance evaluations assess how well policies have achieved their objectives, how relevant they are in improving the environmental outcomes and how coherent they have been with the broader green commitments. They can provide a comprehensive analysis of results and impacts, allowing lessons to be drawn and thus providing important insights for the design of future budgets. For example, the EU budget has in place a developed performance framework, which includes climate and environmental aspects (Box 4).

Box 4. 'GREEN' PERFORMANCE FRAMEWORK AND INDICATORS FOR THE EU BUDGET

The EU budget has a developed framework for measuring and reporting on green performance.⁽ⁱ⁾ The Commission reports progress towards the climate and environmental objectives for the previous year, as planned in its 7-year Multiannual Fiscal Framework. First, the more detailed Programme Statements⁽ⁱⁱ⁾, accompanying the draft budget each year, cover specific sections on climate and biodiversity highlighting how the various programmes contribute to the green priorities with explanations on the methodologies applied. Second, based on the information contained in the Programme Statements, the Annual Management and Performance Report provides the most important facts relating to performance of the EU budget.

The evaluation process, more recently, includes core performance indicators that help measure the impacts of EU spending programmes. These indicators are included in the basic legal texts for each programme, and then complemented with a more comprehensive set of additional indicators as part of the monitoring and evaluation framework for each programme. They are presented in the Programme Performance Overview, annexed to the Annual Performance Report, which contains dedicated sections for each spending programme.⁽ⁱⁱⁱ⁾ These sections present key implementation and performance information, including technical characteristics, baseline, milestones and targets for each core indicator.

These indicators allow for deeper analysis of performance in both interim and *ex-post* evaluations of the programmes. For major programmes, a midterm evaluation is conducted, which can highlight if a programme requires adjustments, for the remaining period, in order to achieve its objectives. Three years after completion of each programme, an overall *ex-post* evaluation is also conducted, the results of which are an essential input to the design of future programmes. Furthermore, in its Performance Communication, the Commission explained its work on developing 'cross-cutting indicators'. Such indicators would allow to assess the effects of diverse interventions implemented through different programmes and funding that aim to achieve the same objective. This would ultimately allow to capture and aggregate the contribution of different EU programmes to multi-dimensional objectives.^(iv)

⁽ⁱ⁾ [The performance framework for the EU budget, under the 2021-2027 multiannual financial framework. Volume I, Communication - Publications Office of the EU \(europa.eu\).](#)

⁽ⁱⁱ⁾ [db2022_wd_1_programme_statements_web_0.pdf \(europa.eu\).](#)

⁽ⁱⁱⁱ⁾ [The performance framework for the EU budget, under the 2021-2027 multiannual financial framework. Volume II, Annex - Publications Office of the EU \(europa.eu\).](#)

^(iv) European Commission (2022b), Commission Staff Working Paper Climate Mainstreaming Architecture in the 2021-2027 Multiannual Financial Framework, https://ec.europa.eu/info/sites/default/files/about_the_european_commission/eu_budget/swd_2022_225_climate_mainstreaming_architecture_2021-2027.pdf.

Some countries have already included a green perspective into their budgeting process or performance-budgeting framework. In order to strengthen the information on the environmental impact of its policies, France included in its 2022 Green Budget Report a section on performance indicators, selected from the more detailed performance reports attached to the draft budget reports (Box 5). This new section adds qualitative information to the green tagging exercise, which mainly identifies the 'amount' of the environmentally related appropriations. It uses a set of environmental performance indicators, taken from the annual performance reports, and pertaining to certain expenditure items captured by the tagging exercise. Other countries have included a green angle to their regular performance budgeting (AT, EL, PT). For example, Ireland plans to integrate a green perspective into its performance framework and therefore widen the scope of performance metrics to also cover climate-related expenditure (Box 6) (European Commission, 2021c). Sweden has developed a 'target system' to monitor environmental developments comprising 16 environmental quality objectives with targets and intermediate milestones. Each objective has attached assessment criteria based on which the results are presented, and a set of 'evaluation' indicators (Box 7).

Box 5. ENVIRONMENTAL IMPACT ASSESSMENT THROUGH PERFORMANCE INDICATORS IN FRANCE

Since 2006, France presents details on the expected impact of government's action in the annual performance plans (*projets annuels de performances*) (APP), attached to the draft budget. These reports present, by mission (therefore involving several ministries), for each programme: the strategy, objectives and performance indicators. The relevant analyses are prepared by line ministries and programme managers, which are in charge of publishing every year, before the fiscal year, a performance plan including the planned expenditure and performance indicators and their targets for the following fiscal year. These analyses are subject to a parliament vote.⁽ⁱ⁾

The annual performance reports (*rapports annuels de performances*) (APR), annexed to the draft regulation law, present for each programme the implementation of the commitments made in the previous annual APP reports. They explain the achievement of the broader policies and present the results of the most representative performance indicators, by mission, for the previous years.⁽ⁱⁱ⁾

The Budget Directorate included in the 2022 Green Budgeting Report a sub-section dedicated to the environmental performance indicators, which helps to better understand the effectiveness and efficiency of public expenditure. The 2022 report presents 85 performance indicators (6% of the total indicators in the APP), and they mainly relate to favourable expenditure. The other tagged expenditures in the green budget report do not have a corresponding indicator in the APP. A public website documents the evolution of performance indicators for every line ministry and whether their planned targets have been reached.⁽ⁱⁱⁱ⁾

Examples of environmental performance indicators in the Green Budget Report and 2022 Annual Performance Plans

Task	Programme	Objective	Indicator	Sub-indicator	Unit	2019	2020	Est. 2021 (2021 APP)	Est. 2022	2023 target (2021 APP)	Action (tag colour)
External Affairs	P105	Promote multilateralism and act for a sovereign, united and democratic Europe	Promote environmental objectives at the international level	Share/volume of international contributions towards attaining environmental objectives	%	4	4.31	4.25	3.95	4.35	International Contributions
Agriculture, Food, Forests and Rural Affairs	P149	Invest in rural areas and industries of the future	Share of forest area under sustainable management	Share of public forests under management	%	96.1	96.3	98	97	98	Sustainable forest management and development of the wood industry
				Number of hectares of private forests	ha m	3.43	3.45	3.46	3.48	3.52	
Aviation Control and Operations	P612	Manage the environmental impact of air traffic	Horizontal flight efficiency (differential between flown trajectories and the shortest trajectories)	Average differential between flown trajectories and the shortest trajectories	%	3.24	3.01	3.33	2.83	2.83	Aviation operations and innovation

⁽ⁱ⁾ <https://www.budget.gouv.fr/reperes/budget/articles/publication-des-documents-annexes-au-plf-2021>

⁽ⁱⁱ⁾ <https://www.budget.gouv.fr/reperes/performance/articles/les-rapports-annuels-de-performances>

⁽ⁱⁱⁱ⁾ <https://datavision.economie.gouv.fr/performance>

Source: Government of France (2021).

Box 6. GREENING THE PERFORMANCE FRAMEWORK IN IRELAND

Ireland has been conducting performance budgeting since 2012 in order to strengthen its public expenditure framework. More recently, it plans to integrate a green perspective into its performance framework.

The green budgeting approach in Ireland is based on two main principles: (i) *transparency*, which aims at informing the public about measures that help or hinder progress towards climate targets (i.e., green budget tagging), and (ii) *effectiveness*, which refers to identifying those measures that represent the best value for money, contributing to an evidence-based debate on climate change.

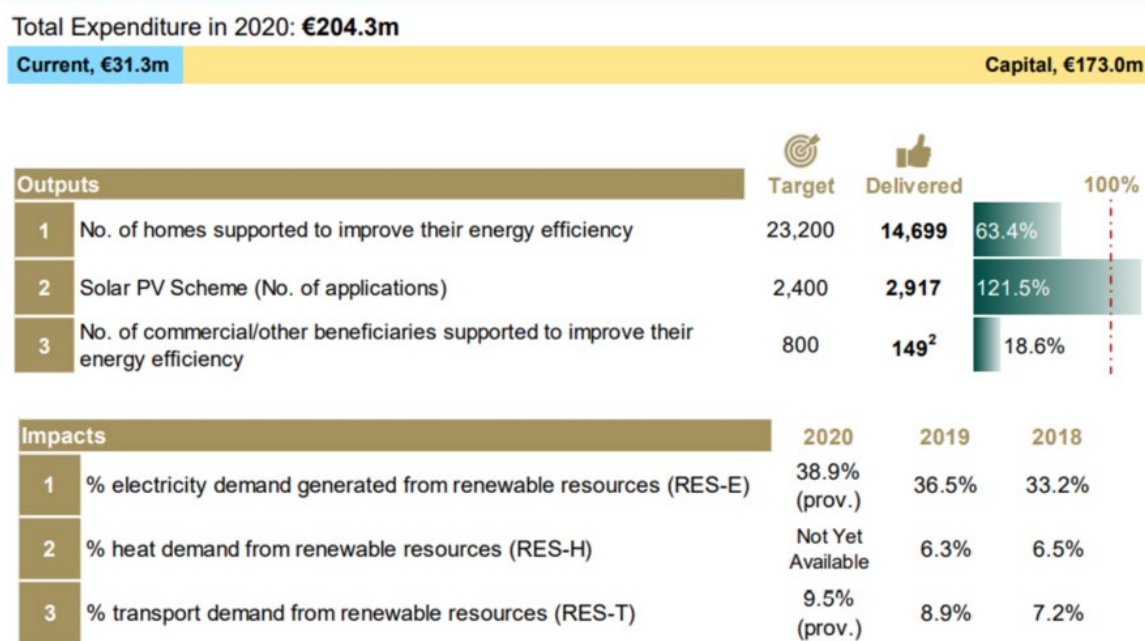
As part of assessing the *effectiveness* of budgetary measures, Ireland:

- (i) has conducted in-depth *ex-post* examinations (e.g., spending reviews) of individual programmes such as grant schemes for energy efficiency. Such examinations are not linked to the ordinary budgeting process. However, the findings of these reviews often feed into budgetary negotiations;
- (ii) will work with the ministries responsible for climate- and environmental-related expenditure to develop complementary impact metrics that are meaningful and relevant to gauging the performance of those programmes that have been identified as ‘green’ in the tagging process.

The annual Public Service Performance Reports contain a dedicated section on each Ministry, including for the Ministry responsible for Environment, Climate and Communications. For each spending programme voted by the parliament (e.g., Energy, Natural Resources), the report presents progress by using performance indicators, in terms of outputs and impacts, along with their targets as defined in the Revised Estimates Volume attached to the budget report. These performance indicators will help to inform and develop green impact metrics that will ensure that any expenditure tagged as climate and environmental-related is helping Ireland to reach its climate goals.

Example of progress reporting on the ‘Energy’ programme

Programme goal: “To ensure security, continuity and competitiveness of energy supply for the economy and for consumers, and to promote the sustainability of energy supply and demand.”



As part of the budget documents, Ireland also reports detailed information on the programmes in receipt of revenue raised from the annual increase in carbon tax, including the expected outcomes.

Source: DPER (2021a), DPER (2021b), DPER (2022).

Box 7. A TARGET SYSTEM FOR ENVIRONMENTAL MONITORING IN SWEDEN

Sweden has a well-developed ‘target’ system for monitoring the state of the environment and the effects of the environmental policy. The analysis is reported in the budget bill under the spending area ‘general environment and nature conservation’, where the ‘climate report’ is also annexed. It presents 16 environmental quality objectives with targets, intermediate milestones, assessment criteria and a set of ‘evaluation’ indicators. (*)

For each environmental objective, the government reports on whether planned or existing measures are adequate and the required corresponding efforts. The assessment is based on the Swedish Environmental Protection Agency in-depth evaluations and annual reports, conducted with several partners such as agencies, universities or consulting companies. (**)

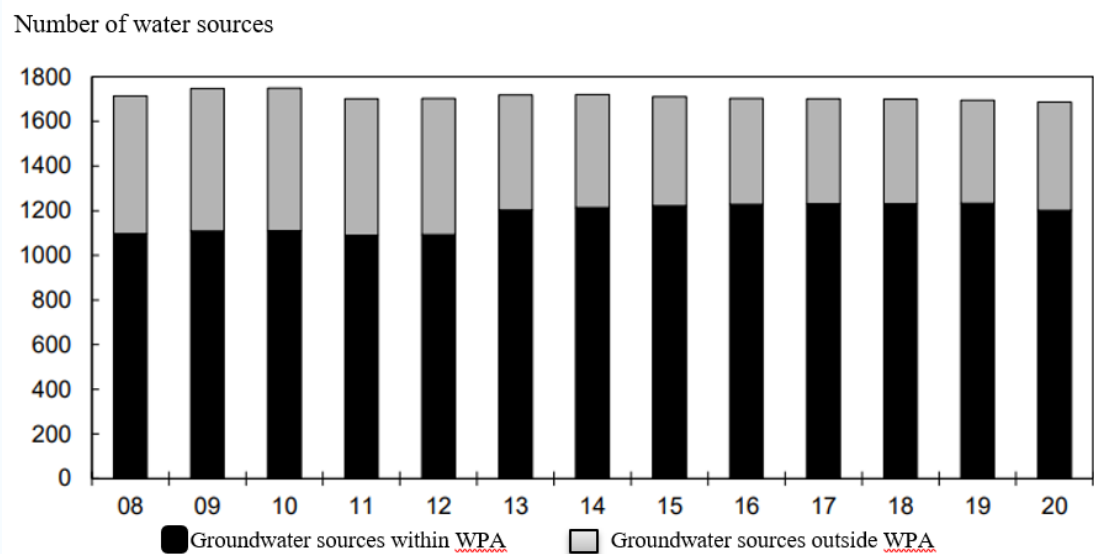
Example of performance indicators for the objective ‘Good quality groundwater’

The assessment criteria/specifications used to present the results:

- groundwater quality and chemical status;
- quality of abstracting groundwater;
- groundwater levels and quantitative status of groundwater;
- conservation of natural gravel deposits.

Performance indicator: “Number of municipal groundwater sources with and without water protection areas 2008-2020” (presented in graphs).

Number of municipal groundwater sources within or outside a Water Protection Area (WPA)



(*) Some indicators reflect slow developments or are resource-intensive to measure and therefore cannot be monitored every year.

(**) The Agency started its environmental monitoring in 1978, making the Swedish time series unique in their length.

Different types of performance indicators can provide information on progress made throughout a programme’s lifetime. The EU budget uses three such types of indicators, covering: (i) short-term outputs; (ii) medium-term results, and (iii) long-term impacts (Box 8). As such, they are able to monitor (i) how the spending programmes are progressing; (ii) how the spending is delivering results, and (iii) how these results bring the programmes closer to their stated objectives (European Commission, 2021a). In Luxembourg, a similar process is used for the selection of indicators within the sustainable bond process (Box 9).

Box 8. EXAMPLE OF INDICATORS TO MONITOR THE PROGRESS THROUGHOUT THE PROGRAMME LIFE CYCLE

EU projects

Programme name: Programme for the Environment and Climate Action (LIFE)

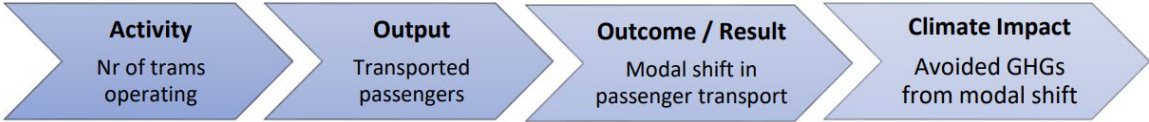
Specific objective: Develop, demonstrate and promote innovative techniques and approaches and apply best practice in relation to nature and biodiversity

Measuring output resulting from the financed actions: Number of projects that are developing, demonstrating and promoting innovative techniques and approaches and applying best practices for nature and biodiversity.

Measuring mid-term results: Area of land with improving soil quality.

Measuring longer-term impacts: Number of species where loss is being halted or reversed.

Luxembourg – sustainability bond framework: zero-carbon city tram project



Source: European Commission (2021b); 4Climate, Beissel & Ruppert, Efor-Ersa (2021).

Environmental performance indicators are also used to report on the progress of projects financed by sovereign green bond proceeds. Several Member States are issuing such bonds in order to channel investments to green expenditure and assets (AT, BE, DK, DE, ES, FR, IE, IT, HU, LU¹¹, PL, NL). In most cases, the supporting framework is in line with the Green Bond Principles of the International Capital Market Association (ICMA), which is a well-established and internationally recognised market standard for green bonds. In line with these principles, the issuer prepares annual reports on the allocation and impact of green bond proceeds. The reports include expected impacts of the financed investments and the evolution of pre-defined ‘green’ impact indicators attached to the various projects and, where relevant, whether they fulfil the milestones (Box 9). Similarly, under the Next Generation EU - Green Bond Framework, the European Commission will track the relevant spending of the bonds’ proceeds, which will partly fund ‘green’ investments and reforms included in the Member States’ Recovery and Resilience Plans. Two types of reporting will show how funds have been spent (allocation reporting) and what they have achieved (impact reporting) by using, amongst others, impact indicators primarily developed by the Commission (European Commission, 2021d).

Overall, the sovereign green bond process can help develop, or enhance, the tagging and environmental assessments within green budgeting. It can help formulate a methodology for green tagging, as the first step in allocating the bond proceeds is to identify eligible green projects within the budget. As such, it can offer a definition and classification system of what is green. This is the case for Ireland, which used the same definition as for its sovereign green bonds to identify and track

¹¹ Luxembourg issues sustainability bonds, which comprise both green and social projects (Box 9).

climate-related expenditure in the budget, a first step into its green budgeting exercise (Cremins and Kevany, 2018). In addition, the impact and performance reporting on the allocation of bond proceeds can set a good example for extending such an exercise to other budget items, including designing and monitoring the performance indicators. On the other hand, having a green budgeting methodology in place may as well support the issuance of green bonds. For example, green budget tagging and impact assessment methodologies could be used to identify and assess projects to be financed by green bonds.

Box 9. IMPACT AND PERFORMANCE REPORTING WITHIN THE SOVEREIGN SUSTAINABLE BOND PROCESS IN LUXEMBOURG

Luxembourg launched its sustainability bond framework in September 2020, for the issuance of green, social and sustainability (both green and social) bonds. In September 2021, the State Treasury published the first sustainability bond report, detailing the allocation of invested funds and their expected impacts (Luxembourg State Treasury, 2021a). The bond report includes a description of each project category (e.g., ‘low carbon transport’, ‘water & wastewater management’) including an impact overview. It is prepared by the Sustainability Bond Committee(*), under the responsibility of the State Treasury, and it is based on existing public reports on the various projects and direct interactions with the relevant ministries, project owners and managers. The full positive environmental impact of the ‘green’ projects is then estimated by a consulting team.

The analysis hinges on a number of key impact indicators (KPIs), featuring in a detailed ‘impact table’ of the different projects attached to the report (Luxembourg State Treasury, 2021b).

For all green indicators, the report states whether the information includes expected or realised data and if the figures are annual or absolute and the period covered. Some impact indicators can only be reported in a qualitative or descriptive manner.

Environmental impact metrics and indicators were identified and selected based, as much as possible, on national green (and social) goals, using also impact guidelines from the International Capital Market Association (ICMA) Green Bond Principles (2020), the Nordic Public Sector Issuers (2020), Position Paper on Green Bonds Impact Reporting and the Climate Bonds Initiative Sectoral Guidelines. Main indicators employed by leading green impact investors have also been considered, including where possible, the work of the EU expert group on sustainable finance.

The detailed methodology used in selecting and measuring the KPIs for each green investment sector, the data sources and methodologies for the impact calculations (e.g., impact on greenhouse gas emissions) are explained in a separate document (4Climate, Beissel & Ruppert, Efor-Ersa, 2021). Where relevant, the document includes the verifiable baseline or reference point selected for documenting the improvement of the KPIs over time.

(* The Luxembourg Sustainability Bond Committee is composed of representatives of the Luxembourg State Treasury (chair), the Luxembourg Ministry of Finance and the Inspectorate of Finance (“Inspection Générale des Finances”).

Source: [Finance durable - Trésorerie de l'Etat - Luxembourg \(public.lu\)](https://public.lu/finance-durable-trsorerie-de-l-etat-luxembourg); [2021-Luxembourg-Sustainability-Bond-Report-2018-2020.pdf \(public.lu\)](https://public.lu/2021-luxembourg-sustainability-bond-report-2018-2020.pdf).

Identifying and selecting meaningful performance indicators is a complex process where several considerations are taken into account.

- For the **EU budget**: (i) the number of indicators should be limited and focus on the key aspects of performance; (ii) data should be available on a regular basis, of sufficient quality and reliability, and (iii) the collection of data should be cost-efficient (European Commission, 2021a).
- According to the **ICMA standards for issuing sustainability-linked bonds**, the indicators should be: (i) relevant, core and material to the issuer’s overall business strategy;

(ii) measurable or quantifiable on a consistent methodological basis; (iii) externally verifiable, and (iv) allow for the possibility to benchmark them (ICMA, 2020).

- **For Luxembourg – sovereign sustainability bond framework**, the following should be taken into account: (i) indicators’ relevance and materiality to the main purpose and goals of the projects; (ii) the sectoral country-wide strategies, and (iii) applicable regulations, indicators’ acceptability, usability and practicality. Furthermore, to ensure comparability of the indicators across countries and foster standardisation, Luxembourg based its methodology on international impact guidance documents.

Quantitative and qualitative indicators complement each other. In the context of Green Bonds Principles, ICMA recommends the use of both qualitative indicators and quantitative measures, where possible. The handbook on impact reporting provides examples of impact reporting metrics and sector specific guidance for various project categories (ICMA, 2021).

The process of selecting performance indicators is sometimes conducted by line ministries or outsourced to external stakeholders, and transparency on the methodology used is key. In Ireland, the Department of Public Expenditure and Reform assisted each main ministry in selecting and reporting on appropriate performance indicators, making thus sure that the indicators are in line with best practice (DPER, 2021a). In France, impact indicators are prepared by line ministries based on the annual ‘performance budgeting communication’ from the Budget Directorate, which includes guidelines on how to develop environmental indicators. These indicators are then discussed between line ministries and the Budget Directorate within the performance budgeting rounds along with the green budget tagging process. In Luxembourg, the methodology for choosing the indicators has been developed by external consultants. However, respective ministries, their administrations and the entities preparing, implementing and operating the projects have been closely involved. In order to enhance transparency on such indicators, it is crucial to provide a clear definition including the calculation methodology (e.g., description of the denominator of intensity-based key performance indicators, definition of baseline, where feasible, science-based or benchmarked against an industry standard) (ICMA, 2020).

Setting ambitious and realistic targets and intermediate milestones for the indicators enhances the accountability and credibility around the green measures. Targets are crucial to demonstrate the value added of the programmes and projects and to enhance transparency and accountability (European Commission, 2021a). Where possible, the targets can be compared to a benchmark and, to enhance their credibility, it is useful to provide information on factors that may impede their achievement (ICMA, 2020). This is because, while technical experts aim to make sound and conservative assumptions that are reasonable based on the information available at the time, the actual environmental impact of the projects may diverge from initial projections due to external factors (ICMA, 2021). Therefore, transparency on the assumptions would help clarifying the reasons behind divergences between *ex-ante* and *ex-post* assessments.

5. CONCLUSIONS

Environmental impact assessments and evaluations support effective policy choices, improve the quality of proposals and ultimately can help achieving ‘green’ objectives. Conducting impact assessments before decisions are made can help ensure that environmental considerations are integrated in the plans, programmes and policies at early stages. *Ex-post*, environmental evaluations examine how well policies have achieved their objectives, how relevant they are in improving the environmental outcomes and their coherence with broader green commitments. As such, they provide a comprehensive analysis of the results and impacts of past policies, allowing lessons to be drawn and thus provide important insights for the design of future budgets. Overall, environmental assessments can help strengthen the efficiency and transparency of decision-making and build public trust around the budget.

A few Member States have incorporated environmental assessments into their regular budgeting cycle. While practices vary, they cover mostly policies with a potential significant positive effect on climate or the environment. In several countries, national climate councils also conduct independent environmental assessments of the overall government climate policy, enhancing transparency and accountability around governments’ green efforts. External stakeholders also play an important role in the process by bringing in-depth knowledge and expertise as environmental understanding and capabilities differ across line ministries and sectors.

Other green budgeting tools also imply environmental assessment practices. For example, some countries have incorporated a ‘green’ perspective into their performance-based budgeting framework. Overall, such practices improve the effectiveness and efficiency of public expenditure by linking public sector funding with the results they deliver. Also, an increasing number of countries are issuing sovereign green bonds. Both processes focus on reporting on progress of various projects and programmes in achieving green targets and intermediate milestones. The analyses are based in particular on environment-related performance indicators that help measure and monitor the implementation of plans and projects. Such tools can serve as basis for developing environmental assessments for other budget items and thus environmental assessment methodologies do not always have to be built from scratch.

Incorporating environmental assessments systematically in the ordinary budgeting process, including for harmful policies, may prove challenging. Such in-depth analyses can require extensive staff, specific environmental knowledge, impact assessment expertise, time and financial resources that may not always be available within line ministries. Involving external experts and building on already existing green budgeting tools ease the process, help ensure consistency between different green practices and definitions at the national level and avoid duplication of efforts within government. In the same vein, developing methodologies based on international good practices and guidelines can save time and resources and help ensure comparability of methods across countries. In addition, most practices and tools have been developed around the assessment of ‘green’ impacts. Yet, a thorough assessment of budgetary policies would also imply a look at ‘brown’ or possibly harmful impacts on the environment of specific policies. This new dimension would increase the complexity of the exercise as well as its political stakes.

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