



HM Treasury

# Green Book Review 2020: Findings and response

---





# Green Book Review 2020: Findings and response

---

Presented to Parliament by  
the Chief Secretary to the Treasury  
by Command of Her Majesty

November 2020



© Crown copyright 2020

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit [nationalarchives.gov.uk/doc/open-government-licence/version/3](https://nationalarchives.gov.uk/doc/open-government-licence/version/3).

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available at: [www.gov.uk/official-documents](https://www.gov.uk/official-documents).

Any enquiries regarding this publication should be sent to us at [public.enquiries@hmtreasury.gov.uk](mailto:public.enquiries@hmtreasury.gov.uk)

ISBN 978-1-5286-2273-8

PU3052

# Contents

Chapter 1	Introduction and executive summary	2
Chapter 2	Changes to the Green Book	9
Chapter 3	Appraising environmental impacts	17
Chapter 4	Embedding the changes to the Green Book in appraisal and decision making	20

# Chapter 1

## Introduction and executive summary

### Context and Scope of the Review

- 1.1 The Government is changing the Green Book and taking additional steps to improve appraisal. This follows completion of the review announced at Budget 2020 to “make sure that government investment spreads opportunity across the UK.”<sup>1</sup>
- 1.2 The Green Book is the government’s guidance on options appraisal and applies to all proposals that concern public spending, taxation, changes to regulations, and changes to the use of existing public assets and resources. It is vital for designing interventions that both achieve government policy objectives and deliver social value for money - i.e. that maximise the delivery of economic, social and environmental returns for UK society for every pound of public funds spent. It is supported by detailed HM Treasury guidance on developing business cases which reflects its principles, and by departmental guidance that addresses issues specific to their policy concerns.
- 1.3 The review was set up in response to concerns that the government’s appraisal guidance may mitigate against investment in poorer parts of the UK and undermine the Government’s aim to “level up” these areas. This has therefore been the central focus of investigation, but many of the findings and the action that the Government intends to take to address them have a much wider relevance to how appraisal can support decision-makers to deliver their priorities. These changes will therefore turn the Green Book into a vital tool for progressing the Government’s priority outcomes and wider public value agenda.
- 1.4 Given the UK’s recent legal requirement to achieve net zero carbon emissions by 2050 and the 25 Year Environment Plan (2018), the review has also revisited the guidance included in the 2018 Green Book on appraising environmental impacts. In addition, the Government has taken the opportunity to refresh guidance on best practice in appraising the impact of interventions on equalities.
- 1.5 The review has looked beyond the appraisal methodology to include the wider culture surrounding appraisal, how results are presented and the process around investment decisions, both in the consideration of individual business cases and in the Spending Review.

---

<sup>1</sup>Budget 2020, <https://www.gov.uk/government/publications/budget-2020-documents/budget-2020>

## Process

- 1.6 Since the review was launched, HM Treasury has consulted extensively with a wide range of stakeholders, including academics, the National Audit Office, the National Infrastructure Commission, analytical experts and users of the Green Book both in Whitehall and in the Devolved Administrations, the Northern Powerhouse and regional and local government. HM Treasury has also reviewed past business cases to understand how options appraisal is currently applied in practice.

## Overview of findings

- 1.7 Our engagement has revealed that stakeholders have very different and often divergent understandings of the function of the Green Book. An important first step is therefore to clarify its role: what it does, and crucially, what it does not do. The Green Book is technical guidance aimed at helping officials provide advice to decision makers about how to achieve an explicit policy objective and maximise social value. It sets out a rigorous yet pragmatic approach to weighing up the costs and benefits and illuminating the key issues, uncertainties and risks to decision makers.
- 1.8 The Green Book does not set policy objectives, nor does it determine decisions. Both the setting and prioritisation of objectives and the taking of decisions are rightly matters for elected decision makers, who are not bound by advice made on the basis of a Green Book compliant appraisal<sup>2</sup>. The Green Book instead helps ministers to identify the best way of achieving their goals.
- 1.9 While the core methodology was not by itself found to skew outcomes, the Review has concluded that current appraisal practice risks undermining the Government's ambition to "level up" poorer regions and to achieve other strategic objectives unless there is a step change improvement. Significant changes are needed to both the Green Book and the way it is used in appraisal to enable ministers and other decision makers to fully understand what investments they need to make to most effectively drive the delivery of the levelling up agenda and other policy priorities.
- 1.10 One of the fundamental issues that the review has identified is the common failure of those writing appraisals to engage properly with the strategic context in which their proposal sits. Specifically, business cases frequently do not demonstrate the necessary understanding of:
- the proposal's specific contribution to the delivery of the government's intended strategic goals (such as levelling up or net zero); and
  - the specific social and economic features of different places and how the intervention may affect them;
  - Other strategies, programmes or projects with which the intervention may interact, including in a particular geographical area.

---

<sup>2</sup> Where the minister decides to continue with a course the accounting officer has advised against, the accounting officer should ask for a formal written direction to proceed.

- 1.11 This results in significant flaws in appraisals and business cases, as well as the process for local authorities bidding for departmental funding. A failure to thoroughly understand and address the contribution of a proposal to strategic policy goals leads to a failure to build in strategic direction from the very first step in the process, the development of the strategic case. The strategic case should include well-defined objectives (and for larger projects, these should be clearly linked to government strategic policy priorities), and a robust explanation of how the intervention will deliver the change required to meet them, based on evidence. The review has discovered that the strategic case for many proposals is weak. This means that the first step in assessing options -longlisting- which is designed to identify a range of options that will deliver the proposal's objectives, is fundamentally undermined.
- 1.12 With a lack of strategic direction now baked into the appraisal process, the selection of the option to be presented as the best becomes heavily reliant on a Benefit Cost Ratio (BCR)<sup>3</sup> that is not aligned to the decision makers' objectives. The BCR instead focuses on benefits that it is easy to put a monetary value on. This in turn creates an incentive for proposers to artificially boost the BCR with such benefits that are unlikely to be realised, as well as suggesting a level of certainty around the value of those benefits that is not merited by the evidence.
- 1.13 This means that instead of illuminating the issues that decision makers need to consider, this process creates something of a "black box". As a result, the minister may have to make a choice about whether to invest in a proposal without having a well-balanced understanding of whether that investment will deliver their goals.
- 1.14 A lack of strategic consideration also causes particular problems in developing proposals to support a specific place or places. For example, it leads to confusion about when a project has the potential to deliver impacts that can bring truly transformational change to a place. In reality, transformational effects are rare and only seen when projects and programmes are part of a coherent strategic portfolio designed to deliver such changes.
- 1.15 Central government departments also frequently fail to work together across organisational boundaries and ring-fenced funding streams to develop, appraise and deliver truly "place based" strategy. This means that interdependencies between different interventions owned by different departments, and the benefits to a place to be expected from the interventions working together are not given proper consideration.
- 1.16 Finally, there is frequently a failure to carry out robust analysis of impacts in different places or to consider them in decision making, even when it is relevant.

---

<sup>3</sup> Total monetisable benefits divided by total relevant costs.



1.17 In addition to problems with the content of business cases, the review has also identified considerable room for improvement in the appraisal and decision-making process. This includes:

- A lack of transparency around how decisions are taken. Stakeholders have made the point that it is not often made clear to them the basis on which business cases are approved, making it harder for them to understand what a good business case looks like. It also undermines the accountability of drafters, reviewers, and decision makers.
- A Spending Review process which has been challenged for encouraging an inappropriately heavy focus on the BCR. The perception of stakeholders is that bids are ranked purely by their BCR with adjustments to that ranking made in an opaque fashion. Similar criticisms are levelled at the process for bidding into departmental funding pots.
- A lack of capacity to engage with the full appraisal process, especially the more technical aspects. Many stakeholders in local government feel that they do not have the resources to fulfil all of the requirements of a comprehensive appraisal. As a result, the work is often outsourced to consultants, who may add value in technical aspects of the appraisal, but may also be less familiar with the strategic policy context of the intervention, and may have been tasked with producing a high BCR rather than a properly well-rounded appraisal. This also risks creating a vicious circle where the use of consultants further erodes the expertise of officials. There are also capacity issues across Whitehall, with a shortfall in the bandwidth, understanding and in-depth experience necessary to carry out consistent, rigorous scrutiny of business cases.
- Under-investment in rigorous ex-post evaluation means there is often a lack of good evidence on what works to support current policy and programme appraisals.
- Equalities impacts are too often considered as an afterthought rather than integrated into the appraisal process.

## Overview of HM Treasury's response

1.18 HM Treasury is introducing a package of actions, designed to deliver a step change in appraisal quality. Firstly, we have made changes to the Green Book to include:

- **A stronger requirement to establish clear objectives from the outset** that must be the drivers of the policy development and appraisal process - looking across departmental and other silos where necessary. The refreshed Green Book will include clearer guidance on how to set the right measurable objectives at the right level of decision making (strategy, programme, project) in a way that best supports the delivery of the government's overall strategic ambitions, whether economic, environmental or social.
- **Stronger and clearer advice on what constitutes value for money**, how to appraise it, and what information to provide to decision-makers. This will set out the factors which must be taken into consideration, and the

requirement that only options with a strong strategic case should be short listed for detailed cost benefit analysis. The BCR will then only be calculated for options which pass this test.

- **New guidance on the appraisal of transformational changes.** This will help users identify when transformational change may be relevant, how to appraise transformational potential within the existing Green Book approach and how to handle and present uncertainty in this context.
- **Appropriate emphasis on the analysis of place-based impacts,** including for projects and programmes where these are not the objective of the intervention. There will be a new expectation that appraisal must assess the likelihood and extent of differential place-based impacts where it appears likely to be significant, or else explain why it is unnecessary. New guidance clarifies how and when employment effects may be included in benefits calculations at a UK, and separately, at a place-based level.
- **Measures to improve analysis on differential impacts,** including in assessments stemming from the Equality Act public sector equality duty, and under the Government's 'family test'.
- **An expert review into the application of the discount rate for environmental impacts.** This will scrutinise the current guidance on environmental valuation and discounting and investigate the case for using the same discount rate as currently applied to the valuation of life and health effects.

1.19 Secondly, in order to fully embed the lessons from the review, we will take steps to strengthen the approval and decision-making processes and the culture around the development of business cases:

- **A new approach to the Spending Review process to reflect the findings of this review.** Early findings of the Green Book Review were incorporated into the Spending Review 2020 process. As part of an evidence-based review of capital, Departments were asked to articulate clear objectives and a robust strategic case for each capital proposal, alongside any place-based impacts. This will also apply at Spending Review 2021, where Departments will be expected to work-up proposals in accordance with the guidance in the refreshed Green Book.
- **A new emphasis on the role of business case reviewers as critical gatekeepers.** HM Treasury will reset expectations about the role of those who review and scrutinise business cases, both in departments (especially on investment committees) and in HM Treasury spending teams. We will strengthen the use of current reviewers' training. Reviewers in HM Treasury and across Whitehall will be empowered and equipped to constructively challenge business cases and appraisals and to work with scheme proposers to bring them up to the required standard at each stage in the process, before approval is given.
- **More extensive and flexible support for users of the Green Book.** This will comprise more accessible online, bite size training on specific aspects of the methodology, and establishing active networks to support those who use the Green Book, including in local and regional government.

- **Greater transparency with a new requirement to publish a summary business case within four months of it receiving final approval.** This will begin in April 2021 for all infrastructure projects and programmes on the Government's Major Projects Portfolio.
- **An ongoing commitment to auditing and reviewing business cases to ensure high quality is maintained,** identifying weaknesses as they arise and developing plans to address them through further changes to practices, guidance or training, as necessary.

1.20 The changes to the Green Book and appraisal process that HM Treasury is making should be seen within the wider context of work across Whitehall aimed at supporting improved delivery of government objectives in general, and of levelling up in particular. This includes the agreement of priority outcomes for each department, also published at Spending Review 2020. Some of these are closely linked to supporting the Government's levelling up agenda and many can be monitored at a regional/local level. The delivery of these will be a key factor for consideration at next year's Spending Review, and departments will be required to publish their strategies for delivering them as part of the business planning process.

1.21 As part of this stronger focus on outcomes, the Government is placing greater emphasis on the importance of high-quality evaluation, which is critical to understanding what works. In preparation for Spending Review 2020, departments provided a detailed overview of their evidence bases and evaluation plans, which have informed the Government's decisions. Improved knowledge of what truly delivers for citizens over this spending review period, supported by a new Evaluation Taskforce, will drive future choices.

## Objectives of the changes

- 1.22 The Government's ambition is that, taken together, the changes will make improvements throughout the business case development and delivery process. Applied to the spending review process, to decisions on individual proposals by all levels of government, and to the evaluation of competitive bids by local or regional authorities into funding pots, they will, in turn:
- Help policy makers understand how to develop interventions and options informed by evidence and that clearly support the delivery of strategic objectives, including levelling up. They will provide incentives and support for scheme promoters to integrate these goals into properly balanced appraisals from the start;
  - Help scheme promoters to better understand the possible impacts of their proposals in their wider strategic context - including impacts on particular places, on the environment and on groups of individuals, including those with protected characteristics;
  - Better equip and empower reviewers to scrutinise business cases, and to constructively challenge proposals that do not provide appropriate data, evidence and analysis or match policy goals; and

- Improve the accuracy, clarity and relevance of advice that decision makers receive when they take decisions on how best to achieve levelling up, or any other policy objective.
- 1.23 Ultimately, this should promote better decision-making in support of clearly expressed policy objectives, and improved public confidence in that process. And as a result of the changes set out in this report, including more robust analysis of transformational potential, including in areas that have been considered as “left behind”, and improving the analysis of regional and local impacts more generally, the Government would expect future investments to be better aligned with its ambitions to level up the country.
- 1.24 The following chapters set out the changes proposed and their intended impact in more detail, starting with changes to the Green Book text, and then explaining how these changes will be embedded in the appraisal culture and decision-making process.

# Chapter 2

## Changes to the Green Book

### Defining value for money for a balanced appraisal

- 2.1 A central finding of the review is that some business cases do not have a strong strategic case. They may lack a strong rationale for intervention, a clear objective aligned to government priorities, or robust evidence and analysis for how different options for delivering that intervention will advance that objective (a 'logical process of change'). Partly as a consequence of this, appraisal advice – and decisions – can rely heavily on a Benefit Cost Ratio (BCR) that is unrelated to a compelling strategic case, in order to justify the project.
- 2.2 While the BCR is a useful metric for capturing quantifiable costs and benefits, there is a tendency to place an inappropriate emphasis on it, in a way that frames value for money as an absolute concept: a proposal with a BCR above a certain arbitrary threshold is seen as offering good value for money, whereas a proposal that falls below that threshold offers poor value for money. Considerable time and effort is expended to 'boost' the BCR that would have been better spent developing and testing the other elements of the business case including its strategic coherence, risk management and the implications of significant unquantifiable factors. The approval process can then become an adversarial discussion between proposer and approver about whether the intervention should be funded or not, rather than a constructive conversation about how to achieve policy objectives in the way that offers the best value for money.
- 2.3 Many stakeholders see this culture as partly the result of attitudes in HM Treasury: they have criticised past spending review processes for giving undue weight to a simple ranking of bids by their BCR, without a transparent process for including consideration of the outcomes that they will deliver. HM Treasury has taken a broader approach to proposals at Spending Review 2020, focusing on strategic alignment with the Government's objectives, place-based impacts and wider relevant considerations including deliverability, instead of ranking proposals by their BCR. HM Treasury will continue this approach at Spending Review 2021 as set out in paragraphs 4.3-4.6.
- 2.4 This is a crucial issue. The BCR is a valuable tool for informing the choice of options at short-listing stage and provides a check to see whether the achievement of the objectives of the intervention are worth the total whole life costs to society. But a single and often spuriously accurate BCR, developed without reference to a strategic case, does not give a

comprehensive view of the social value offered by an intervention and should never be the sole defining factor in appraising options. In particular, it risks:

- monetisation of spurious benefits that are unlikely to be realised
- ignoring costs or benefits for which there may be good evidence, but which are difficult or impossible to monetise
- giving a misleading impression of the degree of certainty and accuracy in cost and benefit estimates
- not taking proper account of risks; and
- ignoring the question of who the benefits go to and who bears the costs- fundamentally, it removes the decision to invest from its strategic context. In doing so, it reduces decision makers' ability to make informed decisions about which option will best achieve their objectives, ultimately risking undermining their ability to achieve them.

2.5 These problems could hinder the Government in achieving its levelling up goals and its other priorities. They are at the heart of the wider criticisms the review has heard from stakeholders around the proper consideration of transformational potential and place-based impacts, discussed below.

### **Box 2.A: the respective roles of the strategic case, the economic case and the BCR in long-listing and short-listing**

The BCR is an essential part of appraisal, but it is vital that it is considered in its proper place. This box explains how the strategic case, overall economic case, and BCR should be employed at different stages of the process to identify a range of options that deliver the objectives of the proposed intervention, and appraise how well they deliver wider social value.

1) Preparing the Strategic case. This requires:

- **A Strategic Assessment** of the fit of the proposed intervention with government's strategic objectives and other policies, highlighting those it supports, any that it conflicts with, and how it is limited by constraints on the government's action (e.g. legal constraints such as the net zero carbon emissions target).
- **Making the Case for Change**- quantifying and understanding the present situation and Business as Usual (the BAU), identifying the intervention's objectives (see paragraphs 2.8-2.10, below), and logically explaining and clearly evidencing how the intervention will create the change from BAU that is necessary to deliver the objectives.

2) **Long-list analysis** considers how best to achieve the objectives set out in the case for change. A wide range of possibilities are considered using the Green Book's framework filter to identify a viable short list for further detailed appraisal. This process is key to the development of optimum value for money

proposals that are likely to deliver reasonably close to expectations in terms of achieving the intervention's goals.

**3) Short-list appraisal** follows and is where expected costs and benefits to society are estimated, and risks and trade-offs are considered. All five dimensions of the five-case model are involved in an iterative process (the Strategic, Economic, Commercial, Financial and Management dimensions). The **economic dimension of the case** is where the social value for money is appraised. In most cases this will use Social Cost Benefit Analysis, taking into account significant monetisable costs and benefits through the **BCR**, but also, crucially, accounting for non-monetisable costs and benefits related to factors highlighted in the strategic case, as well as any other significant unquantifiable impacts. The economic case concerns social welfare values. It is not limited to the consideration of purely economic effects and should also take into account social and environmental impacts.

- 2.6 The Green Book has been updated to make clear that the BCR should be considered at the appropriate point in time as part of a balanced appraisal process. The revised Green Book is clear that:
- The appraisal process is not a decision-making algorithm and its objective is to support decision-makers by providing information and evidence on the strategic fit, costs, benefits, risk and uncertainties of different options.
  - The assessment of value for money is broader than the BCR alone. It should assess all the relevant costs and benefits to society, not just narrowly economic ones. Salient points from all other dimensions of the business case should be incorporated, in particular, how well the option delivers the intended objectives of the intervention, as well as accounting for delivery risks.
  - Linked to this, clear objectives and success measures must be established for all interventions, with an objectively based logical process of change as part of the strategic appraisal. Strengthened guidance is provided on setting strategically relevant, appropriate, SMART objectives (see paragraphs 2.8-2.10).
  - All options must be assessed against these objectives and only those that deliver them should be shortlisted. Options that do not deliver them cannot be considered value for money, regardless of the BCR.
  - Reviewers have a vital role as "gatekeepers" who should challenge any business case that does not meet the standards set out in the Green Book. In particular, they should reject any business case that does not include a clear set of objectives for the intervention and an objectively based logical process of change setting out how these objectives will be delivered. Conversely, reviewers should be open to a business cases for projects with a low BCR if, compared to options that have been appraised, that option is the best value for money way of delivering an intervention that is necessary for the achievement of the intervention's objectives. It will then be for the decision maker to make a judgement on whether the achievement of those objectives is worth the cost to the Exchequer.

- 2.7 These changes will help appraisers and reviewers understand the holistic nature of an effective value for money assessment. They will support the development of business cases that enable decision makers to take properly informed choices about the options available to them with the best chance of delivering their objectives, whilst taking into account the likely wider impacts on society as a whole.

## Identifying objectives for the delivery of strategic outcomes

- 2.8 In this context, one of the most fundamental aspects of successful appraisal is setting the right objectives at the right level. The revised Green Book includes guidance on how to do this in a way that supports the effective engagement of an appraisal with any desired strategic outcomes for the wellbeing of society and individuals.
- 2.9 Essentially, this requires appraisers to have a clear understanding of the specific contribution of their particular intervention to the delivery of the relevant strategic outcomes. Whether the proposal is for a programme within a strategic portfolio or is a project within a programme, its objectives need to be understood in terms of its individual contribution to the wider group of interventions of which it is part. This continuity of alignment and support is sometimes known as a “golden thread”. In practice this generally means that:
- the delivery of government’s *strategic outcomes* will require *strategies* consisting of related programmes grouped together in *strategic portfolios*
  - a *programme’s* objectives should be defined by its specific contribution to the objectives of the *strategic portfolio* of which it is part
  - a *project’s* objectives should be defined by its specific contribution to the *programme* of which it is part.

### Box 2.B: Illustrative hierarchy of objectives for interventions to meet net zero carbon emissions by 2050

**Strategic objective:** Net zero greenhouse gas emissions in 2050

**Strategic portfolio:** Reducing emissions intensity of the UK Power sector

**Programme:** Increasing offshore wind capacity

**Project:** New offshore wind farm to deliver X GW of capacity by 2030

- 2.10 A clear understanding of exactly where the intervention sits in this hierarchy is essential to choosing appropriate measurable SMART objectives. Without this awareness, there is a risk that over-ambitious claims directly linking the objectives of individual projects to strategic outcomes will be made which may not be deliverable in practice and therefore give an inflated idea of the contribution of the project to the government’s agenda. This issue is particularly relevant to the consideration and realisation of transformational benefits (see paragraph 2.21).



- 2.11 This process should be seen within the context of broader work that is being led jointly by HM Treasury and the Cabinet Office to improve the government's focus on outcomes. As part of this agenda, at this year's Spending Review, departments have identified the three or four priority outcomes that they will deliver with the public funding allocated to them. These outcomes will serve to align the government's spending and activity to its strategic objectives, forming the framework for setting the SMART objectives of a strategic portfolio of programmes, which would then shape the SMART objectives of all programmes and projects beneath them, as set out above. This gives a clear direction to the design of interventions to support the government's top priorities, whether economic, social or environmental. This builds directly on the Public Value Framework developed with Sir Michael Barber<sup>1</sup>.
- 2.12 A number of the priority outcomes are strongly focused on levelling up and will inform the allocation of spending in next year's Spending Review (see paragraphs 4.3- 4.6 below). They include:
- an outcome to raise productivity and empower places so that everyone can benefit from levelling up
  - an outcome to level up education standards: so that children and young people in every part of the country are prepared with the knowledge, skills and qualifications they need
  - maximise employment across the country to aid economic recovery following Covid-19.
- 2.13 The maintenance of a "golden thread" of strategic alignment from these priority outcomes through the development of objectives for strategies, programmes and projects will be supported by the introduction of a Project Scorecard, developed by the Infrastructure Projects Authority (IPA) in coordination with HM Treasury. This sets out a clear framework for understanding and presenting the contribution of an individual project to the delivery of priority outcomes, as well as giving decision-makers better information about the extent to which different investment options deliver their objectives. Trials of the scorecard will begin this year, ahead of a planned launch across Government's Major Projects Portfolio in 2021, including published guidance, templates and training.
- 2.14 There will be times where an explicit choice has been made to go ahead with a project prior to detailed cost benefit analysis, for example, when there is a need to respond to a rapidly evolving situation. In some instances, the response has been to 'retrofit' the cost benefit analysis to support the project, which yields little useful information on how to do so in a way that delivers value for money. In circumstances where the output has already been decided, the revised Green Book will encourage appraisers to focus on

---

<sup>1</sup> Public Value Framework and Supplementary Guidance: <https://www.gov.uk/government/publications/public-value-framework-and-supplementary-guidance>

cost effectiveness analysis<sup>2</sup> and delivery challenges. This approach is not without risks in terms of maximising value for money, and where this happens the promoters should agree with HMT an appropriate review and evaluation to draw out lessons for the future.

- 2.15 The establishment of strategic fit right at the outset of a business case is critical to developing options that support the delivery of the government's strategic ambitions, including levelling up, and it is important that this is robustly scrutinised by reviewers. Interventions also need to be considered against the Government's wider strategic objectives. These can evolve through the lifetime of an intervention and the revised Green Book requires strategic alignment to be revisited at the short-list stage. Any tensions with wider government objectives, or opportunities to support others that may not initially have been identified as related to the delivery of the intervention should be recognised.
- 2.16 The role of strategic coherence and clarity of objectives at each level of intervention is also crucial in any assessment of an intervention's transformational potential, as discussed below.

## Transformational impacts

- 2.17 A number of stakeholders have argued that while the Green Book provides a sound basis for the appraisal of options to deliver marginal change, it is less useful when changes might be transformational and that as a result the benefits of such schemes could be understated. Where interventions seek to deliver transformational change in a local area this can be relevant to levelling up, although such effects are not restricted to 'left behind' places. It also applies more widely, for example, in relation to environmental systems or technology where innovation could lead to genuinely transformational change.
- 2.18 The updated Green Book includes a new annex, developed following workshops with technical experts, which sets out how transformational impacts should be appraised robustly within the Green Book framework.
- 2.19 A first step is to define the term 'transformational', which is used in different ways. It is often used to describe large projects without a clear discussion of what is being transformed, or why such change would occur. The revised Green Book defines transformational change as:
- A fundamental structural change in the nature of the subject undergoing transformation. The scale of the change alone is not a defining characteristic; and
  - Being in practical terms virtually irreversible, in other words the removal of the intervention will not cause the system to revert to its original state.
- 2.20 Transformational change is characterised by both tipping points (where relatively small interventions can be a catalyst for change) and leverage points (key nodes in the system where interventions are most likely to

---

<sup>2</sup> Cost effectiveness analysis compares the costs of alternative ways of producing the same or similar outputs.

influence the system behaviour). This means it is inherently uncertain and while appraisal can help identify the key parameters and dependencies, it cannot forecast impacts with a high degree of accuracy.

- 2.21 The likelihood of successfully achieving transformational change is greatest when delivered through a coherent strategy, which in turn is underpinned by strategic portfolios, programmes and projects. Individual projects and programmes will not typically lead to transformational change on their own. In light of this, in line with the principles set out in paragraphs 2.8-2.10, transformational change should be assessed and reported at the level of strategy, while the appraisal of portfolios, programmes and projects should show how their specific outputs are necessary for delivering the transformational objectives of the strategy. The refreshed guidance includes the need to understand the dependencies on other policies and interventions.
- 2.22 The revised Green Book does not provide a step-by-step method that will generate precise valuations of transformational impacts. Such tools do not exist and are unlikely to be developed given the inherent uncertainty of these processes. Models can be valuable in identifying circumstances and conditions necessary for transformational change, but they are frequently less useful at quantifying impacts with precision. A robust and well evidenced logical process of change is typically more useful than figures generated from a complex model.

## **Improving analysis of regional and local impacts**

- 2.23 The review has found a lack of consistency in how appraisals assess the potential impact on different geographical areas and in how these impacts are presented to decision-makers. Some stakeholders were even unsure about whether presenting local or regional impacts is permissible. The focus of appraisers on a UK-level BCR has encouraged the assessment of monetisable UK wide benefits over the proper consideration of the contribution of the project to local, regional or sub-UK strategic objectives and impacts. In addition, place-based analysis takes time and expertise and appraisers often believe that national policies are 'place blind' without considering the potential for differential impacts.
- 2.24 A range of measures will address these problems, so that appraisers of proposals must consider the differential impacts on different places and the interaction with other relevant strategies, at UK levels, or more locally. This will focus minds on how to level up left behind places and help decision-makers to see the likely effects of different options on specific geographical areas.
- 2.25 As set out above, the new Green Book is clearer that appraisals must go beyond the BCR, in particular to consider how the intervention contributes to the government's objectives. If an intervention is part of a wider strategy to deliver a levelling up outcome for a particular place, an appraiser should be aware of how to consider its role in delivering that outcome and define the objectives of their intervention accordingly. Those objectives should then form the foundation of a strategic case which will be the key determinant of which options progress from long list to short list stage (see Box 2.A, above).

- 2.26 Furthermore, business cases should be developed to align with relevant local strategies and major interventions in the area. Dependencies must be identified, understood and taken into account at the earliest possible stage. This recognises that many regional or local interventions will interact with wider strategies set at UK and sub-UK levels.
- 2.27 The revised Green Book contains new guidance on place-based analysis. Where an intervention's objectives have a geographically defined focus this should also be the principle frame of reference for the analysis, with UK level analysis presented separately. Even where the impact on a specific place is not necessarily the explicit objective, there is a new requirement to consider the potential for differential place-based impacts or to explain why this analysis is not appropriate or proportionate.
- 2.28 New guidance clarifies how local employment effects can be considered in the appraisal and how the potential impact on surrounding areas should be assessed. When undertaking place-based analysis, appraisers will be able to use new employment multipliers to help estimate the local impact. HM Treasury considers that there is potential to further improve the analysis of local employment effects and a new cross-Whitehall working group will consider options for taking this forward.
- 2.29 In the context of levelling up, appraisers should consider how different people within the target area of an intervention will be affected, and the new guidance will make clear that business cases should identify costs and benefits falling on relevant groups. Where this is significant, distributional weights can be used to reflect the greater value of additional income to poorer households, although they should be used with care. Weights can be applied where income is a relevant consideration and there is a high degree of confidence about the household types on whom costs and benefits will fall.
- 2.30 In addition, all proposals must take equalities impacts into account and the Public Sector Equality Duty (PSED) requires that public sector bodies have due regard to equality of opportunity for persons with protected characteristics, eliminating discrimination and fostering good relations between protected groups and others. There is also a requirement to consider the impact of decisions on families. The new Green Book has strengthened references to these requirements and highlights the value of experimentation and evaluation where there are significant uncertainties or gaps in the evidence base about differential impacts.

# Chapter 3

## Appraising environmental impacts

### Using the Green Book and supplementary guidance to appraise environmental policies

- 3.1 In the last few years, the Government has introduced several further legislative commitments in environmental policy including the UK's net zero commitment and the 25 Year Environment Plan. As part of the Green Book Review, we have also scrutinised the Green Book guidance in the context of achieving the Government's environmental aims.
- 3.2 In 2018, the refreshed Green Book provided updated guidance to policy makers on assessing and valuing effects on the natural environment. Guidance on how to appropriately account for natural capital stocks and emissions was moved from supplementary guidance into the main text. The updated guidance also provided greater clarity on how to value unmonetisable costs and benefits, ensuring these factors do not get omitted in appraisal.
- 3.3 This year, DEFRA have published further supplementary guidance on how to apply and embed a natural capital approach in policy appraisal<sup>1</sup> and on accounting for the effects of climate change. Taken together, these updates represent a significant step forward in incorporating environmental impacts into appraisal.
- 3.4 Building on this guidance, the 2020 Green Book highlights and clarifies the tools that should be applied to appraisals of environmental projects, or policies with environmental impacts.

### Appraising policy to meet net zero

- 3.5 The UK's commitment to achieve net zero carbon emissions by 2050 provides a clearly defined strategic objective from which to develop strategies for tackling climate change, and portfolios, programmes and projects that can then be appraised using the new Green Book guidance. The changes set out in paragraphs 2.6-2.10 (and the actions for embedding them in appraisal, set out in Chapter 4, below) are as relevant to the delivery of net zero as they are to levelling up. As such, they will help ensure that interventions aimed at moving the UK towards the net zero target are appraised firstly in terms of their contribution to that target, as well as how well they deliver wider value for money.

---

<sup>1</sup> Enabling a natural capital approach: guidance <https://www.gov.uk/guidance/enabling-a-natural-capital-approach-enca>

- 3.6 Furthermore, even where progressing the net zero target is not the primary objective of a proposal, appraisers should consider whether it acts as a relevant constraint, as highlighted in Box 2.A. Any environmental or carbon emissions impacts should also be captured in the economic case.
- 3.7 Carbon emissions should be assessed using the approach set out in BEIS Carbon Values<sup>2</sup>. These values are calculated as the cost of removing an additional tonne of emissions from the atmosphere calibrated to a path of emissions consistent with meeting the UK's legal targets. Later this year, BEIS will publish an updated series of Carbon Values which are consistent with the UK's latest commitments under the Paris Agreement and Climate Change Act (2008).
- 3.8 HM Treasury's Net Zero Review final report will be published in the spring, looking at how the transition to net zero will be funded and where the costs will fall. The final report will set out a framework for considering the appropriate policy levers to use in different situations and to manage impacts on households, businesses and sectors.

## Tools to value environmental impacts over time

- 3.9 The Green Book sets out an overarching framework for valuing and comparing different environmental and non-environmental impacts, both non-monetary and monetary, which is then supplemented by guidance from individual departments. Values are then discounted in order to compare the present value of impacts which occur in the future to those that occur today. Discounting is particularly relevant to environmental effects, which are often long-term and sometimes exponential in nature. In most cases, the Green Book advises that a social discount rate of 3.5% should be used. In some cases, a lower discount rate applies.
- 3.10 **Where there are health or life impacts, a lower discount rate should apply to these impacts.** In many cases, policies which affect environmental outcomes may also have an impact on health or life outcomes. In these cases, the Green Book instructs that a lower discount rate of 1.5% should be applied specifically to relevant health or life impacts. This reflects the principle that the value society places on health does not decrease over time as society grows richer.
- 3.11 **Where policies have intergenerational impacts, a lower discount rate can apply.** The effects of environmental damage and climate change have substantial and often irreversible impacts on future generations. In this case, the Green Book advises that a lower discount rate (of 3%, or 1% to health impacts) be used to conduct a sensitivity analysis, reflecting the equal weight society puts on the welfare of future generations.

## Discounting of environmental impacts and scope of external review

- 3.12 The Government is committed to ensuring the UK's methodology for appraising environmental impacts remains at the forefront of international

---

<sup>2</sup> Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal  
<https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal>

best practice. This means consistently ensuring that both the framework and methodology are underpinned by the latest empirical and academic evidence and can be practically applied to real-world policies. Building on the guidance outlined above and following internal review, we have considered the case for extending the lower discount rate of 1.5% applied to health impacts to environmental impacts.

- 3.13 Discounting is a standardising tool to compare values over different time periods. The Green Book's social time preference discount rate measures the rate at which society values the present compared to the future and provides a time series of discount factors which are applied to costs and benefits in appraisal. The UK's approach to social discounting and calibration of the headline 3.5% rate was subject to academic review in 2018<sup>3</sup>. This review concluded that the headline Green Book discount rate is within the range justified by different theoretical and empirical approaches to measuring society's preferences over time.
- 3.14 Measuring the value society places on the environment over time is complex due to the increasing scarcity of natural resources and their lack of close substitutes. The social time preference rate includes a wealth component, which allows for society's increasing wealth over time. This component assumes that the welfare value placed on consumption of a particular good reduces as society becomes wealthier and can therefore consume more and across an increasing number of goods. It is not clear that this applies for consumption of the environment, where limited substitutes and scarcity of natural assets means that as society consumes more, less is left for future consumption. In this case, the value of other consumption society would be willing to trade for consumption of the environment is likely to increase over time.
- 3.15 A theoretically justified case can be made to lower the discount rate for environmental benefits by removing the wealth component. There is precedent in the Green Book, which already applies a reduced 1.5% rate for health impacts, on the basis that a person's health is a scarce resource that is not readily substitutable with other purchasable benefits. As explained above, the same logic can be applied to the environment.
- 3.16 Discounting cannot be seen in isolation to the values to which the discount factors apply. Discounting and valuation work in tandem to provide a present value for impacts that occur in the future. In some cases, environmental values are updated over time in line to reflect rising relative prices of environmental goods.
- 3.17 HMT will lead an expert external review to examine the application of the discount rate to environmental impacts, considering the interaction with valuation approaches. This review will conclude next year and any changes to discounting will be incorporated into future updates to the Green Book.

---

<sup>3</sup>Social Discount Rates for Cost-Benefit Analysis: A Report for HM Treasury

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/685904/Social\\_Discount\\_Rates\\_for\\_Cost-Benefit\\_Analysis\\_A\\_Report\\_for\\_HM\\_Treasury.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685904/Social_Discount_Rates_for_Cost-Benefit_Analysis_A_Report_for_HM_Treasury.pdf)

# Chapter 4

## Embedding the changes to the Green Book in appraisal and decision making

4.1 The previous chapters set out the changes the Government is making to the Green Book. However, revising the guidance is unlikely to be enough on its own to make good practice stick, and those who use the Green Book have emphasised the importance of culture and process. The Government will take further action to embed these changes in the way appraisals are conducted. These will focus on:

- getting the right incentives and structures in place
- building capacity in Whitehall and beyond
- improving transparency around the appraisal and decision-making process.

### Incentives and structures- the Spending Review and beyond

4.2 Many stakeholders have argued that the spending review process has been problematic in the past, with a perception that too much weight has been placed on a simple ranking of bids by BCR and a lack of transparency in how different government strategic objectives have been taken into account. This is seen as a primary driver of the overly BCR-focused culture described in paragraph 2.3.

4.3 To address this, the capital process for Spending Review 2020 placed additional emphasis on the strategic case and how proposals fit with levelling up and other key Government objectives. Departments were asked to set out their priority outcomes and to give a robust theory of change for how their bids will contribute to the achievement of these objectives. Bids incorporated place-based analysis to capture impacts at a national, sub-national, regional and local level where relevant. This analysis was considered as part of an evidence-based review of capital with additional scrutiny applied by a technical appraisal panel – bids were not ranked purely by their BCRs.

4.4 HM Treasury will build on this process at Spending Review 2021, learning lessons from Spending Review 2020, and ensuring departments submit bids in alignment with the new guidance and principles in the refreshed Green Book. In particular, departments will be required to get sign-off for each



proposal by relevant heads of profession (e.g. Chief Analysts, Chief Economists, Senior Responsible Owners (SROs) etc.), and HM Treasury will reserve the right to return bids that do not have relevant sign-off or that are incomplete.

- 4.5 This means that the appraisal process will have a clearer focus on the contribution of bids to the Government's explicit policy objectives and less emphasis on purely economic and monetisable benefits.
- 4.6 The spending review allocation process is the first step in ensuring a greater focus on delivering strategic outcomes such as levelling up in the programmes and projects funded by it. Settlement letters to departments setting out their allocations will put conditions on these around improving data on impacts (including regionally) and on evaluation requirements. All business cases for programmes and projects funded through Spending Review 2020, including for existing spending decisions such as manifesto commitments will have to be based on the new Green Book. HM Treasury officials will be required to use the new guidance in reviewing these business cases and advising ministers on clearance.
- 4.7 To improve the alignment between the appraisal and the delivery of the government's objectives, and to champion the Green Book across Whitehall, departments will be expected to appoint an official who supports the SRO, who is trained and accredited at practitioner level in the Treasury Better Business Cases methodology, and who has a strong understanding of the relevant policy area and its wider strategic context. They must have oversight of the whole business case, should maintain strategic coherence across it, and act as a single point of contact for spending teams. Investment committees will be expected to have representation from all relevant professions.
- 4.8 Departments will also be expected to engage with HM Treasury spending teams early in the development of business cases. In particular, they should agree the case for the intervention and its objectives, as well as the type of business case required, so that discussions on business cases become constructive conversations focused on how to deliver the intervention in the way that offers greatest social value. Spending teams will be empowered to challenge business cases which lack clear objectives and a convincing logic of change or that otherwise do not meet the requirements set out in the new Green Book.

## **Building capability**

- 4.9 The new Green Book will be supported by measures to improve capability. Building on existing Better Business Case and reviewers' courses, an expanded range of new, bespoke training will be on offer. Updated training will be focused initially on HM Treasury spending teams and those involved in Departmental investment committees that sign off business cases. It will reflect the findings of the review and set out how they should support and challenge those who develop proposals and write business cases, and how to advise ministers on key aspects of them. It is expected that all such staff will complete this training ahead of the next spending review in 2021. Tailored training will also be made available to Senior Civil Servant. Project or

programme Senior Responsible Owners (SROs) will be expected to complete this when they take up their post, if they have not previously received appropriate Green Book training.

- 4.10 Work is underway to integrate training on the Green Book with the new Civil Service core curriculum being developed by the Cabinet Office. In addition, HM Treasury is looking to build key themes from the Green Book and the review into ministerial training.
- 4.11 More broadly, there will be more digital Green Book content, including 'bite size' sessions on individual aspects of appraisal, as well as online FAQs and case studies.
- 4.12 A new network of Green Book users across the UK has been established, which will promote continual learning and development, make it easier for users to offer peer support and establish a stronger link between HM Treasury and those who use the Green Book. This network will be led by local users, with the full engagement of HM Treasury and supported by an enhanced digital presence. The network is working with the What Works Centre for Local Economic Growth to promote the use of high-quality relevant evidence in appraisals.
- 4.13 New training and support will emphasise the importance of considering equalities impacts early and making them integral to the process. To further support this change, in future, a specified panel member will have responsibility for challenging and testing equalities impacts for proposals brought to the Treasury Assessment Process.
- 4.14 HMT's Green Book team is being expanded to deliver the necessary training and to provide direct support to those who appraise and review business cases in HM Treasury spending teams and across Whitehall. To promote a culture of improvement, reviewers in both HM Treasury and departments will be expected to give feedback to appraisers on their business cases, whether they are successful or not. The Green Book team will monitor the effectiveness of the actions set out in this report, including through the audit of samples of business cases, and develop further plans to embed the changes to the Green Book in the appraisal process on the ground, as necessary.

## Improving transparency

- 4.15 Some stakeholders criticised a lack of transparency across the appraisal and decision-making process. Greater transparency -including case studies of good practice- would:
  - support building capability in appraisal by showing what 'good looks like' in terms of business cases
  - support effective evaluation of projects and programmes and help with learning 'what works'
  - increase accountability of project sponsors and SROs
  - increase public accountability of decision-makers.

- 4.16 In its National Infrastructure Assessment<sup>1</sup>, the National Infrastructure Commission recommended that “all government departments and agencies should therefore collect and publish costs and benefits estimates and outturns for major infrastructure projects”. The Government agrees with this proposal and will set out new requirements for business case publication and greater transparency in the National Infrastructure Strategy<sup>2</sup>, also published alongside Spending Review 2020.

## Future updates

- 4.17 The Green Book is used in conjunction with the Treasury’s Business Case Guidance, which is already fully consistent with the new Green Book.
- 4.18 The Green Book has also been revised to reflect new or updated guidance in relation to Multi-Criteria Decision Analysis, Optimism Bias and Evaluation.
- 4.19 The Green Book is supported by supplementary guidance that sets out detailed appraisal issues relevant to different departments. All new guidance must follow a well-established process of peer review before it is approved as supplementary guidance to the Green Book. New guidance is currently being developed and will be published over the coming year, on optimism bias, the valuation of estate maintenance, and the valuation of legacy IT systems and risks, valuation of wellbeing, and the valuation of biodiversity.
- 4.20 To ensure that the existing supplementary guidance is consistent with the revised Green Book, a review will be coordinated and peer reviewed through the Chief Economist Appraisal Group.

---

<sup>1</sup> National Infrastructure Assessment, <https://www.nic.org.uk/assessment/national-infrastructure-assessment/>

<sup>2</sup> National Infrastructure Strategy, <https://www.gov.uk/government/publications/national-infrastructure-strategy>



## HM Treasury contacts

This document can be downloaded from [www.gov.uk](http://www.gov.uk)

If you require this information in an alternative format or have general enquiries about HM Treasury and its work, contact:

Correspondence Team  
HM Treasury  
1 Horse Guards Road  
London  
SW1A 2HQ

Tel: 020 7270 5000

Email: [public.enquiries@hmtreasury.gov.uk](mailto:public.enquiries@hmtreasury.gov.uk)