

Greening the Green Book

How does HM Treasury's Green Book need to be adjusted to support sustainability objectives and the transition to a low carbon economy?

Introduction

The underlying proposition in this report is that the approach to investment appraisal in the Green Book risks inhibiting the development of sustainable procurement in the public sector and in consequence the UK's transition to a low carbon economy.

The Green Book dates back to 1991 and has steadily evolved ever since, remaining faithful to its core principles. Supporting investment in a low carbon future, together with the need for resilience, resource management and security were probably far from the minds of that generation of administrators, who were perhaps more concerned with defining the boundaries of the public sector and the rules of its engagement with the wider economy.

As a result, the Green Book rules are designed to reinforce existing investment behaviour and are embedded in historic strategies, placing a high value on precedent, evidence and established ways of working.

If the changes that are required to achieve a sustainable, low carbon economy are as radical as government policy would have us believe, there is a major disconnect between high level strategy which promulgates sustainability and a low carbon transition and the rules that the public sector is required to follow in assessing the benefits and thereby delivering it.

This is not intended to be a comprehensive review of the Green Book, but picks up issues in Sections 1 -5, together with Annexes 1 and 2 ("Government Intervention" and "Valuing non-market Impacts" respectively).

A number of suggestions are made in this paper. They are not intended to be cumulative in the sense that they come as a combined package. In fact, a number of them are likely to overlap in terms of the impact they have and choices would need to be made about which approaches to adopt. The intention has been to provide a number of ideas for discussion deriving from the proposition that the Green Book may no longer be fit for purpose.

Overview - The Green Book

The Treasury Green Book is the cornerstone of project and programme appraisal and evaluation in the UK public sector. It provides clear guidance on how projects and programmes should be costed, appraised and evaluated, and how business cases should be developed to support the investment required. Although it is entitled "Appraisal and Evaluation in Central Government", it has been widely adopted at all levels of governmental and public sector agency activity.

The Green Book states that the activities it covers are:

- Policy and programme development
- New or replacement capital projects
- Use or disposal of existing assets
- Specification of regulations
- Major procurement decisions

The guidance contained within the Green Book should be used both for planning purposes and retrospectively, in evaluating the outcomes from a project or programme.

Whilst the Green Book recognises the need for environmental factors to be taken into account, our proposition is that the Green Book is not currently an effective mechanism for driving through sustainable, low carbon projects and programmes, as the economic costs and the benefits of such projects are difficult to assess. Not only does it not explicitly support the Government's low carbon agenda, but, worse, it represents a barrier to implementation of sustainable projects and programmes. There are two principal reasons for this:

1. The Green Book characterises these considerations as primarily "environmental" in nature. This does not provide a sufficiently broad perspective on sustainability issues; and

2. Even if this over-arching concern did not exist, the Green Book does not provide any explicit mechanisms for favouring sustainable over non-sustainable projects and programme solutions. In principle it provides for project sponsors to factor in the cost of carbon, although:

- there is currently no detailed guidance on this matter;
- the current market price would probably be an inadequate lever in any event; and
- sustainability is not just about carbon costs.

While the principle of sustainability may be implicit in the considerations of long term risks and life cycle costs, there is no specific direction on sustainable solutions. The supporting analysis for a project appraisal is therefore likely to be couched in today's terms, projecting forward on the basis of a steady evolution. There is certainly no recognition that a paradigm shift that is needed towards low carbon, resource efficient development. This is in direct contradiction to strategic policy decisions that are being taken at national and supra-national level.

The likely outcome from a typical Green Book project appraisal, therefore, is a default "lowest current cost / minimum ascertainable risk" position. Perceived affordability is clear a major driver in project appraisal and projects sponsors will seek to strip out any avoidable cost

that is not directly attributable to the specification that they are seeking to procure.

The process is also made more problematic by the emphasis on market-based comparators. The low carbon sector is characterised by market failure in an objective sense; that is, the market is not currently geared up to meet the requirements of a low carbon economy. This is self evident, as it is an emerging marketplace and policy landscape and is also why such a huge amount of time and resource is being dedicated across the public and private sectors to bridge that gap. The standard Green Book policy approach will therefore attribute low values to benefits and high values to risks associated with low carbon, low resource solutions and the projected costs from adopting an "as is" solution.

In addition, because the incentives and policy drivers that do exist to favour sustainable development are focused on areas that are often relatively marginal in terms of overall project cost (e.g. the energy component of large construction projects), they are not sufficient levers in themselves to re-orientate investment appraisal in a sustainable, low-carbon direction, whilst the sustainability issues that new projects and programmes raise have enormous future implications.

Finally, the underlying logic of the Green Book methodology, which adopts a relativistic approach and seeks to reduce all elements to a single common denominator means that avoidance strategies are always feasible, regardless of how strong the guidance to adopt the preferred low carbon or low resource strategy.

By way of example, a construction solution that achieves a lower BREEAM rating could well be adopted in preference to a more sustainable solution on cost grounds. This is a result of a combination of factors, including:

- A lack of a "sustainability baseline"
- The relatively marginal role that carbon reduction and energy savings play in the overall cost analysis; and
- The inability of the established methodology to cater for an expected step change or paradigm shift in the future
- A lack of interest in or understanding of the long term cumulative impact of the public sector adopting this kind of approach.

Put simply, a solution that is resource intensive but low cost in today's terms will in all likelihood remain the preferred option under the current investment appraisal methodology.

Clearly the public sector will wish to share the burden of transitioning to a low carbon economy as far as possible with the private sector. However, unless it gives strong signals in its own procurement strategy, it can't expect to lead by example. Project sponsors and managers won't give strong signals in their procurements unless directed to by their own investment appraisal rules.

This report comments on the areas in the current Green Book that raise particular issues and offers some initial ideas as to how investment appraisal methodologies could be re-examined to provide more favourable outcomes for sustainable options.

We recognise that revision of the Green Book would require detailed and extensive work, which does not fall within the scope of this note, but we hope that this will start the debate around much needed reform.

What do we mean by "Sustainability"?

As we have identified elsewhere, "sustainability" is given different interpretations by different people. From a Green Book perspective, we think that the critical question is one of natural resources and how they are used. This clearly covers energy but should also consider water and food, where applicable. Our proposition is that investment appraisal should favour lower or more efficient use of resources over higher or less efficient use of resources. A critical measure of resource usage is the level of waste output from these activities, including CO2 emissions.

A change of mindset is needed, which sees resources, particularly finite resources, as not necessarily having an easily monetised replaceable value and not simply articulated as a financial cost expressed in today's terms .

This approach would be consistent with a view of government as the ultimate guardian of these resources, rather than simply government as a buyer of services on behalf of its citizens. Whilst the present cost comparison might suggest that it would be more expensive for government to invest in low resources solutions today, the argument is that it will ultimately have to deal with and pay for current inefficiencies in resource utilisation.

We also believe that consideration should be given to establishing sustainability "baselines" in certain areas, or minimum requirements. These have already featured in policy terms such as the Code for Sustainable Homes or the Merton Rule, but these policies are market dependent and don't go to the core of the public sector's day-to-day procurement strategy. There should be a "sine qua non" embedded in principles of investment appraisal - without which projects should not proceed. The benefits from these minimum requirements are taken as a given and should not need to be evaluated through quantitative analysis.

Some detailed commentary on particular sections of the Green Book is provided below, followed by concluding remarks. This is not intended to be a detailed review of the Green Book; rather to create ideas for discussion and further work.

Specific Commentary

Section 1 - Introduction and background

The Green Book should explicitly set the context of the challenges that the UK faces in terms of future use of resources and the associated issues of climate change. This should set the context for all public sector investment appraisal.

The Introduction states that "the purpose of the Green Book is to ensure that no policy, programme or project is adopted without first having the answer to these questions:

- Are there better ways to achieve this objective?
- Are there better uses for these resources?

A third leg to this question should be added, namely:

- Does the project use resources as efficiently as possible?

The introduction talks about how "economic, financial, social and environmental assessments" should be combined. As indicated in our introduction, this fails to pinpoint the use of resources and waste outputs as key considerations.

A key problem is with how the Green Book is used - i.e. at the micro level to compare the costs and benefits of project options, but it is not used in any significant way to compare the costs/benefits of programmes, e.g. education investment as opposed to with, say, transport investment. This means that sustainability issues are not analysed in strategic terms.

Section 2 - Overview of Appraisal and Evaluation

This the Section of the Green Book where cost-benefit analysis is first referred to. This would be the right place to establish some core first principles around the use of resources. This would then apply to the Option Appraisal.

We suggest that Use of Resources should be separately analysed within the Option Appraisal.

An established principle of the Option Appraisal is the "Do Minimum Option". At the present time, no consideration is given to the implicit benefits in terms of use of resources that arise from minimising the level of activity in the project. For example, in a standard public sector building project, no allowance in the Green Book analysis is made for embedded carbon in an existing development or conversely the carbon emitted through the process of demolishing the existing building and replacing it with a new one. Nor does it factor in supply chain emissions (or "scope 3" emissions under the GHG protocol).

We suggest that the comparison of Base Case options with the Do Minimum should include an explicit analysis and recognition of the differential resource usage (or "negative usage" in terms of embedded or "scope 3" carbon emissions).

Under the heading "Presenting the Results", Box 3 sets out a wide range of possible outputs of an economic appraisal or evaluation. It is effectively a list of contents listing out the business cases and various appraisals and assessments that could be produced. The implication is that these are all optional. However, sustainability issues are potentially dealt with under:

- "Environmental Appraisal"; and
- "Integrated Policy Appraisal" (IPA)

The IPA is a catch-all but covers climate change, air quality, landscape, land use, waste, water, biodiversity and noise.

Clearly there is a risk of a lack of focus on the key sustainability issues with this format, and the risk that these issues get lost in the large number of documents and are easy to deprioritise or even discard altogether.

We suggest that sustainability issues should be valued as costs and benefits and a distinct "Sustainability Appraisal" be included as a non-optional component of the economic appraisal and that a number of the others be merged, with clear supporting guidance.

Under "Issues Relevant to Appraisal and Evaluation" (2.25), some of these themes are repeated - there is a clear opportunity to embed the principles of sustainability in these issues.

Section 4 - Setting Objectives

One of the key successes in public sector project management and procurement policy has been to embed the acronym SMART (Specific, Measurable, Achievable, Relevant and Time-bound) as a checklist against which to assess targets.

In fact, targets need to be SMARTER. In other words:

Specific
Measurable
Achievable
Relevant
Time-bound
Environmentally positive; and
Resource aware.

Section 5 - Appraising the Options

This section in the Green Book develops some of the ideas referred to in Section 2 of the Green Book, and discusses how options can be created and values estimated for the Base Case.

We suggest that in order to qualify as legitimate Base Case options, a quantified improvement in resource usage must be shown relative to the "Do Minimum Option".

"Valuing the Costs and Benefits of Options"

The guidance stipulates that this exercise needs to be undertaken for all options, and the net benefits and costs calculated. In order to give a positive stimulus to low carbon appraisal, the Green Book will need to make a number of specific assumptions about the cost of non-sustainable options. Understandably, significant store is set by the level of confidence in the data provided.

The difficulty with the sustainability agenda is that there is a limited level of confidence because we are attempting to predict outcomes with no historical precedent. However, there are a number of reference points that give a point of departure for this work, such as:

- A range of scenarios for forward energy prices where Government could give guidance about which scenario to use;
- Work around the costs and impact of a given rise in average global temperatures;
- Specific "hotspots" such as areas of greater flood risk, run-off issues etc. Sustainable Urban Drainage Solutions could, for example, be a "sine qua non" as described above;
- Positive and negative development strategies;
- "Resource positive" actions which have limited immediate commercial value, such as tree-planting;
- The Government's stated objective of setting a floor price for carbon (presumably at a level to stimulate greater low carbon investment).

We suggest that specific baseline values for these elements should be factored into the analysis - for example as multipliers of costs or benefits. The argument may be countered that sustainability measurement methodologies are diverse, fluid and non-standardised at the present time. Our response would be that the Government needs to take a preliminary view on these areas and be prepared to subject them to periodic review in order to show leadership in sustainability.

The subsequent costs and benefits sections should be subject to review and revision in this context. The established principle of determining benefits from market data should not apply in relation to the sustainability aspects of the project evaluation. Instead, Government should develop a methodology specifically aimed at recognising the expected long term outcomes from the adoption or otherwise of sustainability principles. By the same token, the secondary principle of testing what consumers wish to pay may be inappropriate in a sustainability context.

"Distributional Analysis"

The guidance then moves on to discuss the adjustment of values of costs and benefits. A core principle that requires review is the "diminishing marginal utility of additional

consumption". There are a number of issues with this concept, which would require an extensive treatise to discuss. However, there is a key point here which goes to the heart of any sustainable development strategy, which is that investment decisions around low carbon and sustainable use of resources are determined not simply by the impact that would be felt in achieving these objectives but also by how much social or economic benefit can be derived. In some cases, this may create conflicting objectives. For example, a city looking to decide in which particular district a pilot sustainability project should be implemented may have to choose between a wealthy, high resource and carbon use area where the impact is likely to be most significant, or a deprived area which in objective terms is a lower consumer of resources and emitter of carbon but where the project there is seen to have some regenerative impact.. This example could be characterised as a general issue about balancing "market failure" against "equity", but also illustrates a fundamental tension in sustainability investment, namely maximum impact may not be in areas perceived to be most needful of investment.

Distributional analysis is intended for social projects. The Green Book says that it is "largely correlated with income" or about market failure. The Green Book is also not specific about how relevant factors should be prioritised against one another when they come into conflict.

Careful consideration needs to be given as to how sustainability factors and low carbon should be treated. Clearly care also needs to be taken to avoid a compounding effect of a number of different changes which might create a "double count" of sustainability costs and benefits. However, one idea would be to create some kind of hierarchy which pinpoints more effectively when and how distributional factors should be taken into account.

Discount Rate

Discounting is a key component of project evaluation. As has been shown in public sector projects over the years, the discount rate applied to cashflows in the financial analysis has a major impact on their apparent financial viability.. Where options with different cashflow profiles are being compared against one another, the level of discount rate that supposedly "equalises" these cashflows in present day terms to derive a net present value can determine which option seems more desirable and therefore affect the investment decision taken.

The discount rate approach follows standard corporate finance discounted cashflow principles but in the Green Book is expressed as a "social time preference rate" ("STPR"). The STPR reflects that society "prefers to receive goods and services sooner rather than later, and to defer costs to future generations".

The question which then follows is this: is this focus on today's society still correct given the need for sustainability (and the importance of future generations)?

The rate has been fixed at 3.5% for some years, so unlike a corporate weighted average cost of capital (WACC), does not respond to changes in the cost of finance over time.

Prior to April 2003 the STPR was set at 6%. The process of transition to 3.5% from 6% which took place at the time is a useful counterpoint to an argument that the Green Book methodologies are objective and absolute. As an example, PFI projects should have been particularly sensitive to the change in discount rate in 2003, because the investment case required an alternative "Public Sector Comparator", but in fact as far as we can see it made no appreciable difference to the rate of approvals for projects. There may have been some empirical evidence offered for the change at the time - it was argued to be "unpacking" some of the "risk" elements of the higher 6% rate, but those involved in project appraisal at the time will recognise that the supposed risk element could be seen as highly subjective.

When decisions are made between different options, the discount rate used to make the NPV comparison matters a great deal. A project which requires significant upfront investment but has a relatively long payback is likely to fare worse than one with a shorter payback or more limited upfront investment. In other words, investing for the long term gets penalised. Effectively what this says is we don't care about the future. This is not a peculiarly public sector problem; the private sector investment community also suffers from this. However, without some assistance, projects that plan for the next generation are barely going to get a second chance.

Interestingly, the Green Book does provide for a step-down in discount rates after Year 30, but the step-down is very gradual and cashflows after this period are likely to have a marginal impact on the overall NPV anyway, because they are so far in the future they are "drowned out" by the earlier cashflows.

This principle could be adapted to enhance the NPV of sustainability benefits from different options by bringing forward the point at which a differential discount rate is applied - say after Year 10. By the same argument, the lower discount rate could also apply to sustainability "disbenefits" e.g. the risk flood of flooding.

Adjusting for Relative Price Changes

The section is about circumstances where the rate of price increase or decrease for a particular element (fuel costs and technology costs are cited) departs from average expected inflation. This might be seen as an opportunity to price in the expected impact of future resource constraints or potentially some kind of carbon inflator, but the difficulty for most project sponsors will be accessing sufficient up to date data to be able to perform this analysis with confidence.

Government could provide positive encouragement to make use of this section by specifying key areas where adjustments could be made. It would also need to provide baseline data or projections from which to work, whilst acknowledging that these will need to be periodically modified.

Adjusting for Bias and Risks - Optimism Bias

Optimism bias is a reasonable observation that public sector project sponsors tend to underplay the risks and therefore the out-turn costs associated with projects. This common-sense statement evolved into a highly detailed analysis which arguably added complexity without clarity and left the process open to charges of spurious accuracy. Risk quantification remains an obscure art in public sector investment appraisal.

We would submit that unfamiliar solutions (as will be the case to a greater or lesser extent with sustainability and low carbon solutions) will tend to be subject to "pessimism bias", with benefits understated and costs if anything overstated. This will be exacerbated by a lack of performance data because often emerging technologies or solutions will be involved.

Clearly a careful line needs to be trodden here. Optimism bias is in part about trying to predict cost out-turns more accurately, and the cost risks associated with emerging technologies cannot simply be ignored. However, the process also values project options against one another, and perhaps these two purposes need to be seen as distinct and treated as such. One option would be to build in an element of "sustainability risk" to options that do not demonstrate forward planning for resource use and carbon emissions.

Annex 1 - Government Intervention

Although this is an Annex, it is arguably the most important section of the Green Book, as it explains the rationale for Government engaging in projects in the first place. Two reasons are identified:

- The achievement of economic objectives by addressing inefficiencies in the operation of markets and institutions; and
- The achievement of an equity objective, such as local or regional regeneration.

In other words, the rationale has to be about market failure or inequality. Nowhere is sustainability or the management of resources mentioned, although arguably these issues are likely to be hugely important areas of government intervention over the coming decades as it strives to reduce waste outputs, switch from finite to renewable resources and keep the lights on.

There is, quite simply, a major leg missing here.

Annex 2 - Valuing Non-Market Impacts

This Annex is central to the problem with the Green Book. If we look at "Valuing Environmental Impacts" in this Annex, the text in this section places the issue firmly in the "too difficult" box. Phrases such as "no standard guidance", "a complex science", "it is not easy", "establishing values...is difficult", "difficult to measure" and "complex" etc give a clear and none too positive assessment of the task facing anyone determined to take these factors into account. This sets the tone for the project appraisal.

Whilst all of the foregoing may be true, the Green Book should be offering interim simplified methodologies that at least allow a recognition of these issues to be brought into the analysis.

Conclusions

The Green Book rests on an economic paradigm and a philosophy of government activity that lag behind the evolution of the key challenges - and opportunities - faced in the transition to a lower resource, lower waste - and therefore more sustainable economic model. The need for sustainable procurement in the public sector is well recognised, but without appraisal tools that fit the purpose, a transition to new ways of working is likely to take longer and, in the long run prove more expensive, as poor decision making is likely to result.

The paper recognises that the task of realigning - "greening" the Green Book is a major one, but offers some ideas which might serve as starting points for this journey.

If you would like to discuss these issues further please contact your local Grant Thornton representative or:

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