



Recommendations from round table discussion: ***Is the Green Book fit for purpose in a climate emergency?***

Background

The Green Book,¹ produced by HM Treasury (HMT), sets out how to assess public sector projects or policy interventions to inform public sector spending decisions and to ensure that projects give value for money. It is a highly respected document, and is used not only in the UK but also by practitioners in many other countries who want a recognised tool for appraising large projects. The Green Book is part of a wider suite of guidance including the HMT five case model, the focus here being the Strategic Case and the Economic Case in the five case model. The methodology in the Green Book is primarily based on cost-effectiveness or cost-benefit analysis, in which all the material effects of the project are monetised,² and count towards the costs and benefits. Thus all the environmental impacts will also be rolled up and amalgamated with other costs and benefits.

Green House think tank hosted a round table discussion with experts in the field, including academics (heterodox, ecological and environmental economists, and a philosopher), civil servants, ecologists, an elected local councillor, a finance expert, a Green Party peer and members of Green House. This event was precipitated from some Green House work entitled 'Measuring What Matters: Updating the Treasury's "Green Book" for the Climate Emergency'.³

In this round table event we discussed how the current system of project appraisal can be improved when considering environmental factors for which we're overshooting planetary boundaries very possibly leading to catastrophic tipping points. This document details eight recommendations based on the discussions, the examples given all having come up during the discussions. Very little direct criticism of the current content of the Green Book was voiced,

¹ The [Green Book](#) published by HM Treasury, March 2022 version. Many of the recommendations are also relevant to the closely related Five Case Model, which is referred to in the Green Book.

² In this context 'monetised' means expressed in monetary terms whether or not there is an 'actual' cost identifiable in the market. HMT has developed a range of 'proxy' monetary values for non-traded goods such as the value of health/life and environmental impacts. For exceptional cases where impacts are considered not to be capable of monetisation, these may be considered alongside the monetised values.

³ See <https://www.greenhousethinktank.org/measuring-what-matters-updating-the-treasurys-green-book-for-the-climate-emergency/>

rather, the discussions highlighted: where detail or analysis is currently typically lacking in a Green Book type appraisal; where extra explicit information could aid meeting environmental goals; and where a Green Book type analysis is not currently required but better decisions might be made if such an analysis were required. These recommendations are not a unanimous consensus of all the participants (with some participants definitely not agreeing with some recommendations); rather, what is hoped will be a useful input into what needs to be considered for future iterations of the Green Book.

There is an extensive academic literature on environmental evaluation⁴ which is not considered further here, as this document is based on the comments made by the experts present at the round table event.

Recommendations

1. The Strategic Case should be strengthened

The Green Book clearly states that the strategic case for making an intervention should be made, however the group were pretty much unanimous in finding that far more effort should

“Government should spend more time on strategy and choices, and less time on refining a particular project”

be put into making this strategic case. The presentation of any appraisal of a potential project or programme should focus strongly on this strategic case: *why* is this intervention necessary? At the

moment the strategic business case can almost become a tick box exercise, and the focus moves quickly to the mechanics of the cost benefit analysis, perhaps due to the complexity of the calculations.⁵ Unfortunately this has the disadvantage that the fundamental strategy is not properly considered (see box on HS2), and the cost-benefit analysis can come to dominate. In certain cases a cost-benefit analysis may not be necessary at all, whereas a strong strategic case is always needed. In all cases the strategic case must

What is the question to which HS2 is the answer?

- If it's about increasing capacity: revamping existing track (or doubling it) would be cheaper
- If it's to improve aggregate commuter times: improving the time from just outside London to the centre of London would have biggest effect
- If it's for the Northern Powerhouse: an East-West link in the North would have biggest effect

Where is the strategic thinking?

⁴ See, for example, Debating Nature's Natural Capital ed. Victor Anderson pub. Palgrave 2018; <https://www.greenhousethinktank.org/the-economisation-of-nature-and-its-services-the-path-to-salvation-or-the-wrong-track/> ; <https://www.greenhousethinktank.org/finance-based-transition-solutions-approach-with-caution/>

⁵ Guidance should be extended so the amount of analysis necessary is proportionate to the size of the project (at the moment, practitioners within the civil service can get “bogged down” by how much supplementary guidance there is).

'trump' any economic case, and a Green Book appraisal should never be seen as a tick-box exercise.

The recommendation here is that the Green Book should emphasise more strongly the importance of making the strategic case. The Green Book mentions that the *rationale* for the project must be identified (e.g. in section 2.9 of ref¹), and the *strategic dimension* "is where external constraints that a proposal must work within are considered, for example, legal, ethical, political, or technological factors" (section 3.25 of ref¹). This list notably lacks "environmental" constraints. Whilst the political nature of strategic decisions is acknowledged, advice on how detailed this strategic dimension should be is lacking (see box for type of questions that need to be answered regarding the example of reforestation). Advice is also lacking regarding what processes could be used to aid formulating the strategic case, and who should be involved in such processes.

Considering reforestation the UK: what is the strategy?

To keep down costs per tree? To have recreational benefits? To reach net zero targets?
To improve biodiversity? To give ecosystem services such as flood prevention?

These questions must be answered before programmes and projects are envisaged.

2. The strategic case should cover potentially irreversible side-effects of the project or programme

The group discussed (a) how it is impossible to put a monetised value on some important factors such as rare ecosystems, thereby making it impossible to include them in a cost benefit analysis, whereas the monetised value of ecosystem services can (and should) be included in such an analysis. The group went on to discuss (b) how environmental factors should be included in a Green Book analysis.

a) Some things can't be monetised

Some aspects of nature can't be usefully monetised, such as the 'value' of protecting specific species at risk of extinction within a biodiverse habitat. Whilst there are ways of making monetary valuations (e.g. willingness to pay), the group did not consider these to be useful for

“Amalgamating all of these things [natural capital] that can be equated to a number of bricks is a massive mistake”

valuing ecosystems. The group noted that "there are orders of magnitude differences between willingness to pay and willingness to lose" valuations. It was also mentioned that resilience comes

from complexity – and simplifying ecosystems to a single monetary value would lose this information.

However, where a monetary value can be given to an ecosystem *service*, this should be used (see box on peatland restoration).

Peatland restoration to mitigate flood risks

The reduction of flood risks through the restoration of peatlands can be reasonably accurately estimated, then these restoration costs can be compared to those of building extra flood defence infrastructure.

b) Environmental factors need to be included in the strategic case

Just because some things can't be monetised and therefore can't be included in the economic case, does not mean they should be neglected. Some environmental factors are overshooting

“We need to do biodiversity offsetting, but we need to do it right”

“Where developers are committed to conducting biodiversity offsetting, generally speaking it doesn't happen, as there aren't mechanisms in place to make it happen”

safe planetary boundaries, where a tipping point (or irreversible change of state) may occur. The effect on such environmental factors by the many relatively limited marginal impacts of individual projects can add up to aggregate impacts that are strategically untenable (in that they might take us over tipping points). Therefore any potential negative side-effect of a project on key environmental factors (e.g. destruction of a rare ecosystem) should be addressed in the strategic case. In summary, as well as covering the rationale for the intervention, the strategic case should address the effects of the project on greenhouse gas emissions and biodiversity. If the project has potential negative side-effects on these, questions such as the following should be answered: What is the most cost effective way the strategic goal can be reached that avoids (or minimises) these negative outcomes? In other words the options with environmentally damaging impacts, which, when added together with such impacts of many other projects could take us over planetary tipping points, should be excluded from the detailed options appraisal.

For natural capital, a set of “iron clad” rules to ameliorate or avoid ecological loss would work better than monetising the potential damage a project might do and then including it in the cost benefit analysis, for example:

nature corridors *must* be preserved. Regulation of various issues already applies this principle of placing boundaries on how

HS2 appears to have been routed through ancient woodlands as this was the cheapest option: this was a “catastrophic” choice

projects may be delivered. This will not mean that an infrastructure project can't proceed - rather that if it proceeds then it must have green bridges or tunnels such that the nature

corridor remains intact (the cost of these mitigation measures being included in the analysis). Biodiversity net gain can be used to ensure developments result in an improvement to biodiversity, “but if there is a site which can’t be replicated, then don’t build on it”.

The global significance of different sites also needs to be taken into account. For example, two thirds of all the chalk streams in the world are in the South of England, so more effort should go into preserving these than other more abundant ecosystems.

Further to this, the resilience of ecosystems in the face of climate change should be considered: there is no point in spending a huge amount of money preserving a chalk stream in the knowledge that it will dry up in twenty year’s time.

3. The amount of greenhouse gases should be explicit in the strategic case

Despite the fact that the cost of the emissions of greenhouse gases is monetised in the Green Book (using a value from a cost effectiveness calculation for reaching net zero by 2050), the amount of tonnes of greenhouse gas equivalent should be made explicit. Otherwise these become ‘lost’ in the calculations, making it more difficult to understand the impact on reaching our net-zero goal. These should be presented for both the capital outlay emissions and ongoing emissions, for all the different potential projects under investigation (for meeting the strategic goal) so that these can be directly compared.

4. National goals for environmental factors need to be cascaded down to local levels

National goals, such as the UK should have net-zero carbon emissions by 2050, need to be cascaded down to local governments so each area has meaningful local goals to meet at the

“Where there is a democratically agreed target [e.g. net zero at 2050] we should be using cost effectiveness”

appropriate decision-making level to ensure that local development and local area energy plans are consistent with these goals. In the case of carbon

emissions, these should be included so the carbon ‘costs’ of a project (as described in (3) above) are presented alongside the local carbon emission ‘limits’. The setting of regional limits could potentially be achieved through the recently instated five regional Net-Zero Hubs. The Green Book analysis currently only applies to publicly funded projects and is only mandated in respect of centrally funded projects. If a Green Book appraisal was required more widely (see recommendations 5, 6 and 7 below) or if other local monitoring was undertaken, local government could better influence⁶ and potentially control local emissions to ensure that their

⁶ The Net Zero Strategy: Build Back Greener policy paper states that “82% of emissions are within the scope of influence of local authorities” and that “30% of the emissions reductions needed across all

area was meeting its target. In this case local reporting and management of targets on a regional basis would be a powerful tool in meeting those Net Zero targets.

5. A standardised Green Book appraisal including environmental factors should be used at the local level

a) The Green Book appraisal should be used more widely

In general, the Green Book has the advantage of standardising how projects are assessed. The group found it should be used far more often in local decision making, with the proviso that environmental factors are given proper consideration in local level decision making.

Further to this, more guidance should be given on using the Green Book appraisal in a 'proportionate' way compared to the size of the project, such that the analysis is not too "burdensome".

b) Environmental factors must be included

When a local authority or body is making a case to win funding from a higher level of government, a strategic case that covers greenhouse gas emissions and biodiversity loss/gain

"I don't know anyone who thinks this [project appraisal] is working at the local level... Environmental benefits are being neglected"

should *have to* accompany the economic case for the project, and *these should be seriously assessed*. Currently only the economic case is considered relevant, and any factors which aren't considered to have been rigorously assessed in the

economic case are ignored by the regional economics teams, as they believe this will give them the best chance of winning a bid from the particular pot of money available. Factors for which a rigorous economic assessment is available, such as the monetised benefit of travel time savings, tend to dominate whilst environmental factors are ignored. If local "iron clad" rules applied at the local level (as in point (2b) above), and local goals for environmental factors (as in point (4) above) were available, these could potentially get these included in a meaningful way. Further to this, the central government departments

"We're never going to hit net zero if we're not taking local decisions in the right way"

handing out the 'pots' of money for particular projects⁷ should insist that a Green Book type appraisal is carried out which includes environmental factors.

6. Significant procurement projects, public private partnership projects and government subsidies should be subject to a Green Book appraisal

At the moment there is an unlevel playing field between the costs for a public body to carry out a project compared to those of a private organisation. Public sector bodies are required by the Green Book to take account of, for example, the costs to society of carbon emissions

“We place higher standards on the public sector [than the private sector]”

whereas private organisations do not have this requirement and would only include actual costs for planning and submitting bids

for public funding. All significant projects depending on governmental consent or approval - including public procurement projects, public private partnership projects and projects with government subsidies to private firms - should have to be subject to a Green Book appraisal so the full costs and benefits to society are transparent.

7. Consider requiring a Green Book appraisal for planning permission for significant projects

There is currently a potential market distortion: a project could be rejected on the basis of costs if it were to be carried out by a public body due to, for instance, high carbon costs that are required by the Green Book analysis, whereas the very same project could be given planning permission for a private firm to undertake as these carbon costs are not real costs that the firm has to pay.⁸ In such cases the reason that the project should *not* be carried out (due to it having higher costs than benefits to society) may currently be being neglected. The current approach may also incentivise contracting out projects that would otherwise be better run 'in-house'. Could and should planning permission be subject to a Green Book appraisal? This should be further considered.

⁷ The point was also made that much funding is allocated to particular 'pots' for activities such as house insulation or road building without any strategy or Green Book appraisal, and that money would be better allocated using a Green Book approach for identifying where a 'pot' might be most effective.

⁸ The issue is implicitly acknowledged in the Policy Paper Valuation of greenhouse gas emissions: for policy appraisal and evaluation, Published 2 September 2021, which states "Carbon valuation is not a policy instrument in itself. It is a £-value applied in appraisal in order to guide government decision-making,.....Unless it is translated into a tangible incentive (and the incentive may exceed the carbon value in order to overcome barriers) it will not act upon private economic agents, whether individuals or business." <https://www.gov.uk/government/publications/valuing-greenhouse-gas-emissions-in-policy-appraisal/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation>

8. The discount rate and the way risk is dealt with need reviewing

The idea of valuation and discounting (i.e. welfare economics) is flatly rejected by some academics, as it makes the assumptions that: (a) valuations can be objective; (b) the value of costs and benefits to future generations are less than they are to the current generation (as it is assumed that future generations will be wealthier); (c) only people's preferences are relevant, not, for instance, "satisfying human needs or avoiding harms"; and (d) there is no value in protecting non-human aspects of nature for its own sake. It could well be that future economists might favour a different type of economic modelling, for example, taking a systems approach. Such an approach might be useful for large complex systems (the Green Book approach is only valid for a marginal paradigm).

Further to this, even for members of the group in favour of using discounting, the method of including catastrophic outcomes in the discount rate needs to be updated according to the latest work on the issue. Just in pragmatic terms, subsuming the very thing that is perhaps most feared into the discount rate will mean that it is not even explicitly considered in the analytical process.

The uncertainty about the discount rate (and, indeed, if welfare economics is a useful approach) reinforces the idea that the 'heavy lifting' work of a Green Book analysis should be

"What if future growth is negative?"

in the strategic case, not in the cost benefit analysis. In cases where the result of the cost benefit approach is sensitive to the

value of the discount rate, novel approaches should be encouraged, such as:

- scenario analysis - a real negative economic growth in the future can't be ruled out: what effect would this have on the choice of projects?
- Including real options – this is not "delaying a decision" but rather building in flexibility such as specifying that, for example, a new gas network should be capable of transporting hydrogen which builds in the option of switching to hydrogen further down the line.

In general, the use of additional economic modelling approaches would increase the robustness of the results.

About the participants

It should not be assumed that all participants would endorse all the recommendations above.

Natalie Bennet (Chair) was introduced as the second Green Peer in the House of Lords in October, 2019, joining Jenny Jones, having been Leader of the Green Party from 2012 to 2016. She has decades of campaigning for change experience on three continents, and the knowledge of what's being done well and badly from cities and towns across the UK. In October last year she secured a debate on HMT's Green Book in the House: <https://www.nataliebennett.org/latest/-my-question-for-short-debate-treasury-green-book>, propounding then, that if the Treasury was not prepared to go to a New Zealand-style Living Standards Framework, it at least set a carbon budget alongside the financial for every aspect of its spending.

Matt Buckler is an ecologist who has worked using the concept of natural capital as a tool. He has used it to justify a number of projects such as restoring peatlands and forest for water quality and flood risk reduction, the funding of beaver reintroductions in Derbyshire for their positive impact on water quality, and the proposed wilding of Allestree Park in Derby on the basis of carbon sequestration, health and wellbeing of their residents, ecotourism and flood risk reduction.

Emma Dawnay graduated from Cambridge University in the UK with a degree in natural sciences and has a PhD on optical materials. She has worked in R&D and developed her passion for economics during the dot-com boom and bust at the end of the 1990s. Emma also has an MBA specialising in finance and economics at the London Business School. She has worked with the New Economics Foundation, where she wrote an influential report on behavioural economics. She is an active member of the Green Party, a member of Green House, and is the author of "Measuring What Matters".

Jonathan Elmer is an ecologist and a councillor in Durham City Council, a spokesperson for the Natural World in the Green Party and a passionate advocate of the complex natural systems (ecosystems) that sustain life on our planet. Jonathan has detailed knowledge of how ecosystems function and the existential threats to these systems posed by human activities. He studied Environmental Biology at university and also completed an MSc in Environmental Impact Assessment in the early 1990s.

Henry Leveson-Gower has a wealth of experience as an economist and policy analyst seeking practical solutions to address complex and uncertain challenges in environmental policy. He has always sought to take a pluralist approach to economics since first coming into contact with standard economics in the early 90s following a degree in Philosophy. He also founded and edited The Mint Magazine to share fresh thinking in economics. He has been a practising economist contributing to environmental policy for 30 odd years.

David Smith is a Chartered Accountant with a MBA and an economics degree. He works in the private sphere and has advised the private and public sectors at national and local level in the UK and internationally. His primary focus has been on corporate and project finance advice and business case development. He has worked on developing business cases and guidance based on the HMT Five Case Model/Green Book for central and local government. David is an expert in business valuations including leading the utilities valuation team at PwC and has written and lectured on the topic (including on cost of capital and real options appraisal).

Prashant Vaze is an environmental economist; he has worked as economic advisor in the Departments of Environment, Energy, the Office for National Statistics and the Cabinet Office. He was a user and contributor to the development of previous editions of the Green Book. While at the Department of the Environment he argued for the use of lower discount rates for the appraisal of long-term issues like nuclear waste disposal. He also involved on the debate about Nicholas Stern's adjustments to the discount rate when he worked as deputy-director of central analysis at Defra. Prashant has written popular science books about climate and energy, including "The Economic Environmentalist" and "Repowering Communities".

About Green House

Green House is a think tank founded in 2011. It aims to lead the development of green thinking in the UK.

Vision: Our vision is a world that is protected against a "Hothouse Earth" where catastrophic changes to the climate system have been avoided. Our society and economy are shaped so that we all thrive by living within our planetary boundaries and in greater harmony with nature. We strongly believe in our common humanity, and we are defined both by a culture of hope and realism where the interests of the community are as important as those of the individual.

Mission: Our mission is to develop green thinking by challenging the ideas that have created the world we live in and cultivate alternatives.

About this report

These recommendations are the outcome of a round table discussion held on 10th November, 2022 at 3pm organised by the Green House Think Tank. They were written by Emma Dawnay and Anne Gayfer.

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