HM Treasury

Examples of appraisal calculations

Green Book supplementary guidance

June 2026

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Contents

Introduction

The Green Book is the UK government guidance on 'appraisal', the process of assessing the costs, benefits and risks of different options for achieving government objectives.[1]

The Green Book sets out various calculations that are integral to the appraisal process and essential for assessing costs, benefits and risks. The purpose of this supplementary guidance is to provide simple 'bitesize' examples of some of those calculations. This supports the consistent application of the Green Book across the public sector.

These examples are intended to be illustrative only. All proposals must be understood according to their own characteristics.

1 'The Green Book', HM Treasury, February 2026.

Chapter 1

Forecasting in nominal terms

1.1 This example shows how to forecast the social costs of a proposal in nominal terms.

1.2 In this example, the objective of the proposal is to improve the effectiveness of a public service. One of the options for achieving that objective is Option Willow. It has the following characteristics:

- £90,000 of wage costs in year 1. These wage costs are expected to increase by 3% per year.
- £80,000 of equipment costs in year 1. These equipment costs are expected to increase by 5% per year.
- £40,000 of environmental costs in year 1. These environmental costs are expected to increase by 2% per year.
- The final year of Willow's lifetime is year 5.

1.3 **We want to calculate the wage costs, equipment costs and environmental costs of Willow, in nominal terms, over five years.**

1.4 The nominal price is the price of a good or service in a particular year. It differs from the real price, which is the price of a good or service after removing the effect of general price inflation.

1.5 Suppose that a cost increases by an amount of *p*% from one year to the next. The general formula for calculating that percentage increase is as follows:

$$\text{Cost in year 2} = \text{Cost in year 1} \times (1 + p\%)$$

$$\text{Cost in year 3} = \text{Cost in year 2} \times (1 + p\%)$$

etc.

1.6 We can apply the general formula to calculate wage costs in years 2 and 3:

$$\text{Wage costs in year 2} = \text{Wage costs in year 1} \times (1 + 3\%)$$

$$\text{Wage costs in year 2} = £90{,}000 \times (1 + 3\%)$$

Wage costs in year 2 = £92,700

Wage costs in year 3 = Wage costs in year 2 × (1 + 3%)

Wage costs in year 3 = £92,700 × (1 + 3%)

Wage costs in year 3 = £95,481

1.7 We can apply the general formula to calculate equipment costs in years 2 and 3:

Equipment costs in year 2 = Equipment costs in year 1 × (1 + 5%)

Equipment costs in year 2 = £80,000 × (1 + 5%)

Equipment costs in year 2 = £84,000

Equipment costs in year 3 = Equipment costs in year 2 × (1 + 5%)

Equipment costs in year 3 = £84,000 × (1 + 5%)

Equipment costs in year 3 = £88,200

1.8 We repeat this process for years 4 and 5 for wage costs and equipment costs, and then for environmental costs. The results are shown in Table 1.A.

Table 1.A Nominal costs of Willow, £ thousand

Year	1	2	3	4	5
Wages	90	93	95	98	101
Equipment	80	84	88	93	97
Environmental	40	41	42	42	43
Total	210	218	225	233	242

Source: HM Treasury. *Values rounded to nearest whole number. Totals may not match exactly due to rounding.*

1.9 Rounded to the nearest thousand, the total social costs of Willow in nominal terms are £210,000 in year 1, £218,000 in year 2, £225,000 in year 3, £233,000 in year 4 and £242,000 in year 5.

Chapter 2

Converting values to real terms

2.1 This example shows how to convert the social costs of a proposal from nominal terms into real terms.

2.2 Chapter 1 introduced Option Willow. It has the following characteristics:

- An initial investment of £2,000,000. This is a one-off social cost in year 0.
- Nominal benefits of £800,000 in year 1, which increase by 2% per year thereafter.
- Nominal costs of £210,000 in year 1, £218,000 in year 2, £225,000 in year 3, £233,000 in year 4 and £242,000 in year 5.
- The final year of Willow's lifetime is year 5.

2.3 **We want to adjust these costs and benefits to remove the effect of general price inflation, converting them from nominal terms to real terms.**

2.4 General price inflation is inflation that affects the prices of all goods and services in the economy. It therefore should not affect decisions about social costs and social benefits. Converting values to real terms enables a more accurate assessment of future social costs and social benefits.

2.5 Nominal values should be converted to real terms using a GDP deflator. The GDP deflator is a measure of general price inflation.

2.6 For appraisal periods of up to five years, the Green Book recommends using the GDP deflator forecasts published by the Office for Budget Responsibility (OBR) in its latest *Economic and fiscal outlook*. These values, on a calendar year basis, are reported in Table 2.A.

Table 2.A OBR forecast for GDP deflator, March 2026

Year	2025	2026	2027	2028	2029	2030
GDP deflator	-	2.183%	1.944%	1.888%	1.844%	1.980%

Source: 'March 2026 Economic and fiscal outlook – charts and tables: Annex tables', OBR. *Values rounded to four significant figures.*

2.7 In this example, assume that year 0 corresponds to 2025. This means that the GDP deflator index is set to 1.00 in that year. The OBR forecast is then used to construct a GDP deflator index. The GDP deflator index is cumulative, meaning that the index for a given year is based on the previous year. These calculations are as follows, rounded to four significant figures:

Year 1: *1.000 × (1 + 2.183%) = 1.022*

Year 2: *1.022 × (1 + 1.944%) = 1.042*

Year 3: *1.042 × (1 + 1.888%) = 1.061*

etc.

2.8 The GDP deflator index is used to convert nominal values into real terms. Nominal values are divided by the GDP deflator index to produce real values for each year. The results are presented in Table 2.B.

Table 2.B Nominal and real values

Year	0	1	2	3	4	5
Social benefits[1] (nominal terms)	-	800	816	832	849	866
Social costs[1] (nominal terms)	2,000	210	218	225	233	242
GDP deflator index[2]	1.000	1.022	1.042	1.061	1.081	1.102
Social benefits[1] (real terms)	-	783	783	784	785	786
Social costs[1] (real terms)	2,000	206	209	212	216	220

Source: HM Treasury. *Totals may not match exactly due to rounding.*

[1] *£ thousand, values rounded to nearest whole number.*

[2] *Values rounded to four significant figures.*

2.9 Rounded to the nearest thousand, the total social benefits of Willow in real terms are £783,000 in year 1, £783,000 in year 2, £784,000 in year 3, £785,000 in year 4, £786,000 in year 5.

2.10 Rounded to the nearest thousand, the total social costs of Willow in real terms are £2,000,000 in year 0, £206,000 in year 1, £209,000 in year 2, £212,000 in year 3, £216,000 in year 4 and £220,000 in year 5.

Chapter 3

Discounting and present values

3.1 This example shows how discounting is used to calculate the present value of social costs and social benefits of a proposal.

3.2 Chapters 1 and 2 introduced Option Willow. It has the following characteristics:

- An initial investment of £2,000,000. This is a one-off social cost in year 0.
- Social benefits of £783,000 in year 1, £783,000 in year 2, £784,000 in year 3, £785,000 in year 4 and £786,000 in year 5. These social benefits are in real terms, so have already been deflated by the GDP deflator index.
- Social costs of £206,000 in year 1, £209,000 in year 2, £212,000 in year 3, £216,000 in year 4 and £220,000 in year 5. These social costs are in real terms, so have already been deflated by the GDP deflator index.
- The final year of Willow's lifetime is year 5.

3.3 **We want to calculate the present value of social benefits, and the present value of social costs, for Willow.**

3.4 The Green Book recommends that social costs and social benefits are discounted using the Social Time Preference Rate (STPR). The STPR is 3.50% for years 1 to 30, 3.00% for years 31 to 75, and 2.50% for years 76 to 125.

3.5 Discount factors for years 0 to 125 are provided in the Green Book supplementary guidance on discounting.[2] These discount factors should only be applied to social costs and social benefits that are expressed in real terms.

3.6 The relevant discount factors for this example are calculated as follows:

Year 1: *1.000 ÷ (1 + 3.50%) = 0.9662*

Year 2: *0.966 ÷ (1 + 3.50%) = 0.9335*

2 'Green Book supplementary guidance: discounting', HM Treasury, February 2026.

Year 3: *0.934 ÷ (1 + 3.50%) = 0.9019*

etc.

3.7 To calculate the present value of social benefits, start by multiplying the value for social benefits in each year by the corresponding discount factor for that year. These discounted values are then summed across all years to obtain the present value. This is shown in Table 3.A.

Table 3.A Present value of the social benefits of Willow

Year	0	1	2	3	4	5	Total
Social benefits[1] (undiscounted)	-	783	783	784	785	786	
Discount factor[2]	1.000	0.9662	0.9335	0.9019	0.8714	0.8420	
Social benefits[1] (discounted)	-	757	731	707	684	662	
Present value of social benefits[1]							**3,540**

Source: HM Treasury. *Totals may not match exactly due to rounding.*

[1] *£ thousand, real terms, values rounded to nearest whole number.*

[2] *Values rounded to four significant figures.*

3.8 The same approach is used to calculate the present value of the social costs of Option Willow. This is shown in Table 3.B.

Table 3.B Present value of the social costs of Willow

Year	0	1	2	3	4	5	Total
Social costs[1] (undiscounted)	2,000	206	209	212	216	220	
Discount factor[2]	1.000	0.9662	0.9335	0.9019	0.8714	0.8420	
Social costs (discounted)	2,000	199	195	191	188	185	

Present value of social costs[1]	**2,959**

Source: HM Treasury. *Totals may not match exactly due to rounding.*

[1] *£ thousand, real terms, rounded to nearest whole number.*

[2] *Values rounded to four significant figures*

3.9 The present value of social benefits for Willow is £3,540,000, rounded to the nearest thousand. The present value of social costs for Willow is £2,959,000, rounded to the nearest thousand.

Chapter 4

Summary metrics of social value

4.1 This example shows how to calculate three summary metrics of social value. They are net present social value (NPSV), benefit-cost ratio (BCR), and return on public sector cost (RPSC).

4.2 Chapters 1, 2 and 3 introduced Option Willow. It has the following characteristics:

- Present value of social benefits of £3,540,000.
- Present value of social costs of £2,959,000, of which:
  - £2,781,000 are borne by the public sector.
  - £178,000 are borne by households and organisations outside the public sector (i.e. the non-public sector).

4.3 **We want to calculate the NPSV, BCR and RPSC for Willow.**

4.4 The NPSV of a proposal is the difference between the present value of its social benefits and the present value of its social costs.

NPSV = Present value of social benefits – Present value of social costs

4.5 For Willow, the NPSV is calculated as the difference between £3,540,000 and £2,959,000. This gives an NPSV of £581,000. This indicates that Willow generates £581,000 of value for society.

NPSV = £3,540,000 – £2,959,000 = £581,000

4.6 The BCR of a proposal is the present value of its social benefits divided by the present value of its social costs. The BCR is a measure of the efficiency with which a proposal generates social benefits relative to its social costs.

BCR = Present value of social benefits ÷ Present value of social costs

4.7 For Willow, the BCR is calculated by dividing £3,540,000 by £2,959,000. This gives a BCR of 1.196. This means that Willow generates £1.20 of social benefits for every £1.00 of social costs.

BCR = £3,540,000 ÷ £2,959,000 = 1.196

4.8 The RPSC of Willow is calculated in two stages. The first stage is to subtract the present value of Willow's non-public sector social costs from the present value of its social benefits. In the second stage, this figure is then divided by the present value of Willow's public sector social costs.

RPSC = (Present value of social benefits – Present value of non-public sector social costs) ÷ Present value of public sector social costs

4.9 For Willow, this means subtracting £178,000 from £3,540,000, and then dividing the result by £2,781,000.

RPSC = (£3,540,000 - £178,000) ÷ £2,781,000 = 1.209

4.10 Willow has an RPSC of 1.209. This means that it generates £1.21 of social value for every £1.00 of public sector expenditure.

4.11 NPSV, BCR and RPSC are all expressions of monetisable social costs and monetisable social benefits. These metrics cannot include any social costs or social benefits that are either unmonetisable or unquantifiable. However, the Green Book makes clear that these unmonetisable and unquantifiable impacts are important in making decisions on value for money. Practitioners should therefore properly consider these impacts in an appraisal, alongside any summary metrics of social value. Chapter 6 of the Green Book contains further details on this.

Chapter 5
Sensitivity analysis

5.1 This example shows how to conduct sensitivity analysis, in order to show how uncertainty can affect summary metrics of social value.

5.2 Chapters 1 to 4 introduced Option Willow. It has the following characteristics:

- An initial investment of £2,000,000. This is a one-off social cost in year 0.
- £90,000 of wage costs in year 1. These wage costs are expected to increase by 3% per year.
- £80,000 of equipment costs in year 1. These equipment costs are expected to increase by 5% per year.
- £40,000 of environmental costs in year 1. These environmental costs are expected to increase by 2% per year.
- Present value of social benefits of £3,540,000.
- The final year of Willow's lifetime is year 5.

5.3 Suppose that the forecast for equipment costs is uncertain. Analysts research the potential uncertainties around the forecast. They conclude that there are two reasonable potential scenarios for equipment costs:

- A bad scenario, in which equipment costs are 20% higher in each year of the forecast.
- A worst scenario, in which equipment costs are 40% higher in each year of the forecast.

5.4 Table 5.A shows the different cost profiles that arise under these scenarios.

Table 5.A Equipment costs of Willow under different scenarios, £ thousand

Year	0	1	2	3	4	5
Central estimate	-	80	84	88	93	97
Bad scenario	-	96	101	106	111	117
Worst scenario	-	112	118	123	130	136

Source: HM Treasury. *Values rounded to nearest whole number.*

5.5 **We want to conduct sensitivity analysis to assess the net present social value of Willow under these two new scenarios.**

5.6 Sensitivity analysis tests how changes in key assumptions might affect the results of an appraisal. It might examine, for instance, how different estimates of input costs, or service demand, change the social value of different options. It helps to test how outcomes might vary if things do not turn out as expected.

5.7 The sensitivity analysis for Willow can be conducted through three separate sets of calculations. Each one uses a different value of equipment costs in year 1 and calculates a present value of social costs. These are shown in Tables 5.B, 5.C and 5.D.

Table 5.B Present value of social costs, assuming 'central estimate' for equipment costs

Year	0	1	2	3	4	5	Total
Initial investment[1]	2,000						
Wages[1]		90	93	95	98	101	
Equipment[1]		80	84	88	93	97	
Environmental[1]		40	41	42	42	43	
Total social costs[1]	2,000	210	218	225	233	242	3,128
GDP deflator index[2]	1.000	1.022	1.042	1.061	1.081	1.102	
Discount factor[2]	1.000	0.9662	0.9335	0.9019	0.8714	0.8420	
Total social costs[3]	2,000	199	195	191	188	185	2,958

Source: HM Treasury. *Totals may not match exactly due to rounding.*

[1] *£ thousand, nominal terms, undiscounted. Values rounded to nearest whole number.*

[2] *Values rounded to four significant figures.*

[3] *£ thousand, real terms, discounted. Values rounded to nearest whole number.*

Table 5.C Present value of social costs, assuming 'bad scenario' for equipment costs

Year	0	1	2	3	4	5	Total
Initial investment[1]	2,000						

Wages[1]		90	93	95	98	101	
Equipment[1]		96	101	106	111	117	
Environmental[1]		40	41	42	42	43	
Total social costs[1]	2,000	226	234	243	252	261	3,216
GDP deflator index[2]	1.000	1.022	1.042	1.061	1.081	1.102	
Discount factor[2]	1.000	0.9662	0.9335	0.9019	0.8714	0.8420	
Total social costs[3]	2,000	214	210	206	203	200	3,033

Source: HM Treasury. *Totals may not match exactly due to rounding.*

[1] *£ thousand, nominal terms, undiscounted. Values rounded to nearest whole number.*

[2] *Values rounded to four significant figures.*

[3] *£ thousand, real terms, discounted. Values rounded to nearest whole number.*

Table 5.D Present value of social costs, assuming 'worst scenario' for equipment costs

Year	0	1	2	3	4	5	Total
Initial investment[1]	2,000						
Wages[1]		90	93	95	98	101	
Equipment[1]		112	118	123	130	136	
Environmental[1]		40	41	42	42	43	
Total social costs[1]	2,000	242	251	261	270	281	3,305
GDP deflator index[2]	1.000	1.022	1.042	1.061	1.081	1.102	
Discount factor[2]	1.000	0.9662	0.9335	0.9019	0.8714	0.8420	
Total social costs[3]	2,000	229	225	221	218	214	3,108

Source: HM Treasury. *Totals may not match exactly due to rounding.*

[1] *£ thousand, nominal terms, undiscounted. Values rounded to nearest whole number.*

[2] *Values rounded to four significant figures.*

[3] *£ thousand, real terms, discounted. Values rounded to nearest whole number.*

5.8 Table 5.E shows how the different scenarios for equipment costs affect the net present social value of Willow.

Table 5.E Net present social value of Willow under different scenarios of equipment costs, £ thousand

Assumption	Present value of social benefits	Present value of social costs	Net present social value
Central estimate	3,540	2,958	582
Bad scenario	3,540	3,033	507
Worst scenario	3,540	3,108	432

Source: HM Treasury. *Values rounded to nearest whole number. Totals may not match exactly due to rounding.*

5.9 The conclusions are as follows:

- Under the central estimate, the net present social value of Willow is £582,000, rounded to the nearest thousand.
- Under the bad scenario, the net present social value of Willow falls to £507,000, rounded to the nearest thousand.
- Under the worst scenario, the net present social value of Willow falls to £432,000, rounded to the nearest thousand.

Chapter 6
Switching values

6.1 This example shows how to calculate switching values.

6.2 Chapters 1 to 5 introduced Option Willow. It has the following characteristics:

- An initial investment of £2,000,000. This is a one-off social cost in year 0.
- £90,000 of wage costs in year 1. These wage costs are expected to increase by 3% per year.
- £80,000 of equipment costs in year 1. These equipment costs are expected to increase by 5% per year.
- £40,000 of environmental costs in year 1. These environmental costs are expected to increase by 2% per year.
- Present value of social benefits of £3,540,000.
- The final year of Willow's lifetime is year 5.

6.3 **We want to find the switching value for the initial investment costs.**

6.4 A switching value is the value that a key variable would need to change to, such that an option stops representing value for money.

6.5 In this example, the switching value is therefore the value that the initial investment costs would have to change to, such that Willow's net present social value (NPSV) falls to zero.

6.6 The switching value can be calculated informally using trial and error: entering numbers into the relevant cell of the underlying spreadsheet and iterating until Willow's NPSV is equal to zero.

6.7 To calculate the switching value formally, start by expressing NPSV initial investment costs.

NPSV = Present value of social benefits – Present value of social costs

NPSV = Present value of social benefits – (Present value of initial investment costs + Present value of all other costs)

6.8 We set NPSV to zero, and then rearrange accordingly, in order to isolate the present value of initial investment costs:

0 = Present value of social benefits – (Present value of initial investment costs + Present value of all other costs)

Present value of initial investment costs = Present value of social benefits – Present value of all other costs

6.9 The switching value of initial investment costs is therefore the value that satisfies the equation above.

6.10 Table 6.A shows the calculation for the present value of Willow's social costs, excluding initial investment costs.

Table 6.A Present value of Willow's social costs, excluding initial investment costs

Year	0	1	2	3	4	5	Total
Wages[1]	-	90	93	95	98	101	
Equipment[1]	-	80	84	88	93	97	
Environmental[1]	-	40	41	42	42	43	
Total operating costs[1]	-	210	218	225	233	242	1,128
GDP deflator index[2]	1.000	1.022	1.042	1.061	1.081	1.102	
Discount factor[2]	1.000	0.9662	0.9335	0.9019	0.8714	0.8420	
Total operating costs[3]	-	199	195	191	188	185	958

Source: HM Treasury. *Totals may not match exactly due to rounding.*

[1] *£ thousand, nominal terms, undiscounted. Values rounded to nearest whole number.*

[2] *Values rounded to four significant figures.*

[3] *£ thousand, real terms, discounted. Values rounded to nearest whole number.*

6.11 The value of Willow's social costs, excluding initial investment costs, is £958,000, rounded to the nearest thousand.

6.12 The present value of Willow's social benefits is £3,540,000. We substitute these figures into the equation calculated in Paragraph 6.8:

Present value of social benefits – Present value of all other costs

= £3,540,000 - £958,000

= £2,582,000

6.13 The switching value of initial investment costs is therefore that which satisfies the equation:

Present value of initial investment costs = £2,582,000

6.14 The initial investment cost occurs in year 0 only. This means that its undiscounted value in nominal terms is equal to its present value in real terms.

6.15 If the initial investment cost was £2,582,000, instead of the anticipated £2,000,000, then the NPSV of Willow would be zero.

6.16 The switching value for Willow's initial investment costs is therefore £2,582,000, rounded to the nearest thousand.

Chapter 7

Original adjustment for optimism bias

7.1 This example shows how to calculate an original adjustment for optimism bias.

7.2 In this example, assume that the objective is to build a piece of infrastructure. One option for delivering this project is Option Spruce. It has the following characteristics:

- An initial investment of £100 million. This is a one-off social cost in year 0.
- A non-standard civil engineering project.

7.3 **We want to calculate the original optimism bias adjustment for Spruce.**

7.4 Optimism bias is the demonstrated systematic tendency for practitioners to be over-optimistic about key assumptions in appraisal. Optimism bias means that the capital costs and operating costs of interventions are typically higher in reality than originally anticipated. Optimism bias can also affect estimates of social benefits and project duration. However, this example only focuses on optimism bias in capital costs.

7.5 If government appraisals fail to account for optimism bias, then there is a risk that projects will fall short of expectations and prove to be poor value for money.

7.6 The Green Book stipulates that practitioners must account for optimism bias in appraisals. They should do this by making explicit upward adjustments to their estimates of costs and timeframes.

7.7 The size of these adjustments should be informed by the evidence base of the originating organisation. If the originating organisation does not have such evidence, then practitioners can use the generic values from the Green Book supplementary guidance on optimism bias.[3]

7.8 Spruce is a non-standard civil engineering project. The Green Book supplementary guidance on optimism bias suggests that the relevant upper bound adjustment for Spruce's capital expenditure is therefore 66%.

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[3] 'Green Book supplementary guidance: optimism bias', HM Treasury, April 2013.

7.9 The original optimism bias for Spruce is calculated by multiplying that adjustment by the total capital expenditure.

Original optimism bias adjustment = 66% × £100 million

Original optimism bias adjustment = £66 million

7.10 This means that the total capital expenditure of Spruce, including its original optimism bias adjustment, is calculated as follows:

Capital expenditure (incl. optimism bias) = £100 million + £66 million

Capital expenditure (incl. optimism bias) = £166 million

Chapter 8

Optimism bias, risk and contingency

8.1 This example shows how to amend the original adjustment for optimism bias as the appraisal progresses, and how to use this amended figure to calculate contingency.

8.2 Chapter 7 introduced Option Spruce. It has the following characteristics:

- An initial investment of £100 million. This is a one-off social cost in year 0.
- An original optimism bias adjustment of £66 million.

8.3 Suppose that the appraisal has progressed since practitioners calculated the original optimism bias adjustment. Assume that practitioners identify a single risk around Spruce. If the risk materialises, then the project's initial investment costs would be £30 million higher in year 0.

8.4 Suppose that practitioners adapt the proposal and include a mitigation measure that fully prevents this risk. The mitigation measure costs £10 million in year 0. It means that the £30 million risk will not materialise.

8.5 **We want to calculate the cost of Spruce after adjusting for optimism bias, as well as the associated contingency.**

8.6 Practitioners begin an appraisal by making an original adjustment for optimism bias. As the appraisal develops, practitioners should estimate the specific risks of the proposal in more detail. They may then adapt the proposal to prevent, reduce, transfer, or avoid these risks. Practitioners should then reduce the optimism bias adjustment in proportion to the level of risk prevented.

8.7 Spruce is associated with a risk that would raise initial investment costs by £30 million in year 0. The identification and mitigation of this risk means that the original optimism bias adjustment can be reduced.

Remaining optimism bias adjustment = £66 million - £30 million

Remaining optimism bias adjustment = £36 million

8.8 The initial investment cost of Spruce must be increased upwards, in line with the cost of the mitigation measure.

Initial investment cost = £100 million + £10 million

Initial investment cost = £110 million

8.9 The Green Book defines contingency as an allowance in the financial dimension of the business case to cover residual risks. It consists of:

- The remaining optimism bias adjustment (that is, the original optimism bias adjustment minus the risks that have been prevented).
- The value of any remaining risk that has not been prevented.

8.10 All of the identified risks around Spruce have been prevented. In other words, there are no remaining risks. The contingency for Spruce is therefore equal to its optimism bias adjustment.

Contingency = Remaining optimism bias adjustment + Value of remaining risk

Contingency = £36 million + £0

Contingency = £36 million

8.11 The initial investment cost associated with Spruce is £110 million. This is set out in the economic case. The contingency associated with Spruce is £36 million. This is set out in the financial case.

Chapter 9

Appraisal summary table

9.1 This example shows a completed appraisal summary table.

9.2 In this example, the objective of the proposal is to achieve a 95% reduction in pollution. The pollution is a by-product of industry in the area of Casterbridge. It damages the coast in the area of Barsetshire.

9.3 Assume that there are five shortlisted options for achieving this objective. The first of these is the business as usual (BAU). The other four options are named Alder, Beech, Cherry and Dogwood.

9.4 **Table 9.A sets out an example appraisal summary table for illustrative purposes.**

Table 9.A Appraisal summary table

Description of option	Summary measures of social value	Unmonetisable social costs and social benefits	Public sector financial impact	Distribution of impacts
Why is this the preferred option, or inferior to the preferred option?	*Expected values and key uncertainties*	*Expected values and key uncertainties*	*Expected values and key uncertainties*	*Expected effects on groups and places, and key uncertainties*
BAU: Maintain existing arrangements with no additional intervention Reduction in pollution: 60% BAU is inferior to Beech because it does not meet the proposal's objectives.	Key monetisable benefits: Pollution reduction Key monetisable costs: Clean-up costs for government and business Key uncertainties: Uncertainty around clean-up costs NPSV: £25 million (± £5 million) BCR: 3.0 (± 1.0)	Visitors: Less frequent beach closures mean 15,000 (± 5,000) additional visitors per year to area	Public sector financial cost: £15 million (± £5 million) *Of which capital:* £7.5 million (± £2.5 million) *Of which revenue:* £7.5 million (± £2.5 million)	Households: Pollution reduction mainly benefits low-income households Businesses: Pollution reduction mainly benefits small tourism businesses Places: Pollution reduction benefits Barsetshire
Alder: Introduce regulatory standards on businesses Reduction in pollution: 95% Alder is judged to be inferior to Beech, because of its higher unmonetisable costs and less favourable distributional impact.	Key monetisable benefits: Pollution reduction Key monetisable costs: Clean-up costs for business Key uncertainties: Cost may rise by £10 million if businesses successfully litigate against the government NPSV: £55 million (± £5 million) BCR: 2.9 (± 1.1)	Visitors: Less frequent beach closures mean 25,000 (± 5,000) additional visitors per year to area Investment: Regulation may deter future business investment in Barsetshire	Public sector financial cost: £10 million (± £0 million) *Of which capital:* N/A *Of which revenue:* £10 million (± £0 million) Key uncertainties: Cost may rise by £10 million if businesses successfully litigate against the government	Households: More jobs for high-income households and fewer jobs for low-income households Businesses: £20 million (± £10 million) of compliance costs for polluters. Equally split between small and large businesses. Places: Benefits for Barsetshire and costs for Casterbridge
Beech: Expand existing clean-up team	Key monetisable benefits: Pollution reduction	Visitors: Less frequent beach closures mean 25,000 (±	Public sector financial cost: £55 million (± £5 million)	Households: Additional jobs in clean-up team likely to go to low-income households

Reduction in pollution: 95% Beech is judged to be the preferred option, offering compelling unmonetisable benefits and a reasonable BCR.	Key monetisable costs: Clean-up costs for government Key uncertainties: Wage inflation may be higher than expected NPSV: £55 million (± £5 million) BCR: 2.3 (± 0.3)	5,000) additional visitors per year to area Lower unemployment: Long-term benefits of hiring people who were previously unemployed	*Of which capital:* £7.5 million (± £2.5 million) *Of which revenue:* £47.5 million (± £2.5 million) Key uncertainties: Wage inflation may be higher than expected	Businesses: This option avoids imposing compliance costs on businesses Places: Benefits for Barsetshire, while avoiding costs for Casterbridge
Cherry: Invest in new pollution reduction technology Reduction in pollution: 90-100% Cherry is judged to be inferior to Beech, due to it being riskier.	Key monetisable benefits: Pollution reduction Key monetisable costs: R&D costs Key uncertainties: Very uncertain estimates of costs and benefits NPSV: £60 million (± £20 million) BCR: 3.0 (± 0.7)	Visitors: Less frequent beach closures mean 25,000 (± 10,000) additional visitors per year to area Innovation: Potential innovation spillovers and long-term benefits	Public sector financial cost: £50 million (± £20 million) *Of which capital:* £42.5 million (± £17.5 million) *Of which revenue:* £7.5 million (± £2.5 million) Key uncertainties: Very uncertain estimate of public sector financial cost	Households: Jobs will be predominantly for skilled workers moving into the area Businesses: Technology will predominantly benefit large businesses Places: Investment will create jobs in Casterbridge
Dogwood: Ban pollutant entirely Reduction in pollution: 100% Dogwood is judged to be inferior to Beech, due to its lower NPSV.	Key monetisable benefits: Pollution reduction Key monetisable costs: Costs for business to change production process Key uncertainties: Uncertainty around cost of new production process NPSV: £45 million (± £5 million) BCR: 1.8 (± 0.2)	Visitors: Less frequent beach closures mean 30,000 (± 5,000) additional visitors per year to area Reputation: Positive message of being pollutant-free	Public sector financial cost: £20 million (± £5 million) *Of which capital:* £2.5 million (± £2.5 million) *Of which revenue:* £17.5 million (± £2.5 million) Key uncertainties: Uncertainty around public sector cost of implementing the ban	Households: More jobs for both low-income households and fewer jobs for high-income households Businesses: £30 million (± £5 million) of compliance costs for businesses, which are disproportionately borne by small businesses Places: Large benefits to Barsetshire and large costs to Casterbridge

Source: HM Treasury

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