

Table 1: Identifying the best adaptation assessment method (refer to Table 3 for a description of the tools and approaches). Source: Adapted from: DEFRA 2013; Dittrich et al. 2016.

Recommended tool / approach	Guiding questions	Test / explanation	Tips and traps
	Are non-monetisable impacts expected to be material in assessment of options?	Are goods and services that are generally not traded in the market, and can't be priced, important in this assessment?	<ul style="list-style-type: none"> • Triple bottom line issues have been adequately scoped and agreed. • If ecosystem functions are part of the consideration then non-market values are likely to be an issue.
CBA ←	If no		
	If yes, do impacts need to be measured using a documented and repeatable process?	If legal and factual certainty are likely to be assessed by a third party, then documentation is likely to be required. A repeatable process may not be required for one-off measures e.g. at the household level.	<ul style="list-style-type: none"> • Note the difference between consistency of approach and consistency of outcome. Qualitative processes may arrive at different results based on expert judgement call using well-established approaches.
Expert Panel / Expert Review ←	If no		
	If yes, then can the benefits be monetised?	Can all costs and benefits be fairly represented in monetary terms i.e. in addition to infrastructure costs, the full suite of social, cultural and environmental values are captured and converted into monetary terms (priced).	<ul style="list-style-type: none"> • This can be expensive and time consuming, and may be contested. In some cases, it is sufficient to recognise that the number will be sufficiently large. • Pricing non-market good and services can open the conversation to trade-offs.
	If no, are the options or bundles of options under consideration likely to perform in a complementary manner under different scenarios?	Perspective A - Are the negative impacts of one asset/option offset by the positive impacts of another asset/option (to the extent required by the decision-maker) under multiple climate change and development scenarios? Perspective B - Do assets or investment options that are designed to work in concert (e.g. vegetating a beach dune to make it more resilient or constructing swales in low-lying areas to absorb excess stormwater) still perform the level of service required under different scenarios?	<ul style="list-style-type: none"> • Individual options are often optimised to perform best under a specific scenario or course of action, as opposed to a suite of options (either now or over time) that may perform well under multiple possible futures.
Portfolio analysis ←	If yes		
	If no, are there likely to be distributional concerns?	Are one or more sectors, communities or species (or other relevant indicator) likely to be significantly disadvantaged or impacted under different investment/climate scenarios?	<ul style="list-style-type: none"> • Adopting a systems-based approach to analysis can assist with the identification of both direct and indirect benefits and/or impacts of potential decisions across sectors, jurisdictions and natural system boundaries.
CEA ←	If no		
MCA or BBN ←	If yes		

LEVEL OF UNCERTAINTY



		If yes, is it a large partly reversible investment with a certain degree of flexibility?	The overriding test here is to keep the cost of being wrong as low as possible. Significant infrastructure investments are generally not identified as being reversible (e.g. removed) due to their long operating lifespan (e.g. 30-80 years for a bridge or an apartment building).	<ul style="list-style-type: none"> Short-term irreversible decisions often have near-term economic benefits (e.g. allowing a new subdivision in a floodplain), and these need to be assessed against current and future risk and responsibility. The concept of 'adaptation pathways' and 'tipping points' may be usefully applied here – as decision-makers seek new knowledge over time in order to resolve uncertainty and lead to more informed decision-making (see for example Haasnoot et al. 2013; Wise et al. 2014).
Scenario based CBA	←	If no		
		If yes, are options and decisions flexible over time?	Is it practical and wise to delay making a 'lock-in' decision until more information is known?	<ul style="list-style-type: none"> Some well-planned investments can be 'easily' retrofitted (e.g. waterproofing a building or increasing the height of a seawall), however, development in at-risk areas can establish a path dependency that may be difficult, time-consuming and costly to wind back.
		If no, are there budget constraints for the assessment?	Adaptation decision-making with this level of complexity usually contain substantial uncertainty with regard to future scenarios and projections. Greater certainty, and as a result less expensive assessments, may be achieved by reducing the decision time horizon and the introduction of softer options.	<ul style="list-style-type: none"> Where large infrastructure and investment decisions will be made, decision-makers should be encouraged to adopt assessment processes that are better suited to the adaptation context e.g. ROA or RDM over CBA. Simplified versions of RDM or scenario-based CBA are amenable to decisions that have shorter lifespans e.g. some cropping and farming investments.
RDM	←	If no		
Scenario based CBA or simplified RDM	←	If yes		
		If yes, are there budget constraints for the assessment?	See note above.	<ul style="list-style-type: none"> See note above.
ROA	←	If no		
Scenario based BCA or simplified RDM	←	If yes		