Flood and Coastal Erosion Risk Management appraisal guidance 2020

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/481768/LIT_4909.pdf

Quotes from the document, identified by page. High lighting mine.

Pg 9
This means that full account should be taken of the social, environmental and economic consequences of flooding and erosion and any proposed solutions to these problems through a transparent appraisal approach that engages people in the decision-making process.

Development of the FCERM appraisal guidance in the light of this strategy provides the opportunity to also reflect the change in emphasis when managing flood and coastal erosion risk. This includes aiming to:
- work with natural processes;
- adapt to future risk and changes (for example, due to climate change);
- work with others to deliver better, more sustainable solutions which can deliver wider objectives and maximise benefits for people, businesses and the environment.

2.1.2 **Defra's Flood and Coastal Erosion Risk Management policy statement**
To meet the aims of MSfW, Defra issued appraisal policy guidance in the form of a policy statement in June 2009 (Defra, 2009).
This restates the aim of government to manage risks in a sustainable way, by employing an integrated portfolio of approaches which reflect both national and local priorities, so as to:
- reduce the threat to people and their property; and
- deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.

Pg 12
The appraisal is intended to identify the most cost beneficial solution to the problem

Pg 20 worked example of town with promenade

Pg 21
2.3.4 Work with others throughout the appraisal process
Working with others (individuals, a group of individuals, communities, organisations or political entities) is critical to good appraisal and must be done from the start.
In particular it provides opportunities to:
- establish common understanding and ownership of the problem;
- develop partnership working; and
- deliver multiple objectives.

Effective appraisal is shaped by the engagement process and must be integral to the development and implementation stages of a project from inception.
Engaging those 'at risk', interested in or affected by the decision in the decision-making process creates understanding if not acceptance of the decisions to be made. Public participation forms a key part of the environmental assessment process.
The Regulations governing environmental impact assessment and strategic environmental assessment stress the importance of early and effective engagement to build trust with those involved with and affected by the project appraisal process. Experience shows that successfully accepted solutions are those where the views, local knowledge and concerns of stakeholders have been taken into account as part of the project appraisal process.
Planning, preparation and management of flood and coastal erosion risk should therefore be holistic, integrating people as well as the environment and economics into the heart of decision-making.

Pg 23
SEA is a critical tool in the appraisal process. It is used to understand the environmental implications of options and to help steer decisions towards those that

minimise adverse environmental effects and provide the opportunity to realise environmental benefits

Pg 25
All appraisals must start with a clear understanding of the risks, taking account of current and predicted future social, environmental and economic issues.
The problem must be identified without bias towards any preconceived outcome.
The question to answer when identifying the problem is 'what are you trying to do?' not 'how you will do it?'.

Pg 26
Case study examples of good and bad practice The problem: BAD PRACTICE: The appraisal defined the problem as the low level of the defence not the high frequency of flooding to properties. The focus of the appraisal was on raising the level of the existing wall, excluding other options.

Pg 41
It is essential that the problem is not defined in such a way that it prejudges the solution. This is about defining the problem (why the project is needed) not the solution.

Pg 44
3.3.1 **Expert summary**: Identify problem and key issues Identify the problem
Identify the problem (why a project is needed) by clearly describing the risk (probability and consequence), the cause of the risk (for example, failure of defences, and sea level rise) and associated timing.
Identify and describe the key economic, environmental and social assets that could be impacted. It is essential that the problem is not defined in such a way that it prejudges the solution.

Pg 46
3.3.1 **Expert summary**: Identify problem and key issues Identify opportunities
Identify opportunities to deliver wider benefits (economic, environmental or social).
Early involvement of potential project partners can help outline opportunities associated with delivering opportunities through partnership working. It is useful to explore at this stage, whether and what scale of funds are likely to be available from other sources.

Pg 52
Data from local people and stakeholders
Data and information will be available from individuals and organisations living or working in the area. Anecdotal information could also help explain causes and consequences of risk, and could provide a context for analyses. Remember though that perception of risk does not always coincide with technical assessments. Careful consideration and understanding of local perceptions and attitudes will be required if the final outcome is to gain support and confidence. This is an important part of engagement with local communities and stakeholders. Major constraints upon the options to be considered (such as legal requirements) and potential opportunities they could provide should also be stated.

Pg 53
Check data quality and relevance
Extracting data that you need from high level plans and previous projects could save time and effort. However, you will need to verify that:
• data are still relevant. For example, the results of economic analysis (such as quantification and monetisation of damages) may have been undertaken using old and now obsolete data sources (for example, pre-dating the Multi-Coloured Manual).
In such cases, you would normally need to update the approaches to use the information so you may only be able to use some of the initial data and assumptions.

Pg 57
Identify constraints
Constraints are those factors that affect which options could be implemented.
They can also be used to help identify the key criteria that will make the difference between the options that are being appraised. It is important when identifying constraints to make sure that they are real issues and not ones that could unnecessarily

limit your choice of options later on. Real issues include legal constraints, such as the need to update the non-compliant electrical elements of pumping stations or to protect designated environmental sites.

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3.3.2 Main guidance:

Identify problem and key issues
Example constraints include:
• legal obligations, for example, to protect designated environmental sites (including SACs, SPAs, SSSIs) or health and safety
• presence of listed buildings or scheduled monuments
• commercial activity, such as docks;
• alignment of roads and railways;
• tourism and access needs;
• needs of the community in terms of protecting the nature and aesthetic setting of their homes;
• development along the river or coast that prevents or reduces access; and
• morphological or sediment issues.

This list is not exhaustive.

Identify opportunities
Consider where there are opportunities to deliver wider benefits that address issues highlighted in plans or programmes, during engagement or through involvement of project partners.
Partnership working could help to draw in additional resources and, potentially, contributions.
Examples of potential opportunities include:
• habitat improvements, for example, creation of BAP habitat;
• improvements to the setting of historic properties
• opportunities for development of riverside walks and amenity areas;
• provision of a footbridge across the river that would provide a short-cut to the town centre or other amenities;
• rebuilding a road bridge to reduce flow constriction in the river and, at the same time, building a bigger bridge that is better able to cope with traffic flows; and
• opening a culvert where it is no longer required, and restoring the watercourse.

This list is not exhaustive.

Pg 61
Data from local people
Local people can be a source of help, knowledge and expertise.
Do not underestimate the understanding that those living in the at-risk area have of the risk, processes and consequences.
You can collect and use information from stakeholders to help you understand local needs and attitudes.
Differentiate between factual information and hearsay. Information based on hearsay which is considered important always needs further investigation to ascertain validity

Pg 65
Examples of justifiable reasons for using a different appraisal period
• timeframes that have been extended or shortened because of the physical life of the assets in question (taking into account maintenance), to tie in with future strategic works.
• long-term geological changes to the coast require a longer-term perspective to be taken into consideration even if it cannot be precisely assessed.
• where the rate of change in either natural or man-made systems is high (due to erosion for example) and it is not be practical to make predictions over a timescale of 100 years, and a rather shorter time horizon is more appropriate.
It may be possible to test the impact of uncertain predictions through sensitivity analysis.
• community need or community opposition in the light of uncertainty in data.

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Example objectives

Objectives may be set at different levels:

- reduce the threat to people and their property; and
- deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.

These may then be unpacked to reflect specific or local objectives.

These should be clear and should reflect the function of a feature:

- to reduce risk of flooding to a specific residential area or town;
- to maintain the transport system between A and B;
- to maintain or enhance the condition or integrity of an SSSI site within the context of a dynamic coastal system; and
- to maintain the interests and access to the sea of a sailing club.

These may need to be qualified so that the intent of the objective is understandable and may be demonstrated.

- To maintain the transport system between A and B.

– to safeguard the regional economy; and – to ensure viability of village B.

- To maintain or enhance the condition or integrity of an SSSI site within the context of a dynamic coastal system.

– to maintain water levels throughout the site; and – to maintain sediment supply to allow dynamic function of the dune system.

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Examples of opportunity objectives

Opportunity objectives have to be carefully expressed so as not to prejudge solutions. However, they can advance an idea of how risk management may relate to other broader objectives. They may typically be expressed as the need for collaborative consideration.

- To consider how coastal defence may enhance the development of a promenade.
- To consider how alleviation of a flow constraint at a bridge may also alleviate traffic congestion.
- To consider how flood risk management may enhance the integrity of nature conservation site.

Such opportunities are likely to require investigation into the potential for contributions from others. This may also meet requirements of the Water Framework Directive if natural processes are restored.

The intent is to try and broaden awareness of opportunity for good management.

The simple objectives for Town M might be:

- To reduce risk of flooding to the town (cell 2)
- To maintain agricultural use in the area (cell 1). By identifying wider potential benefits:
- To consider how flood risk management may enhance the integrity of nature conservation site (Area a).

The identification of opportunity objectives may assist in defining the scope and extent of the area needing to be considered (see 3.5. Setting Boundaries). It may also help when identifying the full scope of options.

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1. Is there significant opposition from stakeholders? If so, then you should revisit the problem definition and objectives in the light of the concerns to ensure nothing significant has been missed, and amend the objectives if necessary.

Key within this is the need to ensure the process is transparent and the outcomes are communicated appropriately.

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Example – use the problem to help develop the do-nothing baseline

The problem is that defences protecting a seaside town from erosion will fail in the short-term (estimated 5 years) due to erosion of the beach.

This will lead to erosion of the land behind the defences including loss of the promenade and associated tourism assets and, over time, to the loss of properties and a main A road (including associated water, electricity and sewerage services).

The do-nothing baseline uses predicted erosion rates of 0.5 to 0.7 m/year to translate the problem into impacts.

In this case, the time when beach access points from the promenade are lost, the promenade itself, shops, cafés, amusement arcades, the road and the services it holds plus the properties themselves can all then be predicted.
Thinking through what would actually happen identifies that the problem affects not just the promenade but the integrity of the town; its regeneration opportunities, its viability as a regional tourism centre; as well as the direct risk to life and properties lost to erosion, transport system and services. This broadens the definition of objectives (see 4.3.2: Set the objectives).
When defining the do-nothing baseline, it is necessary to make assumptions that will enable you to 'tell the story' of how the area will change over time.
You should always record your assumptions along with the data and information on which they are based and any uncertainties that these assumptions introduce.
You can test the impact of these uncertainties during sensitivity analysis.
When engaging with stakeholders you must explain clearly the assumptions you have made and uncertainties you are working with, and why.
By doing this others will be able to see how you are making decisions about the project and work to be done.

Pg 133
Describe what will happen once the defences fail.
Use data such as flood maps, and erosion rates to define the at-risk area.
Look for assets that could result in knock-on effects for people outside the at-risk area (including sewage treatment works, water treatment works, hospitals, fire stations, police stations and major access routes).

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Example of a realistic do-nothing option
Erosion is predicted to result in loss of all the recreational facilities associated with a coastal resort, Town A.
It may not be sufficient to just take account of the write-off value of the recreational facilities alone.
It is important to consider what the impacts would be on the economy and community of the resort and when they would occur.
This has to be thought through. The initial loss may just be to the beach, which may result in loss of amenity and tourism.
Other questions may include:
- How would this impact locally?
- Is it a local impact or does it impact nationally?
- Does this result in loss of use of facilities, are the facilities made redundant and, therefore, lose part of their asset value? Subsequent loss may be of the actual promenade.
- With physical loss of assets, but part of their value may already have been taken into account.
- Is there further loss of amenity/tourism? Continued erosion may result in the loss of the town or part of the town.
- What physical assets are lost?
- What does this mean to the region and the nation? Have these broader scale losses already in part been taken in to account in assessing the loss of tourism and amenity?
- If there is no town, should amenity loss still be considered as an annual loss? You may decide that some of the impacts are not a loss to the nation and use would be transferred as a benefit to a neighbouring town.

You may not be able to realistically value some losses.
Even so you should make sure you have considered them and described them in sufficient detail when developing the do-nothing scenario.
This may influence the manner in which objectives are defined. Think through the story.

Pg 142 all of it! Look widely for options.

Pg 143
Remove any impractical or 'non starter' options from the initial list.
Provide and record justifications for their removal.
Ensure that options which could be combined to deliver an overall solution are not discounted too early.
You should consider legal and technical issues.

Recording of the decisions made is crucial to explain how the project has progressed to others and to secure support for the final decision.
Make sure that you have a do-nothing (when you are undertaking a CBA) and do-minimum option in the options taken forward.
In addition, the best available environmental option and those with strong sustainable social benefits should remain in the appraisal process unless they are manifestly unviable.

Pg 144
The range of options should initially be as wide as possible and may include (this list is not exhaustive):
- options that change the source of risk;
- options that modify the pathway or change probability;
- options that manage or modify receptors to reduce the consequences;
- temporary as well as permanent options;
- options that work with natural processes wherever possible;
- options that are adaptable to future changes in risk;
- options that require actions to be taken to deliver the predicted benefits (for example, closing a barrier, erecting a temporary defence or moving contents on receiving a flood warning);
- innovative options tailored to the specific needs of the project;
- options that can deliver opportunities and wider benefits, through partnership working where possible

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Working with natural processes can deliver flood and erosion risk management benefits, environmental benefits, and can help reduce the costs of options.
Options that work with natural processes recognise and work within environmental limits to produce solutions that are more flexible and more resilient.
It is important when identifying options that, where possible, you include those that work with or re-establish natural processes.
You should consider the extent to which options identified to address the problem could work with natural processes.

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Innovative options
You should consider the potential for identifying innovative options, tailored to the problem being addressed.
This may involve combinations of other types of options, technical advances or using new techniques or approaches.
However, the uncertainties associated with innovative options must also be taken into account.

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Engagement would normally be undertaken before confirmation of the short-list of options, so stakeholders can see how their initial inputs and concerns have been taken into account.
As a minimum, accurate auditable and transparent recording of decisions is needed as well as delivery of the Stakeholder Engagement Plan requirements.

Pg 211 All, economics of loss locally or to nation
i) If local moorings are lost due to the loss of a breakwater that also provides protection to properties, the loss of properties would be a direct loss to the nation, but the boats may be moved to a nearby harbour.
If however the moorings are an integral aspect of the village and in losing them there would be damage to the cohesion of the village or if they supported a fishing fleet it may be necessary to consider additional travel time and loss of fishing effort.

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Social impacts should also be covered in the SEA or EIA but you should typically consider the following when identifying which impacts to describe in detail:
- people's way of life: how they live, work, play (recreation) and interact with one another on a day-to-day basis.
- their culture: their shared beliefs, customs, values and language or dialect.

• their community: its cohesion, stability, character, services and facilities.
• their political systems: the extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose.
• their health and wellbeing: health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity.
• their personal and property rights: whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties.
• their fears and aspirations: their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

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Cost-benefit analysis is only concerned with changes in the total value of benefits and the total cost of the resources used.
Economics assumes that people adjust to a flood or erosion loss in a way that minimises the losses they incur.
For example, if a beach is lost, then visitors to that beach may visit another beach; or if flooding closes a factory then production may be increased in a factory elsewhere. In either case the total national value is assumed to remain the same.
It is important to note though that there may be some losses (reduction in number of beach visitors or due to a change in the level of enjoyment). For example, walkers may be able to go a park rather than the beach such that the number of trips may not be affected.
However, the value of a trip to the park may be less than the value of a trip to the beach, such that there is a loss of enjoyment.
The Multi-Coloured Manual gives values per trip for some types of recreational visits.
A transfer payment occurs when a change simply affects either who gets the consumption or who provides the resources, but there is no change in the national total of either all consumption or all the resources required to generate that consumption

Pg 231
When a physical object (such as a house) is damaged or destroyed by a flood, then a transfer payment is not involved since maintaining current levels of consumption will require the replacement of that object.
There will be distributional consequences as well (for example, builders will get more work) but the test is whether there will be a change in the total level of consumption or the resources required, including the need to repair or replace stocks which have been damaged or destroyed.
Note that:
• VAT and excise duties are always transfer payments and must be deducted. If less petrol is sold, then the Exchequer will simply find different ways of raising taxes;
• if a hotel or pub were lost through erosion, the trade would simply transfer to other outlets, the value of any such 'goodwill' element in the market price must therefore be netted out of the analysis.
Be careful though as assets that are irreplaceable would result in a national loss. This could include, for example, a heritage site or specialist manufacturing company.

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If the printing works is written-off as a result of the do-nothing option, the jobs lost there could be created at another works to compensate for increased demand for another newspaper.
If the printing firm is the major employer in the town and its loss would mean a significant increase in unemployment, there may be some community impacts (reflected in increased deprivation).
Reduction of deprivation may require funding from central government in regeneration projects.
Thus, the loss of jobs might result in a national loss where it is significant enough to increase deprivation.

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It may be useful to rank the options based on which is most preferred in terms of the

additional benefits that can be delivered.
You can use the rankings to help identify which option meets all or most of the policy and duty objectives.
Where there is a choice of implementing an option that is judged to be more sustainable (for example, one that reduces the need for future interventions, is more in keeping with environmental objectives or one that offers a greater degree of environmental or social enhancement), a decision will have to be made as to whether any additional cost is worthwhile.
Such decisions can only be taken on a case by case basis, taking account of all factors including the responses to consultation and the project objectives.

Pg 265
Over what time period would it be economically viable to choose the option of the embankment: 10 years, 20, 30, 50, 75, 100?
If it is only economically viable when considering potential damages over 100 years, arguably this option may not be a sustainable choice.
If it pays for itself when considering preventing damages over 20 years, then it probably is.
It is important that the decision-making process includes all the impacts (positive and negative) and costs (taking account of contributions). The decision-making process also needs to take account of the results of stakeholder engagement and draw on the results of the environmental assessment.
Qualitative and quantitative impacts that have not been monetised must be taken into account when selecting the preferred option, otherwise there is a risk that the option that performs best will not be chosen.
This means that the choice of preferred option is not a mechanistic process.
Instead, you will need to provide justification for and/or against the selection of particular options.
These justifications will need to be robust and guidance is given on how to justify the choice of one option over another in the section on decision-making criteria.
You should also have identified options that could deliver more than just the flood and coastal erosion risk management objectives.
The decision-making process allows you to take into consideration benefits from delivering multiple objectives and any other sources of funding that may have been found.

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It is important that all the impacts (both positive and negative) of an option are taken into account during decision-making.
Use of the decision-making process requires these impacts to be considered to help ensure that the best overall solution is identified.
This means that you will need to weigh up those impacts that have not been valued in monetary terms and consider whether they are of sufficient magnitude, significance and/or duration to change the preferred option from that which would be chosen based on the economic criteria alone.
This is a decision that has to be made by the project team, based on the evidence collected and recorded in the AST during the appraisal.
You will need to justify all your choices and decisions to support your argument.
Where the impacts are considered significant, but have not been monetised you should identify whether tools such as ecosystem services or scoring and weighting could be use to monetise the impacts.
You could discuss why the residual impacts of options could change the choice of preferred solution (for example, where local stakeholders would like to avoid landscape impacts of raising floodwalls through a town that would reduce views of the river even though this will result in higher flood risk).

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It is important to remember that subjective decisions will have been made throughout the appraisal process (for example, when deciding which parameters to use in modelling, when assessing which monetary values to use when monetising the impacts).
All of these assumptions should be recorded in the appraisal report and the AST so their influence on the choice of preferred option can be seen.
Whenever you make a decision during the appraisal process you should record your assumptions and evidence, so others can understand why you have made that decision

(even if they do not agree with your decision). This ensures that the appraisal is open and transparent and can be understood by others especially stakeholders.