

Calculate GiA funding for FCERM projects

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Introduction

This guidance is based on Defra's [partnership funding policy statement \(2011\)](#), updated to take account of changes in June 2023. There may be more changes periodically in which case this guidance will be updated or withdrawn and replaced. The guidance continues with the principle that eligibility for flood and coastal risk management grant-in-aid funding (FCERM GiA) is based on projects achieving specific outcomes.

To find out how much FCERM GiA a project is eligible for risk management authorities (RMAs) use a spreadsheet known as the [partnership funding \(PF\) calculator](#). They include their expected contribution to specific benefits (outcome measures), their estimated costs and the amount of funding they intend to commit (their proposed financial contribution) within the spreadsheet. The PF calculator works out how much FCERM GiA may be available to support the project using the tariffs agreed with Defra for the updates to the partnership funding arrangements.

This document sets out guidance for using the PF calculator 2020 and updates previous guidance from 2022. It does not define performance or reporting measures related to FCERM GiA outcomes.

This guidance applies to all new projects after 1 June 2023. [Transition arrangements](#) apply during the financial year 2023 to 2024. All project teams can use this guidance when they need to make a financial change to their project.

This guidance document

The guidance is for all risk management authorities (RMAs), project teams and assurers. Funding partners and communities vulnerable to flooding and coastal erosion should use it with the support of their local RMA. It is structured to match the 8 sections in the PF calculator 2020, to help make the calculator easier to complete. There is additional [supporting information](#) in section 9, with [examples to help complete the PF calculator](#) set out in section 10, including how to correctly value financial contributions and how to consider the duration of benefits period.

Related documents

Further information on [applying for FCERM GiA](#) is available. This includes the [operational principles](#) to follow when setting up funding partnerships to tackle flood and coastal erosion.

The [National FCERM Strategy for England](#) is a statutory document which sets objectives and measures for managing flooding and coastal erosion risks in England. It specifies the RMAs and their functions. RMAs must act consistently with the Strategy when carrying out their flooding and coastal erosion functions. The updates to the partnership funding arrangements set out in the PF Calculator 2020 are consistent with the Strategy.

Background

About the PF calculator

Throughout this guidance, eligibility for FCERM GiA refers to the FCERM GiA calculated for a project using the tariffs for the qualifying benefits and outcome measures. These were agreed with Defra for the updates to the [partnership funding arrangements](#) in 2020 and included in the PF calculator 2020. These are provided in present value terms to be able to compare projects.

However, project teams should make sure that they use the cash, plus inflation values related to the present values in the PF calculator in their business case when seeking financial approval for FCERM GiA.

The [PF calculator](#) uses data that is either estimated at the earliest stages of project development or obtained from a proportionate [appraisal](#) of options before each business case stage. This includes:

- [project details](#), including risk management authority and option reference
- [prospect of eligibility for FCERM GiA](#) - confirming a [strategic approach](#) has been undertaken
- project whole life costs, including the costs of promotion, appraisal, design, construction, future capital, operation and maintenance and the full risk contingency over the duration of benefits period
- contributions in support of the project whole life costs
- whole life benefits over the appraisal period
- [duration of benefits period](#)
- [overall FCERM economic benefits \(OM1A\)](#)
- [people related FCERM benefits \(OM1B\)](#)
- [households at risk today that are better protected against flooding by this investment \(OM2A\)](#)
- year when the measures are ready for service (readiness for service, Gateway 4)

- [additional households at risk up to 2040 that are better protected against flooding by this investment \(OM2B\)](#)
- [households better protected from coastal erosion \(OM3\)](#)
- [environmental improvements \(OM4\)](#)

Project teams should consider different scenarios by varying the input data to test reasonable uncertainties and their effects on the sum of eligible FCERM GiA. This will influence the balance of financial and outcome contributions required. Scenarios should be tested from the early stages of project development and shared with potential funders. These can easily be tested using the PF calculator.

Using the PF calculator

All project teams use the [PF calculator](#) to determine how much FCERM GiA their project could be eligible for.

The PF calculator is used from the earliest stages of project development. This is before a business case is considered and before options have been selected, developed or rejected (see the [Investment Journey](#)). To inform their project scope, project teams can use different scenarios for risk management, benefits, outcomes and costs to work out the scale and range of the eligible FCERM GiA.

During a proportionate [appraisal](#), a project team identifies options to describe packages of measures to achieve outcomes for the benefit of interested groups, partners and funders.

Having an estimate of the FCERM GiA available is essential to effectively involve interested groups. The PF calculator indicates the amount of FCERM GiA available and the need for financial contributions when supporting local risk management choices. It is used when establishing ambitions and expectations with interested groups and to avoid any surprises that may undermine project development.

The PF calculator includes some conditional data requirements and some textual 'flags' that will help project teams use it correctly.

Submitting the PF calculator

A PF calculator is submitted when a project proposal is considered for the national FCERM capital programme and with a project business case. It is expected that confidence in the data will increase over time. An updated version is required with each business case update report.

Project teams must submit the PF calculator in a format that assurers can check and test.

Projects that can apply for FCERM GiA

The PF calculator 2020 is used when applying for FCERM GiA to fund packages of measures that reduce flooding or coastal erosion risks. These projects are

managed by risk management authorities (RMAs) as identified in the Flood and Water Management Act 2010 and will contribute to one or more of the following:

- providing a step change reduction in the probability of flood or coastal erosion risks through new or improved defences or property based measures
- avoiding a significant increase in flood or coastal erosion risk probability by replacing or refurbishing existing assets
- creating environmental improvements related to projects achieving FCERM benefits and outcomes
- mitigating statutory, legal or contractual obligations, including those associated with the environment and health and safety arising from FCERM built assets

Deprivation rankings to distribute FCERM GiA

The partnership funding arrangements use [deprivation categories](#) as a means of distributing FCERM GiA. Understanding where households fall within these rankings will affect the sum of eligible grant for a project.

Filling out the PF calculator

The following sections in this guidance refer to the relevant sections in the PF calculator 2020 (for example, section 1 below refers to section 1 in the PF calculator 2020).

The guidance is not intended as a step-by-step guide for completing the PF calculator. It sets out the expectations, rationale and any limitations for the data used. It also allows users to determine how and when to provide that data, depending on:

- their project stage
- the detail in their appraisal
- the confidence they have in their data

1. Project details

Section 1 of the PF calculator is for project details, including the chosen option. Where available, project information is the same as the information in the national FCERM capital programme. Other information is relevant to the time and project stage for which the PF calculator is completed.

The description of the option should ideally include the option reference and a brief description, for example the standard proposed and the type of asset.

The selection of 'FCERM GiA applicant type' and 'Project stage' affects data requirements and the calculations in the remaining sections of the PF calculator.

2. Prospect of eligibility for FCERM GiA

Section 2 calculates the raw and adjusted PF scores using data for outcome measures in sections 4, 5, 6 and 7. In addition to the PF scores, section 2 includes calculations of the eligible FCERM GiA.

2.1. A strategic approach

In the PF arrangements, a strategic approach avoids the double-counting of benefits and outcomes. It describes how benefits, outcomes and cost are shared in locations where there is:

- more than one source of risk
- more than one intervention planned

A project team can take a strategic approach or accept that access to the available FCERM GiA calculated using the PF calculator is reduced to 45% of the eligible sum. This is to avoid the chance of double counting FCERM GiA for a given set of benefits and outcome measures.

In principle, taking an overview of all risk sources affecting a community, and the opportunities associated with risk management, is a client role. Evidence for a strategic approach is gathered by:

- the RMA client team (for RMAs other than the Environment Agency)
- the Partnerships and Strategic Overview team (for the Environment Agency)

Not taking a strategic approach may lead to missed opportunities for the efficient use of public funds and affect place-based investment by other organisations.

Select 'Yes' or 'No' in the strategic approach box in the PF calculator 2020.

2.1.1. A broader strategic context

When preparing a business case, consider a broad range of strategic matters. These are outlined in [Appraisal Guidance](#). Also consider the [National FCERM](#)

[Strategy for England](#), and any local high-level Plans, including Shoreline Management Plans (SMPs) and Flood Risk Management Plans (FRMPs).

Benefit, outcome and cost apportionment should be considered alongside these wider strategic matters.

2.1.2. Adopting a strategic approach

When adopting a strategic approach a project team should act proportionately. They should balance efforts, cost and time when apportioning the project FCERM benefits, outcomes and cost. If undertaking an apportionment is disproportionate, the project team may decide not to adopt a strategic approach (see [section 2.1](#)). Any apportionment should account for all risk sources and risk management measures in a community. This means a project team:

- has considered risk in the benefiting community from all known risk sources
- has considered how benefits, risk and cost identified in its appraisal of options are shared across the identified risk sources and between current and planned interventions. This is the case even when managing all risk is not within the aims of the current project
- has broad support from its funders, stakeholders and those representing the benefiting community

Information about [assessing the effort needed](#) when undertaking an apportionment of benefits, outcomes and cost is included in [section 9.6.7](#).

2.1.3. Confirming a strategic approach

Make an initial assessment of the project's strategic approach at the earliest opportunity. This will be before the commissioning of suppliers, Gateway 0 (Strategic Assessment), and starting the development of the business case.

Explain the project's strategic approach in the business case:

- include a plan for addressing remaining risks and [describe the approach for the apportionment](#) of benefits, outcomes and cost (see section 9.6)
- confirm an [implied or inferred strategic approach](#) (see section 2.1.4). This is important for projects [sustaining the standard of service](#) (see section 2.1.5)
- explain why the project is not adopting a strategic approach

2.1.4. Project types and the strategic approach

Project teams should demonstrate a strategic approach based on their project type. The [appraisal technical guidance](#) describes each project type in detail.

Evidence for a strategic approach is required when changing the standard of protection in a community. Evidence for a strategic approach is not required for other project types.

Distribute benefits and outcomes across the assets in an asset management system when the project [sustains the standard of service](#) (see section 2.1.5).

2.1.4. A strategic approach for different project types

| Type of project | Description | Strategic approach |
|-----------------------------------|--|--|
| Legal obligation | For projects whose main purpose is fulfilling legal obligations | Evidence for a strategic approach is not required. Select 'Yes' in the strategic approach box in the PF calculator 2020 |
| Sustain standard of service (SOS) | For projects where there is no need for changing the current FCERM approach The current risk management context is unchanged (see section 2.1.5) | Evidence for a strategic approach is not required. Select 'Yes' in the strategic approach box in the PF calculator 2020 |
| Supported change | For projects implementing schemes within an approved FCERM strategy A strategic context is included in an approved strategy | Evidence for a strategic approach is included in an approved strategy |
| Simple change | For standalone projects where an FCERM strategy is not required | Evidence for a strategic approach is required before selecting 'Yes' in the strategic approach box in the PF calculator 2020 If there is no evidence, select 'No' |
| Complex change | For complex change projects producing an FCERM strategy | Evidence for a strategic approach is required before selecting 'Yes' in the strategic approach box in the PF calculator 2020 If there is no evidence, select 'No' |

2.1.5. Projects sustaining the standard of service

Sustaining the standard of service on existing assets rarely offers a chance for extending benefits towards managing risks from other sources. We assume a strategic approach was confirmed previously.

Apportion benefits and outcomes across all assets in an asset management system when making the case for investment. The project team should avoid

claiming too much FCERM GiA for sustaining the overall standard of service in the asset management system and over time.

Use simple apportionment methods, or previously agreed distributions, from local asset management plans or earlier business cases.

Carry out a broad, strategic assessment when sustaining the standard of service in a large geographic area benefiting from many assets. Take a [proportionate approach](#) when apportioning benefits and outcomes (see [section 9.6.7](#)).

2.1.6. Options for updating an apportionment of benefits

A previous business case may not have fully adopted a strategic approach. Options are available when making claims for FCERM GiA and for updating a previously incomplete apportionment of benefits.

2.1.6. Options for updating an apportionment of benefits and outcomes

| All sources of risk assessed for an at-risk community | Benefits, outcomes and cost previously apportioned by risk source, other interventions or assets in a system | Claim for additional eligible FCERM GiA |
|---|---|--|
| Yes | Yes | Yes Use previously agreed apportionment |
| Yes | No Includes situations when a previous project used all the benefits and outcomes for claiming FCERM GiA | Yes Apportion retrospectively (see section 9.6.6). Claim the FCERM GiA eligible for the project |
| No | No | Yes Use the new benefits and outcomes not previously included (see section 9.6.5) |

Project teams can find more information on [benefits apportionment, including how to complete an apportionment retrospectively](#), in section 9.6.

2.2. Partnership funding (PF) scores

Based on the proposed contribution to outcome measures and the costs of the project, the PF calculator produces a raw PF score. This gives a percentage score of how likely (eligible) FCERM GiA is to fund a particular project or option. Similarly, the adjusted PF score shows the extent to which the available FCERM

GiA and any proposed financial contributions are enough to fund a particular project or option.

The raw PF score is an indicator of the efficiency of FCERM GiA investment. A raw PF score below 100% shows that there is insufficient eligible FCERM GiA available from the qualifying benefits to fully fund the project. This may be because project costs are relatively high or because qualifying benefits are relatively low. In these circumstances, financial contributions (based on other local or national benefits and outcomes) or cost efficiencies can increase the PF score to, or above, 100%.

The proposed payment rates used when calculating eligible FCERM GiA are set out in the 'Policy assumptions and formulae' sheet within the [PF calculator 2020 spreadsheet](#). The PF calculator shows how the eligible FCERM GiA is calculated.

2.3. Environment Agency's eligibility

The [Environment Agency can access FCERM GiA](#) for both the upfront capital costs (promotion, appraisal, design and construction) and any future costs (future capital, operation and maintenance) of a project. This means financial contributions towards Environment Agency projects help fund all costs, unless otherwise agreed on a project-by-project basis.

Without these contributions towards future costs, national budgets will have an unfunded legacy. This may affect maintenance activities and the time that reduced risks can be relied on. It may bring forward the next investment, including the need for further contributions, to sustain the benefits interested groups are looking for.

2.4. Risk management authorities' eligibility

[Other RMAs can access FCERM GiA](#) towards the upfront capital costs of their projects only. They must meet future costs themselves or use contributions secured outside the partnership funding arrangements. This is because these organisations have other financial resources for meeting their ongoing costs and responsibilities.

The adjusted PF score will differ between Environment Agency and other RMA projects depending on the proportion of future costs to the whole life costs and on the sum of contributions secured.

FCERM GiA eligibility is calculated for a specified [duration of benefits period](#). This includes the period over which maintenance, operation and other future costs are required to sustain the proposed outcomes that attract FCERM GiA. As other RMAs are not eligible for FCERM GiA towards these future costs, they cannot claim the FCERM GiA that is towards these future costs. This means that future costs must be included in the PF calculator for all projects for all RMAs. Not including them will overinflate the raw PF score and lead to the incorrect calculation of eligible FCERM GiA.

3. Costs and contributions

Section 3 captures the whole life costs for achieving the proposed outcomes set out in sections 4, 5, 6 and 7. It includes any contributions from other funders towards the chosen project option. This is usually the leading option or the preferred option, depending on the project stage.

All costs and contributions in the PF calculator should be in present value terms using the relevant discount factors (see appraisal guidance) over the [duration of benefits period](#).

Project teams should be aware that the present value costs used in the PF calculator differ from the project costs used in the national FCERM capital programme. Those costs will either be in today's prices or will include for inflation.

3.1. Present value calculator

The PF calculator includes a 'pv calculator' (present value calculator) sheet that project teams can use to translate baseline project cash costs (in today's prices) to present value (pv) costs. Costs that are within 6 months of the date they are valued are considered to be in today's prices. The 'pv calculator' sheet can also be used to value project benefits in the same way.

It also includes guidance to help with calculating the present value (pv) of a contribution. The 'pv calculator' may require specialist input and advice. Project teams should secure this from their own organisation's experts or their suppliers.

3.2. Whole life costs

In all cases, whole life costs refer to the costs of promotion, appraisal, design, construction, future capital, operation and maintenance for the package of measures set out for the chosen option. Whole life costs also include the full [risk contingency](#) (see section 3.3). All costs in the PF calculator are for the [duration of benefits period](#) (see section 4.5).

This includes measures taken in advance of the proposed FCERM works to mitigate or offset other obligations, including those related to environmental mitigations and enabling works. These costs may be apportioned across several benefitting risk management projects.

All project teams, for both the Environment Agency and other RMA projects, must include their project's whole life costs in the PF calculator for it to correctly calculate the raw PF score and the eligible FCERM GiA.

3.3. Risk contingency

The whole life costs include those for the full risk contingency (for example, the 95%ile Monte Carlo assessment plus the optimism bias). This makes sure that the calculation of the adjusted PF score is realistic. It minimises the risk of exceeding the FCERM GiA cap because risks are not shared appropriately with

contributors. Contributions that are not subsequently needed, for example because risks are avoided, will be returned in proportion to the share of expenditure. The full risk contingency for promotion, appraisal, design and construction is shown separately in the PF calculator.

The full risk contingency is identified during a proportionate appraisal. Any risk contingencies towards future costs are not shown separately in the PF calculator.

Project teams are clear on their approach to calculating risk contingencies. Evidence in support of the approach is required.

3.4. Expenditure already made

Expenditure that has already been made and was required to achieve the outcomes identified for a project is often termed 'sunk costs'. These sunk costs are included in the PF calculator as they form part of the whole life costs for achieving the proposed outcomes. They may include costs made from the start of activities to develop a business case, including any early engagement, studies or investigations related to the project outcomes.

The treatment of sunk costs in the PF calculator is different from the usual approach for economic appraisal and financial management processes.

3.5. Additional information

The following section provides information relevant to how costs and contributions should be included in the PF calculator.

3.5.1. Using local preferences to change the nationally preferred option

The [Operational principles to follow when setting up funding partnerships to tackle flood and coastal erosion](#) (sections 3.32 to 3.34) describes how local preferences can influence the chosen option. In these circumstances, you may need to use the PF calculator differently.

Following a proportionate appraisal, a the locally preferred choice may be for an option that is an enhancement or increase on the nationally preferred option. Any increases in benefits, outcomes, costs and contributions associated with this option cannot be included in the PF calculator. Funding partners must cover all additional costs. These are over and above any contributions that are needed to release the FCERM GiA for the nationally preferred option.

The PF calculator for the nationally preferred option is submitted with a business case.

A locally preferred choice may be for an option that achieves a lower standard to that promoted by the nationally preferred option. In this case, the benefits, outcomes, costs and contributions used in the PF calculator and included in the business case are those for the chosen local option. Contributions may increase as the outcomes funded by FCERM GiA reduce.

A local choice does not change the requirement for the overall project to have whole life present value benefits that exceed the whole life present value costs.

Project teams include the benefits, outcomes and costs in the PF calculator. Where wider benefits and local choices influence the choice of option, this must be made clear. Evidence in support of the approach is included in the project business case.

A local choice may offer an additional benefit that is not much more or is less than the additional cost of the associated local choice measures. In these circumstances, the overall project benefits may still substantially exceed the overall costs, including the additional local choice measures. However, because the ratio of additional benefits to additional costs is marginal, the project team must get the funders to confirm they support this option.

This is because these funders are fully funding the additional costs for this option and the return on their investment needs to be clear to them. The Environment Agency will not support the local choice without this confirmation.

3.5.2. Calculating the value of a contribution

Contributions should ideally be secured, with an agreement, based on the value of the proposed or enabled outcomes to the contributor. Contributors may wish to limit the project stages on which their funding can be spent. These preferences are taken into account when the [value of a contribution](#) to the project is worked out (see section 10.1). As far as possible, contributions are shared annually, with the FCERM GiA spend in proportion to the baseline project costs (in today's prices, less inflation).

When a contribution is towards capital upfront costs only, the contribution is valued over the period of time for which capital upfront FCERM GiA spend is proposed. The same approach is followed for contributions towards whole life costs or towards maintenance and operational costs only. For example, if a contribution is 10% of the project costs, it should be valued in present value terms as if it was 10% of the costs each year. This should be for the duration of benefits period, or whichever time period meets the preferences set by the contributor.

3.5.3. Valuing a contribution

The PF calculator requires that whole life benefits and whole life costs use the appropriate HM Treasury present value discount factors. Contributions are also valued in the same way.

Project costs are distributed over time. This means that eligible FCERM GiA and any contributions are also distributed over time so that they are available when they are needed. As such, FCERM GiA and any contributions are valued at the point they are spent rather than when they are received. In this way, contributions are valued correctly and treated in the same way as calculating eligible FCERM

GiA. This should be the case whether they are towards whole life costs, upfront capital costs only or for operation and maintenance costs only. This helps avoid projects having insufficient funds for their construction activities.

A capped cash sum ('lump' sum) contribution received today is assumed to account for inflation over time. The lump sum should be distributed over time before a backwards calculation is made to create a cash value in today's prices (the baseline cost) to use in the PF calculator. The PF calculator includes a tool in the 'pv calculator' sheet to make this backwards calculation for a capped cash sum contribution.

A percentage contribution is applied towards the equivalent project costs over the period for which the contribution is proposed.

Examples 1 and 2 in section 10.1 show how to correctly [value a contribution](#).

The PF calculator has a tool in the 'pv calculator' sheet to calculate present value costs for project baseline cash sums (in today's prices) and for equivalent contributions (using the construction price index).

Project teams confirm they have valued contributions using this guidance.

When entering into agreements, contributions may be valued taking account of inflation and interest received. This is a [commuted sum](#) (see section 9.7).

4. Outcome measure 1 – economic benefits

Section 4 captures the qualifying economic benefits of the outcomes the proposed project aims to achieve with the planned package of measures. It also defines the period of time over which these benefits will be relied on before another investment decision to manage risks is required.

4.1. Definition

OM1 is the ratio of benefits to costs over the duration of benefits period for the project based on the present value costs and benefits.

Outcomes are set by referring to the circumstance before the investment decision is made (before the full business case, Gateway 3) and the circumstance at the end of the duration of benefits period. The difference in risk or improvement to the outcomes between these circumstances is how the eligible FCERM GiA is calculated. This includes the [expected impacts of climate change increasing risks over time](#), less any mitigation included with the proposed project investment.

4.2. Overall FCERM economic benefits (OM1A)

The PF calculator requires the qualifying FCERM economic benefits over the appraisal period. This comes from the economic appraisal and may be a longer time than the duration of benefits period for the project.

Separately, the PF calculator requires the qualifying FCERM economic benefits over the duration of benefits period. This value is used as the benefits value from which the eligible FCERM GiA for OM1A is calculated.

When calculating the eligible FCERM GiA funding available under OM1A, the funding associated with the qualifying benefits under OM1B, OM2, OM3 and OM4 are automatically deducted in the PF calculator to avoid paying twice.

4.2.1. Benefits qualifying for the calculation of eligible FCERM GiA

Qualifying benefits for OM1A are determined by an assessment of benefits undertaken through a proportionate appraisal.

They include any direct and indirect flooding and coastal erosion damages of national significance and losses avoided to people and existing natural and built environments. This could include local benefits that would otherwise transfer outside the United Kingdom and additional environmental benefits provided as part of the FCERM project. The non-damage related net benefits inherent to the FCERM measures and outcomes proposed also qualify for FCERM GiA.

Guidance is available separately on the valuation of FCERM benefits, including the flood and coastal erosion management [appraisal guidance](#) (FCERM-AG), supplementary guidance and the [multi-coloured manual](#) (MCM).

The qualifying benefits identified are used to calculate the eligible FCERM GiA for a project.

4.2.2. Reasonable proportions of non-damage related benefits

Maintaining reasonable proportions between non-damage related benefits and those associated with avoiding direct impacts and losses as a result of managing flood and coastal erosion risks ensures good value for money from the national FCERM capital programme. Flexibility in the proportion of non-damage related benefits may be possible when the benefits are shown to be of national significance.

Further evidence is required when the proportion of non-damage related benefits exceeds 20% of the proposed qualifying benefits under OM1A. For example if a power station is flooded, non-damage related benefits may be associated with the loss of power to households at a distance from the station. With regard to coastal erosion, if a road is permanently lost the non-damage related benefits may be associated with the impacts for the community in using other routes for access. Non-damage benefits may also be a consequence of the solution to risk management rather than the source of the risk. For example, this may include

amenity and biodiversity enabled by the proposed package of measures. Where the non-damage benefits relate to legal obligations they should be more easily justified with suitable evidence.

Project teams should include information justifying how these additional benefits help achieve the project-specific qualifying benefits. This includes how they contribute to maintaining value for money for FCERM GiA balanced against the significance of the planned project outcomes.

The environmental improvements under OM4 use benefits set by Defra's updates to the arrangements for partnership funding and as such may be more easily justified by the circumstances of the project.

4.2.3. Benefits not qualifying for FCERM GiA

Non-damage related benefits that enhance or enable wider, non-FCERM benefits to be achieved often for, or led by, other authorities and businesses, will typically not qualify for FCERM GiA. For example, these benefits would include additional economic growth made possible after the flooding and coastal erosion risks are reduced, the benefits from future developments, and the local benefits that would otherwise transfer elsewhere in the United Kingdom. Funding for these growth and development benefits is often available from other funders. The [operational principles](#) to follow when setting up funding partnerships provide more information

Defra's updates to the arrangements for partnership funding also exclude all benefits in relation to any new properties (residential or non-residential) or existing buildings converted into housing after 1 January 2012. Any measures to manage the risks from development are considered to be within the statutory planning process.

The non-damage related benefits from measures that are mainly enhancements to a project will not qualify for FCERM GiA. For example, if they are not inherent in the proposed FCERM measures or are not justified by their contribution to achieving the FCERM measures. This will avoid using these types of benefits to prop up a funding shortfall for a project. This does not mean that the costs of carrying out these measures are excluded. Funding from other sources may be required to cancel out any additional costs.

Intangible benefits (those that can be described but not easily quantified in financial terms due to a lack of a suitable methodology) are not included in the PF calculator but can be used to influence the business case and chosen option.

Project teams confirm in the project business case that the economic benefits in OM1A are eligible for FCERM GiA.

4.3. Economic summary

The PF calculator includes an economic summary worksheet. Project teams must complete this for Environment Agency projects for the outline and full business cases and for other RMAs for the outline business case. Some data are essential to meet [recommendations by the National Audit Office](#). [Further guidance on these data](#) is available. When these data are not provided eligibility for FCERM funding is removed. Seek advice from the Environment Agency's [Economics, Appraisal and Research team](#) when this data is unavailable.

The economic summary is used to give a breakdown of the main economic data for the project. Most of this is a subset of the OM1A sum in the PF calculator. The economic summary is also used to report wider benefits beyond those linked with FCERM funding. These may be the main reasons for support from other funders.

Defra and the Environment Agency will use the data to improve the national understanding of the outcomes of FCERM investments, to report on overall changes in risk and to inform future funding policy considerations.

4.4. People-related FCERM benefits (OM1B)

OM1B is a measure of the benefits to people that are not associated with avoiding household damages. It is a subset of OM1A.

Benefits in the following categories are included in OM1B when they result directly from the FCERM project:

- risk to life
- stress and health benefits
- mental health impacts
- vehicle damages avoided
- residential property evacuation costs avoided

[Supplementary guidance](#) and the [appraisal guidance](#) provide information on how these benefits are calculated. Other people-related benefits are included in the household tariffs used to calculate the qualifying benefits under OM2.

Before strategic outline case (pre-SOC), and when risks are reduced under OM2A or OM3, project teams can assume that OM1B benefits are equivalent to:

- 50% of the qualifying benefits under OM2A
- 15% of the qualifying benefits under OM3

This information is available in the qualifying benefits calculation for the different household deprivation categories for OM2A and OM3 in the PF calculator. Project teams should test OM1B qualifying benefits against the sensitivities associated with their proposed package of measures and proposed outcomes.

Project teams confirm the economic benefits in OM1B are eligible for FCERM GiA and demonstrate they have carried out sensitivity analyses for OM1B.

Including qualifying benefits under OM1B does not remove the need to carry out an equality analysis (as required by the Equality Act 2010) in the business case.

4.5. Duration of benefits period

The duration of benefits period is critical for correctly calculating FCERM GiA. It is defined as:

- for flood risk management projects - the time period over which the benefits and outcomes achieved can be relied on before a further major investment
- for erosion risk management projects - the time period over which the process of erosion will be delayed before a further major investment, such that the benefitting households can be occupied for longer

FCERM GiA is for the identified outcomes over the duration of benefits period.

The duration of benefits period typically relates directly to the useful life of the flood or coastal asset being built or upgraded, or the time until the next major capital investment is proposed, whichever is sooner. A major investment is one that is more than 20% of the value of the investment being considered today (in today's prices, without inflation added).

It may sometimes be necessary to consider different project arrangements that could influence the duration of benefits period. This may be due to FCERM GiA eligibility, providing an adaptable solution and/or to make an investment more attractive to contributors. In doing so, asset management preferences alone may not wholly influence the choice of benefits period.

The duration of benefits period is taken in years after the proposed measures are ready to provide the planned risk management benefits (following readiness for service, Gateway 4). It is not always the same period as the appraisal period for the project. This typically relates to the life of the longest-lived assets, or 100 years, whichever is shorter in accordance with the [HM Treasury Green Book](#).

Benefits, outcomes and the resulting FCERM GiA claimed for a project cannot be used again until the end of the duration of benefits period. To do otherwise would undermine the basis on which the original investment decision and FCERM GiA were determined.

Project teams confirm the investment decision point that supports their choice of duration of benefits period in the project business case.

[Illustrations and examples](#) of how the duration of benefits period can be treated for different types of project are included in section 10.2.

5. Outcome measure 2 – households at risk from flooding

Section 5 captures the change in flood risk over time that households will benefit from as a result of the planned package of measures for the project.

5.1. Flood risk bands used in the PF calculator 2020

The calculation of qualifying benefits for households at risk from flooding requires that households are assigned to different flood risk bands in the PF calculator, both 'before' and 'after' the proposed interventions.

OM2 risk bands are described in terms of annual probability of a flood. This is known as the annual exceedance probability (AEP). The AEP applies to probability of floodwater crossing the threshold of a household.

5.1.1. Flood risk management household risk bands (OM2)

| Risk bands | Description |
|------------------|--|
| Very significant | Greater than or equal to 5% AEP ≥5% AEP (standard of protection less than or equal to 1 in 20) |
| Significant | Less than 5% AEP but greater than 2% AEP <5% to >2% AEP (standard of protection 1 in 21 to 1:49) |
| Intermediate | From 2% AEP but greater than 1% AEP 2% to >1% AEP (standard of protection 1 in 50 to 1 in 99) |
| Moderate | From 1% AEP but greater than 0.5% AEP 1% AEP to >0.5% AEP (standard of protection 1 in 100 to 1 in 199) |
| Low | Less than or equal to 0.5% AEP ≤0.5% AEP (standard of protection 1:200 and above) |

Households are distributed across 3 [deprivation categories](#) (see section 9.2) for calculating FCERM GIA eligibility. Project teams must only count each household once under OM2.

Project teams must also consider how they [apportion the households](#) at risk from several sources of flooding across different projects (see section 9.6).

This includes households at risk today that benefit from the planned reduction in flood risk. It also applies to other households that will benefit from this investment up to 2040, apart from new households, or existing buildings converted into housing after 1 January 2012. The contribution to the outcome measure is a combination of both qualifying groups of households.

The [definition of a household](#) and [deprivation categories](#) are in section 9.

Outcome measure 2 is the number of households at risk moved out of any flood risk (probability) band to a lower flood risk (probability) band (OM2A, plus OM2B).

5.2. Households at risk today that are better protected against flooding by this investment (OM2A)

Households at risk of flooding before the investment (the risk today) are counted under OM2A (households at risk today). Only include the households that are going to benefit from a reduction in flood risk at the end of the duration of benefits period. The risk to these households at the end of the duration of benefits period is shown under OM2A (households at risk after project completion). The change in flood risk to these households at the end of the duration of benefits period is because of the proposed packages of measures introduced by the project.

Project completion is taken as the end of the duration of benefits period.

Households indirectly benefitting cannot contribute towards OM2. This includes those affected by loss of services or access or where flood water is not expected to enter the property (such as in the upper floor flats and apartments in a building).

5.3. Additional households at risk up to 2040 that are better protected against flooding by this investment (OM2B)

Climate change may mean the risk of flooding to some households increases into the future and after the proposed works are complete.

Count additional households that are at risk from the impacts of climate change before 2040 under OM2B. These households must not be at risk of flooding before the proposed measures are ready to provide the planned risk management benefits (following readiness for service, Gateway 4). To qualify they would cross to a higher risk band before 2040 without the project and therefore benefit from the reduction in flood risk by moving to a lower risk band due to the investment planned today. They are counted under OM2B in a similar way to those households that are at risk today.

This approach will benefit many FCERM flood projects and help project teams understand the requirements for the PF calculator. The impact of not including households crossing to a higher risk band after 2040 will be marginal. This is

because of the wider uncertainty range in the very long term, and the significant diminishing effects of discounting future benefits to present values.

The effects of climate change may not be understood before an appraisal (pre-SOC in the PF calculator) or without reasonable access to proportionate climate modelling (for example, before the outline business case). In these situations a project team can use a maximum of 25% of the number of households at risk under OM2A for each category under OM2B apart from those in the very significant risk band. The percentage chosen may depend on the geography of the location at risk from flooding. Climate impacts should be properly understood by the outline business case stage.

In some circumstances, under a proportionate assessment of benefits, evidence may not be available or appropriate to allow households to be included under OM2B at the full business case (FBC) stage. For example, this may affect projects with very short durations of benefits or projects seeking to introduce property level measures. OM2B can only apply when the duration of benefits period extends beyond 2040.

Households counted under OM2A are different households to those counted under OM2B. The overall households benefitting under OM2A and OM2B cannot exceed the number of households at risk in the benefitting communities.

The qualifying benefits from OM2B are in the future. The PF calculator takes into account this delay by netting-off the qualifying benefits between when the proposed measures are ready to provide the planned risk management benefits (after readiness for service, Gateway 4) and 2040.

5.4. Property level measures

Use this guidance and the PF calculator when:

- property flood resilience measures form part of a wider package of measures to reduce flood risk
- your property flood resilience (PFR) project was approved before September 2023

Use the [updated PFR arrangements](#) after this date when property flood resilience for residential properties is your only planned measure.

FCERM GiA for property level measures that reduce the probability of flooding is limited to those households that are currently at a very significant risk of flooding. This includes measures to resist floodwater crossing the threshold of a household. Where a detailed assessment of the change in risk is not available project teams can assume that the 'after' risk band will be the significant risk band.

Where property level measures do not reduce the probability of flooding they cannot claim FCERM GiA under OM2 (which is about reducing the probability of

flooding). This includes measures that only reduce the consequence of flooding to a household. Eligible economic benefits may be claimed under OM1A and/or OM1B.

Project teams should not assume that the OM1A value for property level measures is automatically a multiple of the household damage tariff included in the PF calculator ‘Policy assumptions and formulae’ sheet.

6. Outcome measure 3 – households better protected from coastal erosion

Section 6 captures the delay in coastal erosion risk that households will benefit from as a result of the planned package of measures for the project.

Households qualify under OM3 if the project prevents occupancy from becoming unsafe due to coastal erosion or when their permanent loss is directly avoided. These households must not have been built or converted into housing after 1 January 2012.

Outcome measure 3 is the number of households better protected from coastal erosion.

Households indirectly benefitting from the proposed measures cannot contribute towards OM3. This includes loss of services or access, or where the household loss from coastal erosion is not permanent. The economic impacts from such losses can be assessed and contribute towards OM1.

6.1. Coastal erosion risk bands

OM3 requires households to be assigned to different coastal erosion risk bands. OM3 risk bands are described in terms of the point in time that the expected loss will occur due to coastal erosion without the proposed project.

6.1.1. Coastal erosion household risk bands (OM3)

| Risk band | Description |
|------------------|---|
| Medium term loss | Less than or equal to 20 years (1 year to 20 years) |
| Longer term loss | Greater than 20 years (21 years to 100 years) |

Households are distributed across 3 [deprivation categories](#) (see section 9.2). Project teams must only count each household once under OM3.

The [definition of a household](#) and [deprivation categories](#) are in section 9.

7. Outcome measure 4 – environmental improvements

Section 7 sets out how to capture the gain in the size and condition of specified habitats and watercourses realised alongside measures that manage flooding and coastal erosion risks.

OM4 supports FCERM projects that reduce the risk of flooding and coastal erosion in ways that provide additional environmental benefits. These projects contribute to long-term community resilience to flooding and coastal change and adapting and mitigating for climate change.

Qualifying packages of measures under OM4 support wider Defra policies, including the [25 Year Environment Plan](#) and the [National FCERM Strategy for England](#). Environmental outcomes are integrated into, or linked with, FCERM measures and create opportunities to work with partners to achieve wider environmental benefits.

Outcome measure 4A is the number of hectares of qualifying habitat created or enhanced. Outcome measure 4B is the length in kilometres of rivers enhanced.

7.1. Qualifying rules and eligibility for FCERM GiA

The environmental benefits qualifying under OM4 should be:

- an integrated part of the proposed package of FCERM measures
- a good opportunity to achieve wider Defra outcomes, either by using project resources efficiently or enabling opportunities through partnership with others

The qualifying environmental benefits should not:

- be used to subsidise risk management measures under OM1, OM2 and OM3 where the costs of those measures are greater than the benefits they provide without the OM4 benefits being included
- be a disproportionate part of the overall qualifying benefits for the project
- be used to fund necessary environmental compensation for environmental losses caused or required by the project

Eligibility for FCERM GiA under OM4 is calculated from qualifying benefits attributed to making improvements to the natural environment. To be eligible for FCERM GiA the project team must demonstrate that the broad habitat types and watercourses will be measurably enhanced.

Include the economic benefits of the proposed enhancements under OM1A when they qualify for FCERM GiA, even when contributions to OM4 have been identified. These benefit values will come from the economic appraisal and may be greater than the pre-determined benefit values identified under OM4 (see the PF calculator 'Policy assumptions and formulae' sheet). Examples could include

educational, amenity and recreational benefits. The PF calculator will ensure benefits are not double counted.

7.2. OM4A – habitats created or improved

The condition of habitats in OM4A are categorised as poor, moderate or good.

Project teams must include the 'before' and the 'after' habitat type and condition at the end of the duration of benefits period in the PF calculator. The PF calculator will subtract the value of the 'before' condition from the value of the 'after' condition to give an estimate of the enhanced benefit. The habitat types do not need to be the same in the 'before' and 'after' condition.

The total area of habitats in the 'before' condition must be the same as the total in the 'after' condition.

Project teams provide evidence in support of their choices in OM4A in the project business case. This should include a statement on how the habitat will be created or enhanced and how it will be managed to meet the condition over the duration of benefits period.

Further information on the evidence required is included in [supporting guidance for outcome measure 4](#).

OM4A is for creating or enhancing, or both, the following habitat types:

- intertidal
- woodland
- wet woodland
- wetlands and wet grassland
- grassland
- heathland
- ponds and lakes
- arable land

Project teams should give priority to creating and enhancing habitats listed as priority habitats by the government (Natural Environment and Rural Communities (NERC) 2006 section 41 list). However, the habitat types cover all habitats in these categories irrespective of their statutory designation or status.

7.3. OM4B – Rivers enhanced - river habitats and natural processes restored and enhanced

OM4B is for projects that enhance the habitats, physical features and natural functioning of watercourses. It includes creating new lengths of watercourses where these work with natural processes and improve the habitat for wildlife.

Project teams provide evidence in support of their choices in OM4B in the project business case. This should include a statement on how the watercourse will be restored or enhanced and how it will be managed to sustain the change over the duration of benefits period.

Further information is included in [supporting guidance for outcome measure 4](#).

OM4B is for:

- the comprehensive restoration of natural processes, habitats and the removal of physical modifications (includes creating channels with minor physical modifications that do not inhibit natural river processes)
- the partial restoration of natural processes, habitats and the partial removal of physical modifications (includes creating channels with some physical modifications and partial functioning of natural processes)
- a single major physical or habitat enhancement (for example, bank reprofiling to naturalise the banks or opening up fish passage)

7.4. Mitigating and compensating impacts for existing FCERM assets and actions

Environment support projects are funded outside of the FCERM partnership funding arrangements. They are for environmental actions required by law to mitigate or compensate for the impacts of existing FCERM assets and actions. These projects must demonstrate that there is a clear legal requirement on FCERM asset managers to provide environmental mitigation or compensation outside of planned FCERM work.

They include works required under the Habitat Regulations 2017 (as amended), such as habitat compensation projects, the Wildlife and Countryside Act 1981 (as amended), such as works for SSSI remedies and actions and the Water Environment Regulation (the Water Framework Directive Regulations – England and Wales 2017) requirements.

Funding from environment support projects, as identified in the national FCERM capital programme, can be used as a contribution to FCERM projects where a [strategic approach](#) is demonstrated and where a single project approach to achieving partnership funding-related FCERM outcomes and statutory outcomes is considered efficient.

The contribution should be recorded in the PF calculator and project teams should confirm that the costs of these statutory outcomes are met in full by the contribution sum.

Further information on [environment support projects](#) is available.

8. Qualifying benefits and calculating eligible FCERM GiA

Section 8 shows how the PF calculator works out the maximum sum of FCERM GiA that relates to the qualifying benefits from OM1, OM2, OM3 and OM4 over the duration of benefits period.

This maximum eligible FCERM GiA for the outcomes identified is used to calculate the raw PF score for all RMAs. It includes a sum that is related to the future costs of a project.

FCERM GiA eligibility rules mean that the maximum eligible FCERM GiA for the outcomes identified is rarely available in full for the upfront capital costs of a project. The only circumstance when this is not the case is when the project is led by the Environment Agency, future costs over the duration of benefits period are fully funded by contributions and the adjusted PF score is 100%. Section 2.4 sets out the FCERM [eligibility for RMAs](#).

8.1. Sensitivity testing

A project team's confidence in the data they use in the PF calculator will change as the project progresses and more accurate information is obtained. The expectation is that this confidence increases as the nationally preferred, or local choice, option is identified and presented at the outline business case (OBC stage). It further increases as the project moves through to an investment choice at full business case (FBC).

Establishing how sensitive the funding arrangements are to changes in the PF calculator data helps manage expectations when promoting options, preparing involvement with interested groups and negotiating with beneficiaries. The PF calculator includes some built-in sensitivity analyses. Other analyses should be considered, particularly when project appraisals are limited in scope or detail. The PF calculators for these analyses are not required in the business case.

The sensitivity analyses in the PF calculator are:

- SA1 tests the effect of a 25% increase in whole life costs
- SA2 tests the effect of a 50% reduction in households in the very significant flood risk band, transferring the households affected to the significant flood risk band
- SA3 tests the effect of a 50% reduction in households in the medium term loss category, transferring the households affected to the long-term loss category
- SA4 tests the effect of a 25% increase in the duration of benefits period
- SA5 tests the effect of a 25% reduction in duration of benefits period
- SA6 tests the effect of not demonstrating a strategic approach
- SA7 tests the effect of 25% optimism in the planned quality of habitat improvements as a result of the project

9. Supporting information

Section 9 sets out information that will help project teams to correctly use the PF calculator.

9.1. The definition of a household

Households qualify for inclusion in OM2 and OM3 if they directly benefit from an FCERM project and were built, or converted, before 1 January 2012. For flood risk, households qualify when a project reduces the probability of flood waters crossing their threshold. For coastal erosion, qualifying households are those where a project prevents occupancy from becoming unsafe.

For the purposes of the PF calculator, a household must:

- be a [permanent dwelling](#) built or converted before 1 January 2012
- have been granted planning permission for year round residential occupancy before 1 January 2012
- have an individual postal address
- pay individual council tax to the local authority

Temporary or seasonal accommodation, including a mobile or static caravan, does not qualify as a household, but can contribute to the benefits in OM1A.

Project teams should contact the Environment Agency's [Economics, Appraisal and Research team](#) for interpretation of the definition for non-standard households.

9.2. Deprivation categories – English indices of deprivation

The partnership funding arrangements use deprivation categories from the English indices of deprivation as a way of distributing FCERM GiA. Understanding where households fall within these rankings will affect the sum of eligible FCERM GiA for a project.

The Office for National Statistics publishes the latest [English Indices of Deprivation](#) (2019). An [infographic](#), including a simple map, provides a summary of deprivation across England. This may be enough to identify whether a project is likely to fall within a deprived area or not, to inform an initial outcome measure assessment. For a detailed and more accurate assessment, the deprivation ranking for a location is found using post codes and the [English Indices of Deprivation online tool](#).

The deprivation rankings used in the PF calculator are:

- 20% most deprived communities
- 21% to 40% most deprived communities
- 60% least deprived communities

9.3. Assessing the ‘before’ risk for investments addressing deteriorating asset condition

Some assets require capital investment to sustain the standard of service they provide. These are usually described as capital maintenance projects in the national FCERM capital programme. Replacing worn out components, or specific elements of existing FCERM assets, is justified when the asset has deteriorated so it no longer meets its design standard of service. In this situation the risk in the defended area is significantly increased. Evidence of near failure or end of life of the assets is required when applying for FCERM GiA.

Sometimes a detailed assessment of risk associated with deteriorating asset condition is not available. This could be due to complexity, timing or disproportionate costs. In these cases, projects can assume that the ‘before’ risk band in OM2A is one band below that inferred from the design standard of the asset after the capital maintenance action is completed. The ‘before’ risk band cannot be lower than the risk would be if the benefitting area was not defended. Climate change evidence is unlikely to be available in these circumstances, so when this approach is used it will not apply to households at risk under OM2B.

For example, the ‘before’ risk band in OM2A can be in the significant risk band if the risk at the end of the duration of benefits period is understood to be in the intermediate risk band. Some large or complex assets, such as sea walls or large sluices, may have a programme of ongoing capital maintenance works or several capital maintenance projects over the medium term. Section 10.2 offers some [examples](#) for considering how several interventions could be considered without double counting benefits.

9.4. Building confidence with evidence of a funder

RMAAs promoting projects are able to increase confidence in their FCERM GiA allocation if they can increase the adjusted PF score above 100%. This is achieved by reducing costs or securing additional contributions.

As a project develops, a business case requires greater confidence that contributions will be secured. This is easier to demonstrate if project teams:

- liaise early with potential funders
- secure contributions towards the costs of project development
- share information with interested groups
- integrate opportunities with other groups including the design criteria

9.4.1. Evidence for secured contributions – projects led by Environment Agency

Project teams will ideally secure contributions to development costs, sharing risks and promoting stronger ownership by beneficiaries (see the [Investment Journey](#)).

Where a case to invest is clear, even when the adjusted PF score is less than 100%, a project can apply for FCERM GiA towards project development. This must not be more than the eligible FCERM GiA for the most likely set of outcomes understood at the business case development stage.

Confidence to continue to invest must develop alongside evidence that a fully funded project is probable. At the outline business case stage, if this evidence is not enough, further eligibility for FCERM GiA may be delayed. At the full business case stage, a project can demonstrate full funding is available, subject to suitable legal agreements for contributions being signed by the relevant parties. If this is not the case, further FCERM GiA eligibility is withheld.

A project team should check if additional financial management constraints are required before authorisation to spend funds is approved.

9.4.2. Evidence for secure contributions – projects led by other RMAs

The [Grant Memorandum](#) sets out arrangements for other RMAs to claim FCERM GiA. An RMA can use its own funds, and other funds as appropriate, to carry out an appraisal up to the outline business case stage. At this point, a successful application for FCERM GiA enables some of the RMAs development costs to be 'reclaimed' from its FCERM GiA eligibility. Funding for studies to inform project development may be available and form part of the project whole life costs.

Contributions towards project development stages are encouraged to promote greater involvement with interested groups (see the [Investment Journey](#)). An ongoing dialogue with the Environment Agency about contributions and the allocation of FCERM GiA helps to reduce uncertainty during project development and build confidence for funding partners and the lead RMA.

9.5. Responsibilities for reporting outcome measures

Project teams are responsible for submitting forecasts of outcome measures and when they will be, or have been, realised. This will include any national FCERM capital programme refresh exercises and regular local financial monitoring arrangements with the Environment Agency programme management teams.

Before completing a business case, project teams use the best available information to forecast their contribution to outcome measures. Once a business case is approved, outcome measures reported and used in the national FCERM capital programme allocation link back to that business case.

The project team must keep an audit trail to explain any variance against the original forecast after the business case is approved.

Outcome measures and the benefits from an investment are seen to have been achieved when the flood or erosion risk is reduced. In some situations this may be before the whole project is completed, for example before completion of the surface finishes or compensation matters are resolved.

The PF calculator is not used for reporting outcome measures or contributions.

9.6. Benefits apportionment and double counting

Apportionment of benefits and households should be considered when there is more than one source of risk in a benefitting location (see [section 9.6.4](#)). Help with apportioning benefits and carrying out a strategic approach is available from the Environment Agency's [Economics, Appraisal and Research team](#).

9.6.1. Principles of apportionment

An approach to apportioning benefits will:

- be agreed with all RMAs involved, as it may affect future applications for FCERM GiA and efforts for raising additional funding
- align with the needs of the economic appraisal so the right risk management options are chosen
- make sure individual projects make a fair claim for FCERM GiA in line with the outcomes of the current proposal and limiting implications for future work
- lead to reporting outcomes proportionate to the project and its benefits

9.6.2. Approach to apportionment

The ideal approach for apportioning benefits, outcomes and funding is to model the sources, pathways and receptors to understand their overall combined effect. This informs an economic assessment and helps with decision-making.

In situations where numerous assets work together preparing an apportionment model can reduce future efforts in building a case for investment. It can provide a funding and contributions plan for the entire asset system. This helps secure approval for the immediate works, while providing a basis for working with other interested groups to achieve efficient asset investment in the future.

However, it is not always practical, or affordable, to apportion benefits like this. The following approaches, or variations to them, may be more appropriate.

9.6.3. Methods for apportioning benefits

Apportioning benefits and outcomes reduces:

- duplicate claims for FCERM GiA for the same benefits and outcomes
- delays when claiming FCERM GiA due to a lack of information or mistakes made in previous assessments of risk or whole life cost estimates

Undertake sensitivity testing to ensure the apportionment is fair.

Examples of different methods for apportioning benefits and outcomes and when they may be useful are described below. Other approaches may be available. Consider simplicity when apportioning, benefits and outcomes. Agree the methods with project funders, stakeholders and the benefitting community.

9.6.3. Approaches for apportioning benefits and outcomes

| Approach | When the approach is appropriate |
|--|---|
| Separate model (consider each risk source separately) | Risk source interaction is complex, but understanding the combined effects is unlikely to substantially change the measures required for managing each risk source |
| Geography (benefits and outcomes separated using a simple geographic boundary) | Risk sources can be mapped and are broadly independent, even if benefits and outcomes overlap. Overlaps are assigned to an appropriate risk source. The geographic boundary is associated with the relevant risk |
| Annual average damages (AAD) (benefits and outcomes separated by the ratio of annual average damages avoided) | Risk sources cross RMA boundaries. This approach is useful in areas of widespread multi-source flooding. Further information on annual average damages is available from MCM-online |
| Weighted (benefits and outcomes are weighted by the influence an asset has on risk management) | Influence of assets is not easily assigned to a risk source. The approach is more appropriate to low lying, or complex, risk management areas. |
| Time (separate benefits and outcomes over time) | Investment need is separated by many years, even if benefits and outcomes overlap |
| Probability (sources split by annual exceedance probability (AEP)) | Risk sources overlap but are broadly independent. The probability that risk is realised can be separated by different do-nothing scenarios or by different AEPs for the on-set of the risk today |
| Cost (separate benefits and outcomes using the proportion of the combined up-front cost for approval (the capital cost of the measures)) | Risk source benefits and outcomes overlap and the solution for one source is broadly the same for the other even if there is a plan for more than one package of measures, OR Sustaining one asset links with the benefits and outcomes in an asset system |

9.6.4. Example project scenarios and potential apportionment

Examples of project scenarios and the apportionment approach that may be most appropriate for confirming a strategic approach are described below. Project teams should make their own assessment of the best method for their project.

9.6.4. Project scenarios and example of apportionment

| Project scenarios | Potential approach to apportionment |
|--|---|
| Single source of risk. Single project | NO APPORTIONMENT. Does not require an apportionment of benefits |
| Single source of risk. More than one project, separated by many years with overlapping benefit periods | TIME. Consider a reduced duration of benefits period for the first proposal |
| Single source of risk. More than one project, close in time (i.e.: within 10 years of each other) and with overlapping benefit periods | COST. Share cost in proportion to the overall benefits |
| Single asset in a wider asset management system. More than one project, with an overlapping benefit area | COST or TIME. Share cost in proportion to the overall benefits. Alternatively, reduce the duration of benefits period |
| More than one source of risk. More than one project with little overlap in benefit areas | GEOGRAPHIC. Separate benefits and outcomes at a spatial scale, assigning overlaps to a specific risk source |
| More than one source of risk. Single project | NO APPORTIONMENT. Consider the combined benefits and outcomes |
| More than one source of risk. More than one project. A single source dominates and has been assessed without consideration of other, relatively minor risk sources | SEPARATE MODEL, AAD, WEIGHTED or PROBABILITY. Consider each risk source separately. Alternatively, use the ratio of AAD avoided. Alternative assign a benefit weighting to each asset. Alternatively, separate the risk by the probability of flooding |
| More than one source of risk. More than one project. Each risk source is separated by probability | PROBABILITY. Claim benefits and outcomes according to the probability of flooding when this does not overlap |
| More than one source of risk. More than one project. No separate consideration of benefits and outcomes | This does not represent a strategic approach |

9.6.5. Sources of risk not yet considered

An earlier project did not assess the combined risk from all sources or carry out an apportionment exercise. Complete a new appraisal for the risk sources not yet

managed. Use the new benefits and outcomes identified in the appraisal for justifying the sum of eligible FCERM GiA.

FCERM GiA spent on the earlier project was for different benefits and outcomes from a different risk source.

This approach extends the previous strategic approach by considering new risk sources. The chance for claiming FCERM GiA twice for the same benefits and outcomes is reduced.

9.6.6. A retrospective apportionment of benefits, outcomes and cost

For a retrospective apportionment, conduct a new appraisal for the additional measures. Use the earlier appraisal when informing the updated approach for justifying eligible FCERM GiA for the combined measures. Distribute benefits, outcomes and cost across both the recent and proposed projects. Confirm the sum of FCERM GiA spent on the earlier measures.

Claim the benefits and outcomes agreed from the combined apportionment for the proposed project.

This approach avoids penalising communities because a previous benefit apportionment was incomplete. It updates the previous strategic approach and reflects the new understanding of risk.

This opportunity will end on 31 March 2026.

9.6.7. Considering what is enough resource for a fair apportionment

Use an appropriate amount of project resources when apportioning, or distributing, benefits and outcomes across different risk sources and between current and planned interventions. Consider:

- the time and cost of apportionment efforts
- the [type of project](#) (see section 2.1.4)
- the different risk sources and the cost and benefits from managing them
- the scale of the proposed change in risk compared with the current risk
- how far the implications from managing the risk reach. Take account of the strategic matters highlighted in the appraisal of options

For many projects new evidence may not be needed beyond what is included in the project appraisal. Keep apportionment efforts simple, able to inform effective decision-making and aid gaining support from project stakeholders and funders.

Simple change projects

Simple change projects should not require additional evidence in support an apportionment of benefits. Consider the history of damages or losses from a known risk source. Make sure the project team has a reasonable understanding of how the risk is realised and which properties will benefit from any intervention.

Complex change projects

For complex change projects the apportionment of benefits and outcomes is part of an appraisal. On occasion there may need to consider a specific study.

Discuss how much effort is appropriate for benefit apportionment activities with the Project Board. Make sure any apportionment, or distribution, of benefits and outcomes is agreed with stakeholders and used in future claims for FCERM GiA.

Sustain the standard of service projects

Use existing information for distributing benefits and cost when the project sustains the standard of service. Use local asset management plans or earlier investment business cases. When these are not available, use professional judgement and the judgement of other local practitioners when informing the apportionment.

When proposing a project to sustain the standard of service over a large area, for example in advance of completing a Strategy, complete a separate study or investigation when apportioning benefits and outcomes.

9.6.8 Information gaps

These approaches work best when information about the different sources of flood risk is available from the beginning of a project. This is not always possible, and delays while information gaps are addressed can leave communities exposed to higher risks. In this situation, the project team can use its judgement to make an allowance based on the missing information in terms of its geographic extent or the potential annual average damages. The RMAs involved share responsibility for the allowances made so that benefitting communities and potential funders, including FCERM GiA, are treated fairly. This includes understanding the potential effect that incorrect judgements have on financing future investment options.

9.6.9 Developing project-specific approaches

The examples above can be used on their own or together. The Environment Agency's [Economics, Appraisal and Research team](#) can offer further support if needed, or guidance when other approaches are preferred.

9.7. Calculating commuted sums

The PF calculator does not provide a method for calculating a commuted sum.

However, when valuing the contribution required from a funder, particularly when entering into an agreement for the money, project teams may want to understand the implications of inflation and interest received on the value of the contribution.

Contributions secured today towards activities in the future are subject to:

- the effects of inflation reducing the value of the sum
- interest received increasing the value of the sum

Project teams should consider taking these influences into account when entering into an agreement for a contribution (see sections 3.5.2, 3.5.3 and 10.1). To do so is to calculate a commuted sum.

To correctly calculate a commuted sum costs must be valued in today's prices (the baseline costs) without inflation added.

A contribution can either be a capped cash sum (a 'lump' sum) contribution towards project costs or a percentage of project costs.

Where contributions are provided as a 'lump' sum, a commuted sum calculation is not appropriate. However, a proportion of the contribution can be reserved for the costs of future activities if the contributor agrees.

Time has an immediate effect on the value of a contribution, in the same way as it has an immediate effect on the value of FCERM GiA. This difference in value is particularly important for projects where works span several years or where contributions are towards future costs and need to be valued and secured today.

Commuted sums should only be agreed when supported by the contributor and the RMA. RMAs may choose to obtain advice from their organisation's experts on the calculation of a commuted sum.

A simple commuted sum calculator is available from the Environment Agency on request. Professional financial and legal advice is still needed when valuing the contribution even if the commuted sum calculator is used.

10. Examples to help complete the PF calculator

Section 10 provides simple illustrations and examples for some of the expectations described in the guidance.

10.1. Valuing a contribution

The following tables set out how to correctly value a contribution.

Example 1: Valuing a capped cash sum ('lump' sum) contribution in the PF calculator (current year 0)

Assumes a £500,000 cash contribution is received from a contributor in Year 1.

| 4 year build period | Year 1 | Year 2 | Year 3 | Year 4 | Total |
|--|----------|------------|------------|----------|------------|
| Proposed whole life cost (£ cash today's value) | £200,000 | £1,000,000 | £1,300,000 | £100,000 | £2,600,000 |
| Proposed whole life cost (project £pv) | £193,237 | £933,511 | £1,172,526 | £87,144 | £2,386,418 |
| Proposed contribution (£capped sum, as received) | £500,000 | £0 | £0 | £0 | £500,000 |
| Proposed contribution (£capped sum shared) | £38,462 | £192,308 | £250,000 | £19,230 | £500,000 |
| Proposed contribution (£cash less inflation – today's value) | £37,161 | £179,521 | £225,486 | £16,758 | £458,926 |
| Proposed contribution (£pv) | £35,905 | £167,505 | £203,375 | £14,603 | £421,469 |

The total proposed contribution (£pv) sum is used in the PF calculator. In example 1 present value (£pv) refers to the HM Treasury social time preference discount rate and inflation is assumed to be 3.5% and is based on the Consumer Price Index (CPI).

Example 2: Valuing a percentage contribution in the PF calculator

Assumes a contribution of 20% of the planned costs is received from a contributor from Years 1 to 4.

| 4 year build period | Year 1 | Year 2 | Year 3 | Year 4 | Total |
|---|----------|------------|------------|----------|------------|
| Proposed whole life cost (£ cash today's terms) | £200,000 | £1,000,000 | £1,300,000 | £100,000 | £2,600,000 |
| Proposed whole life cost (project £pv) | £193,237 | £933,511 | £1,172,526 | £87,144 | £2,386,418 |
| Proposed contribution (20% of £ costs) | £40,000 | £200,000 | £260,000 | £20,000 | £520,000 |
| Proposed contribution (20% £pv) | £38,647 | £186,702 | £234,505 | £17,429 | £477,283 |

The total contribution (£pv) is used in the PF calculator. Present value (£pv) refers to the HM Treasury social time preference discount rate.

10.2. Working out the duration of benefits period

10.2.1. Considering duration of benefits in asset systems

An asset system is a group of assets working together to manage the risks of flooding or coastal erosion in a given flood compartment or coastal cell. Different types of assets are often present throughout the system, for example walls, banks, groyne and outfalls, and have different investment needs over time.

The partnership funding arrangements apply when a project is planning on improving or building new defences or carrying out capital maintenance on existing defences. The following sections give simple examples that explain how the duration of benefits can be considered for these types of projects.

10.2.2. Duration of benefits for projects improving or building new defences

Projects to improve or build new defences typically affect all the assets in a coastal cell or flood compartment. The improved protection level is achieved when the last component is complete. The duration of benefits period refers to the time period over which the assets can reliably achieve the proposed outcomes before a further capital intervention is needed. This is normally assumed to be when the cost of the next intervention exceeds 20% of this

project's upfront capital costs, including promotion, appraisal, design and construction.

An example for projects improving or building new defences

A new parapet wall proposed along the top of an existing quayside will reduce the risk of sea flooding from 10% AEP to 1% AEP in a given year. The new wall has at least a 50-year design life and costs £2 million. It is anticipated that significant works to the main quay wall (also owned by the RMA) are needed in around 20 years, at an estimated cost of £3 million.

The current period over which benefits can be relied on is limited by the future intention to invest in the main quay wall. The duration of benefits period for the parapet wall is therefore 20 years.

10.2.3. Duration of benefits for a capital maintenance project

Projects require capital maintenance (refurbishment and replacement) at various times in a typical asset system. These consider the different asset types (for example, walls, banks, sluices and groynes), their condition and residual lifetimes and the need for asset components, such as revetments, gates and electrical equipment. The timing and scale of different works and the possibility of ongoing or annual programmes of capital works are considered when deciding the benefits duration period in calculating eligible FCERM GiA.

10.2.4. Examples for capital maintenance projects

A single flood compartment is protected by a system of assets consisting of different walls (steel pile, concrete and some older stone walls), a length of earth embankment and a tidal sluice.

Example 1

The steel pile wall is heavily corroded and at the end of its useful life. It will be replaced in a single 2-year contract costing £2.6 million. The residual life of the remaining assets and their components is shown in a project appraisal and varies up to 80 years, with the next major investment in 20 years.

This example requires a discrete investment in a single phase, which will take 2 years to plan and contract. The duration of benefits is 18 years (20 years to next major investment, less 2 years for the time taken to secure a contract and achieve outcomes from the first investment).

Example 2

The appraisal confirmed the immediate need for steel sheet piling work over the next 2 years and for major investment to refurbish the sluice by year 7 (investing between years 5 and 8). With the sluice refurbishment complete, further works will not be required for 25 years.

| Spend profile £millions | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Steel pile wall | 1.1 | 1.5 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sluice refurbishment | 0 | 0 | 0 | 0 | 0.3 | 0.8 | 0.8 | 0.2 |

The example requires a discrete investment for the piling in a single phase after which benefits are realised for 5 years. This is the length of time between achieving the outcomes from the piling works (in year 2) and the need to secure outcomes for the sluice (in year 7).

Justifying the piling works with a 5-year duration of benefits may result in sufficient eligible FCERM GiA for the works. However, if it does not, or if contributors need to help support the investment, another approach may be appropriate. This may include considering a single project for both actions. This alternative approach would allow a longer duration of benefits period of 30 years. Both approaches are worth assessing to inform the preferred option. Funding agreements cover the contributions required for the chosen duration.

Example 3

The appraisal confirms the need for capital maintenance to improve the condition of a steel pile wall, sluice and an embankment revetment over the next 5 years. The residual life of the remaining assets and their components varies up to 80 years, with the next major investment needed in 25 years.

| Spend profile £millions | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6-10 | Year 11-15 | Year 16-20 | Year 21-25 |
|------------------------------------|--------|--------|--------|--------|--------|-----------|------------|------------|------------|
| Steel pile wall | 1.1 | 1.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sluice refurbishment | 0 | 0.3 | 0.8 | 0.8 | 0.2 | 0 | 0 | 0 | 0 |
| Embank revetment | 0 | 0 | 0 | 0.3 | 1.0 | 0.2 | 0 | 0 | 0 |
| Stone wall refurbishment (year 25) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.8 |

In this example, the 5 years of capital maintenance are a single phase as they overlap. With funding for all works secured before the start, outcomes are realised when the first works package is completed. This means that the duration of benefits is 23 years, which is 25 years to the next major intervention, less the 2 years taken to carry out the first works package.