

Annex E: GFCR Extension Updated

Economic Analysis

Section 1: Rationale for Intervention and Further Funding

The Global Fund for Coral Reefs have a clear and well evidenced case for change, supported by a strong theory of change and contribution to the Blue Planet Fund (BPF) objectives. This is set out within the core business case, with coral reefs and associated ecosystems continuing to require investment and protection as the effects of climate change accelerate.

Section 1.1: Economic Rationale for Intervention

This UK Government programme can help to reduce the significant negative effects of damage to our ocean and coral reefs while supporting increased and sustainable prosperity, by tackling the market and governance failures described below.

Externalities - Those involved in ocean-harming activities impose costs on others who depend on the ocean but are not involved in the activity. For example, an individual fisher may reduce stocks beyond what is sustainable, which could threaten the livelihoods of communities that rely on the ocean for income/protein. Interventions such as training, infrastructure and governance, can reduce the prevalence of negative externalities associated with coral damage.

Information failure - The relationship between current economic/leisure activities (fishing, waste disposal etc) and protecting coral reefs is not always well known or understood. This can mean that those that engage in certain activities are unaware of the costs and damages they are causing. It can also lead governments to undervalue the benefits of combatting poor ocean health. Intervention can correct this information failure through monitoring and data collection within programmes and promoting research and knowledge dissemination.

Public goods – Coral reefs are considered a global public good and many of the services they provide are available to all, an issue that is often exacerbated due to a failure to formalise rights of resources or due to rights not being clearly defined. This means there are often insufficient economic incentives to conserve or use sustainably. Using public money to protect, regulate activities, and incentivise sustainable use can help solve this market failure.

Governance failures - Developing countries experience a significant proportion of the adverse impacts associated with poor ocean health and climate change. These countries have the least developed political institutions (legal systems etc.), which can make protecting the ocean difficult. Without governance capacity economic incentives and growth strategies will continue to favour expanding economic activity over the conservation of ecosystems.

Inequalities - The costs of these market failures tend to be concentrated in developing countries. Poor coral health can cause the loss of biodiversity, ecosystem degradation and increased exposure to natural disasters – all of which disproportionately impact the global poor.

This combination of market failures has historically led to the unsustainable use and degradation of these vital coral reef ecosystems. Intervention is needed to correct these market failures and prevent a collapse of these ecosystems and communities that depend on them as global heating and its effects continue.

Section 1.2: Rationale for Further Funding

Since the UK's initial investment in 2021, the GFCR has successfully tested and started to scale up its programme. A pipeline has been developed for both the immediate and longer term, with funding now being disbursed to delivery partners.

Table 1 sets out the fund's expenditure by project as of 31st December 2021, relative to the level of grant approved by the Executive Board at that point. 99% of contributions received by GFCR had been allocated to approved projects and 67% of contributions transferred to delivery partners. While delivery partner's expenditure is only 15% of what GFCR have transferred to them by the end of 2021, this is expected to rise rapidly as many of the projects have only recently been initiated, with the majority of funding transferred from the second half of 2021.

The GFCR transfers funds to partners for a maximum of the next 18 months of need, with further funding only being approved once the partner demonstrates it has sufficiently progressed activities and has spent 80% of the previous disbursement.

Table 1 – GFCR Expenditure by project (2020-2021)

Expenditure by project (GBP)	Grant Approved	GFCR Transferred	Partner Expenditure	Proportion of transferred funding utilised
Fiji	£0.8m	£0.8m	£0.5m	57%
Philippines	£2.4m	£2.4m	£0.1m	5%
Bahamas	£2.6m	£0.5m	£0.1m	17%
Papua New Guinea	£3.7m	£1.6m	£0.0m	0%
Kenya and Tanzania	£2.6m	£2.4m	£0.1m	3%
Indonesia #1	£0.1m	£0.1m	£0.1m	100%
Mesoamerican Reef	£0.1m	£0.1m	£0.1m	76%
Maldives	£0.1m	£0.1m	£0.0m	30%
Other (Admin, M&E etc)	£1.6m	£1.6m	£0.6m	35%
Total	£14.0m	£9.50m	£1.50m	15%
Proportion of contributions	99%	67%	10%	

The fund has secured contributions from a wide range of donors, with the UK the largest single donor. The GFCR is in discussions with several other countries to further expand its funding base. As of July 2022, £23m has been committed.

While the GFCR has secured significant contributions from partners, it continues to demonstrate a need for further funding, both in the immediate and long term. This is set out in Table 2. Up to the end of 2022, an estimated £5.5m is required to deliver on approved commitments and projects.

In 2023 and 2024 GFCR have provisionally estimated a further need of £33m per annum as it continues to scale up globally. This indicates that, even with the significant top up proposed by the UK, the fund will require additional contributions, making it unlikely the UK funding will crowd out other donors or not be required.

Table 2 - Short Term GFCR Grant Funding Need

GFCR Income and Expenditure 2020-2024	
Total Estimated Income (2020-2022)	£23.2m
Total Estimated Expenditure (2020-2022)	-£28.7m
Estimated Balance end of 2022	-£5.5m
Estimated needs 2023	£32.5m
Estimated needs 2024	£32.5m

Section 2: Options

A detailed options assessment was conducted within the original business case. As this was just 1 year ago there have been limited changes to the available options and wider strategic aims, with the BPF having programme level funding and strategy approved and still in delivery.

Section 2.1: Summary Assessment

The original option assessment involved high levels of assessment and scrutiny, with all options required to pass the two stage BPF Investment Criteria and then be assessed against the 6 objectives in the strategic case.

All options which successfully passed the criteria have demonstrated they are able to deliver on the problems set out in the strategic case, align to the BPF theory of change and embed the values set out within HMG's Strategic Framework for ODA, ensuring the principles and conditions which are important for a project to deliver the greatest benefits for the world's poorest, the greatest environmental outcomes and prove VfM are identified.

Six options were identified in the original business. The GFCR option scored highest across the BPF assessment criteria, and strategic assessment.

There has been limited change in the international coral reef funding landscape in the last year since the original options longlist. A brief updated review of each originally longlisted options is set out below, to consider whether any of the alternatives may now better deliver the strategic objectives.

Option 1: Do nothing/no additional actions

Despite increasing attention, ocean issues remain severely underfunded, exposing coastal communities to disasters, risks to their livelihoods and coastal erosion. A do nothing option would provide no additional investment or action on behalf of the UK to fund actions to support coral reefs or reduce the pressures that these habitats face and protect or increase the ecosystem services from these habitats. This would mean that habitats which support 25% of marine life, directly benefit a billion people, providing a source of food and income for coastal communities, and contribute \$36 billion annually to the global tourism industry could be lost. An assessment of undertaking no additional actions to support coral reef habitats when assessed against the BPF investment criteria and strategic criteria showed that that a do nothing or no additional actions options remains insufficient to address the challenges and presents a risk to reef dependent livelihoods and global marine biodiversity. An uplift in funding means both more livelihoods can be protected and an increasing powerful signal sent by a country which is seen as an international leader in these issues. What the UK invests in and uses her political capital to pursue is seen as a powerful international signal both in governments but also to the private sector – often of far greater value than the direct investment itself (e.g. climate financing). Therefore, **doing nothing is ruled out.**

Option 2: UK developed fund

A UK developed fund could be well targeted and provide good support to reef dependent livelihoods. It offers the opportunity to closely align operations with ODA strategic framework and country plans, as well as clearly badge operations as 'UK funded'. This would offer exposure for Global Britain branding. It could also build on the smaller projects of the Darwin initiative in relation to coral reefs³³ and also our experience developed through the initial investments in the GFCRs. However, with an established and recognised fund already operating we risk duplication and competition for projects, reduction in additionality and lower ability to leverage additional finance via a smaller UK-only fund.

Further, a UK developed corals fund would have a significant lead-in time and therefore a high risk on not spending or allocating the money within the timeframe. It would also place a significant burden on HMG resources to manage the fund. Whilst the UK competitive fund is in development it is not yet operational and therefore could also not absorb this level of finance at this stage. It is therefore not seen as practical at this time and **ruled out as an option**.

Option 3: Bilateral programming

Bilateral programmes offer the opportunity for the UK to develop new relationships or strengthen existing bonds with partner countries. The OCPP, and previous programmes, have been successful when targeted at UK expertise. The bilateral initiatives being developed under the OCPP are already fully engaging UK experts in developing these programmes across the globe. Adding further funding would put significant pressure on this limited pool of experts and risk both spend via this programme and that via the programmes already dependent on it (e.g. OCPP). Our assessment is that there is not the capacity at the current time to support another large investment delivered by UK expertise through ALB activity overseas.

Further, the approach would be highly unlikely to mobilise additional finance or use innovative finance instruments³⁴. Risking constraining the project impact and vfm of the investment. Similar to option 2, this option has significant delivery and financial risks as well; a long lead time (although shorter than option 2) will be required to engage and select partner countries and begin delivery. Therefore this option is **ruled out**.

Option 4: Global Fund for Coral Reefs (GFCR)

The GFCRs is the only fund which is dedicated, at scale, to the protection of coral reefs and the reduction of pressures on these ecosystems. Significant investments from other countries and philanthropic organisations have already been secured and it is distributing finance to projects. Further, there is a pipeline of projects waiting funding and/or approval which gives us confidence in delivery. The pipeline of projects is expected to provide livelihood support for both reef dependent communities and create non-reef jobs. The fund design allows, and incentivises, projects acting on multiple pressures and a focus on the connectivity of ecosystems (e.g. run-off impact on corals). The fund is ready and able to take a significant investment this year and in future years. Therefore this is our **preferred** option.

Option 5: Global Environment Facility (GEF) additional investment

This was ruled out in the investment criteria stage in the previous assessment and we continue to agree with this judgement. Whilst the facility would provide a known partner with a successful track record of delivering on environmental issues, the inability to earmark UK funding to marine issues is problematic. This would mean that we could not guarantee that the Blue Planet Fund strategic goals and Ministerial aspirations could be met through the GEF. Therefore this was **ruled out** as an option.

Option 6: PROBLUE

The UK already invests in PROBLUE and this option would provide an additional uplift via this vehicle. PROBLUE is delivering support across a range of portfolios including fisheries and

aquaculture, tourism, maritime transport and offshore renewable energy and government institutions. The fund largely focuses on 'blueing' existing Bank-executed projects, rather than leveraging NGO partners to deliver on specific issues identified in their area of operations. It is not targeted at coral ecosystems or the pressures that they face and as such does not focus on reef dependent livelihoods. This misses a key strategic aim of this business case and therefore PROBLUE is **not carried forward** for this investment.

Following the identification of the GFCR as the preferred option, further options were explored regarding the scale of investment. These were a low option (£3m), medium (£5m) or high (£10m) for the initial one-year period permitted under the one-year 2021 spending review. This is set out in Section 2.5 of the original business case, with the medium level preferred at that point until the GFCR had established a pipeline of projects and tested its approaches.

Funding Options

BPF Programming

The BPF programme has been £310m allocated over this spending review period to 2025/26. The decisions over allocations of BPF funding over this multi-year period are taken at the portfolio level, based on seeking balanced delivery across all four Defra BPF outcomes¹. Specific problem areas within each area are identified and prioritised based off their contribution to the core themes and country prioritisation, with scrutiny across the BPF programme boards, including ministerial and FCDO input.

Joint governance arrangements allow for coherent delivery that maximises value for money and achieves the desired joint outcomes for both people and nature. The FCDO/Defra Joint Management Board (JMB) manages joint fund level risks, provides strategic advice, and takes decisions upon recommendations from the Defra and FCDO BPF SROs. At the United Nations Ocean Conference in June, the UK committed to spend £100m of the BPF on the MPA and OECM outcome; levels of investment for both the GFCR and the Seascaples programme were reviewed independently (for GFCR review summarised in following section) and agreed with the GFCR receiving up to £24m.

This was based off the initial performance of the GFCR over the last year of funding, the levels of investment considered in the original business case and continued evidence that the UK was not crowding out or limiting wider investment into the fund. With £9m already allocated to GFCR over 2021/2022, the proposed funding extension is not a significant scale up, averaging up to £8m per year.

Investment Levels

This is between the medium (£5m) and high (£10m) investment options evaluated in full within the original business case. Providing a medium level of investment continues to possess the upside of minimising UK risk should GFCR and its partners struggle to transition to the implementation of their pipeline globally and also may limit any risk of crowding out funding from other donors.

Providing a higher level of investment does possess the risk of crowding out other donors and potentially exposing the UK to greater reputational risk should the fund fail to deliver on its objectives. It would however send a powerful signal of the UK's commitment to tackle the

¹ The four Defra BPF outcomes are Illegal, Unreported and Unregulated (IUU) fishing, large scale fisheries, pollution, and marine protected areas (MPAs) and other effective conservation measures (OECMs). The GFCR sits under the MPA outcome.

problems coral reefs face globally and align strongly to the messaging and actions taken as host of COP26.

The annual review and evidence presented within this business case indicate that the GFCR has successfully scaled up its operations and pipeline, minimising the risk that funding is not utilised, or projects not delivered. Equally any risk of funding ahead of need or GFCR failing to deliver has been mitigated by not committing to providing the full £24m, but rather up to this amount if they continue to demonstrate performance and need.

So far, the UK has provided 43% of the total grant funding received by the GFCR. Of the further funding in discussion from other donors, the UK would make up in total 47-50% of total grant funding received with the proposed UK uplift of £24m. This figure does not account for potential donations from other donors who have not shared a preliminary monetary estimate of potential donation to GFCR, or those who have signalled an interest but the amount of which is not yet determined.

The UK therefore would remain a major donor to the fund at this level of funding, although it is worth noting that this proportion is not significantly different to the initial UK donation of £5m which equated to 46% of grant funding at that point.

Evidence of crowding out is limited. Excluding UK donations, total grant donations have been £3.3m in 2020 and c£5m each in 2021 and 2022. With a global pipeline now established, the GFCR has a strong demand for further funding, greatly exceeding the level of funding proposed for the UK (see Table 2). Qualitative feedback from GFCR and other donors have indicated that the strong UK backing so far has played a role in raising the reputation of the fund and increasing their likelihood of supporting the fund.

As a result of this analysis and the factors described, the BPF have proposed a funding extension of up to £24m, a middle ground between the original medium and high options of funding.

Do Minimum

Within the original business case the do minimum option was identified as providing the GFCR with a low level of investment (£3m). This would have supported the GFCR in its initial development and scaling up, potentially enabling it to attract future donors as it is able to complete proof of concept.

For this update the do minimum option would be to provide no further UK funding. As the UK has already provided £9m and supported the development and establishment of the fund, there is the potential for the UK to withdraw further backing and allow the other donors to support the fund during implementation. This has the benefit of minimising additional cost to the UK taxpayer and any delivery risks.

It would however have potentially adverse effects on achieving the objectives set out within the strategic case. As the UK has been a strong partner and financial backer, the GFCR may have to slow down the implementation of its pipeline until further financing is secured, which is not guaranteed. With global heating continuing rapidly and corals being particularly valuable and vulnerable ecosystems, any delay to their protection could reduce effectiveness and the wider delivery of the objectives.

There is a further risk that halting UK investment could also act as a signal to other partners, donors and private investors that the fund is more risky and less stable, or the issues are of lower importance, thus risking mobilising additional finance to the levels required to tackle the problem in a holistic manner.

This option is therefore not recommended as the preferred way forward. It could cause significant uncertainty to the future of the fund and delivery of the UK’s BPF objectives regarding biodiversity and climate resilience.

Section 2.3: Preferred way forward

Overall, as the fund has successfully scaled up from its concept, there is little financial or strategic argument for the UK to switch to any of the alternative potential options. Funding provided by the UK so far is unlikely to have fully achieved its initial objectives, and further investment will maximise global benefits.

The funding option taken forward of up to £24m over 3 years is selected on the basis of GFCR need and expected impact, BPF programme level prioritisation of funding and an absence of alternative viable solutions to the problems set out.

Section 3: Value for Money Analysis

The core expected benefits and rationale are detailed within the original business case. The problem drivers, desired outcomes and impact are set out in the GFCR theory of change within the addendum.

To note:

- Due to the nature of GFCR and the early stage of programme development, it is not viable to conduct a full economic appraisal for the UK’s GFCR funding.
- There remains uncertainty about the specific projects that will be approved and selected by the Executive Board (which the UK has a seat on), and many projects in the pipeline lack sufficient data to fully appraise at this point.
- In line with the approach conducted within the original business case, **all projects with sufficient information have been appraised on a project-by-project basis.** This illustrates whether the GFCR programme is likely to deliver value for money and provides a range of indicative value for money indicators (BCRs and NPVs). Table 3 summarises the additional projects appraised within this note compared to the original business case.
- Increases in benefits. It is important to note that due to the site specific nature of all the case studies, and future projects, the benefits will not linearly increase as new projects are funded.

Table 3 – GFCR Approved Projects and Assessment Status

Project	Assessed in original business case?	Assessed in update addendum?
Fiji	Y	Y
Philippines	Y	Y
The Bahamas	N	N ²
Papua New Guinea	N	Y
Kenya Tanzania	N	Y
Indonesia #1	N	Y
Mesoamerican Reef (MAR+)	N	Y

² The Bahamas is not ODA eligible and therefore not included in this value for money appraisal as they would not receive UK funding.

Section 3.1: Benefits

The fund aims to not only address local drivers of coral reef degradation, but also provide alternative sustainable livelihoods to local communities. The make-up of benefits will vary by project, but centre around environmental and poverty benefits. These are detailed in the original business case. An updated appraisal has been conducted for the projects taken forward in the year since, expanding from two case studies to six.

It should be noted that all projects remain in early stages so estimates should be taken as illustrative. Actual impacts will be closely monitored through the BPF and GFCR monitoring and evaluation strategy.

Section 3.1.1: Projects Overview

Table 4 sets out the 7 projects which are either in delivery or sufficiently scoped to estimate impacts. Only Fiji and the Philippines were assessed in the original business case, and both have been updated here. This is considered an indicative portfolio of case studies to assess the full investment.

The estimated impacts are highly uncertain, with the data based off preliminary estimates provided by GFCR and its partners (Table 4). These are likely to change as projects develop. GFCR projects typically undergo initial baselining work early on to refine these estimates and understand where best to target interventions.

The below estimates are used to provide an illustrative assessment of the value for money of these projects.

Table 4 - GFCR Estimated Project Impacts

Country/Region	ha habitat protected			Tonne increase	Jobs created	Beneficiaries	Reef positive interventions
	Coral Reef	Mangroves	Seagrass	Fishing			
Fiji	49,000	13 ³	-	560p/a	350	40,000	15+
Philippines	56,000	20,000	-	-	1,700	250,000	10+
Papua New Guinea	23,000	2,500	198,000 ⁴	-	250	10,000	10*
Kenya Tanzania	34,000	TBD	TBD	TBD	TBD	100*	6*
Indonesia #1	154,000	70,000	1000	-	300	TBD	TBD
MAR+	77,000	50,000	-	TBD	1,000	TBD	TBD

Notes: Asterisk (*) indicates the estimate is for the initial phase only

Section 3.1.2: Appraisal approach

This appraisal has been conducted consistently with the previous business case and summarised below. Further detail is set out in the [assumptions and methodology](#).

Ecosystem Benefits

For ecosystem protection (coral, mangroves and seagrass), the estimated impacts set out in Table 4 are applied against the level of annual loss forecast, with the benefit being avoided

³ Protected mangrove habitats have not been widely estimated for the Fiji programme. This estimate is for only 1 of the 4+ projects within the programme.

⁴ This estimate has been noted as an outlier, but has been retained as wider evidence supports there being significant seagrass habits around Papua New Guinea and the region [Seagrass ecosystems of Papua](#)

losses. To monetise these impacts, country specific valuation data has been taken from the Ecosystem Services and Valuation Database (ESVD) and applied to the avoided losses.

Seagrass benefits were not estimated in the original business case.

Employment Benefits

Employment benefits are likely to represent i. an increase in incomes associated with fishing, due to diversification within fishing and a shift towards Maximum Sustainable Yield as well as ii. new employment in alternative sectors such as tourism, recycling. This employment in other sectors would partly be an alternative to fishing (leading to a net impact of 0, when fishers shift from the sector) and partly to supplement fishing employment (leading to a net positive impact). Employment benefits have been calculated using, where possible, country specific data for average incomes within the fishing sectors. These incomes have been used as rational individuals would select the job with the greatest returns, making this the minimum return needed to leave the sector. In the absence of sector specific data, national average incomes have been used, and for Papua New Guinea GDP per capita has been used due to a lack of income data.

Employment benefits have only been included in the sensitivity analysis since they may not represent a net positive additional impact.

Employment benefits were not monetised in the original business case.

Carbon Benefits

Carbon benefits will be accrued through avoiding the loss of sequestering habitats, thus reducing net emissions relative to the baseline. The amount of carbon saved is estimated using the average level of carbon absorption of mangrove and seagrass habitats per hectare. The level of carbon sequestration depends on many factors including habitat, species and condition, so some level of uncertainty exists around these benefits.

These have been monetised using the central BEIS carbon prices⁵ with sensitivity analysis for the high and low values. These were monetised in the original business case but relevant carbon values have been updated.

Fishing Benefits

Increases in fish stock have only been estimated for the Fiji project. The increase in landings has been monetised by multiplying it by the average value per tonne for fisheries in Fiji.

Benefits Profile

Annual benefits are assumed to grow over 10 years and remain constant thereafter over the appraisal period. This assumption has been revised since the original appraisal (3 year growth) to reflect the time taken for projects to be implemented and benefits incurred.

Benefits Summary

Table 5 summarises the quantified benefits for each project. Total project benefits are higher, but as the GFCR is not typically supplying 100% of the grant funding, the benefits presented are those attributable to the proposed GFCR grant investment.

Some projects do not have quantified benefits in certain categories. As noted previously, they are preliminary estimates and the GFCR has not yet been able to do so for all habitats and countries. For example, the Kenya Tanzania project only has coral protection estimates at this stage, but that does not mean no other benefits will be incurred.

⁵ [Valuation of greenhouse gas emissions: for policy appraisal and evaluation - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation)

Conservative [assumptions](#) have been used throughout to handle the uncertainty, including 25% optimism bias on benefits, 75% additionality, high discount rates and a slow growth in benefits.

Table 5 – GFCR Benefits Summary by project and type

	Benefits Total	Corals	Coral degradation	Mangroves	Seagrasses	Fishing	Carbon
Fiji	£16.6m	£0.7m	£0.1m	£0.0002m	-	£1.7m	£14.1m
Philippines	£19.0m	£6.1m	£1.2m	£6.2m	-	-	£5.4m
Papua New Guinea	£4.1m	£0.1m	£0.03m	£0.04m	£3.7m	-	£0.2m
Kenya Tanzania	£1.4m	£1.2m	£0.2m	-	-	-	£0.0m
Indonesia #1	£26.9m	£0.8m	£0.2m	£15.0m	£0.1m	-	£10.8m
MAR+	£24.6m	£0.7m	£0.1m	£10.1m	-	-	£13.6m

Coral, mangrove and seagrass ecosystem impacts make up 48% of benefits, demonstrating the value of protecting these habitats and slowing the rate of losses in the target locations.

Carbon savings make up 48% of the quantified benefits across all projects for the central carbon price. This falls to 45% for the low carbon price and 71% for the high carbon price. This is due to the high value placed on carbon emissions and the ability for mangrove and seagrass habitats to sequester significant volumes of carbon⁶. Therefore, any projects targeting these habitats as well as coral reefs will have greater monetised benefits.

Local tourism benefits are not quantified due to uncertainty around impacts but are potentially significant. GFCR for example have estimated that the Fiji project could avoid \$1bn p/a in tourism revenue losses, although this has not been verified by Defra.

Section 3.2: Economic Costs

Full project costs remain uncertain for those projects currently in scoping phase, with the level of GFCR contribution also dependent on approval by the Executive Board. Estimates of both the full grant costs and level of GFCR contribution have been pulled from each projects latest concept note shared with the GFCR. All costs have been converted to GBP⁷.

Table 6 - Project Grant Costs (discounted)

	Total Grant Costs	GFCR Grant Costs	GFCR proportion of grant costs	GFCR Grant to Investment Leverage
Fiji	£6.9m	£3.2m	47%	1:9
Philippines	£11.8m	£11.8m	100%	1:2
Papua New Guinea	£12.0m	£3.0m	25%	1:4
Kenya Tanzania	£2.2m	£2.2m	100%	TBD
Indonesia #1	£3.6m	£2.0m	56%	TBD

⁶ [\(PDF\) Accelerating loss of seagrass across the globe threatens coastal ecosystems \(researchgate.net\)](#)

⁷ Exchange rate used £1=\$1.23 (1st August 2022)

MAR+	£10.2m	£10.2m	100%	TBD
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No wider costs have been identified. While there is a possibility establishing protected areas could have a negative impact on some current users, the GFCR is designing projects to mitigate and avoid these impacts by creating alternative more sustainable livelihoods and working with local communities to minimise any negative impacts.

All projects are expected to use the grant funding to leverage further investment, in line with project requirements. This will maximise the impact of GFCR funding and enable projects to scale up significantly. These estimates are uncertain at this stage but are set out in Table 7. As is standard for Blue Planet Fund appraisals where we have limited evidence on mobilised private finance, leveraged finance was not included in the CBA calculations, so changes to these ratios will not impact the central BCR or NPV values.

Cost Benefit Analysis

Table 7 summarises the costs and benefits of the assessed GFCR projects. Overall, despite the conservative benefits assumptions set out in Section 3.1, **the sample of projects overall are estimated to deliver value for money** with a mean benefit cost ratio (BCR) of 4.1.

All projects deliver a positive net present value (NPV) with the exception of the Kenya Tanzania project. As set out in Table 7, only the coral and coral degradation impacts have so far been assessed for this project, making this likely to be an extremely conservative estimate of its benefits. The project was in early stages when the analysis was conducted, so limited quantified estimates of the area of habitats protected and jobs created were possible due to data limitations⁸.

Table 7 - Summary of Project GFCR Costs and Benefits

	Benefits	Costs	BCR	NPV
Fiji	£16.6m	£3.2m	5.2	£13.4m
Philippines	£19.0m	£11.8m	1.6	£7.2m
Papua New Guinea	£4.1m	£3.0m	1.3	£1.0m
Kenya Tanzania	£1.4m	£2.2m	0.7	-£0.8m
Indonesia #1	£26.9m	£2.0m	13.2	£24.8m
MAR+	£24.6m	£10.2m	2.4	£14.4m
Mean BCR			4.1	
Median BCR			2.0	
Total NPV				£60m

The range of BCRs identified in table 7 shows that the value for money assessment is highly dependent on the project funded. This is a factor of the site-specific nature of the GFCR investments; investing in waste management, improved fertilizer and mangrove protection as well as tackling direct threats to coral reefs such as over and destructive fishing. Therefore the benefits cannot be increased linearly in a ratio against our funding level. This requires the UK, through our position on the Executive Board of the GFCR, to carry out regular assessments of future project proposals to ensure that they meet our VfM criteria; this will be

⁸ The BCR for the Philippines project is also a partial BCR: data limitations meant it was not possible to include seagrass or fishing benefits in the analysis.

carried out on a case by case basis as well as through Annual Reviews, depending on resource available.

All GFCR projects are designed with the same investment principles, go through the same approval processes and have the same targeted outcomes, this indicates that the approach and wider programme are also likely to be value for money.

A series of sensitivity tests have been conducted to assess the robustness of each projects value for money decisions.

These include:

1. **Valuing only ecosystem benefits** – assumes projects only incur benefits relating to avoided losses of coral, mangroves and seagrass. This excludes fishing, carbon and job creation benefits.
2. **No carbon benefits** – excludes carbon saving benefits, which make up the largest proportion of benefits.
3. **High and low carbon values** – the core estimate mean BCR uses the central BEIS carbon values⁹.
4. **With new job benefits** – includes job benefits, to illustrate the impact on value for money if new jobs are created.
5. **Higher optimism bias** – assumes optimism bias on benefits is doubled to 50% rather than 25%.
6. **Faster ramp up of benefits** – this tests the impact of annual benefits reaching their peak after 3 years rather than 10 years. The 10-year assumption may be conservative as many of the core interventions will be targeted early on in implementation.

Table 8 - Sensitivity Tests Summary

Sensitivity Tests			
	BCR		NPV
	Mean	Median	
Core Estimate	4.1	2.0	£60m
1. Only Ecosystem Benefits	2.1	1.1	£14m
2. No Carbon Benefits	2.1	1.1	£16m
3.1 Low carbon values	3.1	1.6	£38m
3.2 High carbon values	5.0	2.5	£82m
4. With Job Benefits	4.8	2.7	£83m
5. Higher optimism bias	3.2	1.8	£44m
6. 3-year ramp up of benefits	6.8	3.9	£131m

Overall, the sensitivity tests indicate the projects are relatively resilient to failing to incur some benefits, with neither mean nor median BCRs of the project sample dropping below 1.0.

The weakest scenario is if only ecosystem benefits (excluding carbon) are incurred. This is unlikely given the design of projects to create sustainable livelihoods and the carbon absorption potential of the protected habitats. Fiji is the project identified to be most reliant

⁹ [Valuation of greenhouse gas emissions: for policy appraisal and evaluation - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/672222/Valuation_of_greenhouse_gas_emissions_for_policy_appraisal_and_evaluation.pdf)

on these wider benefits to deliver value for money, with its BCR falling from 5.2 to 0.3. Across the portfolio, if only ecosystem service benefits are included, an optimism bias of 65% would be needed to reduce the mean BCR to 1. This would represent a scenario where the only realised benefits of the portfolio were 35% of the monetised ecosystem services. We assess that this is unlikely, given the design of projects (above), plus the partial nature of the ecosystem service monetisation: there are anticipated ecosystem service benefits which have not been possible to quantify or monetise.

The original business case scaled benefits up to their peak after 3 years, however experience has demonstrated that the majority of the GFCR grants will initially be used to develop concepts and leverage further funding, before extensive on the ground delivery. A sensitivity test has been conducted to demonstrate the impact of this assumption, speeding up the benefit accrual was found to increase the mean BCR by 2.

Risks to Value for Money

There is a risk that projects are unable to deliver on their targeted outcomes, off which this appraisal is based. Many pressures on coral reefs and other habitats are outside of the GFCR's control (bleaching events etc). If the GFCR and its partners are unable to sufficiently reduce pressures to avoid or slow habitat losses, the value for money of the programme will be significantly diminished. This is being mitigated by targeting habitats with resilient characteristics and ensuring local communities are involved and benefit from more sustainable practices.

There is also a risk that the GFCR and its delivery partners are unable to scale up rapidly and utilise the available funding. Delay or failure to do so would incur opportunity costs, where the UK funding could have been put to more immediate use elsewhere. The BPF team has been in close coordination with the GFCR, with evidence and assurance provided that there is a strong pipeline of projects. The GFCR is also using a wide range of delivery partners to ensure the programme can scale up rapidly following successful scoping and planning stages.

Delivery track record

The Fiji project was the only one to have completed a full year of implementation at this point. LogFrame data for Fiji suggests that the project has achieved its year 1 objectives. This generates confidence in the assumptions used in this analysis and also in the effective delivery of projects going forward. It implies the ability of the Fund to continue scaling up as projects become operational in other countries.

Output indicators which have been achieved in line with first year targets include identifying reef-positive small-scale livelihood opportunities, delivering coordination mechanisms and leveraging grant co-financing. Despite these early successes, the project was unable to generate any private investment and fell short of the optimistic Y1 aim of \$13.4m. It is worth noting that the project in the Philippines (which has been less severely affected by Covid-19 than Fiji) met its Y1 investment target, which may suggest that projects there are more attractive to investors than those operating in Fiji.

The Fiji project is yet to generate reef-specific outcomes, as would be expected in the first year of operations which tend to be a scoping and start-up phase.

Constraints on delivery and VfM

A key constrain on delivery is the development of a strong project pipeline, the GFCR does not currently have this constraint. As shown in figure 1 in the main BC, the GFCR has a

strong pipeline of 22 projects across many of the BPF priority countries. This will require significant amounts of funding to ensure that these project move from pipeline to delivery. Currently the GFCR has fully allocated 99% of current funding and is £5.5m short on projected 2022 expenditure. Estimates for the next two years indicate the need for an addition £65m by the end of 2024. The UK finance will provide, some but not all of this funding. It will however mobilise additional funding. Therefore we are confident that the GFCR and projects can comfortably absorb the requested funding through this business case.

Given the tight geographical focus of the GFCR, it focuses on climate refugia reefs, there will be a natural limit to the number of projects that it will be able to fund without expanding the remit and objectives of the fund. This would need Executive Board approval. With the strong pipeline though we are confident that saturation has not been reached and the huge under-investment in ocean and coastal issues globally do not expect saturation to be reached within the lifetime of this investment.

The secretariat is now fully staffed with programme and M&E support in place to allow smooth and timely decision making to enable approval of these projects as well as good evaluation. This will me monitored through the annual review process to ensure constraints on delivery are identified early and rectified.

Value for Money

While this is only a sample of the projects GFCR will be taking forward, **the preliminary appraisal finds that these projects are likely to deliver value for money.**

As all GFCR projects are designed with the same investment principles, go through the same approval processes and have the same targeted outcomes, **this indicates that the approach and wider programme are also likely to be value for money.**

The appraisal is largely based off targets and preliminary estimates, which does not guarantee delivery of the desired outcomes and therefore cannot be used as expected results. Sensitivity testing indicates the value for money assessments are relatively robust, even if projects fail to deliver on some of the benefits.

Key Assumptions and Methodology

The method is consistent with the approach taken within the original business case. This is summarised within the [appraisal approach](#) section.

The assumptions and Ecosystem Services Valuation Data¹⁰ used to monetise the project impacts are summarised below. Where possible, country specific valuations were utilised, and the data controlled for any outliers. Service values included were existence, bequest, recreation, tourism and food provision, consistent with the original business case.

Table 9 - Appraisal Assumptions

Assumption	Value	Consistent with original business case?
Prices (all GBP)	2022 prices	Updated from 2021
Exchange rate used (01/08/22)	£1=\$1.23	Updated from 2021
Appraisal period	20 years, 2021 base year	No change
Benefits additionality	75%	No change
Benefits optimism bias	25%	No change
Benefits growth period	10 years to peak	Changed from 3 to 10 years.
Cost distribution	Evenly over 10 years	No change
Cost optimism bias	0% ¹¹	No change
Discount rate	10%	No change.
Habitat loss assumptions	Coral Reefs loss p/a: 1%; degradation p/a: 2% Mangroves loss p/a: 4% Seagrass loss p/a: 7% ¹²	Coral and mangroves unchanged. Seagrass added.
Carbon sequestration rate	Mangroves: 8.3tCo2/ha/yr Seagrass: 5.0tCo2/ha/yr ¹³	Mangroves unchanged. Seagrass added.

Table 10 – Ecosystem Services and Wages Valuation Data

	Coral	Mangrove	Fishing	Seagrass	Average Wage	
Unit	£/ha	£/ha	£/T	£/ha	£/yr	Notes
Fiji	£1037	£276	£2243	-	£5768	
Philippines	£3771	£2708	-	-	£1364	
Papua New Guinea	£783	£525	-	£365	£2371	Oceania averages used for ecosystems
Kenya Tanzania	£1219	£94	-	-	-	
Indonesia #1	£325	£3290	-	£1388	£7733	
MAR+	£322	£1759	-	-	£3140	

¹⁰ [ESVD](#)

¹¹ The scale of GFCR grant/UK funding will not increase if costs overrun, rather the deliverables (benefits) would be reduced hence optimism bias is only applied to benefits

¹² [\(PDF\) Accelerating loss of seagrass across the globe threatens coastal ecosystems \(researchgate.net\)](#)

¹³ [The Climate Trust | Blue Carbon Rising](#)