Department
for Environment
Food & Rural Affairs

Environmental Pollution Programme

Sustainable waste management in South Africa – Short Form Business Case

February 2024

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Table of Contents

ENVIRONMENTAL POLLUTION PROGRAMME ..... **- 1 -**

SUSTAINABLE WASTE MANAGEMENT IN SOUTH AFRICA – SHORT FORM BUSINESS CASE ..... **- 1 -**

1. EXECUTIVE SUMMARY ..... - 3 -
2. BUSINESS CASE ..... - 3 -
2.1. INTRODUCTION ..... - 3 -
2.2. STRATEGIC CASE ..... - 4 -
2.3. ECONOMIC CASE ..... - 11 -
2.4. COMMERCIAL CASE ..... - 13 -
2.5. FINANCIAL CASE ..... - 13 -
2.6. MANAGEMENT CASE ..... - 14 -
2.7. IMPACT ASSESSMENT ..... - 18 -

Version Control

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Document Sign Off

The role of the Senior Responsible Owner (SRO) is to ensure the delivery of a programme or project within an agreed budget and timeframe and as such should have authority to direct those involved in delivering the work. The SRO is responsible for delivery of benefits and is accountable. They must agree and verify the information and options put forward in this document.

This document has been signed off by the following:

Version	**Role**	**Name**	**Approve**	**Date**
1.2	SRO		Yes	25th March 2024
1.2	Deputy Director/Director		Yes	27th March 2024

1. Executive Summary

In 2021 Defra committed £1.3 million to establish the Environmental Pollution Programme (EPP). Since then, the programme has expanded from the initial scoping year to deliver a research and development programme working across Vietnam and South Africa until March 2025.

Environmental pollution is a global challenge that affects climate, biodiversity, and health. Pollution, biodiversity loss and climate change are described as the 'Triple Threat' to the planet. Pollution is responsible for at least nine million deaths annually with 90% of these deaths occurring in ODA-eligible countries[1]. Pollution discriminately affects lower socio-economic groups due to proximity to industrial areas and less investment in cleaner initiatives.

The UK will provide £850,000 to allow the completion of the ~£6million programme enhancing the ability of South Africa, to apply Nature-based Solutions (NbS), provide long-term sustainable mitigations to a range of pollution challenges whilst creating additional benefits to adapt to climate change and prevent biodiversity loss. The EPP aims to reduce environmental pollution, at both a community and institutional level, and across the pollutant's life cycle from production to disposal to:

- Improve human health, creating the conditions for improved prosperity and counteracting poverty;
- Slow biodiversity loss and therefore bolster ecosystem resilience and support recovery of habitats and wildlife;
- Contribute to climate change mitigation and adaptation.

Through our delivery partners the Joint Nature Conservation Committee (JNCC) and in-country partners the Institute for Natural Resources, the University of Kwazulu-Natal, and Dr Nick Rivers-Moore, the programme is delivering ten community-led projects to investigate and mitigate the impacts of solid waste and wastewater pollution on water resources in South Africa. If approved this business case would support the ten community led projects in South to continue into the final year of delivery and deliver a full suite of research data, usable tools, and interventions to apply not only to South Africa but the wider region.

2. Business case

2.1. Introduction

The EPP was established in 2021 with the programme delivering a successful scoping year with its own business case. Following the spending review the EPP was funded through Global Centre on Biodiversity and Climate (GCBC) with the programmes work covered under the GCBC business case. The EPP received a provisional allocation of ICF funding for the three years for both Vietnam and South Africa. On confirming the allocations for year two, the programme was notified that the year 3 indicative allocation of £850,000 for South Africa would not be funded through the GCBC due to lack of strategic alignment. The EPP secured an allocation from the central ODA ICF R&D fund of £850,000 which has been allocated to the EPP to deliver the final year of the South Africa project.

The Environmental Pollution Programme's South African project activities are committed to applying Nature-based Solutions that provide long-term sustainable mitigations to solid

[1] The Lancet Commission on pollution and health - The Lancet

waste and wastewater pollution. Through our delivery partners JNCC the programme is delivering ten community-led projects which investigate and mitigate the impacts of solid waste and wastewater pollution. The goal is that these solutions can be continued by communities once the programme ends, whilst also supporting communities to respond to climate forced events and increase biodiversity in ecosystems. This business case is seeking approval for £850,000 CDEL ICF funding to deliver the final year of this multi-year project.

2.2. Strategic case

Strategic context

Environmental Pollution in LMICs

Environmental pollution (including air, waste and chemicals) is one of the most serious global challenges that affects biodiversity, ecosystems, and human health worldwide. Welfare losses due to pollution are estimated to amount to US$4.6 trillion per year, which is 6.2% of global economic output[2]. Key causes of pollution in developing countries are the growth of cities, rising demands for energy, increased mining and smelting, the global spread of toxic chemicals, use of pesticides and increased use of petrol and diesel powered cars, trucks, and buses. In developing countries, the effect of these drivers of pollution are magnified by a lack of data and knowledge, infrastructure, and weaker regulatory systems.

Biodiversity

According to the 2019 report by IPBES, alongside changes in land and sea use, direct exploitation of organisms, climate change and invasive alien species, pollution is amongst the top five drivers of biodiversity loss. The report states that although global trends are mixed, air, water and soil pollution have continued to increase in some areas. Greenhouse gas emissions, untreated urban and rural waste, pollutants from industrial, mining, and agricultural activities, oil spills and toxic dumping have had strong negative effects on soil, freshwater and marine water quality and on the global atmosphere[3].

Climate Change

Moreover, rising temperatures through climate change are exacerbating these impacts. Climate change alters temperature, precipitation and frequency of extreme weather events and can increase pollution impacts. For example, climate change can influence release of reactive nitrogen which has knock-on effects for the sequestration of carbon and ecosystem function, demonstrating the interconnected nature of pollution, biodiversity loss and climate change.

Human Health

Diseases caused by pollution were responsible for an estimated 9 million premature deaths in 2015—16% of all deaths worldwide—three times more deaths than from AIDS, tuberculosis, and malaria combined and 15 times more than from all wars and other forms of violence. Those impacts are disproportionately affecting the most vulnerable groups in the most vulnerable parts of the world, as evidenced by 99% of the 3 million people poisoned by pesticides annually and 90% of the 7m annual air pollution related deaths occurring in Low to Middle Income Countries (LMICs). Although pollution associated with deep poverty, such as household air and water pollution, are on the decline, chemical

[2] The Lancet Commission on pollution and health - The Lancet
[3] ipbes_global_assessment_report_summary_for_policymakers_en.pdf

pollution is on the rise, along with ambient air pollution and soil pollution. Associated deaths are rising at unprecedented levels[4].

Addressing the Problem

Compared with emissions control at source, removing pollutants once diluted in the environment is challenging and costly[5]. Pollution is transboundary by nature - pollution that may originate in one country is able to cause damage in another, by crossing the border through pathways of water or air[6]. This demands a global response creating a strong case for a programme that focusses upon the monitoring, management, and ultimate reduction of pollution at source, in support of multilateral action.

The Role for the UK

The UK is well placed to deliver solutions, not least because it has globally respected knowledge in the fields of air quality, chemicals, and waste, but is also a manufacturer, consumer, and exporter itself, with significant expertise in how to manage, monitor and reduce environmental pollution. Defra is internationally recognised for having strong scientific and policy expertise in pollutant assessment and management. As such, there is an unprecedented opportunity to further build influence and support developing countries to tackle emissions of pollutants at source to protect human health, the environment and safeguard their economies.

This expertise and experience could be shared with the Overseas Territories, to assist with strengthening their institutions, developing, and implementing robust policies for the management of potential pollutants, and supporting the use of best practice and methodologies to monitor pollution to identify the greatest need and best local solutions.

Across Government, Defra is well-placed to deliver the programme, which is unique across HMG's ODA portfolio. Defra is not only the lead department for environmental pollution domestically, but alongside its agencies also has experience of international pollution issues, such as the export of waste (regulated by the Environment Agency) and as the UK Government's nature adviser in international fora (JNCC). Defra is the lead department for the Multilateral Environment Agreements on chemicals and waste to which the UK is Party and has expertise in institutional strengthening. The programme supports Defra's marine and terrestrial biodiversity objectives as part of the draft framework for Nature ODA spending.

Why South Africa?

South Africa is one of Defra's medium priority countries, within the top 20 priority countries for international engagement and with environmental quality highlighted as a key area. The programme's scoping year analysis identified South Africa as having the 9th highest number of endangered species threatened by pollution in a ranking of all ODA eligible countries, and of the species threatened by pollution 47% where also threatened by climate change.

As a water-scarce country, South Africa is incentivised to improve water quality and related ecosystem services, such as food supply, by tackling wastewater pollution which in turn alleviates poverty and improves human health. In South Africa, approximately 15 million people lack access to clean water. Every day, young children die from diseases related to water pollution. This is caused by the significant lack of infrastructure surrounding water resources but also the lack of waste collection across the municipalities. A recent high-level report by the Council for Scientific and Industrial Research (CSIR) stated that whilst the total solid waste generated by households in South Africa is estimated at 12.7 million tonnes per annum, approximately 3.67 million tonnes, or

[4] ChemPoll-LAMICS_Chapter1.pdf (eawag.ch)
[5] 1807251306_180509_Effects_of_vegetation_on_urban_air_pollution_v12_final.pdf (defra.gov.uk)
[6] The cost of air pollution in Africa | OECD Development Centre Working Papers | OECD iLibrary (oecd-ilibrary.org)

29% of all waste is not collected or treated through formal systems[7]. This has led to indiscriminate dumping and the accumulation of waste on streets, in public places, along river channels and in illegal dump sites, exacerbating pressures on the country's water resources.

Residents in most rural areas and informal settlements in South Africa lack access to any waste collection services. This is also true of the communal lands in the upper uMkhomazi River Catchment in the KwaZulu-Natal Province in which the programme is delivering activities. This results in the dumping of waste, including disposable nappies which have become widely affordable globally in the past decade. In most cases the solid waste is disposed of in pits within homesteads and either burnt or buried. However, field observations in the catchment indicate a rise in indiscriminate waste disposal; of particular concern is the disposal of nappies away from the homestead due to cultural beliefs and practices, often in water courses thereby posing health and environmental risks.

Impacts from solid waste and wastewater in rivers disrupt the river continuum and the natural flow of energy within the ecosystem, including the river's natural pathways for carbon sequestration. Negative impacts caused by such stressors are amplified by climate change and disruptions to the river system, which in turn impacts on turnover patterns, ecosystem resilience, and the provision of ecosystem goods and services. These disruptions not only decrease the biodiversity of the rivers themselves but reduce their carbon storage capacities, decrease their resilience to flooding and cause a risk of the transmission of pathogens and pollutants.

The projects in South Africa are looking to address the mutually reinforcing issues of solid waste and wastewater pollution through research and monitoring to assess where the greatest risks are experienced and what the impacts are. The projects focus on community-led interventions and awareness raising campaigns that will support locals to understand and take ownership of these issues within their communities. The communities are applying Nature-based Solutions (NbS) that provide long-term sustainable mitigations to solid waste and wastewater pollution that can be continued by communities once the programme formally ends, whilst also supporting climate and biodiversity goals

The case for change

Dealing with waste and wastewater is a priority for South Africa and both have been identified as primary drivers of climate-linked biodiversity loss by our Global Analysis. Solid waste increases the impacts of climate-forced flooding by creating blockages, leading to damage to homes and infrastructure. Wastewater is a vector of a wide range of other pollutants, including pharmaceutical drugs, veterinary medicines, heavy metals, antimicrobial-resistant organisms, and a range of excess nutrients. These pollutants can be toxic to aquatic life and contribute to greenhouse gas release via eutrophication and reduction in ecosystem capacity for carbon storage. Sustainable waste and wastewater management directly improves water quality in this water-scarce country, by reducing wastewater discharge and the dumping of solid waste into water courses. This results in an increase the resilience of ecosystems and their capacity to adapt to climate change through increased flood resilience, reducing adverse impacts on biodiversity and the reliance on the extraction of groundwater. Further research into scalability to other contexts and countries is to be provided by a community centre of excellence.

The third year is the final implementation year to conduct final data collection, analysis findings and produce final products from the project activities in South Africa. Defra will receive the final models for assessing the water pollution status and management in

[7] MINING WASTE AND THE GOVERNANCE (unep.org)

South Africa and another for assessing water quality, accounting for the impacts of climate change and wastewater inputs. These models will be produced and user-tested to produce robust user friendly tools for use by water treatment stakeholders. Additional outputs include final reports from the pilot interventions which will assess the viability and transferability of interventions to other communities and regions. Some of the projects also rely on the collection of seasonal data, over a longer-time frame. Defra best practice means it is vital to incorporate a work package on Monitoring & Evaluation as this has been a sizable programme with lots of learning along the way and represents an excellent opportunity for scaling-up and sharing knowledge, both between South Africa and Vietnam, as well as with other lower- and middle-income countries (LMICs). This suite of projects, along with a work package on knowledge dissemination (that includes the incorporation of a published manual) would create more of an opening for influencing policy and generating research that has an impact – i.e., science to policy.

The project in South Africa delivers against multiple ODA indicators including ICF KPIs as noted below:

- ICF KPI 1 - Number of people supported to better adapt to the effects of climate change as a result of ICF.
- ICF KPI 4 - Number of people whose resilience has improved as a result of ICF.
- ICF KPI 15 - Extent to which ICF intervention is likely to lead to transformational change.
- ICF KPI 17 - Hectares of land that have received sustainable land management practices as a result of ICF.
- Number of case studies demonstrating change.
- Number of knowledge products produces to support operational implementation of sustainable biodiversity activities.
- Number of knowledge products produced to support “policy implementation/production supporting and mainstreaming the use of sustainable biodiversity activities.”
- Number of people more aware of and engaged with pollution issues.
- Number of people more aware of and engaged with climate issues.
- Hectares where sustainable agricultural practices are now used as a result of the project.
- Number of households serves by water sources with reduced pollution.

By addressing the detrimental effects of pollution upon ecosystems and human health, the EPP supports the government’s aim of building resilience in the UK and overseas. The programme will directly contribute to the international ambition as laid out in the 25 Year Environment Plan and Defra Single Departmental Plan “to restore and enhance the environment for the next generation”, as detailed further in the Defra Group’s draft international plan.3 Delivering on these objectives is essential for achieving 13 of the 17 Sustainable Development Goals to which the UK committed in 2015 and which provide a roadmap for achieving a better and more sustainable future for all by 2030.4 Through support to institutions, for example through UN programmes, the programme supports the integration of chemicals, air emissions and waste considerations into countries’ legislation, policies and plans, taking into account the national development strategies, plans and priorities of each country.

The programme directly contributes to two of Defra’s three overarching international objectives, as laid out both in the Group’s and Chemical, Pesticides & Hazardous Waste’s (CPHW’s) draft international strategies of “resetting the global relationship with nature” and “enhancing human, animal and environmental health globally.”

Objectives of the EPP programme

1. Modelling of solid waste and wastewater flow within rivers, including the impact on their capacity to respond to climate-forced weather events.

    a. Addressing research gaps on the impacts of solid waste and wastewater on water resources in South Africa; working with stakeholder groups to develop pollution hotspot maps and investigate the impacts of pollution on ecosystem and flood resilience.

    b. Development of a decision support tool by integrating water quality indices with Water Quality Costing using Adaptive Neuro-Fuzzy Inference System.

    c. Development and application of a mathematical model for assessing water quality of the Msunduzi River.

    d. Towards modelling the effects of microplastics and associated organic pollutants on riverine fish: The case of Oreochromis mossambicus (Tilapia) and the Umgeni River in KwaZulu-Natal, South Africa.

    e. Investigating the impact of climate-forced weather events such as flooding and droughts on communities, working with communities to improve their resilience in future using NbS.

    f. Strengthening ecosystem capacity for carbon storage to mitigate climate change impacts.

2. Analysis of the impact of the release of solid waste and wastewater, including quantitative estimates on the reduction in ecosystem capacity for carbon storage along the lifecycle of waste.

    a. Repurposing nappies as fertilisers for soil of already degraded and unused land in communities with extremely limited service provision. These nappies that would otherwise be dumped in water courses are used in combination with biochar - charcoal produced from the invasive plant species Vetiver Black Wattle While – to provide remediation of potential soil contamination because of its large surface area and high capacity to absorb heavy metals and organic pollutants.

    b. Assessing the feasibility of using low-cost biological treatment methods for wastewater generated through cleaning processes from both before and after the milking of cows on dairy farms to mitigate environmental impacts such as eutrophication from the wastewater and reduce the farms' water usage.

    c. Assessing the utility of environmental monitoring in the wake of extreme pollution events through sampling to inform the recovery of estuaries and their ecosystems thereby increasing their biodiversity and therefor their capacity for carbon storage.

3. Pilot research projects on nature-based solutions within utilise alternative uses of solid waste, developing community monitors for environmental impact of pollutants.

    a. Community-led projects to develop protection for rural springs from pollutants entering the water source, such as through livestock trampling and the resultant contamination. In areas where there is extremely limited service provision and infrastructure around water supply and waste collection.

    b. Addressing solid waste pollution in vulnerable informal communities where service provision is essentially non-existent.

    c. Supporting communities to develop sustainable solutions for the proper disposal and repurposing of solid waste and capacitating them to address waste management in the future through awareness raising campaigns.

The projects in South Africa address the mutually reinforcing issues of solid waste and wastewater pollution through research and monitoring to assess where the greatest risks are experienced and what the impacts are. The projects focus on community-led interventions and awareness raising campaigns that support locals to understand and take ownership of these issues within their communities. The projects apply NbS that provide long-term sustainable mitigations to solid waste and wastewater pollution that can be continued by communities once the programme formally ends, whilst also supporting climate and biodiversity goals.

Overall, the programme helps to meet the evidence needs for better informed policy and programming on health and environmental issues in LMICs and creates opportunities to profile UK expertise within existing multilateral environmental agreements and frameworks. The programme is complementing other Defra ODA-funded programmes such as: the marine pollution strand under the Blue Planet Fund; the analysis of biodiversity loss drivers being conducted under the Biodiverse Landscapes Fund and the proposed Global Centre of Excellence for Nature Based Solutions, which is focussed on developing country case studies. It will complement broader cross-Whitehall programming, such as the FCDO's Sustainable Manufacturing & Environmental Pollution (SMEP) programme, which aims to assist in the development of technological solutions to pollution challenges; and DHSC's International Health Regulations (IHR) Strengthening project, through which the UK works closely with the World Health Organisation (WHO) to enhance global and country level health security.

Gender Equality and Social Inclusion

Defra ODA programmes have a legal duty to demonstrate compliance with the International Development Act (2002) including the International Development (Gender Equality) Act 2014. Therefore, the ODA Environmental Pollution Programme delivery partner (JNCC) is delivering a programme that is contributing to reducing poverty in a way that reduces inequality between persons of different gender. It is the responsibility of the SRO to ensure that the impact of this development assistance on gender equality receives ongoing consideration. See Annex III for JNCC's EDI policy.

It is important that those involved in the delivery of this programme are committed to taking full advantage of the beneficial environmental and social outputs of their work, while at the same time mitigating any potential risks and negative outcomes that may exist particularly for local communities, but also other people and natural capital.

Those involved in the delivery of the project are adhering to FCDO standards, by taking all reasonable steps to safeguard the people they come into contact with (including staff and the communities in which programmes are delivered), and that the project complies with two sets of international minimum standards on tackling Sexual Exploitation, Abuse and Sexual Harassment (SEAH): the Inter-Agency Standing Committee Minimum Operating Standards on Preventing Sexual Exploitation and Abuse and the relevant sections of The Core Humanitarian Standard on Quality and Accountability.

As per the key principles of the FCDO safeguarding, it is important that those involved in the delivery partner do not harm, that they act with integrity, transparency, and accountability, and that they take seriously their responsibility for safeguarding and their duty of care to beneficiaries, staff, and volunteers, including where down-stream partners are part of delivery. This also includes children and vulnerable adults in communities who may not be direct beneficiaries of the project but who may still be vulnerable to abuse.

Transparency is hugely important, and delivery partners are expected to contact Defra immediately if any concerns are raised relating to safeguarding and equality.

In the design of the programme in South Africa, consideration was given to when addressing the Triple Planetary Crisis, if the programme will likely have an effect in reducing gender inequality and deliver sustained improvements on their lives. In developing countries, poverty, lack of education, corruption, poor regulatory frameworks and limited availability of non-polluting products or methods can all lead to greater impacts of pollution. The unsafe disposal of waste is detrimental to human livelihoods, contributing to flooding, pollution of land, water and air, and public health impacts. Wastewater works in South Africa continue to fail to meet minimum performance requirements leading to an outflow of chemicals and waste. This contaminated water can transmit diseases, which is highly visible issues for local communities living near these waterways.

Women, children and disadvantaged communities are currently bearing the greatest impacts on pollution in South Africa, and by finding community led solutions, it will allow these groups to receive the greatest reward. Another benefit from the programme, is by having community led research, this is leading to employment for these groups.

Looking at the programme at the in country partner level, the Institute of Natural Resources (INR) are one of the main leads across a number of programmes. The organisation actively hires from a variety of ethnic backgrounds and genders. The total staff complement is 62% female and 38% male, with 62% being Black African, 21% Indian/Asian and 17% White. INR actively support younger scientists and interns no matter the background and in 2022 they hosted 6 Black African females, 1 Black African male and 1 Indian/Asian female on the team.

Safeguarding

The delivery partners are committed to maximizing the positive environmental and social outcomes of its work while minimising the risks and negative impacts to people and natural capital. This means protecting and investing in natural and social resources, responding to the challenges of climate change, promoting sustainable infrastructure solutions, and ensuring social inclusion and accountability. The delivery partners have provided safeguarding assurances and any third parties consulted on their behalf have the policies and processes in place to combat the four key points identified below:

- Provide a safe and trusted environment which safeguards anyone who your organisation has contact with, including beneficiaries, staff, and volunteers;
- Set an organisational culture that prioritises safeguarding, so that it is safe for people to report any incidents and concerns with the assurance they will be handled sensitively and properly;
- Have adequate safeguarding policies, procedures, and measures to protect people and these are shared and understood; and
- Are clear as to how incidents and allegations will be handled should they arise, including reporting to the relevant authorities.

Please see Annex IV for delivery partner JNCC's Safeguarding policies.

State Aid

This funding does not constitute state aid or a subsidy. The funding will not provide any end-recipients with economic benefits or advantages, nor present any commercial opportunities. It is intended to reduce various forms of pollution, benefitting all human health, through a number of actions such as establishing networks in LMICs and sharing best practice, training, and awareness building, through NGOs & GOs. Furthermore, the funding is primarily directed towards establishing this programme, and further funding should follow in due course for specific actions.

2.3. Economic case

Options considered

Option	Description	Benefits delivered / issues involved	Reason for short list or rejection
0	*Do Nothing – Finish the programme after 2 years of delivery against a 3-year workplan.*	The activities of year one and two will not be able to create products of value that will benefit the communities in South Africa or the ODA programme. Damaged reputation with the research community with whom we have been working closely with in the previous two years. At portfolio level the whole ODA programme in South Africa may need to be written off as set out in Annex B of the ODA delegation letters.	Rejected by ODA hub due to the financial write off risk and this option not presenting good value for money for the Defra portfolio.
1	*Do Minimum (Preferred way forward) - £850,000 to deliver the agreed year 3 delivery plan and complete the project.*	Completion of all deliverables and planned activities. Increased data collection to create robust evidence base for future application in different countries. Completion of a monitoring and evaluation work package to include an end of project assessment.	Short listed – ODA hub supported this approach and ring fenced budget to support the final year of delivery.

Table 1 Options

Preferred way forward

The preferred way forward as agreed with the ODA hub is to complete year three of the project delivery. Year three of the South African projects focuses on the implementation of the research completed in years one and two which delivers the benefits to nature, climate, and people. This includes work packages on Monitoring & Evaluation and adoption of deliverables that allow us to scale up and share knowledge between South Africa, Vietnam, and other developing countries.

More specifically to deliver year 3 we require £850,000 of ICF ODA funding to finalise the following deliverables which support both climate mitigation and adaptation:

1. Water quality costing model, and a final product integrated into a user-friendly framework and tested with end-users.
2. Integrated report on a suite of models linking wastewater pollution impacts to biological responses.
3. Flood modelling tool and user-testing stakeholder engagement. A final report on water quality data interfaced with climate change model.
4. Report containing analysis of the monitoring data from two growing seasons to test the application of nappies and biochar as a soil amendment in degraded lands.
5. A final report to determine wetland carbon sequestration following an extreme pollution event.
6. Implementation of solid waste awareness campaign in three communities and final report examining consequences of climate change and social demography.
7. Knowledge dissemination and communication outreach plan on approaches to pollution mitigation in a resource limited setting.
8. Adoption of the key deliverables into policy settings, through interfacing with different responsible Ministries.
9. Monitoring and evaluation of all projects in South Africa to identify opportunities for transferring knowledge and scaling up projects.

Not funding year three of the programme in addition to not completing the deliverables above creates the following risks:

1. The activities of year one and two will not be able to create products of value that will benefit the communities in South Africa or the ODA programme.
2. Damaged reputation with the research community with whom we have been working closely with in the previous two years.
3. At portfolio level the whole ODA programme in South Africa may need to be written off as set out in Annex B of the ODA delegation letters.

To note, the EPP has already gone through significant reprioritisation and business planning in earlier spending review and GCBC processes. The £850,000 of ICF funding is the minimum funding required to deliver all the remaining work in South Africa to quality and time.

The South Africa project has over-delivered to date against agreed objectives, all outputs have been to a high quality including the additional pieces of work which increase the programmes value and impact. The teams in South Africa have collaborated across all ten projects sharing data and learning which has helped remove duplication across the suite of projects and increased the level of the analysis completed on projects to produce more robust and high-quality findings.

Overall, the project in South Africa has been able to deliver impactful projects to a high standard and sought out opportunities where possible to deliver increased value for money. The EPP Defra programme team have a high degree of confidence that the project in South Africa will continue to deliver the remainder of year 2 to time, quality and budget and continue this into Year 3. All our activities have an assessment on use, scalability and transferability to other communities and countries and work will continue to share details of our projects with our scoping year countries to deliver long term benefits from our work.

At present, there is an MoU in place with delivery partners at the Joint Nature Conservation Committee (see Annex V). This holds no mention of the GCBC funding programme so from a commercial standpoint, the MoU remains valid and can be continued even in light of this Business Case and its potential change in funding source.

There is currently one mention of the GCBC in the terms of the Programme's reporting which was Defra lead. The commercial team's assessment is that there is no value in redoing the MoU and favour it remaining as it is.

2.4. Commercial case

The commercial approach taken as part of this ODA programme has been informed by Defra's commercial team, who will continue to provide advice and support to the programme leads after the business case is cleared.

The JNCC is the primary delivery partner for the programme in FY24-25, an Arms-Length Body (ALB) which has extensive experience in guiding and delivering ODA-related activities. The JNCC are most suited to delivering on the key aim of the programme – to improve the ability of LMICs to monitor, manage and reduce air, chemical, and waste pollution – considering their extensive expertise, experience, and existing networks which can be utilised to deliver activity in-year. The programme is opportunity to further develop ties with a body who have a proven track record when it comes to tackling climate change, biodiversity loss, and pollution. In the longer term this partnership has enabled us to deliver a robust programme that will identify opportunities for further scalability of the programme to other LMICs.

A Memorandum of Understanding (MoU) was established between Defra and JNCC to cover the full three years of the project. This MOU was agreed to ensure that JNCC deliver the expected objectives and fulfil the desired reporting requirements. A copy of the MOU is attached in annex V, the commercial team have reviewed the MOU and have agreed that subject to this business case being approved the existing MOU will remain in place. The commercial team have noted the MOU has no mention of the GCBC funding the programme so from a commercial standpoint the MOU is valid and can be continued even though the funding source has changed. There is one reference to the GCBC in terms of reporting which was a defra lead given this the commercial team do not see any value in redoing the MOU and would favour it remaining as is.

Fraud Risk Assessment

Defra follows FCDO best practice on avoiding fraud and corruption which is for all organisations to have a zero-tolerance approach to fraud and corruption. The review of our delivery partners confirmed that all agencies have systems in place to detect and combat fraud and all programme staff are required to complete mandatory counter fraud training annually. As such the programme is aligned with the FCDO expectations of a zero-tolerance approach to fraud. Annex VI provides details of the delivery partners fraud risk management policy and the Defra programmes fraud risk assessment of the project can be found in annex VII.

2.5. Financial case

Summary of financial appraisal

The EPP was established in 2021 with the programme delivering a successful scoping year with its own business case. Following the spending review the EPP was funded through GCBC and work covered under the GCBC business case. We received a provisional allocation of ICF funding for the three years for both Vietnam and South Africa as shown in the Table below with these details used to created contracts with our delivery partners for the full three year delivery:

Budget Yr1	Budget Yr2	Budget Yr3	Total

FY22/23	FY23/24	FY24/25	
£2,115,000 £1,265,000 (Vietnam) £850,000 (South Africa)	**£2,040,000** £977,500 (Vietnam) £1,062,500 (South Africa)	**£1,827,500** £977,500 (Vietnam) £850,000 (South Africa)[8]	**£5,982,500** £3,220,000 (Vietnam) £2,762,500 (South Africa)

Table 5 Budget allocation for EPP from the GCBC

This business case covers the £850,000 allocation for South Africa in year three of the programme as agreed at the spending review. Under this business case and established MOU with JNCC, DEFRA will be the budget holder for the £850,000, ICF capital allocation. Spend apportioned to capital R&D projects in South Africa will be sub-delegated to JNCC to deliver the third year of the R&D activities in country. An MOU details the agreed approach to delivery and governance to ensure this spend is monitored.

Overall affordability

The ODA hub and ODA finance business partner has confirmed there is sufficient ICF CDEL budget to cover the costs of this project for the final year. A break down has been provided setting out the breakdown of costs across the project activities. Of note the JNCC staff costs are recognised as relatively high, but this is due to JNCC providing significant scientific analysis and support to the in-country partners.

Annualised spend profile (£m)	Total
JNCC staff costs (including evaluation costs)	£384,577
Project implementation costs	
- Wastewater Environmental Impacts	£111,141
- Solid Waste Environmental Impacts	£71,143
- Carbon Storage Research	£166,996
- NBS for Solid Waste Disposal	£116,143
Project whole life costs	£850,000

Table 7 Project cost detail

Monitoring, Reporting and Accounting

Under the MOU, the delivery partners are responsible for providing monthly financial reporting to the Defra Programme Manager. The delivery partners are also required to complete the central Defra financial reporting requirements which are separate to the programme reporting requirements. The Defra PRO assesses both set of reports and escalates any discrepancies in reporting to the central finance team and the delivery partners finance department.

The Defra programme team has a range of auditing tools in place to ensure value for money and reduce the risk of financial fraud in the project. This includes but is not limited to spot audits conducted by FCDO post, in-country monitoring from an independent assessor and Defra in-person reviews.

2.6. Management case

[8] £850,000 not funded through the GCBC and for which this business case is for.

Project management

The main management mechanism will be Monthly Progress Meeting attended by the Programme Responsible Owner and Project Lead in Defra and the JNCC project team along with other stakeholders as required. The purpose of the Monthly Progress Meeting is to:

- Review the programme tracker, as the Programme's main monitoring tool, on a monthly basis.
- Review the programme forecast, on a monthly basis.
- Review progress against the LogFrame, as the Programme's main evaluation tool, on a quarterly basis.
- Discuss project pipeline and opportunities.
- Identify key areas of progress made and potential risks, in order to escalate to the ODA Board, if appropriate.

Additionally, there will be a **Programme Board**, made up of members from JNCC (the main South Africa delivery partner), GAHP (the main Vietnam delivery partner) and Defra policy teams to discuss and approve key deliverables / products, as well as identify lessons learnt. This board will meet quarterly and will be chaired by the programme SRO, this board will act as the main decision-making forum for the programme.

Roles, Responsibilities and Accountabilities

Programme SRO: Head of the International Hub in Chemicals, Pesticides & Hazardous Waste

- Overall responsibility for delivery of the project and ensuring coherence with Defra and HMG objectives.
- Provide scrutiny and approval of all required programme documentation and spend, in line with Defra internal processes.
- Represent the Programme at the quarterly Defra ODA Board, highlighting progress made and flagging any emerging risks.
- Ensure the impact of the Programme on gender equality receives ongoing consideration.

Programme PRO: Programme Manager for the Environmental Pollution Programme in Chemicals Pesticides & Hazardous Waste

- Attend Programme Management meetings with the Programme SRO.
- Flag any emerging risks and issues to the Programme SRO and central Defra ODA Team.
- Ensure all proposed financial spend is conducted in accordance with the relevant internal Defra processes to ensure ongoing value for money.
- Ensure Programme SRO is briefed ahead of each ODA Board.
- Feed into future Spending Review / cross-government financial funding processes, as informed by the outcomes of the Programme's scoping phase.
- Monitor the implementation of Defra's ODA strategy and policy priorities.

Project Lead: South Africa Project Lead in Chemicals Pesticides & Hazardous Waste

- Work with JNCC Programme Manager to inform timing and structure of Project Board meetings, ensuring appropriate attendance from Defra stakeholders.
- Coordinate monitoring and evaluation through (monthly) inputs to the Programme Tracker from delivery partners, incorporating risks, issues, financial updates, progress updates as well as a general status update.
- Coordinate quarterly updates of the Log Frame.

- Coordinate the updating of financial forecasting and actual spend on basis of returns from delivery partners and Defra core spend.

Central ODA Team:

- Set up monthly check-ins with the Programme Leads and JNCC Programme Manager to share information and provide advice.

ODA Finance Business Partner:

- Report spends from Delivery Partners to the ODA Board on a quarterly basis.
- Provide monthly reports of actual spend against the Programme's ODA Cost Code.

Main Delivery Partner: JNCC

- The Programme Manager will work with the Defra Programme Team to inform timing and structure of Project Board meetings, ensuring appropriate attendance from JNCC stakeholders.
- Provide inputs to the Programme Tracker on a monthly basis.
- Provide financial returns to ODA Business Partner on a quarterly basis.
- Provide input to monthly financial forecasting and updating of actual spend on a monthly basis.
- Provide quarterly inputs to the Log Frame.
- Work with Programme Lead to identify and assess risks and opportunities and identify appropriate mitigations of risks.
- Provide options for further development of the programme, as required by Spending Review and other bidding processes.
- Provide liaison with local country contacts for any project activity the Defra team require.

Risk, Issues, Dependency and Assumption management.

Risks will be managed to within the defined risk appetite for each risk area. Generally, risks that have been mitigated down to within the EPP risk appetite would be tolerated. Additional management action to, transfer or terminate the risk would normally only come in to play if the residual risk were above the risk appetite.

Overall, risk registers allow the Defra team to see what risks are being tackled and whether any progress is being made. They can then decide whether to continue as before, advise additional or different mitigating actions, or escalate the risk up to the programme board.

Risk owners take prime responsibilities for managing and reporting on key risks. The responsibility at board level is to take the risk challenge function role so that it is clear the risk is taken seriously, identify the risks that will prevent the EPP from delivering its targets by agreeing and reviewing the risk register. Regularly considering the range of risks that the programme is exposing itself to, to ensure that there is a well-judged balance between ambition and achievement. The Defra team, with the PMO, will ensure consistency across the projects in the way that risks are evaluated, mitigated, and escalated and de-escalated.

Risk appetite is defined as the 'amount of risk to which the programme is prepared to accept, tolerate, or be exposed to at any point in time.' This statement sets our EPP risk appetite.

The EPP is investing in managing and mitigating the impacts of environmental pollution in areas that are underfunded or where there is unmet need. As such the programme has a high risk-appetite for investing in innovative research and development that supports us to

tackle complex global health challenges for the benefit of people in low- and middle-income countries (LMICs). This work also necessitates a high-risk appetite for innovative solutions and new ways of working, requiring flexibility in project delivery. The programme has a much lower risk appetite in relation to staff safety and security, ethical, safeguarding, and fiduciary risks.

Key Risks and Mitigations

Delivery

Delivery partner(s) not fulfilling commitments.

Mitigation: The allocation apportioned to JNCC is on the basis of an MOU, with the ability to negatively accrue or return any underspent funds to Defra. Funds will only be released to other contracted partners as contract deliverables are realised – we will reserve the right to hold payment in the event of non-contractual delivery. Where unexpected outside factors impact delivery, we will work closely with JNCC to ensure that the expected deliverables are met through alternative routes such as seeking opportunities to deliver through remote means where possible.

Covid, extreme weather or political turmoil causes disruption to on-the ground delivery and / or travel.

Mitigation: Ongoing review of the situation, including through close liaison with FCDO colleagues in country, plus seeking opportunities to deliver remotely where possible.

Reputational

Local delivery partners are unable to deliver / unreliable.

Mitigation: Payment for work will be on the basis of locally negotiated MOUs, which will include key delivery milestones. We will reserve the right to restrict payment if local partners do not deliver on these milestones. Local partnerships will be selected on the basis of the insight from advisors on the ground. We will also continue to liaise closely with British Embassies and High Commissions.

Safeguarding

Inappropriate conduct by a UK or local delivery partner.

Mitigation: JNCC has a safeguarding policy in place, as does Defra. Key staff within Defra and JNCC will be made aware of the safeguarding guidance, and how to report any concerns through the Defra Safeguarding mailbox. Local advisors will be asked to consult with partners on the ground to ensure they have appropriate safeguarding measures in place.

Assurance, approval & post project evaluation

There has been keen interest from the South African Department for Fisheries, Forestry and Environment in the work, particularly on the solid waste and industrial wastewater aspects of the project. Year 3 activities will include working with government and policymakers to incorporate project outputs into operational delivery, such as the water quality decision support tool, and policy, such as dairy wastewater management with the hope of continuation once the EPP has formally concluded.

Lessons learned are recorded in the delivery partner reporting pack, as part of the Management Exercise that is the Monthly Progress Meeting, as and when they arise. There will be a thorough project evaluation upon completion and there has been ongoing assessment throughout.

2.7. Impact Assessment

Data Protection Impact Assessment

Clause 10.1.3 of the MoU between Defra and JNCC sets out that each party must "seek the approval of the other Party before externally publishing any information resulting from the use of exchanged data received from the other Party, such approval not to be unreasonably withheld."

Clause 11.5 states "The Parties must not use data or information exchanged under this MoU for commercial purposes without the prior written agreement of the supplying Party" (see Annex VI of the MOU).

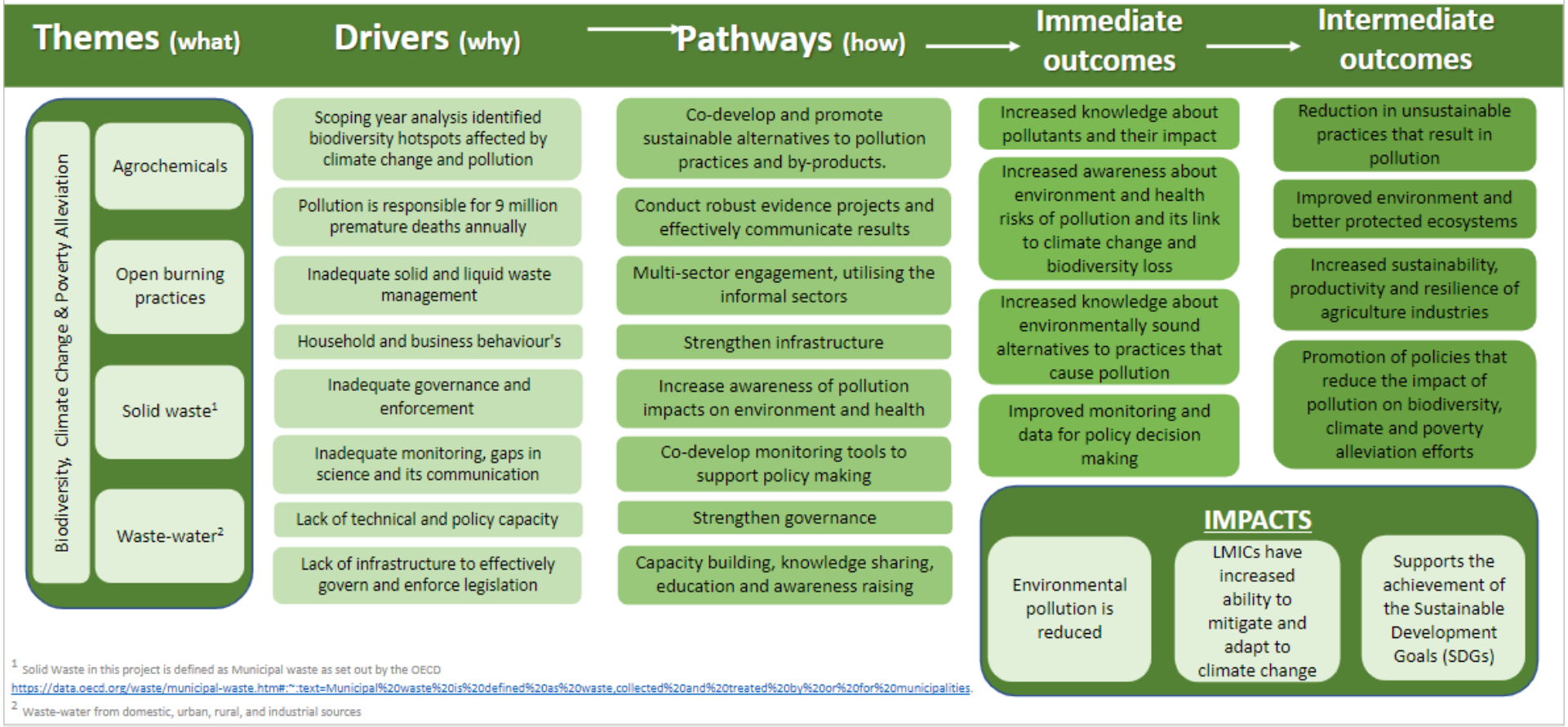
ODA Teams Transparency Requirements

The delivery partners meet the International Aid Transparency Initiative (IATI) standard that aims to ensure that organisations publish information to 'improve the coordination, accountability and effectiveness to maximise their impact on the world's poorest and most vulnerable people. This includes information on the organisation, funds, and planned activities. Significant outputs including log frames, annual reviews, programme/project proposals and technical reports which will be of interest to other countries and stakeholders are available and will continue to be so throughout the live of the programme. All outputs will be published on IATI. Relevant programme outputs are uploaded to the UK Development Tracker. Regular financial reporting forms an important part of ensuring transparency across the Project taking place monthly at the Monthly Progress Meeting.

Annex I – Programme Theory of Change

ENVIROMENTAL POLLUTION OVERSEAS DEVELOPMENT PROGRAMME THEORY OF CHANGE

To work with chosen ODA-eligible countries to manage, mitigate and prevent pollution to benefit climate, biodiversity, and people. Additionally, we wish to improve the ability of low- and middle-income countries (LMICs) to manage chemicals usage to reduce air, chemical and waste pollution.



[1] Solid Waste in this project is defined as Municipal waste as set out by the OECD https://data.oecd.org/waste/municipal-waste.htm#:~:text=Municipal%20waste%20is%20defined%20as%20waste,collected%20and%20treated%20by%20or%20for%20municipalities.

[2] Waste-water from domestic, urban, rural, and industrial sources

Annex II – South Africa LogFrame

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
Impact: Improve the ability of South Africa to manage the environmental impacts of solid waste and wastewater, and the impacts of ecosystem degradation on carbon storage. Empower communities to design and implement sustainable waste management practices			
Outcome:			
0 Prepare the South Africa programme workplan and initiate projects with South African partners	Programme delivery plan, log frame, reporting documents produced. Initiation meetings held with project principal investigator's and inception reports produced.	Project reports, workplan and log frame documents made available. Minutes from initiation meetings and inception reports.	
1 Develop a Theory of Change for the South Africa programme by identifying research gaps and a framework for addressing stakeholder needs on the impacts of solid waste and wastewater on water resources in South Africa	Theory of Change framework developed to link the South Africa projects together and inform strategic choices. Stakeholder database established and refined pollution hotspot maps produced for solid waste and wastewater pollution in South Africa. Gap analysis developed to understand the difference between current research on solid waste and wastewater impacts on freshwater ecosystems and estuaries in South Africa. Models developed to link ecological responses to impacts of solid waste and wastewater.	Documentation of programme Theory of Change. Stakeholder mapping process detailed in report and database made available. Research gaps highlighted in report. Availability of data from models as well as outputs published in report. Materials from workshops with stakeholders to pilot and validate models.	Stakeholders are willing to engage with project. Data is available for refining hotspot maps.
2 Model solid waste and wastewater flow within rivers in South Africa and improve understanding of how waste impacts river capacity to respond to climate-forced weather events.	Modelling will cover where and how wastewater impacts the environment and what the chemical makeup of wastewater emissions are, supported by point sourcing of water quality. Similar analysis on how solid waste released into rivers impacts the environment, including how chemicals from the breakdown of solid waste (e.g. persistent organic pollutants) are transported from rivers to the ocean. There will also be a greater understanding of how solid waste and wastewater impacts river systems capacity to respond to climate-forced weather events, such as flooding.	Reports containing outputs from models, as well as the availability of the models themselves. Materials from workshops with stakeholders to pilot and validate models.	
3 Analysis of the impact of the release of solid waste and wastewater, including quantitative estimates of the reduction in ecosystem capacity for carbon storage along the lifecycle of the waste as it travels from rivers to the ocean.	1) Increased knowledge on the use of cost-effective biological wastewater treatment methods for mitigating the environmental effects of dairy wastewater, which in turn increase the carbon carrying capacity of the system; 2) Improved knowledge on the role of blue carbon storage in environmental modelling to inform the recovery of riverine and wetland habitats subject to extreme pollution events; 3) Greater understanding of the potential role of nappies in combination with biochar for increasing carbon storage and the productivity of contour-based vegetated hedges.	Data from pilot studies and results published in report.	Stakeholders are willing to engage with the project
4 Pilot research projects on nature-based solutions which utilise alternative uses of solid waste	Pilot research projects established on nature-based solutions which utilise alternative uses of solid waste developed across a minimum of 3 rural communities in the uMkomazi catchment area of KwaZulu-Natal, developing community monitors for environmental impact of pollutants.	Framework and results from pilot projects published in report. Materials from workshops available.	Communities are engaged with project and attend workshops
5 The development of effective governance, reporting, bidding, and training processes in order to support effective delivery of the programme, and to enhance the UK's expertise, specialisms, and abilities in assisting LMICs to manage to and reduce the environmental impacts of solid waste and wastewater	South Africa Delivery Board established, bi-monthly meetings held, and minutes produced.	Delivery Board minutes of meeting	Project partners are committed to attending meetings
	Environmental Pollution Programme Board established, bi-monthly meetings held, and minutes produced	Programme Board minutes of meeting	
	Expert Advisory Panel Board established, meetings held twice annually, and minutes produced	Expert Advisory Panel Board minutes of meeting	Experts are committed to attending meetings
	Established plans and documentation for effective governance, reporting, bidding, and training processes	Programme documentation	
Outputs:	**Measurable Indicators**	**Means of Verification**	**Important Assumptions**
1.1 Addressed research gaps on the impacts of solid waste and wastewater on water resources in South Africa	Pollution hotspot maps for solid waste and wastewater in South Africa	Hotspot maps made available.	That urban areas are likely to be linked to wastewater treatment works, and where solid waste is removed to landfill sites. Pollution risks relate directly to level of municipal functioning. Informal areas are more likely to have lower levels of service delivery, so that solid waste is removed to landfill sites, and sewerage exists in the form of pit latrines.
	Methods tested to identify where impacts of emerging contaminants in wastewater pose the greatest risks to aquatic ecosystems	Methods and results of impacts detailed in report	
	Report detailing the alignment of research gaps in SW and WW impacts on surface water resources with key stakeholder needs and characterise pathways	Report made available	
	Models developed to link ecological responses to impacts of solid waste and wastewater.	Model outlined in final report which will be made available.	
2.1 An integrated and inclusive approach to flood risk modelling is generated towards effective solid waste management and flood resilience in urban informal settlements in South Africa	Local experiences and knowledge incorporated into flood risk-profiling efforts	Stakeholder mapping process detailed in report and database made available. Documentation from literature and documentary reviews, as well as interviews with key stakeholders. Availability of materials from workshops held with community	Stakeholders are willing to engage with project
	Mathematical modelling approach implemented to aid strategy development and better decision making in complex systems	Integrated flood modelling framework made available. Materials from pilot-testing workshops with stakeholders and pilot-test report published.	
2.2 Model to investigate the effects of microplastics and associated organic pollutants on riverine fish, using the case of	Microplastic debris is counted and characterised from sediment cores and surface water along the river gradient and along the horizontal river profile. Local fish samples also collected and analysed for microplastics	Presentation of findings and data in report	

Tilapia and the Umgeni River in KwaZulu-Natal, South Africa	Gastric model assay developed to determine whether (a) leachates can be eluted from common plastic particles, and (b) contaminants associated with plastic particles can be desorbed from plastic particles, in a realistically simulated gut environment.	Presentation of findings and data in report	Contaminants are transferred to the gut environment of fish.
2.3 Decision support tool for assessing the pollution status of river systems and for predicting water quality costs due to pollution events	Literature review to identify key water quality parameters and environmental variables related to	Literature review available	
	Workshop with experts to determine the set of water quality parameters and environmental variables to be used for costing	Workshop materials made available and findings detailed in report	Stakeholders are willing to engage with project
	Historical data and field data collected to monitor water quality over an extended period and analyse seasonal variations	Availability of data and findings in report	
	Proposed model trained and calibrated	Availability of data and findings in report. Workshop documentation.	Stakeholders are willing to engage with project
2.4 Mathematical model for assessing water quality of the Msunduzi River in South Africa with a focus on accommodating for the effects of climate change and wastewater flow	Literature review and preliminary study conducted	Literature review available	
	Water samples collected at treatment plants and at river sampling points. Sensors deployed along river for continues data collection. Physicochemical analysis conducted on water samples.	Availability of data and findings in report	
	Mathematical Water Quality Model developed and model trained with data	Results of model made available in report and via workshop presentations	
	Climate Impact Model developed and model trained with data	Results of model made available in report and via workshop presentations	
	Software tool developed and tested with stakeholders	Outputs from workshops with stakeholders detailed in report.	Stakeholders are willing to engage with project
3.1 Physio-chemical characterisation of wastewater produced by the commercial dairy sector in South Africa and a feasibility assessment of using cost effective biological wastewater treatment methods for mitigating the environmental effects of this wastewater. Increased carbon carrying capacity of the ecosystem through the use of biological wastewater treatment technologies.	Sites and stakeholders identified and engaged	Stakeholder mapping process detailed in report and database made available	Farmers and other key stakeholders are willing to engage with project and share potentially sensitive data. Selected farms are representative of dairy farms in South Africa.
	Life Cycle Assessments of dairy farms and waste water treatment plants completed	Results from Life Cycle Assessment published in situational analysis report	
	Lab-based pilot studies to assess the efficacy of low cost wastewater treatment solutions shown to be socio-spatially suitable for South African commercial dairy farms and processing plants	Data and results from lab-based studies published in final report	
3.2 An investigation conducted into the utility of environmental monitoring, focussing on blue carbon storage, to inform the recovery of riverine and wetland habitats subject to extreme	Desktop review and baseline data collection	Literature review submitted and database containing baseline data	Background data is available
	Seasonal monitoring programme established and identified key parameters and biological responses that	Exercise completed to determine endnotes, bioindicators and biomarkers. Selected sites and	Support from local people to assist with site access
3.3 Pilot project on the use of disposable nappies and biochar as a soil amendment to rehabilitate degraded lands by increasing carbon storage and the productivity of contour-based vegetated hedges.	Experimental method designed and implemented, involving the collection of nappies and production of biochar from an invasive plant species.	Methodology and justification detailed in project inception report.	
	Productivity of plant fodder and impact of nappies on soil recorded through a comprehensive monitoring	Soil analysis data and results of monitoring detailed in progress reports.	
	Engagements with communities to share the findings with key stakeholders	Materials from workshops with stakeholders	Stakeholders are willing to engage with project
4.1 Pilot project on a socio-ecological systems-based approach to capacitating rural communities in terms of self-supply management of springs.	Springs identified and catalogued	Reports produced containing details on springs	
	Analysis of pollutants	Obtained record on the presence of pollutant types and their likely sources through analysis of spring water	
	Co-development of interventions with communities	Materials from workshops with community members and other key stakeholders	Communities are engaged with project and attend workshops
	Piloting of restoration interventions to enhance household water supply	Materials from workshops with community members and other key stakeholders. Report produced on interventions.	
4.2 Solutions for the proper disposal and possible repurpose of solid waste co-developed with communities whilst establishing raised awareness of waste management and pollution issues through an awareness-raising campaign.	Situational analysis and status quo established across a rural-urban gradient in South African communities	Published literature review. Waste audit and categorisation made available in report.	
	Co-designed interventions to mitigate solid waste pollution ready for potential future implementation	Workshop materials made available. Report produced on the potential solid waste beneficiation and valorisation options to improve solid waste management within communities	
	Awareness campaign and education outreach to mitigate solid waste pollution implemented	Copies of the awareness campaign materials and implementation plan	

Annex III - JNCC EDI Policy

JNCC EDI Policy.pdf

Annex IV – JNCC Safeguarding Policy

JNCC Safeguarding Policy.pdf

Annex V – Final Defra/JNCC MOU

MOU JNCC.pdf

Annex VI – JNCC Counter Fraud and Anti-Corruption Policy

JNCC Counter-Fraud and

Annex VII – South Africa Project Fraud Risk Assessment