
DIR31IN\1513

Improving biodiversity, livelihoods and resilience in Kenyan coffee farms

Kenyan coffee farmers face significant challenges: falling livelihoods, climate change, and biodiversity loss. We propose an innovative, scalable solution - co-designed with farmers - and grounded in evidence from impact evaluation and behavioural science. We will co-design benchmarking and advice tools that compare farms with higher-performing peers. We will test the causative effect of these tools on farmers' outcomes through a randomised control trial, identify how to overcome adoption barriers, and scale by integrating with certification schemes and extension services.

PRIMARY APPLICANT DETAILS

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Section 1 - Contact Details

PRIMARY APPLICANT DETAILS

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GMS ORGANISATION

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Section 2 - Project Summary, Ecosystems, Approaches and Threats

Q3. Project Title

Improving biodiversity, livelihoods and resilience in Kenyan coffee farms

Please attach a cover letter as a PDF document.

 Cover letter
 21/10/2024
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 pdf 171.85 KB

Q4a. Is this a resubmission of a previously unsuccessful application?

☒ No

Q5. Key Ecosystems, Approaches and Threats

Please select up to 3 biomes that are of focus, up to 3 conservation actions that characterise your approach, and up to 3 threats to biodiversity you intend to address, from dropdown lists.

Biome 1

Tropical-subtropical forests

Biome 2

Intensive land-use systems

Biome 3

No Response

Conservation Action 1

Species Management

Conservation Action 2

Education & Training

Conservation Action 3

Livelihood, Economic & Moral Incentives

Threat 1

Agriculture & aquaculture (incl. plantations)

Threat 2

Pollution (domestic, commercial, agricultural)

Threat 3

Climate change & severe weather

Q6. Summary of project

Please provide a brief non-technical summary of your project: the problem/need it is trying to address, its aims, and the key activities you plan on undertaking.

Kenyan coffee farmers face significant challenges: falling livelihoods, climate change, and biodiversity loss. We propose an innovative, scalable solution - co-designed with farmers - and grounded in evidence from impact evaluation and behavioural science. We will co-design benchmarking and advice tools that compare farms with higher-performing peers. We will test the causative effect of these tools on farmers' outcomes through a randomised control trial, identify how to overcome adoption barriers, and scale by integrating with certification schemes and extension services.

Section 3 - Dates & Budget Summary

Q7. Country(ies)

Which eligible country(ies) will your project be working in?

Country 1	Kenya	Country 2	No Response
Country 3	No Response	Country 4	No Response

Do you require more fields?

☒ No

Q8. Project dates

Start date:	End date:	Duration (e.g. 1 year, 8 months):
01 April 2025	31 March 2027	2 years

Q9. Budget Summary

Darwin Initiative Funding Request	2025/26	2026/27	Total request
(1 Apr - 31 Mar) £	£94,941.00	£105,000.00	199,941.00

Q10. Do you have proposed matched funding arrangements?

☒ Yes

Please ensure you clearly outline your matched funding arrangement in the budget.

Q11. If you have a significant amount of unconfirmed matched funding, please clarify how you will fund the project if you don't manage to secure this?

Not applicable - all match funding is confirmed.

Q12. Have you received, applied for, or plan to apply for any other UK Government funding for your proposed project or a similar project?

☒ No

Section 4 - Darwin Objectives and Conventions

Q13. Problem the project is trying to address

Please describe the problem your project is trying to address in terms of biodiversity and its relationship with multi-dimensional poverty.

Kenyan coffee farmers face growing biodiversity and poverty crises.

Biodiversity

Kenya is a mega-diverse country, with over 35,000 known species (Manek, 2001), and key biodiversity is found in the high plateaus where coffee is grown. Meeting Kenyan conservation goals requires effective conservation on these farms (Smith et al., 2015). However, it remains unclear which practises and farm types yield the best outcomes.

Coffee farming in Kenya significantly impacts biodiversity both on- and off-farm. On farm, shade-grown coffee is perceived as environmentally-friendly, but it is poorly defined and encompasses a wide range of practices and outcomes for biodiversity. Traditional coffee-growing practices involve planting coffee bushes in the rainforest understory. In alternative systems, native trees are replaced with non-native trees that provide economic co-benefits (fruits, timber, etc.), or are removed for monoculture “sun coffee”. Many studies have biodiversity on these different farm types, and while globally, systems with native trees have the best biodiversity outcomes (Wynter et al., 2024), evidence from Kenya is limited (Ong’ondo et al., 2022) and mixed (Smith et al., 2015). In addition to broad farm types, on-farm practices also significantly impact biodiversity - for example, land clearing, burning biomass, tillage, and overuse of chemicals. Many practices have not yet been linked to biodiversity outcomes in this context. Moreover, Kenyan coffee has substantial but largely unassessed biodiversity impacts off-farm. Inputs like pesticides and fertilisers all carry impacts off-farm, but these have yet to be systematically assessed.

Poverty

In 2019, 800,000 Kenyans farmed coffee: 70% were smallholders and 30% women (Coffee Directorate, 2019). They face a multitude of challenges that reinforce the cycle of poverty. Extension services are under-resourced, meaning few farmers have access to advice (Speranza et al 2009). Input and labour costs are rising rapidly, yet the price of coffee remains low and fluctuating (Solaridad report, 2022). Power dynamics in the supply chain are highly uneven, and farmers, especially women, have low bargaining power (ICI report). Many farmers produce less than 10% of their yield potential (Solaridad report, 2022) and do not earn a living wage (Jones et al., 2024). This prevents them from investing in improved practices that would benefit both themselves and biodiversity (Minai et al., 2014). Furthermore, 93% of Kenyan coffee farmers reported that they are already being impacted by climate change (FairVoice report), and declining yields further limit their capacity to mitigate or adapt (Golinucci et al., 2022).

Intersection

Solutions to these challenges are sometimes in conflict, so both must be addressed simultaneously to minimise trade-offs (Timmer et al., 2005). We will tackle important underlying drivers of these challenges. We will fill a key information gap by generating an evidence base for how a suite of management options can best balance tradeoffs and optimise outcomes for biodiversity and farmers. Our approaches are rooted in co-design with farmers and incorporate significant innovations. It has considerable opportunity to scale through improving certification schemes and extension services - as they have the infrastructure to address the underlying drivers of market and governance failures, information gaps and inequality.

Q14. Biodiversity Conventions, Treaties and Agreements

Q14a. Your project must support the commitments of one or more of the agreements listed below. Please indicate which agreement(s) will be supported.

- ☒ Convention on Biological Diversity (CBD)
- ☒ United Nations Framework Convention on Climate Change (UNFCCC)
- ☒ Global Goals for Sustainable Development (SDGs)

Q14b. National and International Policy Alignment

Using evidence where available, please detail how your project will contribute to national policy (including NBSAPs, NDCs, NAPs etc.) and in turn international biodiversity and development conventions, treaties and agreements that the country is a signatory of.

Our work will directly feed into the following Kenyan policies through our collaboration and co-design with extension services and policy-makers. This will ensure our project is both contributing to policy and is sustainable beyond the end of the project. Our pathways to scale aim to influence policy of other coffee-producing regions, and other agricultural sectors.

Biodiversity conservation is a constitutional mandate (Constitution of Kenya, 2010), and Kenya ratified the Convention for Biodiversity (CBD) in 1994. The Kenya National Biodiversity Strategy and Action Plan (NBSAP) aims to strengthen institutional and community capacity and linkages, and to promote gender equity in biodiversity management. Section 4.5 on Agricultural Biodiversity, includes the promotion of farming practices that conserve the ecosystem, and Section 4.8 on Research and Training, includes the support and promotion of research on technology development for sustainable use and management of biodiversity resources. This project will contribute to both NBSAP goals, for example we will engage with the Association of Women in Coffee Industry Kenya (AWICI), an organisation for women coffee farmers, and our project involves training on various technology-based tools to improve farm outcomes.

Kenya is also a party to the Paris Agreement and submitted its initial NDC in 2016 and its updated NDC in 2020. Among the Prioritised Adaptation Programs in the Agriculture sector is to build resilience of the agriculture systems through sustainable management of land, soil, water and other natural resources. In August 2024, the Ministry of Environment, Climate Change, and Forestry (MoECCF) launched Kenya's National Biodiversity Coordination Mechanism (NBCM). This is to enable the effective coordination of biodiversity conservation efforts by various stakeholders. The project lead has communicated with the NBCM to ensure alignment with national biodiversity indicators and coordinate project activities with existing interventions.

Section 5 - Method, Innovation, Capability & Capacity

Q15. Methodology

Describe the methods and approach you will use to achieve your intended Outcome and contribute towards your Impact. Provide information on:

- how you have reflected on and incorporated evidence and lessons learnt from past and present similar activities and projects in the design of this project.
- the specific approach you are using, supported by evidence that it will be effective, and justifying why you expect it will be successful in this context.
- how you will undertake the work (activities, materials and methods).
- what the main activities will be and where these will take place.
- how you will manage the work (governance, roles and responsibilities, project management tools, risks etc.).

Workpackage 1: Evidence for best-practice coffee farming

We will gather primary data from 500 coffee farms to quantify the relationships between farming practices, biodiversity and poverty. Enumerators will be trained and will recruit farmers via cooperatives and extension officers. Biodiversity assessments will utilise drones to evaluate canopy structure on farm (Bolívar-Santamaría & Reu (2024), and Life Cycle Assessment for impacts off farm (using hestia.earth). These are cost-effective and scalable ways of assessing relevant biodiversity impacts (Zhang et al., 2016). Validation will involve established methods for quantifying abundance of birds using point counts, bats using bioacoustics (Lopez-Baucells et al., 2021), and insects using pitfall traps (Ijala et al., 2021). Multidimensional poverty outcomes will be assessed via interviews using established indicators including assets, capacities, measures of resilience and perceptions of power. We will identify links between farm types, practices and outcomes, create a benchmarking dataset and a

prototype tool for automated, farm-specific advice to enable farmers to understand actionable steps for improvement based on peer comparisons.

Workpackage 2: Co-design tool

We will conduct workshops with representative farmers, certification bodies, policymakers, and extension officers to understand farmers' needs, identify relevant indicators, and co-design the intervention tool. This tool will incorporate local knowledge and will be accessible, comprehensible, usable, and assessable. It will provide farmers with:

- (1) Their coffee farm's biodiversity and poverty outcomes.
- (2) Benchmarking of outcomes against peers.
- (3) Recommended practices for improvement - specific to their farm - based on better-performing comparable farms.

There is evidence that such interventions change attitudes, behaviours, and outcomes, though most evidence comes from other fields (Francis and Holloway, 2007) - agricultural studies lack robust impact evaluation, making it impossible to infer causation (Vetter et al., 2018; Ferraro et al., 2023). We will integrate behavioural science to enhance the tool effectiveness, e.g. using benchmarking from social comparison theory.

Workpackage 3: Test causative effects of interventions

Farmers will be randomly assigned to test and control groups. The test group receives interventions during the trial and the control group afterward. We will propose scalable delivery methods for farmers to choose from. We will train trainers who will train farmers to use the tool. Assessments of outcomes (as in Workpackage 1) will be repeated at the trial's conclusion to quantify the tool's causal effect. Semi-structured interviews will track outcomes along our Theory of Change, monitor for contamination, gather feedback for future improvements, and identify potential adoption barriers.

Workpackage 4: Scale findings for extension services and certification

Certification schemes have infrastructure conducive to fostering improved farm practices through compliance systems and price premiums. However, they have faced criticism for not effectively enhancing biodiversity and alleviating poverty. Extension services also have systems in place for informing farmers at scale. We will utilize our findings to formulate recommendations aimed at refining certification schemes and guiding extension services. We will hold five workshops to co-develop pathways for integrating our insights into both existing and future frameworks to effectively drive improvements.

All Workpackages involve Strathmore and Oxford, with Strathmore leading on co-design, and Oxford on tool infrastructure.

Q16. Innovation

Please specifically outline how your approach or project is innovative.

Is it the application of a proven approach in a distinctly different geography/issue/stakeholder (novel to the area), or in a different sector (novel to the sector), or an unproven approach in any sector (novel to the world)?

Innovation 1: Robust impact evaluation

This project will be the first robust assessment of the causative effect of giving farmers information on environmental outcomes (Ferraro et al., 2023). While previous studies show improvements in farms given such information (Vetter et al., 2018), existing evidence is limited by small sample sizes and lacks sound counterfactuals (Ferraro et al., 2023).

Innovation 2: Outcome-driven insights and integration of behaviour-change methods

We will develop a pioneering evaluation framework to measure real-time farm outcome information. We will incorporate knowledge from behavioural science and social comparison techniques, to drive significant behaviour change. This involves the co-design of our tool to provide farmers with (1) information on their

outcomes, (2) their outcomes benchmarked against their peers and (3) the best-practice engine (see Innovation 3). This approach equips farmers with precise insights, empowering informed decision-making and leading to tangible improvements in outcomes.

Innovation 3: Benchmarking and best practice engine

Our advice engine will compare individual farm performance against our comprehensive database of peer benchmarks. Using predictive analytics, it will tailor recommendations to each farmer's specific context, integrating local environmental data to suggest practices that alleviate poverty and improve biodiversity.

Innovation 4: Dynamic scaling through integrated networks

We will establish a multi-tiered scaling strategy that combines certification schemes with local extension networks, fostering a collaborative ecosystem for sharing insights and best practices. This approach encourages community-driven continuous learning and improvement.

These innovations are novel to the area and sector, and have the potential for transformative change in global agriculture.

Q17. Capability and Capacity

How will the project support the strengthening of capability and capacity of identified local and national partners, and stakeholders during its lifetime at organisational or individual levels? Please provide details of what form this will take, who will benefit (noting any Gender Equality and Social Inclusion (GESI) considerations), and the post-project value to the country.

Strathmore University members will receive training on randomised control trials, use of the HESTIA platform for life cycle assessment, biodiversity assessment tools, monitoring and evaluation, and analysis of data.

We will improve capacity within the farming communities by providing training and knowledge. 25 enumerators will be trained on biodiversity and poverty measures for household level data collection using KoboToolbox. 50 representative farmers will be selected to co-design the tool, including those that are members and non-members of cooperatives, certified and non-certified cooperatives, small and large scale farmers, women, youth and persons living with disabilities. Capacity will be increased through engaging cooperative employees in training, co-designing of the tools and sharing of findings.

The Association of Women in the Coffee Industry (AWICI) will be engaged from the beginning of the project to ensure that gender concerns and opportunities for empowerment are included in the study. An AWICI representative will be invited to training and workshops and will advise on our research.

We will engage certification schemes from early stages in the project to identify gaps and opportunities in biodiversity management and poverty alleviation. This will include schemes such as the Rainforest Alliance and FairTrade.

To ensure post-project sustainability of the benefits of our project, activities will be undertaken in collaboration with government agricultural extension officers and cooperative officers. We will share our findings with the National Commission of Science, Technology and Innovation (NACOSTI) and the National Biodiversity Coordination Mechanism (NBCM) secretariat to facilitate the use of our work in policy, and to contribute to an evidence base for further research. A roundtable engagement session will be held with county government officials responsible for agricultural, cooperative and environmental issues at the inception of the project. On-going communication will be held with the public official to ensure local ownership of biodiversity management.

If necessary, please provide supporting documentation e.g. maps, diagrams, references etc., as a PDF using the File Upload below:

Section 6 - GESI, Awareness, Change Expected & Exit Strategy

Q18. Gender Equality and Social Inclusion (GESI)

All applicants must consider whether and how their project will contribute to promoting equality between persons of different gender and social characteristics. Please include reference to the GESI context in which your project seeks to work. Explain your understanding of how individuals may be disadvantaged or excluded from equal participation within the context of your project, and how you seek to address this. You should consider how your project will proactively contribute to ensuring individuals achieve equitable outcomes and how you will ensure meaningful participation for all those engaged.

Women face systemic barriers that limit their access to land, credit and decision-making. They make up about 70% of labour in coffee production but are however engaged in the least skilled tasks (ICO, 2018). Gender representation occurs in a few cooperative management boards but this is often marked by tokenism. Female headed households comprise 32.4% of households in Kenya (RoK, 2023). The time and resource constraints may result in lack of participation in training and other relevant activities. Youth are often excluded from decision-making in coffee production and cooperative management due to lack of land ownership or registered coffee trees. This study will ensure the inclusion through stratification criteria that includes youth, women, small and large-scale farms, cooperative and estate membership, and certified and non-certified cooperatives. Measures of poverty will include GESI focused indicators, and interviews will collect qualitative information on perceptions of power, barriers to equality and farmer-designed approaches to overcoming them. These will be incorporated into our scaling pathway with certification and extension services to ensure this does not just avoid further disempowerment and poverty, but actively alleviates it.

To ensure equitable opportunities for project participants to influence and participate in decision making, a participatory approach will be used, where farmers are engaged from the inception of the project to dissemination of findings. Meetings will be held in locations that do not further constrain the participants in terms of time or resources. Research interviewers will be conversant in the local language and survey tools will be reviewed with agricultural extension officers for a common understanding of concepts and terminologies related to biodiversity. Information dissemination will be done in agreed-upon methods.

It is also significant for the women farmers that the project lead and co-investigator are women.

Q19. Change expected

Detail the expected changes and benefits to both biodiversity and multi-dimensional poverty reduction, and links between them, that this work will deliver. You should identify what will change and who exactly will benefit a) in the short-term (i.e. during the lifetime of the project) and b) in the long-term (after the project has ended).

Farmers and their families directly involved in the trial (n=500) will benefit in the short term, particularly those in the group receiving the intervention (n=~250) and their families (n=1000). They will gain access to information aimed at enhancing their farm's biodiversity outcomes, yield and ultimately alleviate poverty. In our LogFrame, we conservatively estimate that only half of those will have measurable changes in outcome during the trial period. However, this is a conservative estimate; there is evidence that our approach and methods will have higher uptake and effectiveness. Farmers in the control group will receive similar information and benefits, but only after the trial concludes. Maintaining this control group is crucial for rigorously testing the effectiveness of the intervention.

We aim to alleviate poverty in several ways – the most direct being through improved livelihoods for coffee farmers through improved yields, optimisation of inputs and practices, and improved resilience. The full benefits will take several years to precipitate, but we will use data from our baseline and changes farmers have made to quantify benefits during the project and estimate them in the longer term. We will also alleviate poverty in non-monetary ways – improving capacity, equality and power by generating an evidence base for best practice, and training members of the community. We will build capacity that will continue beyond the project by training trainers who can then train farmers, thereby fostering a system where farmers have more power over their decisions and capacity for planning. We will improve equality through our focus on farmers that have the least power and capacity, including those with smaller farms, women and youth.

Improvements in biodiversity are also likely to take time to be fully realised, but those changes that can occur in the trial period will be measured directly in the randomised control trial. We expect improvements in practices on test group farms - such as optimisation of use of pesticides. Where benefits for biodiversity cannot be realised in our project timeframe, our extensive baseline and understanding of the links between practices and outcomes will allow us to model the benefits.

Beyond the trial participants, we will support other coffee farmers in the regions where we operate. Workpackage 4 focuses on scalable methods for broader implementation of the intervention. We will co-develop recommendations for certification schemes to effectively drive outcome improvements, potentially benefiting millions of coffee farmers worldwide. We will distil best practices and share insights through various information distribution channels, including local radio, social media, and extension officers - so farmers will receive the information regardless of their participating in certification schemes.

Our findings will advance knowledge in the field, and our open-access data will provide an evidence base regarding the impacts of farm types and practices on biodiversity and poverty outcomes, along with strategies for effective improvement. If our information intervention proves successful, we anticipate its adoption across other sectors and disciplines, leading to substantial benefits for farmers and biodiversity across the world.

Q20. Pathway to change

Please outline your project's expected pathway to change. This should be an overview of the overall project logic and outline why and how you expect your Outputs to contribute towards your overall Outcome and, in the longer term, your expected Impact.

Workpackages 1, 2 and 3 will fill key information gaps and reduce inequality, and Workpackage 4 will seek pathways to scale these by addressing market and governance failures.

Kenyan coffee farmers do not know their outcomes, how they compare to their peers and actions they can take for the greatest improvements. This information gap is a major barrier to change; previous studies suggest farms improve substantially when given information on their impacts (e.g., Vetter et al., 2018). However, all evidence is based on small samples and none have considered a sound counterfactual so it is impossible to deduce causation (Ferraro et al., 2023). We will conduct a randomised control trial – never yet applied to improve farm biodiversity outcomes. We will provide the first robust assessment of the effectiveness of giving farmers information on their outcomes. In addition, research from other fields shows that benchmarking and peer-to-peer learning can be effective drivers of change. We will use these insights to co-create an innovative tool designed to drive behaviour change.

This research will address governance and market failures by co-designing solutions to overcome adoption barriers, and integrating them into certification schemes and extension services to deliver improvements in real farm outcomes.

Q21. Sustainable benefits and scaling potential

Q21a. How will the project reach a point where benefits can be sustained post-funding? How will the required knowledge and skills remain available to sustain the benefits? How will you ensure your data and evidence will be accessible to others?

Workpackage 4 focuses on landscape, systems change and capacitation scaling. We choose extension and certification as scaling mechanisms as they already have the infrastructure needed to overcome the necessary challenges. Both can address governance failures through influencing policies, and certification: can address market failures by internalising externalities; has the monitoring systems to address information gaps and roll out our findings; has the power to address the inequalities that exacerbate the market and governance failures.

Our innovation will also be sustained by those involved in it, including farmers, government agricultural extension officers and cooperative officers. The intervention will be co-designed with farmers and they will have co-ownership of the findings. We will share our findings with NACOSTI and NBCM secretariats and hold a roundtable engagement session with county government officials responsible for agricultural, cooperative and environmental issues.

Our data will be open access, in an online repository and the hestia.earth platform.

Q21b. If your approach works, what potential is there for scaling the approach further? Refer to Scalable Approaches (Landscape, Replication, System Change, Capacitation) in the guidance. What might prevent scaling, and how could this be addressed?

Workpackage 3 focuses on landscape, system change, and capacity scaling, as mentioned in Q21a. There is also potential for replication scaling. If effective, we intend to use the methods we used for outcome assessment, benchmarking and bespoke, automated advice engine in other agricultural systems. Our team works in sectors including Brazilian beef, Vietnamese shrimp, and multiple European farm sectors. Should our information innovation succeed, we aim to test its effectiveness in these areas and build an innovative tool focused on improving farm outcomes at scale.

Method of information delivery presents a scaling barrier. We must balance scalability with accessibility. For instance, while a smartphone app is scalable and suitable for European farmers, our experience with Kenyan farmers shows it would be inaccessible and ineffective. As smartphone adoption grows, our strategy may evolve, but we remain committed to prioritising solutions that farmers currently want and can effectively use.

Section 7 - Risk Management

Q22. Risk Management

Please outline the 7 key risks to achievement of your Project Outcome and how these risks will be managed and mitigated, referring to the Risk Guidance. This should include at least one Fiduciary, two Safeguarding, and one Delivery Chain Risk.

Risk Description	Impact	Prob.	Gross Risk	Mitigation	Residual Risk
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Fiduciary (financial): funds not used for intended purposes or not accounted for (fraud, corruption, mishandling or misappropriated). This risk would entail funds not being used in line with budget allocations. This would include fraudulent claims raised by research enumerators or other project team members.	minor	rare	minor	Release of project funds will be done in tranches based on project activities. The funds will be accounted for before the next set of project activities. A staff from the finance office at Strathmore University will be reviewing project accounts regularly to ensure adherence to the financial protocol.	minor
Safeguarding: risk of sexual exploitation abuse and harassment (SEAH), or unintended harm to beneficiaries, the public, implementing partners, and staff. This would include the risk of sexual harassment of research enumerators during field work.	moderate	rare	minor	Safeguarding information will be shared with project participants outlining the procedures. To mitigate against occurrence, research enumerators will be paired for fieldwork and work a set schedule. Interviews will be carried out in collaboration with extension officers and cooperative officials who will accompany researchers during farm visits.	minor
Safeguarding: risks to health, safety and security (HSS) of beneficiaries, the public. Implementing partners, and staff. This would include risks to safety during transport and while collecting data on farm.	moderate	rare	minor	All those involved in the research will abide by health and safety procedures designed to reduce risks on farm and while travelling. This includes the use of safe transport and where appropriate protective equipment.	minor
Delivery Chain: the overall risk associated with your delivery model. This would entail the lack of participation by coffee cooperatives or their members.	moderate	rare	minor	We will mitigate this risk by meeting with cooperative leadership, public officials at the county government, and local administrative officers. Many have already confirmed their interest in participating in this research. We mitigate the risks by working with several farmer groups and cooperatives so we are not dependent on one.	minor

Risk 5 Certification schemes do not engage with our research.	moderate	unlikely	moderate	We will engage certification schemes from the start of the project to ensure they meaningfully engage with our co-design and findings. We will work with multiple schemes to avoid being dependent on one.	minor
Risk 6 An unexpected and unpredicted event prevents farmers ability to use our tool in decision-making - such as a new catastrophic pest or natural disaster.	Severe	rare	major	If a pest or disaster devastates the coffee industry - and farmers are not producing yields it will be impossible for our tool to work. This cannot be mitigated, but is unprecedented. In this case we would work with stakeholders to improve schemes for future years based on co-design.	major
Risk 7 We cannot recruit sufficient women farmers, women enumerators and women workshop participants to meet our goals.	moderate	unlikely	moderate	Women are the minority in each of the groups described, and so it can be challenging to recruit them. To mitigate this we are already in touch with key women's groups who have expressed interest in participating.	minor

Q23. Project sensitivities

Please indicate whether there are sensitivities associated with this project that need to be considered if details are published (detailed species location data that would increase threats, political sensitivities, prosecutions for illegal activities, security of staff etc.).

☒ Yes

Please provide brief details.

Our sample may be biased as non-compliant farms may be less likely to take part. We will minimise this risk by clearly explaining that we are not affiliated with certifiers and will not be evaluating compliance.

Farmers may give inaccurate data where they perceive negative consequences - e.g. if they practise what they perceive as poor management. We will mitigate this by anonymising farm data in all public reporting.

Even when anonymised, public data has risks, for example with EUDR (Regulation on Deforestation-free products). We will be mindful of this in both collecting and sharing data.

Section 8 - Workplan

Q24. Workplan

Provide a project workplan that shows the key milestones in project activities.

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Section 9 - Monitoring and Evaluation

Q25. Monitoring and evaluation (M&E)

Describe how the performance of the project will be monitored and evaluated, making reference to who is responsible for the project's M&E. How will the project robustly evaluate the innovation to support its future application?

M&E are the foundation of this project. We apply gold-standard evaluation methods (a randomised control trial involving a test and control group, and baseline and post-trial assessments of outcomes) - rarely used in biodiversity conservation (Pynegar et al., 2024) - to robustly evaluate the effectiveness of our innovations. Without this, it is impossible to say that an innovation caused a change, rather than correlated with it (Ferraro et al., 2013). There is a moral imperative to prove the effectiveness of any initiative using public money. Farmers in the the control group will receive the innovation at the end of the trial, for fairness.

We will monitor farmers throughout the trial, using interviews and questionnaires, to:

- (1) Assess outcomes along our theory of change and evaluate whether our innovation is leading to changes in attitudes and behaviours in the short term as well as poverty alleviation and biodiversity outcomes in the longer term.
- (2) Check for, and mitigate the risks of contamination of our control group - where for example, our control group was getting some of the information we were giving the test group from the test group or other sources. This could weaken the effect size and undermine the effects of our innovation.
- (3) Understand how farmers are interacting with the information for future refinement when scaling. Our project has been designed to scale. The key scalable component of our research is the approach to outcome quantification, and how this is then used to generate farm specific information including benchmarking and actions that could be taken to yield the greatest improvements. This automated, bespoke advice system is based on the actions and performance of other farmers in the trial. This helps ensure the information we are giving farmers is useful, and makes it more trusted. If effective, we aim to scale in the Kenyan and international coffee sector through certification schemes and extension services, and to other sectors through, for example, digital advice tools.
- (4) Understand barriers to adoption and farmers preferences for methods to address these, to be integrated into the advice we give certification schemes and extension services.

Our evaluation is agnostic to direction of effect - so any negative effects will also be detected and evaluated. To ensure that we are not just doing no harm, but instead measurably improving outcomes for both biodiversity and alleviating poverty, we will co-design our interventions taking care to prioritise those most disempowered in the Kenyan coffee sector. It is imperative that we can disaggregate our findings by gender, farm size and income to ensure that our innovation is reducing inequality.

Note: our M&E budget below is conservative - allocating only the costs of reassessing impacts at the end of the RCT. One could argue the full trial is M&E and so could allocate the baseline and tool design ([REDACTED])

Total project budget for M&E (£)	
(this may include Staff and Travel and Subsistence Costs)	
Total project budget for M&E (%)	
(this may include Staff and Travel and Subsistence Costs)	
Number of days planned for M&E	

Section 10 - Logical Framework & Standard Indicators

Q26a. Logical Framework (logframe)

Darwin Initiative projects will be required to monitor and report against their progress towards their **Outputs and Outcome**. This section sets out the expected **Outputs and Outcome** of your project, how you expect to measure progress against these and how we can verify this.

 [LogFrame and Theory of Change v2](#)

 21/10/2024

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Impact:

Improved livelihoods, resilience, power and biodiversity outcomes on coffee farmers and schemes designed to scale.

Outcome:

Coffee farmers co-designed tools to drive informed decisions for improved outcomes – and these have been robustly evaluated for effectiveness and packaged into certification scheme and extension service recommendations.

Project Outputs

Output 1:

Evidence-base for best-practice coffee farming for farmers and biodiversity

Output 2:

Co-designed tools to give farmers information on their performance, benchmark this against their peers, and get bespoke suggestions on actions they can take to improve, based on those of better-performing farmers.

Output 3:

Robust evidence for effectiveness of information provision tool

Output 4:

Pathways to scale through refinement of certification schemes and extension services to effectively improve poverty and biodiversity outcomes

Output 5:

No Response

Do you require more Output fields?

It is advised to have less than 6 Outputs since this level of detail can be provided at the activity level.

☒ No

Activities

Each activity is numbered according to the Output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1.

Output 1: Workpackage 1: Evidence for best-practice coffee farming

1.1 Train enumerators and extension officers (n=25) to conduct baseline assessments of farms.

1.2 Enumerators and extension officers gather primary data from 500 coffee farms to assess their poverty status, perceived power and resilience

1.3 Field team gather data from 500 farms on their canopy structure, and 100 farms with bird point counts, bat bioacoustics and insect pitfall traps

1.4 Gather primary data from 500 farmers to conduct life cycle assessments to quantify off farm biodiversity impacts

1.5 Analyse poverty and biodiversity data to calculate outcomes for each farm

1.6 Analyse data to identify actions farmers can take that are most likely to improve outcomes

Output 2: Workpackage 2: Co-design tool

2.1 Create prototype tool including information on farm outcomes, benchmarking and practice suggestions specific to each farm.

2.2 Hold workshops with farmers (n=50) and other stakeholders to gather local knowledge, co-design tool and delivery methods.

2.3 Refine innovation based on farmer input

Output 3: Workpackage 3: Test causative effects of interventions

3.1 Randomly allocate farmers to test and control groups

3.2 Enumerators and extension officers delivery innovation to test group farmers (n=250)

3.3 Monitor both test group farmers throughout trial by conducting interviews and surveys to understand how they are interacting with the innovation

3.4 Monitor control group for contamination by survey

3.5 Monitor outcomes along our theory of change in both test and control groups by interviews and surveys

3.6 Interview farmers to understand barriers to adoption, and their preference for methods to overcome these

3.7 Enumerators and extension officers reassess biodiversity and poverty outcomes in test and control group farms (n=500).

3.8 Analyse changes in test and control groups to determine effectiveness of intervention

Output 4: Workpackage 4: Scale findings for extension services and certification

4.1 Integrate findings develop a portfolio of actions certification schemes could take to better drive improvement in outcomes.

4.2 Communicate findings back to all farmers (n=500), and give control group farmers all information from the intervention (n=250) via workshops

4.3 Hold roundtable discussions (n=5) with key stakeholders, including certification scheme representatives, local government and extension officers to present findings.

Q26b. Standard Indicators

Standard Indicator Ref & Wording	Project Output or Outcome this links to	Target number by project end	Provide disaggregated targets here
----------------------------------	---	------------------------------	------------------------------------

e.g. DI-A01: Number of people in eligible countries who have completed structured and relevant training	e.g. Output indicator 3.4 / Output 3	e.g. 60	e.g. 30 non-indigenous women; 30 non-indigenous men
DI-D03: Number of people with enhanced livelihoods	Outcome 0.1	625	125 non-indigenous men and 125 non-indigenous women and 375 family members, half men, half women and more than half children.
DI-D04g: Number of people with improved freedom of choice and action	Outcome 0.2	125	83 non-indigenous men, and 42 non-indigenous women
DI-D05: Number of people whose climate and disaster-resilience has been improved	Outcome 0.3	625	125 non-indigenous men and 125 non-indigenous women and 375 family members, half men, half women and more than half children.
DI-A03: Number of local or national organisations with enhanced capability and capacity	Outcome 0.4	5	5 cooperatives and farmer groups, at least 1 led by a woman
DI-D01a: Area under Sustainable Management Practices	Outcome 0.5	125 hectares	<i>No Response</i>
DI-A01: Number of people in eligible countries who have completed structured and relevant training	Output 1.1	275	183 non-indigenous men, and 92 non-indigenous women
DI-C09: Number of records added to accessible databases	Output 1.2	500	<i>No Response</i>
DI-C09: Number of records added to accessible databases	Output 1.3	500	<i>No Response</i>
DI-A05: Number of trainers trained under the project reporting to have delivered further training	Output 3.2	25	17 non-indigenous men and at least 8 non-indigenous women

DI-B01: Number of new or improved habitat management plans available and endorsed	Output 3.3	250	No Response
DI-B04: Number of new or improved sustainable livelihoods/ poverty reduction management plans	Output 3.3	250	No Response
DI-A04: Number of people reporting that they are applying new capabilities 6+ months after training	Output 3.5	150	100 non-indigenous men and 50 non indigenous women (farmers that have benefited from intervention + enumerators)
DI-C10: Number of decision-makers attending briefing events	Output 4.1	15	10 non-indigenous men and 5 non-indigenous women

If you cannot identify three Standard Indicators you can report against, please justify this here.

No Response

Section 11 - Budget and Funding

Q27. Budget

Please complete the appropriate Excel spreadsheet, which provides the Budget for this application. Some of the questions earlier and below refer to the information in this spreadsheet.

 [Copy of bcf-budget-over-100k-250724-lockedv2](#)

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Q28. Alignment with other funding and activities

This question aims to help us understand how familiar you are with other work in the geographic/thematic area, and how this proposed project will build on or align with this to avoid any risks of duplicating or conflicting activities.

Q28a. Is this new work or does it build on existing/past activities (delivered by anyone and funded through any source)?

☒ New Initiative

Please give details.

Dr Karuri, Dr Bartlett and Dr Poore have collaborated on environmental impacts of Kenyan maize farming.

Dr Alice Karuri researches sustainable agricultural systems, global agricultural commodity chains including equitable trading systems, and public policy with a focus on Africa. Her research includes climate change

adaptation in tea and coffee farming and institutional arrangements in the coffee sector in Kenya.

Dr Harriet Bartlett researches the best ways of farming for people and the planet. Her work involves extensive primary data collection and collaboration with farmers for real-world solutions. She leads the HESTIA farm trials - aiming to generate scalable ways of improving farm sustainability.

Dr Joseph Poore researches the sustainability of the global food system, with a focus on assessing product and farm level impacts using Life Cycle Assessment methods. He started the HESTIA project in 2019 which aims to enable us to scale up environmental impact assessment of farm and food products.

Dr William Thompson researches how agricultural systems interact with ecosystems, and how they can be modified to enhance farmer livelihoods, improve food security, mitigate climate change and reverse biodiversity loss with a particular focus on cocoa and coffee producing landscapes at forest frontiers (not yet including Kenya).

Q28b. Are you aware of any current or future plans for work in the geographic/thematic area to the proposed project?

☒ No

Q29. Value for Money

Please demonstrate why your project is good value for money in terms of impact and cost-effectiveness of each pound spend (economy, efficiency, effectiveness and equity). Why is it the best feasible project for the amount of money to be spent? Please make sure you read the guidance documents, before answering this question.

Our robust approach to impact assessment aims to estimate the causative effects of our innovation. This is the highest standard of evaluation, and it will be delivered extremely cost effectively. We are able to do this as our team has excellent connections within the Kenyan coffee sector, expertise in efficiently collecting data from farmers, calculating impacts and co-designing and delivering interventions. Our confirmed match-funding and in-kind contributions of ~£50,000 also substantially contribute to this project's cost effectiveness.

We designed our research to deliver the best quality outcomes, with the potential to scale - for example our biodiversity assessments are designed to be scalable, but will be ground truthed with less scalable but established methods of assessment.

If effective, our innovation could be scaled within the Kenyan coffee sector by adoption by certification schemes - and to other sectors with various innovation delivery methods. Our methods for farm outcome quantification, and intervention co-design based on peer-to-peer learning (collating farm data and local knowledge to give farmers information on their outcomes, those outcomes benchmarked against their peers, and suggestions of actions to improve) could be easily adapted for other sectors, using sector-appropriate delivery methods. It has the potential to be a scalable and accessible solution for farmers across the world and if proven effective we aim for parallel trials in the other sectors we work in.

Q30. Capital items

If you plan to purchase capital items with Darwin funding, please indicate what you anticipate will happen to the items following project end. If you are requesting more than 10% capital costs, please provide your justification here.

None - these are all provided through match-funding.

Section 12 - Safeguarding & Ethics

Q31. Safeguarding

All projects funded under the Biodiversity Challenge Funds must ensure proactive action is taken to promote the welfare and protect all individuals involved in the project (staff, implementing partners, the public and beneficiaries) from harm. In order to provide assurance of this, projects are required to have specific procedures and policies in operation.

Please outline how your project will ensure:

(a) beneficiaries, the public, implementing partners, and staff are made aware of your safeguarding commitment and how they can confidentially raise a concern,

(b) safeguarding issues are investigated, recorded and what disciplinary procedures are in place when allegations and complaints are upheld,

(c) you will ensure project partners also meet these standards and policies.

Indicate which minimum standard protocol your project follows and how you meet those minimum standards, i.e. CAPSEAH, CHS, IASC MOS-PSEA. If your approach is currently limited or in the early stages of development, please clearly set out your plans to address this.

Our safeguarding policies are available to beneficiaries, the public, implementing partners, and staff on the websites of both Strathmore and Oxford Universities (see policies attached to this application). These will be highlighted at every meeting and we will ensure everyone is able to access them by bringing hard copies where internet access is limited. We will clearly share information on the safeguarding policy to ensure everyone is made aware of our safeguarding commitments and how they can confidentially raise a concern.

The safeguarding procedures outlined in the policies will be followed, with Dr Alice Karuri, the PI as the focal point.

We will ensure project partners meet these standards by asking them to read the standards, and sign that they agree to conform to them.

Please see attachments for detailed descriptions of our safeguarding, whistleblowing, and health and safety policies and code of conduct.

Defra recommend you appoint a safeguarding focal point to ensure the project's PSEAH work is taken forward. This can be a separate member of staff or a current member of staff who spends a proportionate amount of time for safeguarding and PSEAH activities. Please name this individual here - this person should also be included in your overall staff list at Q34 and in your budget.

[REDACTED]

Q32. Ethics

Outline your approach to meeting the key principles of good ethical practice, as outlined in the guidance.

A key aspect of ethical practice in this research is its robust evidence base. Studies show that farmers face an information gap due to inadequate extension services, lacking insights about their farms and improvement opportunities. While evidence suggests that providing information can enhance farmer performance, this project will be the first rigorous test of this concept in agriculture. Findings from behavioural science indicate that benchmarking can improve information delivery effectiveness, though this has not yet been tested in agricultural contexts.

Our research will obtain ethical approval from Strathmore and Oxford Universities and will adhere to their health and safety procedures. All evidence gathering will require prior informed consent, based on co-design and benefit sharing, ensuring farmers co-design and co-own the interventions and findings. We will assess farms twice during the trial and conduct interviews, collecting personal data securely in compliance with institutional

policies. This data will be destroyed when no longer needed. Farmers will receive tailored insights about their farms, with all comparator farms anonymised. Public communications will ensure all farms remain anonymous, safeguarding the privacy of participating farmers.

Section 13 - British Embassy or High Commission Engagement

Q33. British embassy or high commission engagement

It is important for UK Government representatives to understand if UK funding might be spent in the project country/ies. Please indicate if you have contacted the relevant British embassy or high commission to discuss the project and attach details of any advice you have received from them.

☒ Yes

Please attach evidence of request or advice if received.

 Letter of Support - FCDO

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Section 14 - Project Staff

Q34. Project staff

Please identify the core staff (identified in the budget), their role and what % of their time they will be working on the project.

Name (First name, surname)	Role	% time on project	1 Page CV or job description attached?
Alice Karuri	Project Leader	25	Checked
Harriet Bartlett	Co-Principal Investigator	25	Checked
Edmund Githoro	Field coordinator	67	Checked
Joseph Poore	HESTIA lead	5	Checked

Do you require more fields?

☒ Yes

Name (First name, surname)	Role	% time on project	1 Page CV or job description attached?
William Thompson	Resilience lead	5	Checked

Charity Kinyua	Data collection and analysis	100	Checked
No Response	No Response	No Response	Unchecked
No Response	No Response	No Response	Unchecked
No Response	No Response	No Response	Unchecked
No Response	No Response	No Response	Unchecked
No Response	No Response	No Response	Unchecked
No Response	No Response	No Response	Unchecked

Please provide 1 page CVs (or job description if yet to be recruited) for the project staff listed above as a combined PDF.

 [Project team CVs](#)

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 pdf 346.08 KB

Have you attached all project staff CVs?

☒ Yes

Section 15 - Project Partners

Q35. Project Partners

Please list all the Project Partners (including the Lead Organisation who will administer the grant and coordinate delivery of the project), clearly setting out their roles and responsibilities in the project including the extent of their engagement so far.

Lead Organisation name: Strathmore University

Website address: www.strathmore.edu

Why is this organisation the Lead Organisation, and what value to they bring to the project? (including roles, responsibilities and capabilities and capacity):	Strathmore is a modern university with a global outlook, with a vision of becoming a leading outcome-driven, entrepreneurial research university. Strathmore's research agenda focused on impactful innovations with relevant research to this project under the following research themes: Sustainability, Climate Innovation and Clean Energy Technologies This theme explores the delicate balance between human development and environmental preservation. Digital Revolution and Data Science This theme centres around the evolution of digital technologies and their impact on society. Legal and Social Science Research This theme encompasses a broad spectrum of research on social, political, and legal structures.. STEM and Development This theme emphasizes the importance of Science, Technology, Engineering, and Mathematics in societal development. Family Science Research This theme focuses on studying the complex dynamics within families and their impacts on individual and societal well-being. Strathmore researchers are experts in primary data collection from farm, international development, co-design and participatory methods. Dr Alice Karuri has extensive experience delivering on grants like this.	
	International/In-country Partner	☒ In-country
	Allocated budget (proportion or value):	
	Representation on the Project Board (or other management structure)	☒ Yes
	Have you included a Letter of Support from the Lead Organisation?	☒ Yes

Do you have partners involved in the project?

☒ Yes

1. Partner Name:	University of Oxford
Website address:	https://www.ox.ac.uk/

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):	Oxford is a world-leading centre of learning, teaching and research and the oldest university in the English-speaking world. Oxford was ranked first in the world in the Times Higher Education (THE) World University Rankings for 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024 and 2025 - a record nine consecutive years. According to the 2021 Research Excellence Framework, which assesses the quality of research in UK Higher Education Institutions, Oxford's submission had the highest volume of world-leading research. Researchers at the University of Oxford contribute expertise in quantifying the outcomes of farms, collecting primary data from farmers, co-designing and implementing interventions with farmers and behaviour change. This includes the HESTIA team and platform for quantifying the environmental impacts of agriculture: see https://www.hestia.earth/. HESTIA provides free and methodologically harmonised data on the production practices and environmental impacts of farms and food products. HESTIA's calculation tools and data format enable farms and supply chains to quantify, communicate, and reduce their impacts. They will oversee the tool and randomised control trial design. The Oxford team will provide training for the Strathmore field teams in forest structure analysis, bioacoustic machine learning and life cycle assessment.
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International/In-country Partner	☒ International
Allocated budget:	
Representation on the Project Board (or other management structure)	☒ Yes
Have you included a Letter of Support from this partner?	☒ Yes

2. Partner Name:	<i>No Response</i>
Website address:	<i>No Response</i>
What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):	<i>No Response</i>
International/In-country Partner	☐ International ☐ In-country
Allocated budget:	<i>No Response</i>

Representation on the Project Board (or other management structure)	☐ Yes ☐ No
Have you included a Letter of Support from this partner?	☐ Yes ☐ No

3. Partner Name:	<i>No Response</i>
Website address:	<i>No Response</i>
What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):	<i>No Response</i>
International/In-country Partner	☐ International ☐ In-country
Allocated budget:	<i>No Response</i>
Representation on the Project Board (or other management structure)	☐ Yes ☐ No
Have you included a Letter of Support from this partner?	☐ Yes ☐ No

4. Partner Name:	<i>No Response</i>
Website address:	<i>No Response</i>
What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):	<i>No Response</i>
International/In-country Partner	☐ International ☐ In-country
Allocated budget:	<i>No Response</i>
Representation on the Project Board (or other management structure)	☐ Yes ☐ No
Have you included a Letter of Support from this partner?	☐ Yes ☐ No

5. Partner Name:	<i>No Response</i>
Website address:	<i>No Response</i>
What value does this Partner bring to the project?	
(including roles, responsibilities and capabilities and capacity):	<i>No Response</i>
International/In-country Partner	☐ International ☐ In-country
Allocated budget:	<i>No Response</i>
Representation on the Project Board (or other management structure)	☐ Yes ☐ No
Have you included a Letter of Support from this partner?	☐ Yes ☐ No

6. Partner Name:	<i>No Response</i>
Website address:	<i>No Response</i>
What value does this Partner bring to the project?	
(including roles, responsibilities and capabilities and capacity):	<i>No Response</i>
International/In-country Partner	☐ International ☐ In-country
Allocated budget:	<i>No Response</i>
Representation on the Project Board (or other management structure)	☐ Yes ☐ No
Have you included a Letter of Support from this partner?	☐ Yes ☐ No

If you require more space to enter details regarding Partners involved in the project, please use the text field below.

No Response

Please provide a combined PDF of all Letters of Support for all project partners or explain why this has not been included.

Section 16 - Lead Partner Track Record

Q36. Lead Organisation Capability and Capacity

Has your organisation been awarded Biodiversity Challenge Funds (Darwin Initiative, Darwin Plus or Illegal Wildlife Trade Challenge Fund) funding before (for the purposes of this question, being a partner does not count)?

☒ No

Please provide the below information on the Lead Organisation.

What year was your organisation established/ incorporated/ registered? 01 January 2008

What is the legal status of your organisation? ☒ University

Other explained *No Response*

How is your organisation currently funded?

Describe briefly the aims, activities and achievements of your organisation. Large organisations please note that this should describe your unit or department.

Aims Teaching, research and scholarship, ethical and social development, and service to society.

Offers undergraduate, graduate and post-graduate courses.

Offers corporate training.

Activities

Engages in research and project implementation through several research centres.

Offers consultancy services through the Strathmore Research and Consultancy Centre.

Engages in service to society through various community projects and collaborations with civil society.

Achievements

81% green buildings

Provide detail of 3 contracts/projects held by the Lead Organisation that demonstrate your credibility as an organisation and provide track record relevant to the project proposed. These contracts/awards should have been held in the last 5 years and be of a similar size to the grant requested in your application.

Contract/Project 1 Title

Project: Enabling farmers to reduce their environmental impacts

Contract value/Project budget (include currency)

██████

Duration (e.g. 2 years, 3 months)

2 years

Role of organisation in project

Project partner with Oxford University.

Dr Alice Karuri from Strathmore led on the primary data collection, focus group discussions and governance analysis.

Brief summary of the aims, objectives and outcomes of the project

Aims:

To quantify the environmental impacts of Kenyan maize famers.

Objectives:

Collect primary data from 450 Kenyan maize farmers to conduct life cycle assessments. Estimate environmental impacts including greenhouse gas footprints, pesticide toxicity and water use.

Conduct focus group discussions to understand farmer barrier to change.

Client/independent reference contact details (Name, e-mail)

Oxford University

Emma Burke-Smith ██████████

Contract/Project 2 Title

Empowering rural small-scale farmers

Contract value/Project budget (include currency)

████████

Duration (e.g. 2 years, 3 months)

5 years

Role of organisation in project

Grant awardee - led by Dr. George Njenga at Strathmore

Brief summary of the aims, objectives and outcomes of the project	The program focuses on building resilient and sustainable businesses through three pillars: Agency and Voice of the Private Sector (AVPS), Kenya Small Business Development Centers (Kenya SBDC), and Transformational Resilience Programming (TRP). It involves the formation of 15 farmer production cooperatives across various counties, with a strong emphasis on training and inclusion, ensuring at least 40% women beneficiaries.
Client/independent reference contact details (Name, e-mail)	USAID partners: [REDACTED]

Contract/Project 3 Title	Molecular markers of drug resistance following Multiple First Line Treatment for Uncomplicated Malaria (MFT): A pilot study in a malaria endemic region of Kenya
Contract value/Project budget (include currency)	[REDACTED]
Duration (e.g. 2 years, 3 months)	2 years
Role of organisation in project	Project lead led by Principle Investigator Prof Gilbert Kokwaro from Strathmore

Brief summary of the aims, objectives and outcomes of the project	Aim: To understand the molecular markers of drug resistance in malaria parasites, thus establishing a practical framework for implementing MFTs For malaria prevention. Expected Impact: Provide insights into the genetic factors associated with drug resistance in malaria parasites. Inform future treatment strategies. More effective and targeted interventions against drug-resistant Malaria strains. Contribute to the global efforts to combat this endemic in Kenya and Other malaria-endemic nations.
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Client/independent reference contact details (Name, e-mail)	Medicines for Malaria Venture (MMV) [REDACTED] Gelavizh Daghigh [REDACTED]
--	--

Have you provided the requested signed audited/independently examined accounts?

☒ Yes

Section 17 - Certification

Q36. Certification

If this section is incomplete the entire application will be rejected.
Please note if you do not upload the relevant materials below your application may be ineligible.

On behalf of the

Trustees

of
Strathmore University

I apply for a grant of

£199,941.00

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.

(This form should be signed by an individual authorised by the applicant institution to submit applications and sign contracts on their behalf.)

- I have enclosed CVs for key project personnel, a cover letter, letters of support, a budget, logframe, theory of change, Safeguarding and associated policies, and project workplan.
- Our last two sets of signed audited/independently verified accounts and annual report (or other financial evidence – see Finance Guidance) are also enclosed.

Checked

Name	Dr Alice Karuri
Position in the organisation	Lecturer
Signature (please upload e-signature)	 signature  21/10/2024  21:58:43  jpg 33.86 KB
Date	21 October 2024

Please attach the requested signed audited/independently examined accounts.

-  Strathmore reporting and audited accounts 2021-2023
-  21/10/2024
-  19:15:15
-  pdf 11.74 MB

Please upload the Lead Organisation's Safeguarding Policy, Whistleblowing Policy and Code of Conduct as a PDF. Optionally you can also upload your Health, Safety and/or Security policy or Security Plan here.

 [Strathmore safeguarding, whistleblowing, code of conduct and health and safety policies](#)

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Section 18 - Submission Checklist

Checklist for submission

I have read the Guidance, including the "Darwin Initiative Guidance", "Monitoring Evaluation and Learning Guidance", "Standard Indicator Guidance", "Risk Guidance", and "Finance Guidance".	Checked
I have read, and can meet, the current Terms and Conditions for this fund.	Checked
I have provided actual start and end dates for the project.	Checked
I have provided the budget based on UK government financial years i.e. 1 April – 31 March and in GBP.	Checked
I have checked that the budget is complete, correctly adds up and I have included the correct final total at the start of the application.	Checked
The application has been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	Checked
I have attached the below documents to my application: a cover letter from the Lead Organisation.	Checked
a completed logframe as a PDF using the template provided.	Checked
a 1 page Theory of Change as a PDF which includes the key elements listed in the guidance.	Checked
a budget (which meets the requirements above) using the template provided.	Checked
a signed copy of the last 2 annual report and accounts for the Lead Organisation (or other financial evidence – see Finance Guidance), or provided an explanation if not	Checked
a completed workplan as a PDF using the template provided.	Checked
a copy of the Lead Organisation's Safeguarding Policy, Whistleblowing Policy and Code of Conduct (Question 31).	Checked
a copy of the Lead Organisation's Health, Safety and/or Security policy or Security Plan (Question 31)	Checked
1 page CV or job description for all the Project Staff identified at Question 34, including the Project Leader, or provided an explanation of why not, combined into a single PDF.	Checked
a letter of support from the Lead Organisation and partner(s) identified at Question 35, or an explanation of why not, as a single PDF.	Checked
I have been in contact with the FCDO in the project country(ies) and have included any evidence of this. If not, I have provided an explanation of why not.	Checked

The additional supporting evidence is in line with the requested evidence, amounts to a maximum of 5 sides of A4, and is combined as a single PDF.	Checked
(If copying and pasting into Flexi-Grant) I have checked that all the responses have been successfully copied into the online application form.	Checked
I have checked the Darwin website immediately prior to submission to ensure there are no late updates.	Checked
I have read and understood the Privacy Notice on the Darwin Initiative website.	Checked

We would like to keep in touch!

Please check this box if you would be happy for the lead applicant (Flexi-Grant Account Holder) and project leader (if different) to be added to our mailing list. Through our mailing list we share updates on upcoming and current application rounds under the Biodiversity Challenge Funds. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share our regular newsletter. You are free to unsubscribe at any time.

Checked

Data protection and use of personal data

Information supplied in the application form, including personal data, will be used by Defra as set out in the Privacy Notice, available from the [Forms and Guidance Portal](#).

This Privacy Notice must be provided to all individuals whose personal data is supplied in the application form. Some information may be used when publicising the Darwin Initiative including project details (usually title, lead organisation, project leader, location, and total grant value).

Project Title: Improving biodiversity, livelihoods and resilience in Kenyan coffee farms

Project Summary	SMART Indicators (including disaggregated targets)	Means of Verification	Important Assumptions
Impact: Improved livelihoods, resilience, power and biodiversity outcomes on coffee farmers and schemes designed to scale. (Max 30 words)			
Outcome: (Max 30 words) Coffee farmers co-designed tools to drive informed decisions for improved outcomes – and these have been robustly evaluated for effectiveness and packaged into certification scheme and extension service recommendations.	0.1 Number of people with enhanced livelihoods b) Number of people with improved income [DI-D03]: 625 (125 non-indigenous men, 125 non-indigenous women and 375 family members, half men, half women and more than half children <18 years old) 0.2 Number of people with enhanced wellbeing g) Number of people with improved freedom of choice and action [DI-D04]: 125 (83 non-indigenous men, and 42 non-indigenous women) 0.3 Number of people whose climate and disaster-resilience has been improved. b) Number of people with improved resilience [DI-D05]: 625 (125 non-indigenous men, 125 non-indigenous women and 375 family members, half men, half women and more than half children.)	0.1 Outcomes of Randomised control trial from before and after surveys of test and control groups on farmer livelihoods from coffee farming 0.2 Outcomes of Randomised control trial from before and after surveys of test and control groups on farmer wellbeing through improved freedom of choice 0.3 Outcomes of Randomised control trial from before and after surveys of test and control groups through improved farm resilience 0.4 Attendance and engagement at workshops and roundtable meetings 0.5 Area of farmland assessed as having improved outcomes for biodiversity at the end of the trial period.	We assume that farmers can and will change their behaviour when farmers are given information on their performance, how they compare to their peers and suggestions of actions they could take to improve. We assume that some of these changes will be measurable in changes in behaviour and outcomes within the timeframe of this project. We assume that certification schemes and local government will engage with our research and help us ensure it is relevant and useful.

Project Title: Improving biodiversity, livelihoods and resilience in Kenyan coffee farms

	0.4 Number of local or national organisations with enhanced capability and capacity [DI-A03]: at least 5 (5 cooperatives and farmer groups, at least 1 led by a woman) 0.5 Area of farmland with improved biodiversity management Area of land or sea under ecological management, a) Area under Sustainable Management Practices [DI-D01a]: 125 hectares		
Outputs: 1. Evidence-base for best-practice coffee farming for farmers and biodiversity	1.1 Number of people in eligible countries who have completed structured and relevant training [DI-A01] on assessing farm outcomes: 275 (183 non-indigenous men, and 92 non-indigenous women) 1.2 Number of farms assessed for biodiversity and poverty outcomes - Number of records added to accessible databases [DI-C09]: 500 1.3 Number of datasets published for key biodiversity indicators Number of records added to accessible databases [DI-C09]: 500	1.1 Attendance record 1.2 Surveys completed and datasets uploaded to public repository 1.3 Surveys completed and datasets uploaded to public repository 1.4 Analysis of datasets and production of proto-type tool	We assume farmers will consent to taking part in the research, and our team will be able access farmers and farms across the baseline data collection period. We assume that farmers will be able to attend our workshops – which we will arrange at locations and times that are convenient for them. We assume that we will be able to recruit farmers with a diversity of practices and farm types sufficient to draw links between these and farm outcomes. We mitigate this by targeting recruitment at different farm

Project Title: Improving biodiversity, livelihoods and resilience in Kenyan coffee farms

	1.4 Quantitative understanding of links between farm types and practices and biodiversity and poverty outcomes		types and where it is known farmers use a range of practices.
2. Co-designed tools to give farmers information on their performance, benchmark this against their peers, and get bespoke suggestions on actions they can take to improve, based on those of better-performing farmers.	2.1 Number of farmers involved in co-design of innovation tool: 50 (33 non-indigenous men and 17 non-indigenous women) 2.2 Number of other stakeholders involved in co-design of innovation tool: 15 (10 non-indigenous men and 5 non-indigenous women)	2.1 Attendance record 2.2. Attendance record	We assume farmers and other key stakeholders (such as extension officers and certification schemes) will attend our workshops and engage meaningfully with co-design of the tool.
3. Robust evidence for effectiveness of information provision tool	3.1 Number of farmers participating in randomised control trial: 500 3.2 Number of trainers trained under the project reporting to have delivered further training [DI-A05] : 25 (17 non-indigenous men and at least 8 non-indigenous women) 3.3 Number of farmers receiving intervention – including a farm-specific tool for improving farm and poverty outcomes Number of new or improved habitat management plans available and endorsed [DI-B01] : 250 Number of new or improved sustainable livelihoods/ poverty reduction	3.1 Surveys completed and consent given 3.2 Attendance records at training workshops 3.3 Production of farm-specific habitat and livelihood management plans, and delivery to farmers by enumerators – including provision of training for farmer, completed feedback and intentions questionnaire, and proof of training completion by enumerator. 3.4 Interview records 3.5 Farmers surveys and enumerator discussion groups 3.6 Farmer and farm surveys and randomised control trial analysis	We assume that farmers will understand the tool and use it in their decision-making. We assume farmers will trust our tool and they have the capacity to make some of the suggested changes within the timeframe of the trial, especially those that do not require additional costs. We assume there will be barriers to adoption of many changes and we assume farmers will be honest about these in our interviews. We assume some changes in outcome will be measurable during the trial period, and for those that are not there will be

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	management plans available and endorsed [DI-B04]: 250 Number of best practice guides and knowledge products published and endorsed [DI-C01]: 250 3.4 Number of farmers interviewed to understand how they are engaging with the tool and get their input for future refinement: 250 (167 non-indigenous men and 83 non-indigenous women) 3.5 Number of people reporting that they are applying new capabilities (skills and knowledge) 6 (or more) months after training [DI-A04] 150 (100 non-indigenous men and 50 non indigenous women (farmers who have benefited from intervention + enumerators) 3.6 Number of farms that have changed farm biodiversity and poverty outcomes as a result of the intervention: 125 (83 non-indigenous men, and 42 non-indigenous women)		proxy or intentions that we can estimate the long-term effects of. We assume there is not an exceptional occurrence (such as an unprecedented pest outbreak or natural disaster) that hampers farmers' decision-making during the trial period.
4. Pathways to scale through certification scheme and extension service improvements	4.1 Number of roundtable discussions presenting project findings and recommendations for	4.1 Attendance record	Certification schemes and extension services will engage meaningfully with our findings, and have the capacity and

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to effectively improve poverty and biodiversity outcomes	certification schemes and extension officers. Number of decision-makers attending briefing events [DI-C10]: 15 (10 non-indigenous men and 5 non-indigenous women)		interest to adopt some of our suggestions. Our suggestions will be co-designed by certification schemes and extension officers to ensure our approach is scalable and compatible with their approaches and goals.
	4.2 Communicate findings back to all farmers (n=500), and give control group farmers all information from the intervention (n=250) via workshops	Workshop attendance record and proof of information sharing via farmer-preferred method (to be confirmed as this will be chosen by farmers, though we will ensure it can be validated)	
Activities			
Output 1: Workpackage 1: Evidence for best-practice coffee farming			
1.1 Train enumerators and extension officers (n=25) to conduct baseline assessments of farms.			
1.2 Enumerators and extension officers gather primary data from 500 coffee farms to assess their poverty status, perceived power and resilience			
1.3 Field team gather data from 500 farms on their canopy structure, and 100 farms with bird point counts, bat bioacoustics and insect pitfall traps			
1.4 Gather primary data from 500 farmers to conduct life cycle assessments to quantify off farm biodiversity impacts			
1.5 Analyse poverty and biodiversity data to calculate outcomes for each farm			
1.6 Analyse data to identify actions farmers can take that are most likely to improve outcomes			
Output 2: Workpackage 2: Co-design tool			
2.1 Create prototype tool including information on farm outcomes, benchmarking and practice suggestions specific to each farm.			
2.2 Hold workshops with farmers (n=50) and other stakeholders to gather local knowledge, co-design tool and delivery methods.			
2.3 Refine innovation based on farmer input			
Output 3: Workpackage 3: Test causative effects of interventions			
3.1 Randomly allocate farmers to test and control groups			
3.2 Enumerators and extension officers delivery innovation to test group farmers (n=250)			

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- 3.3 Monitor both test group farmers throughout trial by conducting interviews and surveys to understand how they are interacting with the innovation
- 3.4 Monitor control group for contamination by survey
- 3.5 Monitor outcomes along our theory of change in both test and control groups by interviews and surveys
- 3.6 Interview farmers to understand barriers to adoption, and their preference for methods to overcome these
- 3.7 Enumerators and extension officers reassess biodiversity and poverty outcomes in test and control group farms (n=500).
- 3.8 Analyse changes in test and control groups to determine effectiveness of intervention

Output 4: Workpackage 4: Scale findings for extension services and certification

- 4.1 Integrate findings develop a portfolio of actions certification schemes and extension services could take to better drive improvement in outcomes.
- 4.2 Hold roundtable discussions (n=5) with key stakeholders, including certification scheme representatives, local government and extension officers to present findings.
- 4.3 Communicate findings back to all farmers (n=500), and give control group farmers all information from the intervention (n=250) via workshops