

DIR29S2\1015

Beekeepers restore the forests of Afram Plains

The forests of Afram Plains are burning. Beekeepers' livelihoods depend on them. They are fighting to protect them from wildfires and charcoal production. They need skills training, support and allies. We are already training 750 beekeepers and establishing new routes to market for their honey and beeswax. We will enrol a further 1,000 on our training programme, expanding it to include wildfire management and forest restoration. Working with Ghana's Forestry Commission, we aim to mobilise communities to curb illegal logging.

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Section 1 - Contact Details

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GMS ORGANISATION

Type	Organisation
Name	Bees for Development
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Section 2 - Title, Ecosystems, Approaches & Summary

Q3. Title:

Beekeepers restore the forests of Afram Plains

What was your Stage 1 reference number? e.g. DIR28S1\1123

DIR29S1\1166

Q4. Key Ecosystems, Approaches and Threats

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

Savannas and grasslands

Biome 3

Intensive land-use systems (agric., plantations and urban)

Conservation Action 1

Livelihood, economic & other incentives (incl. conservation payments)

Conservation Action 2

Land/water management (area, invasive control, restoration)

Conservation Action 3

Education & awareness (incl. training)

Threat 1

Natural system modifications (fires, dams)

Threat 2

Energy production & mining (incl. renewables)

Threat 3

Biological resource use (hunting, gathering, logging, fishing)

Q5. Summary of project

Please provide a brief summary of your project: the problem/need it is trying to address, its aims, and the key activities you plan on undertaking. Please note that if you are successful, this wording may be used by Defra in communications e.g. as a short description of the project on the website.

Please write this summary for a non-technical audience.

The forests of Afram Plains are burning. Beekeepers' livelihoods depend on them. They are fighting to protect them from wildfires and charcoal production. They need skills training, support and allies. We are already training 750 beekeepers and establishing new routes to market for their honey and beeswax. We will enrol a further 1,000 on our training programme, expanding it to include wildfire management and forest restoration. Working with Ghana's Forestry Commission, we aim to mobilise communities to curb illegal logging.

Section 3 - Title, Dates & Budget Summary**Q6. Country(ies)**

Which eligible host country(ies) will your project be working in? Where there are more than 4 countries that your project will be working in, please add more boxes using the selection option below.

Country 1	Ghana	Country 2	No Response
Country 3	No Response	Country 4	No Response

Do you require more fields?

No

Q7. Project dates

Start date:	End date:	Duration (e.g. 2 years, 3 months):
01 April 2023	31 March 2026	3 years

Q8. Budget summary

Year:	2023/24	2024/25	2025/26	2026/27	Total request
Amount:	£139,846.00	£102,781.00	£152,111.00	£0.00	£ 394,738.00

Q9. Proportion of Darwin Initiative budget expected to be expended in eligible countries: %



Q10a. Do you have matched funding arrangements?

Yes

What matched funding arrangements are proposed?

Bees for Development, lead organisation, is committing to the Project. These funds are confirmed and have been raised thanks to donations from our supporters.

Q10b. Total confirmed & unconfirmed matched funding (£)



Q10c. If you have a significant amount of unconfirmed matched funding, please clarify how will you fund the project if you don't manage to secure this?

No Response

Section 4 - Problem statement

Q11. 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 poverty. What is the need, challenge or opportunity?

For example, what are the drivers of biodiversity loss that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems? Please cite any evidence you are using to support your assessment of the problem (references can be listed in a separate attached PDF document).

The crisis is evident when boarding the Ekyiamenfrom-Adawso ferry in the shadow of trucks loaded with charcoal bags. No official statistics are available, but it has been estimated that over 3 million bags are produced annually in Afram Plains, at least 60% of which travel to Accra and Kumasi (ref1). Household surveys point to charcoal as the main source of income for 23%, and that locals unanimously indicate it as the main driver of biodiversity loss (ref2). 3 out of 4 respondents indicated that wildfires are another major driver. There have been 249 major fire alerts and 156kha burned area in past 12 months (ref3).

Closed forest cover has fallen 50% between 2019 and 2021 (ref4). Between 2000 and 2021, tree cover has fallen by 29% (ref3). Tree basal area and volumes are reported to be at least 49% lower than national

means for dry semi-deciduous forest (ref5).

Forest loss is directly linked to loss of biodiversity. Remaining woodland is dominated by few species – population inventories report only 5 species account for 50% of all trees in some sites (ref5). Rare species which were only found in this landscape – are now missing, such as *Hildegardia barteri* and *Talbotiella gentii*. As plant species diversity falls, so does insect and bird species diversity (ref6,20).

Loss of biodiversity is lowering living standards and putting livelihoods at risk. Community consultations revealed that termite-resistant species (eg. *Milicia regia*), much sought after for house-building, are now rarely found (ref9). Indigenous wild fruit trees such as *Vitellaria paradoxa* and *Chrysophyllum albidum* are less prevalent, yet wild fruits are important for children's nutrition (ref10). Important medicinal trees such as *Parkia biglobosa* are less common now, as saplings are killed by bushfire and larger trees are used for charcoal making. The vine *Mallotus oppositifolius*, much valued for making fish-traps, is also now scarce as it is fire sensitive.

Forestry Commission lack resources to enforce by-laws regulating chainsaw operators and access to reserves. Fire Services are similarly resource constrained. Consultations with these stakeholders highlighted need for community volunteers engaged in fire management, tree planting and woodlot/plantation maintenance, and that the main challenge previous initiatives encountered was sustaining volunteers' motivation.

Beekeeping is now creating an unprecedented opportunity to overcome that challenge and offer the people of Afram Plains sustainable livelihood alternatives to charcoal burning. Our work to train people in effective, low-cost ways of keeping bees has over the past 5 years led to a proliferation of apiary sites, each of which is a strong incentive to protect the surrounding area from bushfires. News of the terms of trade our social enterprise agreed with beekeepers in 2022, has led to skyrocketing demand for more training to be provided. This project will enable us to meet that demand and continue to expand our trading operations, leading to more apiary sites being established, more hectares being protected from wildfires, and a growing appreciation of the link between forest extent, biodiversity, bee health, honey production, and ultimately people's incomes and well-being.

Section 5 - Darwin Objectives and Conventions

Q12. Biodiversity Conventions, Treaties and Agreements

Q12a. Your project must support the commitments of one or more of the agreements listed below.

Please indicate which agreement(s) will be supported and describe which objectives your project will address.

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

Q12b. National and International Policy Alignment

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

District level:

See letters of support from District Assembly, Fire Services and Forestry Commission.

National Level (NBSAP):

1. Reducing the rate of loss of all natural habitats, including forests, to at least half and where feasible brought close to zero, and degradation and fragmentation significantly reduced. (Aichi Target 5)
 - Empowering beekeepers to address drivers of deforestation through fire management and reforestation activities, while also reducing communities' reliance on charcoal production. Increased pollination accelerates recovery of vegetation.
2. Maintaining the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives (Aichi Target 13)
 - Sustaining health and genetic integrity of native honey bee populations, through training in sustainable beekeeping and habitat creation.
3. Restoring and safeguarding ecosystems that provide essential services, including ecosystem services (Aichi Target 14)
 - Supporting beekeepers' forest restoration and safeguarding activities. Trees, vines, shrubs and grasses, found in open forests and lost to fires every year, provide essential habitat for wildlife, as well as food, medicine and building/crafting materials that are vital for local people.
4. Enhancing ecosystem resilience and restoration to promote the contribution of biodiversity conservation to carbon stocks and ensure restoration of at least 15 per cent of degraded ecosystems. (Aichi Target 15)
 - Reducing extent of vegetation lost to fire during dry season and empowering beekeepers to plant and nurture variety of indigenous trees. African fires are responsible for 14% of global CO₂ emissions from fossil fuel burning (ref11). Beekeeper-led indigenous fire management is scalable, provided there is market for their products. Mobile Honey System is replicable and scalable, expanding market opportunities for African honey and beeswax.
5. Knowledge, on the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied (Aichi Target 19)
 - Collaborating with beekeepers to develop floral calendars for: (1) correct timing of beekeeping activities (2) targeted planting to increase diversity of forage for pollinators throughout the seasons and (3) tracking of changes in seasonal patterns. Project funds scientific tree population inventories by CCST research team led by Prof Appiah. Survey of local land users' tree planting priorities. Regular online reporting and work towards scientific publications.

International level:

CBD - Addressing COP 9 Decision IX/5, (b) major human-induced threats to forest biodiversity, (f) lack of market access for value-added forest products, (g) forest-biodiversity monitoring, (k) forest restoration, and (m) involving local and indigenous communities.

UNFCCC - Contributing to commitment to halt and reverse forest loss by 2030 in Glasgow Declaration on Forest and Land Use (COP26).

SDGs - Generating income opportunities for rural poor in districts with poverty incidence between 43.6% and 59.7% (ref12) (SDGs 1,2,8,9). Promoting sustainable production and consumption of bee products (SDG12). Reducing forest fires (SDGs 13,15). Removing barriers excluding women from opportunities offered by beekeeping (SDG 5).

Section 6 - Method, Change Expected, Gender & Exit Strategy

Q13. 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 will be the **main activities** and where will these take place.
- how you will manage the work (governance, roles and responsibilities, project management tools, risks etc.).

BACKGROUND

Unrealistic business models and imaginary markets undermine the success of initiatives promoting sustainable livelihood alternatives (ref13-16). In 30 years dedicated to supporting beekeepers, we have learned that achieving impact at scale requires addressing specific logistical challenges to trade. Relationships with apicultural businesses worldwide give us up-to-date knowledge of their requirements. Our team in Ghana have been trading sustainably-sourced Ghanaian honey for over 20 years. This know-how has enabled us to recognise the apicultural potential of Afram Plains. Early adopters of our training have been cropping 150-230kg in 2022. Conscious that local market actors cannot offer fair terms of trade as production grows, we have set up a social enterprise, began construction of processing facilities and successfully piloted our innovative digital traceability solution (Mobile Honey System).

APPROACH

Honey bees thrive in diverse forested landscapes. The success of our social enterprise, and of the beekeepers it serves, depends on these ecosystems. We aim to ensure beekeepers can sell all their produce with ease and at a fair price. This motivates them to plant and protect trees around their apiaries and to take preventive measures to reduce risk of fire damage. Beekeeping provides better returns than charcoal production. When approached by migrant charcoal burners to buy trees, traditional authorities must then take into account the presence of apiaries in forested areas, and the increased value of the trees as sources of bee forage. Evidence from major honey producing regions in Ethiopia and Zambia shows that beekeepers are key actors in forest conservation (ref17-18). Our approach is to empower beekeepers with the knowledge, skills, confidence and motivation to be forest guardians.

ACTIVITIES

1. Beekeeper outreach and training

It takes at least 2 years of practical mentoring for beginners to become independent beekeepers. The project will enable us to continue and scale up this core work. In partnership with APDO, we will extend our training to 10-20 additional communities, while broadening participation where we are already working, especially among women. We are the leading organisation for training in nature-based beekeeping worldwide (see resources.beesfordevelopment.org).

2. Sustainable honey and beeswax

In Year 1 we will complete and certify processing facilities in Donkorkrom, while we continue buying produce and improving the Mobile Honey System. By Year 2, intensification of beekeeper training between 2021-2023, coupled with growing awareness of trade opportunities, will increase output. By then we will have laid the groundwork to sell the honey to packers serving outlets in urban areas. In Year 3, we will have accumulated enough beeswax to negotiate with export agents.

3. Fire management

Working with the Ghana National Fire Service we will make fire management an essential part of our

beekeeper training programme. Community-level campaigns led by local volunteers will be corroborated with local radio broadcasts before and throughout peak bushfire season.

4. Forest restoration

Survey of beekeepers' preferred species and recommendations from tree inventory research will inform seedling procurement and distribution. Forestry Commission nursery provide species valued for timber, private nurseries supply fruit trees, we will set up nurseries focusing on recruitment species. BfD Ghana staff to train in silviculture with FC, so they can in turn train beekeepers. Beyond fire prevention, bees keep grazing livestock away from apiaries. EOP assessment of survival rates and repeat tree inventory.

5. Addressing charcoal production

Ongoing efforts to engage charcoal producers in more profitable beekeeping, and to raise awareness of the trade-offs between the two. Working with APDO to approach communities involved in charcoal production, inviting beekeepers who were charcoal producers to relate their experience on local radio and supporting beekeepers to influence traditional authorities.

6. Knowledge sharing

Empowering beekeepers to protect Africa's dry forests is an approach that is replicable across 17.3 million sq.km. inhabited by 505 million people in 31 countries with average poverty incidence above 50% (ref19). Our progress will be documented through BfD Ghana's website, our online resource centre and social media. We will publish floral calendars, tree population inventories and articles detailing the links between honey trade and forest recovery. We will promote and publish blueprints of replicating the Mobile Honey System.

MANAGEMENT

Janet Lowore, Andrew Chalinder, Kwame Aidoo and Isaac Mbroh are responsible for overall management, M&E, communications and reporting. Giacomo Ciriello is responsible for Mobile Honey System development. BfD Ghana and APDO staff based in Donkorkrom lead on delivery of outputs 1-5, in collaboration with Forestry Commission, Fire Services and CSIR College of Science and Technology team led by Mark Appiah. Project Advisory Committee involving all key stakeholders to meet at launch, mid-term and EOP.

Q14. Capability and Capacity

How will you support the strengthening of capability and capacity in the project countries at organisational or individual levels, please provide details of what form this will take, who will benefit, and the post-project value to the country.

INDIVIDUAL

Through practical workshops and personal mentoring, over 1000 women and men in rural communities will learn to keep bees profitably and sustainably, as well as fire management and silviculture skills. Honey Collection Coordinators and harvesting team will learn to operate the Mobile Honey System, implement quality control standards and coordinate beekeeping activities and trade in their communities. Members of Fire Management Volunteer teams will develop capacity to coordinate fire management plans and bushfire prevention campaigns in their communities.

ORGANISATIONAL

BfD Ghana staff will learn from the Fire Service how to train beekeepers in fire management, and from the Forestry Commission fundamentals of applied silviculture. They will work on the tree population inventory research with the CCST team, acquiring skills in identification and biodiversity surveying methods. Working with an experienced Project Coordinator at APDO, will strengthen Gideon's and Mike's project

management and community mobilisation skills. Giacomo will train them to work with the IT platforms supporting the Mobile Honey System. The capability developed, in terms of skills and infrastructure, will enable the team to continue running our Honey and Beeswax Trade Centre successfully beyond EOP.

REGIONAL / NATIONAL

Tree population inventories and remote sensing will build on knowledge of degraded forests and effectiveness of forest restoration activities. Floral calendars will aid beekeepers beyond the project area, across Ghana's transitional zone. Explainer video and how-to manual to replicate Mobile Honey System will aid agribusinesses to develop low-cost digital supply chain management and traceability solutions. These will reduce risks and transactions costs, while improving quality control. There has never been any work to date in Ghana to investigate the effect of beekeeping on fire management and forest recovery. This work is important as fire is one of the principal drivers of forest loss throughout the country.

Q15. Gender equality

All applicants must consider whether and how their project will contribute to reducing inequality between persons of different gender. Explain how your understanding of gender equality within the context your project, and how is it reflected in your plans. Please summarise how your project will contribute to reducing gender inequality. Applicants should, at a minimum, ensure proposals will not increase inequality and are encouraged to design interventions that proactively contribute to increased gender equality.

Our scoping study in 2016 found no participation of women in beekeeping across communities in Afram Plains. Over 100 women have been attending our workshops over the past 4 years. A handful have become successful beekeepers, such as Hawa from Kojobator who won an award for best honey in the district. However, many more men (76%) than women (24%) have registered on our Mobile Honey system, and only 8 women sold us honeycomb in 2022.

Gideon has been conducting consultations to identify barriers to participation. Feeling excluded from training, being busy with chores or childcare, and not having resources for beehives were main reasons cited. Attendance at workshops has been lowest in Muslim communities, such as Bonaso. There, Gideon offered to run training workshops just for women. 25 women attended in September 2022, and we supplied timber planks and tools for them to build their first hives. Taking this learning forward we will be offering women-only workshops and will be providing a beehive starter package for women who join our training programme throughout this project.

The lack of beekeeper trainers who are women in Ghana creates a barrier in terms of women being able to relate to extension staff. To make a transformational change to gender equality in beekeeping we must adapt project design and not just include women in "men's projects". In a separate project in Ghana (starting 2023) we are training a cohort of women professional beekeepers - as gender specialists, role models and change agents. We commit to employing one of them to work on this Project in 2024.

APDO Project Coordinator, Peace Adzokatse, will also train as a beekeeper. Her experience and skillset will strengthen our team's capacity to coordinate our training programme in such a way as to encourage and facilitate women's participation.

Q16. Awareness and understanding

How will you raise awareness and understanding of biodiversity-poverty issues in your stakeholders, including who your stakeholders are, what approaches/formats/products will you use, how you will ensure open and free access to all data, and how will you know that the messages are understood?

Training for beekeepers (major stakeholders) will emphasise that honey harvests depend on plentiful floral resources for bees and work on floral calendars will draw attention to the diversity of important bee plants, especially trees. Fire Management Volunteer Teams will be trained to explain to rural communities how uncontrolled fires damage biodiversity and undermine livelihoods – in connection with bees and beekeeping, as well as crops, fruit trees and other useful plants. Awareness about the risks of forest fires will be broadcast by radio in local language.

We will draw attention to the trade-off between charcoal and honey production through a constructive engagement campaign targeting charcoal makers, traditional authorities and beekeepers (major stakeholders). Conversations will emphasise the long-term benefits of a healthy environment supporting a viable honey economy, versus the short-term gains of charcoal making. Interviews with beekeepers who were former charcoal producers will be broadcast on radio, in local language. As part of ongoing monitoring we will interview stakeholders, asking about their views, perceptions, understanding– to check messages are understood.

Tree planting activities will include conversations about species selection and multiple benefits of trees. We will emphasise that whilst it takes a long time for trees to produce timber, it takes just a few years for trees to bear flowers – and so provide nectar for honey. This learning will strengthen understanding about the link between biodiversity and income.

Knowledge products will be made freely available via our Online Resource Centre and BfD Journal – including project results about the link between honey trade, fire mitigation and forest recovery. This understanding will benefit Forestry Commission and students at Faculty of Natural Sciences and Environmental Management, College of Science and Technology, and policy-makers and practitioners across Africa who have a stake in sustainable forest management and rural livelihoods.

Q17. Change expected

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

When talking about how people will benefit, please remember to give details of who will benefit, differences in benefits by gender or other layers of diversity within stakeholders, and the number of beneficiaries expected. The number of communities is insufficient detail – number of households should be the largest unit used.

SUSTAINABLE POVERTY REDUCTION

By end of Project we aim to be buying honeycomb, in some of the poorest rural communities of Ghana, from at least 1000 beekeepers (350 women), who will thus increase their annual household incomes by £80-£600. The 65 beekeepers already selling to us are using new income to support their children's education, carry out essential home repairs, meet basic needs and reinvest in more hives. To achieve our target we will increase the number of beekeepers who are training with us to 1800 over the course of the Project. The growth of beekeeping will have spill over benefits for seamstresses involved in repairing protective equipment, carpenters making beehives, and for women collecting honey water from the processing facilities in Donkorkrom for brewing. Thousands of farmers will benefit indirectly through increased yields caused by improved pollination. Within Project lifespan we foresee beekeeping substituting income from charcoal production for 100 households, contributing to more sustainable livelihoods. The social enterprise will sustain growth of apicultural trade, continuing to support

beekeepers' incomes long after end of Project.

REDUCTION OF BURNED AREA AND FOREST RECOVERY

We expect that establishment of apiaries in forested areas, and beekeepers' preventive measures to protect them from wildfire damage, will lead to a 50% reduction of burned area within 20,000 hectares of apiary cluster sites by end of Project. Within these sites we expect to see a 20% increase in extent of vegetation between May and September and a 10% increase in tree species richness, thanks also to beekeepers' silviculture activities. These impacts will grow beyond Project lifespan, because incomes from beekeeping will continue to motivate forest protection and restoration. The Forestry Commission and Fire Service will have stronger capacity to fulfil their roles thanks to beekeepers, specifically through the work of the Fire Management Volunteer Teams and through agreements to allow beekeeping in forest reserves and in buffer zones between settlements and wildlife reserves. In turn, forest recovery will sustain wealth generation driven by beekeeping - increasing availability of nectar and also increasing value of bee products for conscious consumers who value forest conservation. Robust traceability will strengthen consumer confidence in linking Afram Plains honey and beeswax to positive outcomes for people and nature.

POTENTIAL TO SCALE

The viability of our social enterprise relies on scaling up to processing at least 30 tonnes of honeycomb a year. We will continue expanding our training programme in Afram Plains beyond end of Project. BfD Ghana is also active in Techiman, Wenchi and Kintampo Districts and both the Mobile Honey System and our collaboration with the Forestry Commission and Fire Services may support beekeeping there in the near future too. Bees for Development specialises in producing and sharing reliable information, training resources and sound approaches to beekeeping development. Experience gained through the Project will enable us to evidence the relationship between beekeeping and forest recovery, and to share blueprints for developing game changing low-cost digital traceability and supply chain management solutions based on our Mobile Honey System.

Q18. 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, longer term, your expected Impact.

As we began purchasing honeycomb from beekeepers in 2022, more and more men and women have been asking us how they can also start and register to trade with us. We know that the area can support a large scale beekeeping sector supplying high quality honey across Ghana and residue-free beeswax internationally. This will create very significant and sustainable income generation opportunities for thousands of farmers in remote rural communities, where the only major commodity produced for consumption elsewhere is charcoal. As the success of beekeeping depends on the use of the same natural resources, and is substantially more profitable than charcoal making, we expect to see changes in how communities value trees left standing. This in turn will create real incentives for forest conservation and restoration, at scale. Working with the Forestry Commission and Fire Service will empower beekeepers with the knowledge and support needed to act on those incentives and start reversing decades of degradation of forest resources. We expect this project to succeed where many others have failed because our work in the area has already created the motivations for change, which local authorities and stakeholders have repeatedly identified as what has been lacking so far.

Q19. Exit Strategy





How will the project reach a sustainable point and continue to deliver benefits post-funding?

How could post-project scaling of the approach (if proven) be delivered: through new finance or through uptake by stakeholders or other mechanisms? Are there any barriers to scaling and how will these be addressed?

How will the required knowledge and skills remain available to sustain the benefits?

The Project is building a sustainable and viable honey economy in the target location that is profitable at all points in the value chain - from production to downstream trading, processing and marketing. The value chain is only as strong as the weakest link in the chain and we will pay attention to each. Our volume predictions, and profit and loss forecasts for the Honey and Beeswax Trade social enterprise estimate we will reach breakeven point by end of Project. Post-project the Honey and Beeswax Trade social enterprise will continue to grow, with increasing capacity to buy from more beekeepers, attracting new entrants each year. Our Partner organisation, Bees for Development Ghana is committed long-term to honey trade development, as evidenced by their investment in capital infrastructure at Project site. We promote nature-based beekeeping systems which are extensive and low-input and do not require high start-up costs, allowing new entrants to join the honey economy 'organically' i.e. even without the support structure of a Project - provided there is a market. The main barrier to scaling honey trade might be insufficient working capital of the social enterprise - if supply increases more than forecast. The original working capital has already been provided and is 'revolving' with income from sales already being used to fund next season's honey harvest. Without new injection of new capital, growth might be slower, with new injection, growth might be faster. Knowledge about beekeeping, honey value chain development and integrated fire management will be gained by local stakeholders and will remain in country, post-Project. The link between beekeeping, forest recovery and fire mitigation will be learned by Ghanaian stakeholders and partners, including The Council of Scientific and Industrial Research College of Science of Technology, ensuring opportunity for results to reach widely throughout Ghana.

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

-  [Supporting documentation for DIR29S2 1015](#)
-  12/12/2022
-  12:47:02
-  pdf 1.39 MB

Section 7 - Risk Management

Q20. Risk Management

Please outline the 6 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, one Safeguarding, and one Delivery Chain Risk.

Projects should also draft their initial risk register using the [Risk Assessment template](#) provided, and be prepared to submit this when requested if they are recommended for funding. Do not attach this to your application.

Risk Description	Impact	Prob.	Gross Risk	Mitigation Header	Residual Risk
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Fiduciary	Risk of budget not being used for intended purpose by our partner in Ghana e.g. on another project or on unauthorised expenses within this project.	Major	Rare	Moderate	We will avoid risk by maintaining our high standards of financial oversight, management and monitoring of budget v spend. BfDG have proved to their ability to manage and report budget spend. We have log in access to their QuickBooks Online account. Regular management meetings will support proper use of budget.	rare
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Safeguarding	There is a risk that the imbalance of power between project staff and beneficiaries leads to abuse - including sexual abuse or financial (e.g. asking for bribes or back-handers)	Major	Rare	Moderate	Avoid. Working with trusted partner who has demonstrated high standards of ethical working and governed by robust safeguarding policies and processes. We adopt a safe recruitment policy (taking up references). We make beneficiaries aware of what they can expect from project staff and tell them how to report concerns.	Minor
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Delivery Chain	This project involves working with new downstream partners that we have not worked with before. This poses risks in terms of developing good working relations, communications, achieving shared expectations, managing workloads, aligning working methods.	Moderate	Possible	Moderate	We will manage this risk by being very clear about roles and responsibilities at project outset and setting these into collaboration agreements. We will also set up frequent meetings and establish good communications so any potential problems can be easily mitigated.	Minor
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Risk 4	Ghana is suffering from an economic downturn as a result of the aftermath of COVID pandemic and high global energy prices. This is causing high inflation and depreciation of the Ghanaian Cedi. This might continue and might affect our budget calculations.	Moderate	Possible	Moderate	We will manage currency depreciation risks by transferring funds as needed. Exchange rate used for budget calculations is based on past semester average to compensate for recent volatility. 10% annual inflation factored into budget. If costs escalate beyond this we may need to re-work some activities.	Minor
Risk 5	Loss of key staff. Bees for Development and Bees for Development Ghana are relatively small organisations, heavily reliant on small teams of key staff - who have specialist skills and experience. Should staff leave it is hard for remaining staff to quickly cover their work.	Moderate	Possible	Moderate	We manage this risk by offering appropriate salaries (bench-marked against other employers) and offering good and fair working conditions - to ensure retention. We also manage this risk by ensuring responsibilities are shared, and skills and experiences are embedded at organisational level - rather than with individuals.	Minor
Risk 6	With rising prices of gas and electricity - there might be short-term price increases in charcoal - as people switch to using more charcoal and not less. This is a risk to the project which is attempting to motivate people to disengage from charcoal-making, opting for beekeeping instead.	Moderate	Possible	Moderate	We will manage this risk by monitoring the charcoal price and anticipating a change in dynamic. If this occurs we may need to modify some project activities and strengthen communication messages and engage local support more strongly. We may need to shift the emphasis of communications to counter this dynamic.	Minor


Section 8 - Implementation Timetable


Q21. Provide a project implementation timetable that shows the key milestones in project activities


Provide a project implementation timetable that shows the key milestones in project activities. Complete the Word template as appropriate to describe the intended workplan for your project.

Please add/remove columns to reflect the length of your project. For each activity (add/remove rows as appropriate) indicate the number of months it will last, and fill/shade only the quarters in which an activity will be carried out. The workplan can span multiple pages if necessary.

 [BfD Implementation timetable DIR29S2-1015](#)

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Section 9 - Monitoring and Evaluation

Q22. Monitoring and evaluation (M&E)

Describe how the progress of the project will be monitored and evaluated, making reference to who is responsible for the project's M&E.

Darwin Initiative projects are expected to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. M&E is expected to be built into the project and not an 'add' on. It is as important to measure for negative impacts as it is for positive impact. Additionally, please indicate an approximate budget and level of effort (person days) to be spent on M&E (see [Finance Guidance](#)).

Overall responsibility for M&E will lie with the Project Leader, Janet Lowore, who will be supported by the Project Manager in Ghana, Kwame Aidoo and the wider team. Based on the Project Logical Framework we will create an M&E plan at project outset which will set out baseline data or how to collect baseline data (where we do not have this data) against each output indicator. The plan will include milestone targets, source of evidence, method of collecting evidence, timing of evidence collection and person responsible. Bees for Development are using an M&E database within a Salesforce environment for storing (and or signposting) evidence data. The M&E plan will include a review at the end of every quarter (3 months) during which time we will examine our progress against our expected targets, in quarterly review meetings attended by representatives from all Project partners and collaborating partners. These will be conducted via zoom or equivalent. We will consider whether the Project is on track to achieve the overall objectives or not. If not we shall revisit the Project plan and make adjustments and revisions as necessary. These quarterly reviews will inform the subsequent work plan for the next period. We will be mindful of the need to adapt the Project design should evidence point to this necessity. M&E is an on-going process not confined to annual surveys or end of project evaluations. Where possible we will build formative assessments into Project activities, for example, asking beekeepers to recall learning points from earlier training sessions, and using this feedback to inform subsequent training. Our Mobile Honey traceability system records all honey purchases and this data will indicate, in real time, the rate of beekeeping adoption, success and income earned. Biodiversity changes will not happen rapidly and may not be discernible until end of Project, which is why we are including a wide range of intermediary indicators including trees planted, survival rates, area of land burned by wildfire. These quantitative measures will be supported by an annual survey, interviewing a sample of beekeepers - asking them for their views, perceptions, feedback, constraints and challenges, and their engagement with the charcoal trade. The results of these quantitative and qualitative measures will indicate whether the Project is on track and reveal any unintended consequences. One negative which we will consider is that of 'elite capture' i.e. more powerful people excluding the vulnerable from beekeeping, as it becomes more lucrative. Another

potential negative we will measure is the displacement of charcoal making from beekeepers to other people i.e. no overall change, only a change in who engages. End of Project evaluation will critically examine the link between beekeeping, land use and forest management and assess whether beekeeping can be replicated in other landscapes as a leverage towards forest restoration.

Total project budget for M&E in GBP (this may include Staff, Travel and Subsistence costs)	██████████
Percentage of total project budget set aside for M&E (%)	█
Number of days planned for M&E	210

Section 10 - Logical Framework





Q23. 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.

- [Stage 2 Logframe Template](#)

The **logframe template** (N.B. there is a different template for Stage 1 and Stage 2) needs to be downloaded from Flexi-Grant, completed and uploaded as a PDF within your Flexi-Grant application – **please do not edit the logframe template structure (other than adding additional Outputs if needed) as this may make your application ineligible.**

Please upload your logframe as a PDF document.

 [BfD Logical Framework DIR29S2-1015](#)
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 pdf 117.16 KB

Impact:

Thriving rural communities across Afram Plains where women and men earn stable incomes by safeguarding and restoring biodiversity in forested landscapes and sustainably managing native honey bee populations

Outcome:

Beekeeping, fire management and forest restoration by communities in Afram Plains, leads to sustainable livelihoods, less reliance on charcoal trade, reversal of forest degradation, and regrowth of scarce tree species.

Project Outputs

Output 1:

1000 men and women practising sustainable nature-based beekeeping, and selling honeycomb for fair and rewarding returns

Output 2:

Sustainable honey and beeswax trade established through BfDG Honey and Beeswax Trade social enterprise, so that beekeeping can be a vital source of income for more people across Afram Plains into the future

Output 3:

Integrated fire management practised by beekeepers across 20 communities in Afram Plains, in collaboration with Ghana National Fire Service

Output 4:

Beekeepers plant and protect diverse selection of indigenous trees with economic value by their apiaries, on their land, on land granted for this purpose by traditional authorities, in buffer zones between communities and forest/wildlife reserves, and on reserves – working closely with the Forestry Commission of Ghana

Output 5:

People understand the negative impact of charcoal burning on honey production and the advantages of beekeeping as a sustainable livelihood

Do you require more Output fields?

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

Yes

Output 6:

Stakeholders interested in reversing forest degradation through honey trade have access to information, project results and a blueprint for a low-cost, digital traceability system based on the Mobile Honey System

Output 7:

No Response

Output 8:

No Response

Activities

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

OUTPUT 1 1000 men and women practising sustainable nature-based beekeeping, and selling honeycomb for fair and rewarding returns

- 1.1 Coordinating beekeeper training workshops across at least 20 communities, from hive making through to post-harvest handling
- 1.2 Training community-based harvesting teams to support new beekeepers at this delicate time in their first season
- 1.3 Providing essential harvesting equipment for harvest teams
- 1.4 Promoting beekeeping and broadcasting seasonal advice on local radio programme 'Farmers' time'
- 1.5 Ongoing mentoring and support to beekeepers across all communities, working with honey collection coordinators
- 1.6 Recording of floral data with honey collection coordinators through Mobile Honey WhatsApp group, feeding into production and distribution of floral calendars

OUTPUT 2 Sustainable honey and beeswax trade established through Donkorkrom Honey and Beeswax Trade Centre, so that beekeeping can be a vital source of income for more people across Afram Plains into the future

- 2.1 Development of interface for Mobile Honey System so that beekeeper registration, bucket release and honey buying data can be integrated and queried in one database
- 2.2 Continuing improvement and updating of Mobile Honey System
- 2.3 Completion of processing facilities infrastructure
- 2.4 Refitting of processing equipment and procurement of additional containers and packaging materials
- 2.5 FDA Licensing of Donkorkrom Honey and Beeswax Trade Centre
- 2.6 Training of at least another 10 honey collection coordinators
- 2.7 Broadening of honey marketing and client database
- 2.8 Direct purchase of honeycomb from beekeepers through Mobile Honey System, with working capital provided by Bees for Development
- 2.9 Direct wholesale of honey to packers serving domestic urban markets, bulk sale of beeswax to export agents

OUTPUT 3 Integrated fire management practised by beekeepers across 20 communities in Afram Plains, in collaboration with Ghana National Fire Service

- 3.1 Ghana National Fire Services deliver Forest Fire Management Training to 1000 beekeepers across at least 20 communities
- 3.2 Beekeepers across at least 20 communities elect 5 members to serve on Fire Management Volunteer Teams (FMVTs)
- 3.3 FMVTs members benefit from additional training in wildfire response and community fire management with Ghana National Fire Services
- 3.4 Strong channels of communication established between FMVTs in different communities and Ghana National Fire Service through WhatsApp group
- 3.5 Collection of apiary coordinates and quarterly mapping of apiary cluster sites and monitoring of burned area therein
- 3.6 Forest fire awareness raising through broadcast on local radio programme 'Farmers' time'

OUTPUT 4 Beekeepers plant and protect diverse selection of indigenous trees with economic value by their apiaries, on their land, on land granted for this purpose by traditional authorities, in buffer zones between communities and forest/wildlife reserves, and on reserves – working closely with the Forestry Commission of Ghana

- 4.1 Survey of beekeepers' tree planting priorities
- 4.2 Tree population inventory baseline study led by Prof Appiah (CCST) spanning 10 hectares across 5 sites
- 4.3 Selection of species for beekeepers' planting activities, informed by survey of their preferences and

baseline study

4.4 Procurement of seedlings from Forestry Commission nursery and other local nurseries

4.5 Establishment and maintenance of nurseries to grow selected species that are in low supply at local nurseries

4.6 Intensive silviculture training for BfD Ghana field staff provided by Forestry Commission

4.7 Basic silviculture training for beekeepers provided by BfD Ghana staff

4.8 Delivery of free tree seedlings for beekeepers

4.9 Ongoing support for and monitoring of tree planting by beekeepers

4.10 Tree population inventory and survival rates assessment led by Prof Appiah as part of end of project evaluation

4.11 Negotiation of agreements between beekeeping groups and Forestry Commission to establish apiaries on forest reserves

OUTPUT 5 People understand the negative impact of charcoal burning on honey production and the advantages of beekeeping as a sustainable livelihood

5.1 Constructive engagement with charcoal producers in target communities, inviting them to take part in beekeeping training

5.2 Constructive engagement with traditional authorities to raise awareness of trade-offs between charcoal and honey production

5.3 Interviews with beekeepers who were former charcoal producers to be broadcast on local radio programme 'Farmers' time'

OUTPUT 6 Stakeholders interested in reversing forest degradation through honey trade have access to information, project results and a blueprint for a low-cost, digital traceability system based on the Mobile Honey System

6.1 Following another two seasons of implementation, expansion, testing and improvement, BfD and BfD Ghana co-produce a how-to manual for low-cost digital traceability based on the experience of developing and implementing the Mobile Honey System in Afram Plains.

6.2 Production of an animated explainer video explaining how the Mobile Honey System works and what it is for.

6.3 Publication of above-mentioned video and manual on BfD Online Resource Centre, BfD Ghana website, Wikifarmer, The Africa Report, KoboToolbox blog and other web-based platforms, alongside press release in both UK and Ghana.

6.4 Presentation reviewing project approach and impact at Apimondia 2025 (Project Leader and Master Beekeeper)

6.5 Project news and progress published twice quarterly throughout implementation on BfD Ghana website

6.6 Publication(s) of tree population inventories and impact studies of improved fire management on vegetation and forest restoration

6.7 Publication of floral calendars for Afram Plains on BfD Online Resource Centre

6.8 Mid-term and end of project review workshops with local stakeholders

6.9 Articles published in Bees for Development Journal about the link between honey trade, fire mitigation and forest recovery.

Section 11 - Budget and Funding

Q24. 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. Note that all Darwin Main should be using the over £100,000 template. Please refer to the [Finance Guidance](#) for more information.

- [Budget form for projects over £100k](#)

Please ensure you include any co-financing figures in the Budget spreadsheet to clarify the full budget required to deliver this project.

N.B.: Please state all costs by financial year (1 April to 31 March) and in GBP. The Darwin Initiative cannot agree any increase in grants once awarded.

Please upload the Lead Partner's accounts at the certification page at the end of the application form.

 [BfD Budget DIR29S2-1015](#)
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 xlsx 94.11 KB

Q25. Funding

Q25a. Is this a new initiative or does it build on existing work (delivered by anyone and funded through any source)?

- Development of existing work

Please provide details:

The initiative builds on existing work being undertaken by ourselves in Project location. In 2018 we started working with honey hunters who were entering Digya National Park and falling into conflict with the Ghana Wildlife Division. We provided training in sustainable beekeeping as an alternative. This work reduces conflict with wildlife guards and reduced harm to the Park's biodiversity (honey hunters often fell trees to access wild honey) and the hunters found that beekeeping was more certain, less risky and more rewarding than honey hunting. This work cascaded to other members of the community, including women, precipitating the need to invest in market outlets for the increasing supply of produce. We have invested in a Honey and Beeswax Trade social enterprise in Project location and started buying honey in 2021. This has all been funded by BfD through money raised in the UK through fundraising campaigns. A shortage of funds has constrained our ability to do more. As we started buying honey the demand for training increased beyond what we were able to achieve. We have injected working capital into the social enterprise, which is using income earned from sales to buy more honey.

Q25b. Are you aware of any current or future plans for similar work to the proposed project?

- No

Q26. 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.

We are planning to invest in the processing facilities of our Honey and Beeswax Trade Centre in Donkorkrom. The building is located on land which has been purchased by Bees for Development Ghana. Construction of the building began in February 2022. Darwin funding will contribute to completing essential infrastructure that will enable Project staff to coordinate trade with beekeepers and process their produce. At end of Project the building and all structures on the plot of land and all capital purchased with Darwin funding will belong to Bees for Development Ghana.

Q27. 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). Please make sure you read the guidance documents, before answering this question.

ECONOMY

Over 4 years our work in Afram Plains has been funded with donations raised from our supporters in the UK. We worked with very limited resources that we worked very hard to secure, and examined the options, pros and cons of each spending decision. This is what led us to develop our own digital traceability system based on open-source platforms. The same approach has guided our budgeting process for this Project. We explored several options, and obtained and negotiated quotes from different consultants and providers for key Project inputs. For example, we have been able to cut capital costs for the processing facilities by 56% since our Stage 1 Application.

EFFICIENCY

We have achieved very efficient conversion of inputs to outputs for key Project deliverables. For example: Total cost per individual of training in beekeeping, fire management and silviculture = £81 (including beehive starter packages for women)
Average cost per tree planted = £0.67 (including training and support from Forestry Commission)

EFFECTIVENESS

Perhaps the strongest aspect of the Project – effective forest conservation at scale achieved almost entirely by strong motivation of and self-seeding enrolment into a specific group of forest users (beekeepers). An uncompromising approach to setting targets (e.g. number of beekeepers earning rather than trained) and measuring impact (eg. Mobile honey system, tree population inventories led by Prof Appiah).

EQUITY

Ambitious target to support 350 women to earn income from beekeeping, backed by specific strategies to overcome barriers to participation and additional resources to pursue them.

Section 12 - Safeguarding and Ethics

Q28. Safeguarding

Projects funded through the Darwin Initiative must fully protect vulnerable people all of the time, wherever they work. In order to provide assurance of this, projects are required to have appropriate safeguarding policies in place.

Please confirm the Lead Partner has the following policies in place and that these can be available on request:

Please upload the lead partner's Safeguarding Policy as a PDF on the certification page.

We have a safeguarding policy, which includes a statement of our commitment to safeguarding and a zero tolerance statement on bullying, harassment and sexual exploitation and abuse	Checked
We have attached a copy of our safeguarding policy to this application (file upload on certification page)	Checked
We keep a detailed register of safeguarding issues raised and how they were dealt with	Checked
We have clear investigation and disciplinary procedures to use when allegations and complaints are made, and have clear processes in place for when a disclosure is made	Checked
We share our safeguarding policy with all partners	Checked
We have a whistle-blowing policy which protects whistle blowers from reprisals and includes clear processes for dealing with concerns raised	Checked
We have a Code of Conduct for staff and volunteers that sets out clear expectations of behaviours - inside and outside the work place - and make clear what will happen in the event of non-compliance or breach of these standards	Checked

Please outline how you will implement and strengthen your safeguarding policies in practice and ensure that all partners apply the same standards as the Lead Partner. If any of the responses are “no”, please indicate how it is being addressed.

BfD has a zero tolerance policy towards bullying, sexual exploitation and abuse. All UK and in-country staff sign a Code of Conduct to this effect. Our safeguarding statement is on our website, which includes a reporting form. All know how they should report any concerns and how to contact the Safeguarding Focal Person. Bees for Development Ghana have their own Safeguarding Policy and all have attended safeguarding training delivered by Hub Cymru Africa (hub for international development charities in Wales). In Ghana project participants are informed at project outset the standards of behaviour they can expect from project staff.

Q29. Ethics

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

Project will adhere to all laws in Ghana and UK. Project is not acquiring or storing genetic material from Project site. Where farmers share traditional knowledge concerning fire mitigation, beekeeping, tree management and use, their contributions will be treated with respect, they will not be made to feel that their local knowledge is less worthy than approaches tried within the Project. This Project is designed with high level of engagement from farmers and other stakeholders in Ghana. We will proactively seek to ensure lessons learned reach stakeholders across Ghana. Where photographs, case studies, beneficiary

feedback and testimonials are collated, the project will seek informed consent. Farmers will be invited to provide data and interview responses voluntarily, and given full information about how such information will be used. Project design is highly ethical in that the need for the Project was initiated in response to a felt need, from local people, for more income and less conflict with Wildlife Officers. The Project recognises that people and nature are part of one social-ecological system and the Project intervention is based on a paradigm of "use it or lose it", rather than people being denied access to their natural resources.

Section 13 - FCDO Notifications

Q30. FCDO Notifications

Please state whether there are sensitivities that the Foreign Commonwealth and Development Office will need to be aware of should they want to publicise the project's success in the Darwin Initiative in any country.

No

Please indicate whether you have contacted FCDO Embassy or High Commission to discuss the project and attach details of any advice you have received from them.

Yes (no written advice)

Section 14 - Project Staff

Q31. 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.

Please provide 1-page CVs or job description, further information on who is considered core staff can be found in the [Finance Guidance](#).

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Janet Lowore	Project Leader	20	Checked
Giacomo Ciriello	Mobile Honey System Developer	20	Checked
Andrew Chalinder	Project Manager	22	Checked
Kwame Aidoo	Project Director	50	Checked





Do you require more fields?

Yes

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Gideon Hopeson Zege	Master Beekeeper	100	Checked
Mike Ahorlu	Marketing and Stores	100	Checked
Isaac Mbroh	Communications	50	Checked
Nana Esi Pentisiwa Aidoo	Finance and Payments	50	Checked
Peace Adzokatse	Project Coordinator	80	Checked
Rowan Edwards	Remote sensing and GIS consultant	5	Checked
Mark Appiah	Forest inventory consultant	5	Checked
To be recruited in year 2	Gender specialist and women inclusion officer	67	Checked

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

Ensure the file is named clearly, consistent with the named individual and role above.

 [CVs DIR29S2_1015](#)
 12/12/2022
 10:43:58
 pdf 1.38 MB

Have you attached all project staff CVs?

Yes

Section 15 - Project Partners

Q32. Project Partners

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

This section should demonstrate the capability and capacity of the Project Partners to successfully deliver the project. Please provide Letters of Support for all project partners or explain why this has not been included.

The partners listed here should correspond to the Delivery Chain Risk Map (within the Risk Register template) which you will be asked to submit if your project is recommended for funding.

Lead partner name: Bees for Development

Website address: www.beesfordevelopment.org

Details (including roles and responsibilities and capacity to engage with the project):

BfD is the leading international organisation that leverages the benefits of bees and beekeeping to address global poverty and biodiversity loss and to support climate-resilient landscapes. The value we bring to this Project is our experience of working with beekeeper/farmers, in Ghana, through our partner organisation BfDG and elsewhere. They are asking for a solution to their predicament where their livelihood activities of today, are undermining their livelihood opportunities of the future as their natural resources are degraded. We are well connected in the bee world and are able to disseminate and share learning through our network, resource centre and Bees for Development Journal (reaches 128 countries). We have delivered work of similar complexity and scale e.g. funded by DFID/FCDO and we completed the necessary due diligence assessments as required by DFID/FCDO. [Mannion Daniels can provide reference]. We have managed grants from DFID/FCDO in excess of ██████████, have completed all financial reporting to a high standard and the technical assessment of all projects scored an A (outputs met expectation). All projects were rated highly in terms of sustainability, data analysis, value for money, learning and project management measures. We will take overall lead for Project Management and donor compliance responsibilities.

Allocated budget (proportion or value):

██████████

Represented on the Project Board Yes

Have you included a Letter of Support from this organisation? Yes

Have you provided a cover letter to address your Stage 1 feedback? Yes

Do you have partners involved in the Project?

Yes

1. Partner Name: Bees for Development Ghana

Website address: <https://beesfordevelopmentghana.org/>

Details (including roles and responsibilities and capacity to engage with the project):

Bees for Development Ghana is the main local partner in Ghana. They specialise in unlocking the potential for beekeeping to reduce poverty sustainably, while preserving and restoring forests and biodiversity. They are well respected and regarded by the beekeeper/farmers they work with and by the regional and districts government departments with whom they collaborate. BfDG have a strong track record of improving lives and landscapes in Ghana, through beekeeping, and have demonstrated their capacity in terms of monitoring and reviewing progress, achieving results and financial reporting. BfDG will take the lead on project management and M&E in Ghana and will coordinate Project implementation and collaboration with local partners. BfDG started work in the Project location in 2018, training honey hunters and transforming them into sustainable beekeepers. This work quickly attracted interest from other communities and groups living near Digya National Park. Their beekeeping training escalated, quickly giving rise for the need for investment in the honey and beeswax market chain. BfDG established a Honey and Beeswax Trade social enterprise in 2021 which is based on land which they purchased in Donkorkrom. This demonstrates their long term commitment to beekeepers in the vicinity. BfDG is run by beekeepers for beekeepers.

Allocated budget:



Represented on the Project Board

Yes

Have you included a Letter of Support from this organisation?

Yes

2. Partner Name: Afram Plains Development Organisation

Website address: <https://www.facebook.com/people/Afram-Plains-Development-Organisation-APDO/100067509401567/>

APDO a well-established NGO based in Donkorkom, serves a community of 60,000 people, including the Project catchment area. The NGO has a wide remit, with a strong focus on community development, WASH and livelihood support. APDO will serve as a vital community-based organisation in this Project using their reputation and reach at grass-roots level to help BfDG reach people in need. A staff member of APDO will be seconded to the Project. Role:

Details (including roles and responsibilities and capacity to engage with the project):

- Supporting coordination of the beekeeper training programme, inc. identifying and mobilising communities and community members interested in beekeeping, managing training day logistics, collaborating in delivery of training workshops, reporting on activities etc.
- Supporting training and communications with honey collection coordinators
- Coordinating radio campaigns on bush fire prevention and promotion of beekeeping [APDO run a radio broadcast service]
- Work with the team to report back to BfD and BfD Ghana management on activities and achievements, and provide content for our social media managers in Ghana and UK.

APDO seconded staff member will learn beekeeping, so enhancing APDO's capacity long-term. Synergy between honey selling and APDO's Village Savings and Loans programme is clear and will be developed by APDO outside of this Project.

Allocated budget: ██████████

Represented on the Project Board Yes

Have you included a Letter of Support from this organisation? Yes

3. Partner Name: Ghana National Fire Service

Website address: <https://www.gnfs.gov.gh/new/>

The Service (GNFS) works to manage and prevent undesired fires, and this includes forest fires and bush fires. To this effect the service delivers a range of functions. Those relevant to this Project include:

- organisation of fire prevention education programmes
- delivery of public awareness about the hazards of fire
- heightening the role of individuals and communities in the prevention of fire.

Details (including roles and responsibilities and capacity to engage with the project):

In this Project the Service, operating out of their office in Donkorkrom will:

- lead on facilitating community meetings about the hazards of forest fire and prevention methods
- lead on training beekeepers about fire prevention and mitigation e.g. fire belt creation around apiaries, controlled early burning, how to use fire for land preparation without causing uncontrolled fires
- be in charge of setting up and training Forest Fire Management Volunteer Teams who will create and manage local Fire Management Plans.

The GNFS has been engaged in research to investigate the most effective strategies to prevent forest fires (ref 12). This research shows that direct engagement with communities is more effective than other approaches such as patrols, inspection and laws. This learning will be brought to bear in this Project.

Allocated budget:



Represented on the Project Board

No

Have you included a Letter of Support from this organisation?

Yes

4. Partner Name:

Forestry Commission of Ghana

Website address:

<https://fcghana.org/>

Details (including roles and responsibilities and capacity to engage with the project):

Both the Forestry Division and the Wildlife Division of the Forestry Commission of Ghana will be stakeholders in this Project. BfDG has been working with the Wildlife Division for the past three years. A staff member has been seconded from the Donkorkrom office to support BfDG's work in training honey hunters in sustainable beekeeping, to reduce pressure on Digya National Park. In this new Project the role of the Wildlife Division will be to enable beekeepers to establish apiaries in the buffer zone around the Park. The Wildlife Division have not submitted a letter of support to this effect because they need national approval first and this is only attainable once funding is available and not at application stage. The Forestry Division have submitted a letter of support - attached here. They committ to supporting the treeplanting component of this Project in the following ways:

- training BfDG staff on establishing tree nursery and raising tree seedlings
- advising about tree species for planting in apiary sites (i.e. which are easy to raise in nurseries and have good survival rates - as these attributes are important alongside being good 'bee trees').
- enabling beekeepers to establish apiaries in forest reserves.

Allocated budget:



Represented on the Project Board

No

Have you included a Letter of Support from this organisation?

Yes

5. Partner Name:

The Council of Scientific and Industrial Research (CSIR) - College of Science and Technology

Website address:

<https://www.csir.org.gh/>

**Details
(including roles
and
responsibilities
and capacity to
engage with the
project):**

The CSIR is the foremost national science and technology institution in Ghana. It is mandated to carry out scientific and technological research for national development. The CSIR has experience and expertise in landscape restoration and monitoring. In this Project, Prof. Mark Appiah, President of CSIR-College of Science and Technology will take the lead and support the Project in monitoring changes in species richness which are expected to result from Project Outputs. This will be achieved through the establishing sample plots at Project outset and conducting forest inventory at start and end. The inventory methods used will follow the standards set by the Forestry Commission of Ghana for off-reserve inventories. The enumeration team under direction from Professor Appiah will identify all tree species greater than 10 cm dbh, and measure and recorded their diameters over bark at 1.3 m. In selected quadrats the team will measure all emerging seedlings and saplings. This is important because it is expected that a reduction in forest fire will allow the emergence, through natural regeneration of seedlings and saplings of fire sensitive species. The College will identify a botanist to work with the inventory team to allow identification of less common and less-well-known species.

**Allocated
budget:**



**Represented on
the Project
Board**

No

**Have you
included a
Letter of
Support from
this
organisation?**

Yes

**6. Partner
Name:**

Edwards Ecological and Data Services Ltd

**Website
address:**

No Response

**Details
(including roles
and
responsibilities
and capacity to
engage with the
project):**

Rowan Edwards will support our monitoring work by using satellite imagery and GIS analysis to measure changes in extent of vegetation around apiary sites and changes in extent of burned areas (in specific months) around apiary sites. Rowan will work as a consultant and he has submitted his CV.

**Allocated
budget:**



Represented on the Project Board No

Have you included a Letter of Support from this organisation? No


If no, please provide details Rowan will work as a consultant not as a partner.


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 cover letter responding to feedback received at Stage 1 if applicable and a combined PDF of all letters of support.

 [Combined Letters DIR29S2 1015](#)

 12/12/2022

 13:39:25

 pdf 5.3 MB

Section 16 - Lead Partner Capability and Capacity

Q33. Lead Partner Capability and Capacity

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

Yes

If yes, please provide details of the most recent awards (up to 6 examples).

Reference No	Project Leader	Title
29-021	Janet Lowore	More bees: Supporting agrobiodiversity and livelihoods in Amhara, Ethiopia
<i>No Response</i>	<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>	<i>No Response</i>

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

If yes, please upload these on the certification page. Note that this is not required from Government Agencies.

Yes

Section 17 - Certification

Certification

On behalf of the

Trustees

of

Bees for Development

I apply for a grant of





██████████

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 project key project personnel, cover letter, letters of support, a budget, logframe, Safeguarding Policy and project implementation timetable (uploaded at appropriate points in application)
- Our last two sets of signed audited/independently verified accounts and annual report are also enclosed.

Checked


Name	Janet Lowore
Position in the organisation	Programme Manager
Signature (please upload e-signature)	 Janet Lowore Signature DIR29S2 1015  12/12/2022  13:21:38  pdf 268.46 KB
Date	12 December 2022

Please attach the requested signed audited/independently examined accounts.

 [Bees for Development Trust Accounts 2019-20](#)
01/12/2022
14:49:49
pdf 2.57 MB

 [Bees for Development Trust Accs 20-21 Signed](#)
01/12/2022
14:48:49
pdf 3.89 MB

Please upload the Lead Partner's Safeguarding Policy as a PDF

 [Bees for Development's Safeguarding Policy 1222-compressed](#)
12/12/2022
14:56:08
pdf 753.61 KB

Section 18 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance, including the "Darwin Initiative Guidance", "Monitoring Evaluation and Learning Guidance", "Risk Guidance" and "Financial 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 my budget based on UK government financial years i.e. 1 April – 31 March and in GBP.	Checked
I have checked that our budget is complete, correctly adds up and I have included the correct final total at the start of the application.	Checked
The application been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	Checked
I have attached the below documents to my application <ul style="list-style-type: none">• my completed logframe as a PDF using the template provided	Checked
<ul style="list-style-type: none">• my budget (which meets the requirements above)	Checked
<ul style="list-style-type: none">• my completed implementation timetable as a PDF using the template provided	Checked
I have included a 1 page CV or job description for all the Project Staff identified at Question 31, including the Project Leader, or provided an explanation of why not.	Checked
I have included a letter of support from the Lead Partner and partner(s) identified at Question 32, or an explanation of why not.	Checked
I have included a cover letter from the Lead Partner, outlining how any feedback received at Stage 1 has been addressed where relevant.	Checked

I have included a copy of the Lead Partner’s safeguarding policy, which covers the criteria listed in Question 28.	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
I have included a signed copy of the last 2 annual report and accounts for the Lead Partner, or provided an explanation if not.	Checked
I have checked the Darwin Initiative 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 Darwin Initiative and our sister grant scheme, the IWT Challenge Fund. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share our quarterly project 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 partner, project leader, location, and total grant value).

Project Title: *Beekeepers restore the forests of Afram Plains*

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1	1000 men and women practising sustainable nature-based beekeeping, and selling honeycomb for fair and rewarding returns	36												
1.1	Coordinating beekeeper training workshops across at least 20 communities, from hive making through to post-harvest handling	36												
1.2	Training community-based harvesting teams to support new beekeepers at this delicate time in their first season	10												
1.3	Providing essential harvesting equipment for harvest teams	10												
1.4	Promoting beekeeping and broadcasting seasonal advice on local radio programme 'Farmers' time'	15												
1.5	Ongoing mentoring and support to beekeepers across all communities, working with honey collection coordinators	36												
1.6	Recording of floral data with honey collection coordinators through Mobile Honey WhatsApp group, feeding into production and distribution of floral calendars	36												
Output 2	Sustainable honey and beeswax trade established through Donkorkrom Honey and Beeswax Trade Centre, so that beekeeping can be a vital source of income for more people across Afram Plains into the future	36												
2.1	Development of interface for Mobile Honey System so that beekeeper registration, bucket release and honey buying data can be integrated and queried in one database	3												
2.2	Continuing improvement and updating of Mobile Honey System	36												
2.3	Completion of processing facilities infrastructure	10												

Project Title: *Beekeepers restore the forests of Afram Plains*

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2.4	Refitting of processing equipment and procurement of additional containers and packaging materials	2												
2.5	FDA Licensing of Donkorkrom Honey and Beeswax Trade Centre	1												
2.6	Training of at least another 10 honey collection coordinators	4												
2.7	Broadening of honey marketing and client database	36												
2.8	Direct purchase of honeycomb from beekeepers through Mobile Honey System, with working capital provided by Bees for Development	11												
2.9	Direct wholesale of honey to packers serving domestic urban markets, bulk sale of beeswax to export agents	24												
Output 3	Integrated fire management practised by beekeepers across 20 communities in Afram Plains, in collaboration with Ghana National Fire Service	36												
3.1	Ghana National Fire Services deliver Forest Fire Management Training to 1000 beekeepers across at least 20 communities	15												
3.2	Beekeepers across at least 20 communities elect 5 members to serve on Fire Management Volunteer Teams (FMVTs)	15												
3.3	FMVTs members benefit from additional training in wildfire response and community fire management with Ghana National Fire Services	15												
3.4	Strong channels of communication established between FMVTs in different communities and Ghana National Fire Service through WhatsApp group	15												
3.5	Collection of apiary coordinates and quarterly mapping of apiary cluster sites and monitoring of burned area therein	36												

Project Title: *Beekeepers restore the forests of Afram Plains*

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
3.6	Forest fire awareness raising through broadcast on local radio programme 'Farmers' time'	15												
Output 4	Beekeepers plant and protect diverse selection of indigenous trees with economic value by their apiaries, on their land, on land granted for this purpose by traditional authorities, in buffer zones between communities and forest/wildlife reserves, and on reserves – working closely with the Forestry Commission of Ghana	36												
4.1	Survey of beekeepers' tree planting priorities	2												
4.2	Tree population inventory baseline study led by Prof Appiah (CCST) spanning 10 hectares across 5 sites	1												
4.3	Selection of species for beekeepers' planting activities, informed by survey of their preferences and baseline study	1												
4.4	Procurement of seedlings from Forestry Commission nursery and other local nurseries	27												
4.5	Establishment and maintenance of nurseries to grow selected species that are in low supply at local nurseries	28												
4.6	Intensive silviculture training for BfD Ghana field staff provided by Forestry Commission	1												
4.7	Basic silviculture training for beekeepers provided by BfD Ghana staff	12												
4.8	Delivery of free tree seedlings for beekeepers	12												
4.9	Ongoing support for and monitoring of tree planting by beekeepers	24												
4.10	Tree population inventory and survival rates assessment led by Prof Appiah as part of end of project evaluation	1												

Project Title: *Beekeepers restore the forests of Afram Plains*

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
4.11	Negotiation of agreements between beekeeping groups and Forestry Commission to establish apiaries on forest reserves	36												
Output 5	People understand the negative impact of charcoal burning on honey production and the advantages of beekeeping as a sustainable livelihood	36												
5.1	Constructive engagement with charcoal producers in target communities, inviting them to take part in beekeeping training	36												
5.2	Constructive engagement with traditional authorities to raise awareness of trade-offs between charcoal and honey production	36												
5.3	Interviews with beekeepers who were former charcoal producers to be broadcast on local radio programme 'Farmers' time'	6												
Output 6	Stakeholders interested in reversing forest degradation through honey trade have access to information, project results and a blueprint for a low-cost, digital traceability system based on the Mobile Honey System	36												
6.1	Following another two seasons of implementation, expansion, testing and improvement, BfD and BfD Ghana co-produce a how-to manual for low-cost digital traceability based on the experience of developing and implementing the Mobile Honey System in Afram Plains.	3												
6.2	Production of an animated explainer video explaining how the Mobile Honey System works and what it is for.	2												
6.3	Publication of above-mentioned video and manual on BfD Online Resource Centre, BfD Ghana website, Wikifarmer, The Africa Report, KoboToolbox blog and other web-based platforms, alongside press release in both UK and Ghana.	2												

Project Title: *Beekeepers restore the forests of Afram Plains*

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
6.4	Presentation reviewing project approach and impact at Apimondia 2025 (Project Leader and Master Beekeeper)	1												
6.5	Project news and progress published twice quarterly throughout implementation on BfD Ghana website	36												
6.6	Publication(s) of tree population inventories and impact studies of improved fire management on vegetation and forest restoration	2												
6.7	Publication of floral calendars for Afram Plains on BfD Online Resource Centre	1												
6.8	Mid-term and end of project review workshops with local stakeholders	2												
6.9	Articles published in Bees for Development Journal about the link between honey trade, fire mitigation and forest recovery.	3												

Project Title: *Beekeepers restore the forests of Afram Plains*

Project Summary	SMART Indicators	Means of Verification	Important Assumptions
<p>Impact: Thriving rural communities across Afram Plains where women and men earn stable incomes by safeguarding and restoring biodiversity in forested landscapes and sustainably managing native honey bee populations (Max 30 words)</p>			
<p>Outcome: Beekeeping, fire management and forest restoration by communities in Afram Plains, leads to sustainable livelihoods, less reliance on charcoal trade, reversal of forest degradation, and regrowth of scarce tree species. (Max 30 words)</p>	<p>0.1 Number of people engaged in profitable beekeeping. Target by end of project = at least 1000 beekeepers, of whom 350 women (from baseline of 118 beekeepers of whom 28 women¹).</p> <p>0.2 Number of people who disengage from commercial charcoal production by end of project, as a result of keeping bees. Target = 100 beekeepers</p> <p>0.3 25% Reduction of charcoal trade in project area.</p> <p>0.4 20% Increase in density and extent of vegetation through natural regeneration and tree planting, across 20 apiary cluster</p>	<p>0.1 Registered users and purchase form records on our Mobile Honey System³.</p> <p>0.2 End of project interviews with beekeepers.</p> <p>0.3 Charcoal Conveyance Certificates issued by Ghana's Forestry Commission.</p> <p>0.4 Baseline and end of project comparison by remote sensing (NDVI/FAPAR scores analysis based on data from Copernicus Global Land Service)</p> <p>0.5 Annually through remote sensing with NASA Fire Information for Resource Management System.</p>	<p>0.1 Demand for honey remains reliable and strong, as does demand for residue-free beeswax internationally.</p> <p>0.2 Income from beekeeping more than compensates income from charcoal burning. Preliminary evidence of this from Bonaso community supports this assumption.</p> <p>0.3 Charcoal production is not displaced to non-beekeepers, because beekeepers influence the traditional authorities which regulate tree felling. This is what we are seeing in communities where the number of beekeepers is increasing.</p>

¹ This baseline is based on submitted Beekeeper Registration forms in the *Mobile Honey System* at 01/12/22. The baseline will be adjusted on project launch. Since 2018 over 700 community members have attended our beekeeping training workshops. Of these about 350 have gone on to complete the training programme and have colonised hives. Of these about 100 have already harvested some honey, and about 25 have sold honeycomb through the pilot of the Mobile Honey System in May 2022.

³ *Mobile Honey System* is an innovative digital traceability and supply chain management system we developed to manage BfD Ghana Honey and Beeswax Trade social enterprise. Running on the KoboToolbox Platform, it allows us to keep track of all beekeepers and honeycomb we are purchasing from them for processing at the Donkorkrom Honey Centre.

Project Title: *Beekeepers restore the forests of Afram Plains*

	<p>sites² averaging 1000 hectares each, by end of project.</p> <p>0.5 50% Reduction in burned area between December and March, across 20 apiary cluster sites averaging 1000 hectares each, by end of project.</p> <p>0.6 10% Increase in tree species richness across 20 apiary cluster sites averaging 1000 hectares, by end of project.</p>	<p>0.6 Baseline and end of project forest plot inventories measuring all tree species greater than 10cm dbh and down to 5cm dbh every 5 quadrats (standard set by Forestry Commission of Ghana for off-reserve inventories). Analysis of change using Simpson/Shannon indices.</p>	<p>0.4 Forestry Commission continues to set tree planting targets and provide seedlings to volunteers.</p> <p>0.5 Dry season not extraordinarily severe or prolonged.</p> <p>0.6 Forestry Commission successfully broadens range of species in seedling nursery. Sufficient genetic reservoir of fire-sensitive species to allow natural regeneration.</p>
<p>Outputs:</p> <p>1. 1000 men and women practising sustainable nature-based beekeeping, and selling honeycomb for fair and rewarding returns.</p>	<p>1.1 Number of people with productive apiaries and practising beekeeping independently. Target = 300 (325M, 175W) people managing 3 colonies or more, by end of Year 1 and 1000 by end of project. Baseline = 118 (90M, 28W)</p> <p>1.2 Number of beekeepers selling honeycomb. Target = 300 by end Yr1, 600 by end Yr2,</p>	<p>1.1 Mobile Honey System records</p> <p>1.2 Mobile Honey System records</p> <p>1.3 Mobile Honey System records</p>	<p>1.1 Interest in beekeeping remains high. Local honey bees continue to be very prolific and occupy hives readily.</p> <p>1.2 The processing centre in Donkorkrom is completed according to plans with capacity to process the growing supply of honey. National demand for quality Ghanaian honey remains strong. We continue receiving</p>

² Apiary cluster sites are land areas measuring cc. 1000 hectares that we have mapped (see attached 'Map') on the basis of current GPS waypoint of existing apiary sites and potential expansion of beekeeping activities around target communities. The areas comprise a mix of farmland, degraded off-reserve forests, forest reserves and open savannah.

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	<p>1000 by end of project. Baseline = 118 (90M, 28W)</p> <p>1.3 Average beekeepers' income. Target = £16.50 per colony per annum⁴</p>		<p>purchase requests for beeswax from export agents.</p>
<p>2. Sustainable honey and beeswax trade established through BfDG Honey and Beeswax Trade social enterprise, so that beekeeping can be a vital source of income for more people across Afram Plains into the future</p>	<p>2.1 Turnover of BfDG Honey and Beeswax Trade social enterprise, minus costs of honeycomb purchased from beekeepers, transport costs and marketing costs. Targets⁵ = Year 1: £3,000, Year 2: £6,000, Year 3: £10,000.</p> <p>2.2 Total sum of payments made to beekeepers through Mobile Honey System. Targets = Year 1: £9,900, Year 2: £19,800, Year 3: £33,000.</p> <p>2.3 Volume (kg) of honeycomb sold by beekeepers. Targets = Year 1: 9 tons, Year 2: 18 tons, Year 3: 30 tons</p>	<p>2.1 Accounts of social enterprise</p> <p>2.2 Vodafone cash and MTN MoMo⁶ merchant statements</p> <p>2.3 Mobile Honey records + conversations with beekeepers to gauge how much (if any) is sold outside of system</p>	<p>2.1 Market for honey and beeswax is not hit too hard by cost-of-living crisis. Cost of fuel does not increase further. We are still at this point selling in bulk at competitive wholesale prices (not fully exploiting our point of difference). Most sales still within Kumasi/Accra range.</p> <p>2.2 Price of 20GHS per kg of honeycomb continues to remain attractive for beekeepers as their volumes grow (compensating for inflation).</p> <p>2.3 Access to sufficient land for new apiary sites and sufficient floral resources to sustain production – otherwise we expand number of communities</p>

⁴ Conservative estimate based on 10 kg harvest of honeycomb sold at 20 Ghana Cedis per kilogram.

⁵ Based on exchange rate of 1GBP=12.16GHS

⁶ MoMo = mobile money

Project Title: *Beekeepers restore the forests of Afram Plains*

			where we train and register beekeepers.
<p>3. Integrated fire management practised by beekeepers across 20 communities in Afram Plains, in collaboration with Ghana National Fire Service</p>	<p>3.1 Number of apiaries and hectares of land where beekeepers are adopting fire prevention and mitigation practices. Target = 10 apiary cluster sites averaging 1000 hectares, by end of Year 2 and 20 sites by end of project.</p> <p>3.2 Number of Fire Management Volunteer Teams (FMVTs) working effectively throughout dry season to raise awareness, monitor risks and coordinate community fire management and wildfire response. Target = 10 teams, at least 50 volunteers, by end of Year 1 and 20 teams and 100 volunteers by end of Year 2. Baseline = 0, 0</p>	<p>3.1a Mobile Honey records, interviews with beekeepers, apiary visits by project staff. 3.1b Remote sensing data with NASA Fire Information for Resource Management System.</p> <p>3.2 WhatsApp group including member of all FMVTs, local firemen and project staff. Interviews with FMVT members.</p>	<p>3.1 The extent of land that beekeepers will be able to protect around their apiaries will also depend on their time availability. 3.2 Beyond the economic incentive to protect hives and livelihoods, FMVTs will also find motivation in good team dynamics and sharing common purpose.</p>
<p>4. Beekeepers plant and protect diverse selection of indigenous trees with economic value by their apiaries, on their land, on land granted for this purpose by traditional authorities, in buffer zones between communities and forest/wildlife reserves, and on reserves – working closely with</p>	<p>4.1 Number of apiary sites established within and fringing forest reserves under agreements between beekeeping associations and FC. Target = 5 apiary sites by end Year 1, 10 by end Year 2 and 20 by end of project.</p>	<p>4.1 Agreements negotiated with FC and visits to apiaries by project staff</p> <p>4.2 Records of seedling distribution kept by BfD Ghana staff</p>	<p>4.1 Beekeepers' continue to be interested in reforestation and respect terms of agreement with FC to access reserves (no hunting, farming, clearing)</p> <p>4.2 FC continues to raise tree seedlings and broadens range of species successfully, including</p>

Project Title: *Beekeepers restore the forests of Afram Plains*

<p>the Forestry Commission of Ghana</p>	<p>4.2 Number of seedlings distributed and planted by beekeepers. Target = 5,000 by end of year 1, 10,000 by end of year 2, 20,000 by end of project</p> <p>4.3 70% survival rate of seedlings planted at end of project.</p> <p>4.4 Populations of now scarce and important species (e.g. <i>Vitellaria paradoxa</i>, <i>Khaya ivorensis</i>, <i>Triplochiton scleroxylon</i>) recovering, as measured by increase in number of seedlings in plots near apiaries. Target = to be established following tree population inventory at baseline.</p>	<p>4.3 Survival of planted trees monitored during end of project tree population inventory</p> <p>4.4 Baseline and end of project tree population inventories in 20 apiary cluster sites (through sampling)</p>	<p>trees that provide abundant nectar and pollen for honey bees.</p> <p>4.3 FC and beekeepers ensure adequate measures taken to protect seedlings planted and generating naturally.</p> <p>4.4 Sufficient genetic reservoir for natural regeneration.</p>
<p>5. People understand the negative impact of charcoal burning on honey production and the advantages of beekeeping as a sustainable livelihood</p>	<p>5.1 Increase in the number of permissions denied to charcoal burners by traditional authorities in beekeeping communities. Target = at least 5 cases of permission being denied in Year 1, 5 in Year 2 and 5 in Year 3.</p> <p>5.2 Number of people involved in charcoal production and trade who attend our beekeeping</p>	<p>5.1 Interviews with traditional authorities</p> <p>5.2 Workshop attendance lists</p> <p>5.3 Annual project surveys with a sample of beekeepers.</p>	<p>5.1 Beekeepers successfully influence traditional authorities to consider the costs of charcoal production in terms of foregone honey production.</p> <p>5.2 We succeed in getting across a positive message of the opportunities offered by beekeeping (rather than criticising charcoal making) so as to not alienate charcoal makers.</p>

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	<p>training workshops. Target = 350 in Year 1 and 350 in Year 2.</p> <p>5.3 Number of beekeepers who reduce their involvement in charcoal production and trade. Target = 50 beekeepers by end of Year 2 and 100 by end of Year 3.</p>		<p>5.3 In the community Bonaso, 8 men heavily involved in charcoal making were early adopters of beekeeping. They say beekeeping offers better returns and is less hard and dangerous. This year they have been making less charcoal, working instead to scale up honey production by setting up new apiary sites. We assume this will happen in other communities and for other charcoal makers.</p>
<p>6. Stakeholders interested in reversing forest degradation through honey trade have access to information, project results and a blueprint for a low-cost, digital traceability system based on the <i>Mobile Honey System</i></p>	<p>6.1 Number of downloads of how-to-manual based on Mobile Honey System from the Bees for Development Resource Centre. Target = 300 by end of project.</p> <p>6.2 Number of requests for support/consultancy to develop similar systems received by BfD and BfD Ghana. Target = 20 by end of project.</p> <p>6.3 Case studies of agribusinesses replicating our traceability and supply chain system. Target = 5 by end of project.</p>	<p>6.1 BfD Online Resource Centre use statistics</p> <p>6.2 Direct enquiries to BfD and BfD Ghana</p> <p>6.3 Interviews with agribusiness directors replicating our system.</p> <p>6.4. BfD Online Resource Centre use statistics</p>	<p>6.1 That no other traceability and supply chain management systems with comparable specifications and use cases are developed concomitantly, which are superior in functionalities or ease of use, and are made freely and widely available - thus reducing need/demand for the method underlying our system.</p>

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	<p>6.4 Number of people reading articles written in <i>Bees for Development Journal</i> about the link between honey trade, fire mitigation and forest recovery. Target = 1000 each year of project.</p>		
<p>Activities</p> <p>OUTPUT 1: 1000 men and women practising sustainable nature-based beekeeping, and selling honeycomb for fair and rewarding returns</p> <p>1.1 Coordinating beekeeper training workshops across at least 20 communities, from hive making through to post-harvest handling</p> <p>1.2 Training community-based harvesting teams to support new beekeepers at this delicate time in their first season</p> <p>1.3 Providing essential harvesting equipment for harvest teams</p> <p>1.4 Promoting beekeeping and broadcasting seasonal advice on local radio programme 'Farmers' time'</p> <p>1.5 Ongoing mentoring and support to beekeepers across all communities, working with honey collection coordinators</p> <p>1.6 Recording of floral data with honey collection coordinators through Mobile Honey WhatsApp group, feeding into production and distribution of floral calendars</p> <p>OUTPUT 2: Sustainable honey and beeswax trade established through Donkorkrom Honey and Beeswax Trade Centre, so that beekeeping can be a vital source of income for more people across Afram Plains into the future</p> <p>2.1 Development of interface for Mobile Honey System so that beekeeper registration, bucket release and honey buying data can be integrated and queried in one database</p> <p>2.2 Continuing improvement and updating of Mobile Honey System</p> <p>2.3 Completion of processing facilities infrastructure</p>			

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2.4 Refitting of processing equipment and procurement of additional containers and packaging materials

2.5 FDA Licensing of Donkorkrom Honey and Beeswax Trade Centre

2.6 Training of at least another 10 honey collection coordinators

2.7 Broadening of honey marketing and client database

2.8 Direct purchase of honeycomb from beekeepers through Mobile Honey System, with working capital provided by Bees for Development

2.9 Direct wholesale of honey to packers serving domestic urban markets, bulk sale of beeswax to export agents

OUTPUT 3: Integrated fire management practised by beekeepers across 20 communities in Afram Plains, in collaboration with Ghana National Fire Service

3.1 Ghana National Fire Services deliver Forest Fire Management Training to 1000 beekeepers across at least 20 communities

3.2 Beekeepers across at least 20 communities elect 5 members to serve on Fire Management Volunteer Teams (FMVTs)

3.3 FMVTs members benefit from additional training in wildfire response and community fire management with Ghana National Fire Services

3.4 Strong channels of communication established between FMVTs in different communities and Ghana National Fire Service through WhatsApp group

3.5 Collection of apiary coordinates and quarterly mapping of apiary cluster sites and monitoring of burned area therein

3.6 Forest fire awareness raising through broadcast on local radio programme 'Farmers' time'

OUTPUT 4: Beekeepers plant and protect diverse selection of indigenous trees with economic value by their apiaries, on their land, on land granted for this purpose by traditional authorities, in buffer zones between communities and forest/wildlife reserves, and on reserves – working closely with the Forestry Commission of Ghana

4.1 Survey of beekeepers' tree planting priorities

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- 4.2 Tree population inventory baseline study led by Prof Appiah (CCST) spanning 10 hectares across 5 sites
- 4.3 Selection of species for beekeepers' planting activities, informed by survey of their preferences and baseline study
- 4.4 Procurement of seedlings from Forestry Commission nursery and other local nurseries
- 4.5 Establishment and maintenance of nurseries to grow selected species that are in low supply at local nurseries
- 4.6 Intensive silviculture training for BfD Ghana field staff provided by Forestry Commission
- 4.7 Basic silviculture training for beekeepers provided by BfD Ghana staff
- 4.8 Delivery of free tree seedlings for beekeepers
- 4.9 Ongoing support for and monitoring of tree planting by beekeepers
- 4.10 Tree population inventory and survival rates assessment led by Prof Appiah as part of end of project evaluation
- 4.11 Negotiation of agreements between beekeeping groups and Forestry Commission to establish apiaries on forest reserves

OUTPUT 5: People understand the negative impact of charcoal burning on honey production and the advantages of beekeeping as a sustainable livelihood

- 5.1 Constructive engagement with charcoal producers in target communities, inviting them to take part in beekeeping training
- 5.2 Constructive engagement with traditional authorities to raise awareness of trade-offs between charcoal and honey production
- 5.3 Interviews with beekeepers who were former charcoal producers to be broadcast on local radio programme 'Farmers' time'

OUTPUT 6: Stakeholders interested in reversing forest degradation through honey trade have access to information, project results and a blueprint for a low-cost, digital traceability system based on the Mobile Honey System

- 6.1 Following another two seasons of implementation, expansion, testing and improvement, BfD and BfD Ghana co-produce a how-to manual for low-cost digital traceability based on the experience of developing and implementing the Mobile Honey System in Afram Plains.

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6.2 Production of an animated explainer video explaining how the Mobile Honey System works and what it is for.

6.3 Publication of above-mentioned video and manual on BfD Online Resource Centre, BfD Ghana website, Wikifarmer, The Africa Report, KoboToolbox blog and other web-based platforms, alongside press release in both UK and Ghana.

6.4 Presentation reviewing project approach and impact at Apimondia 2025 (Project Leader and Master Beekeeper)

6.5 Project news and progress published twice quarterly throughout implementation on BfD Ghana website

6.6 Publication(s) of tree population inventories and impact studies of improved fire management on vegetation and forest restoration

6.7 Publication of floral calendars for Afram Plains on BfD Online Resource Centre

6.8 Mid-term and end of project review workshops with local stakeholders

6.9 Articles published in Bees for Development Journal about the link between honey trade, fire mitigation and forest recovery.