

DIR28S2\1013

Sweetpotato, a model for food-security and long-term conservation of biodiversity

Sweetpotato, a vital subsistence crop in Africa, has high micronutrient content and adaptive qualities for many farming systems, making it a globally critical component of food security. However, the unique diversity of sweetpotato landraces in low-income countries is poorly conserved and vanishing. This project introduces a robust methodology to conserve and use sweetpotato genetic diversity as a model for the long-term, secure conservation of clonal crops, many of which are essential to smallholder farmers for increased sustainability and livelihoods.

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Section 2 - Title, Ecosystems, Approaches & Summary

Q3. Title:

Sweetpotato, a model for food-security and long-term conservation of biodiversity

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

DIR28S1\1136

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

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

Biome 2

No Response

Biome 3

No Response

Conservation Action 1

Land/water protection (area/resource/habitat)

Conservation Action 2

Species management (harvest, recovery, re-introduction, ex-situ)

Conservation Action 3

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

Threat 1

Agriculture & aquaculture (incl. plantations)

Threat 2

Invasive & other problematic species, genes & diseases

Threat 3

Other threats

Q5. Summary

Please provide a brief summary of your project, 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.

Sweetpotato, a vital subsistence crop in Africa, has high micronutrient content and adaptive qualities for many farming systems, making it a globally critical component of food security. However, the unique diversity of sweetpotato landraces in low-income countries is poorly conserved and vanishing. This project introduces a robust methodology to conserve and use sweetpotato genetic diversity as a model for the long-term, secure conservation of clonal crops, many of which are essential to smallholder farmers for increased sustainability and livelihoods.

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 Zambia

Country 2 Madagascar

Country 3 Kenya

Country 4 Peru

Do you require more fields?

No

Q7. Project dates

Start date:

01 June 2022

End date:

31 March 2025

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

2 years, 10 months

Q8. Budget summary

Year:	2022/23	2023/24	2024/25	Total request
Amount:	£197,418.00	£224,823.00	£177,758.00	£ 599,999.00

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?

This project will be funded by Darwin Initiative (■■■■) CGIAR (■■■■) and CropTrust (■■■■). CGIAR and Crop Trust will finance the collection, characterization, genotyping, introduction into in-vitro, and shipment of sweetpotato landraces from Zambia to Peru, to be incorporated into the global sweetpotato collection, held in trust under the International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGRFA) by the International Potato Center (CIP) in Lima, Peru. The development of a cryopreservation method for sweetpotato will be co-financed by CGIAR. Funds from the Darwin Initiative will cover the costs of collecting sweetpotato landraces in Madagascar, introduction into in-vitro and shipment to Kenya and Peru. Darwin Initiative' funds will also cover the costs of phytosanitary cleaning of landraces from Zambia and Madagascar in Kenya, their return to farmers (known as "repatriation") and vine-multiplication in-country, distribution of disease-free vines to farmers and the documentation of the project's benefits to farmers.

Q10b. Total confirmed & unconfirmed matched funding (£) ■■■■■■

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

Not applicable, as all matched funding is confirmed.

Matched funding comes from four existing initiatives that are already funded: The Seeds for Resilience project

implemented in Zambia by Crop Trust with support from KfW Development Bank, USAID-funded BHA-project coordinated by CIP-Kenya in Madagascar, CGIAR Genebank Initiative (2022-2024) funded by CGIAR donors and the long-term grant to the CIP genebank funded by Crop Trust.

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. For example, what are the drivers of loss of biodiversity that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems?

Please cite the evidence you are using to support your assessment of the problem (references can be listed in your additional attached PDF document which can be uploaded at the bottom of the methodology page).

According to the Intergovernmental Panel on Climate Change, Sub-Saharan Africa (SSA) is one of the regions that is most vulnerable to climate change and variability (Niang e.a., 2014). Agricultural production is of particular concern, as it provides the livelihood and food security for the majority of the region's population (Chivenge e.a., 2015), with about 95% of agriculture being rainfed and subsistence (Singh e.a., 2011).

Consequently, improving agricultural productivity and making it more resilient to climate change is an important objective, particularly for vegetatively propagated root, tuber, and banana (RTB) crops which are critical for food security across the African continent (Thiele e.a., 2020). Improvement strategies focused on a limited set of major grains have failed to resolve SSA's challenges due to farmer's reliance on RTBs in many areas, and also resulted in loss of agro-biodiversity (Mayet and Mentz-Lagrange, 2020). New approaches to ensuring food and nutrition security are needed. The search for sustainable, resilient and practical solutions to the challenges facing smallholder farmers has led to renewed focus on local RTBs. Traditional sweetpotato landraces have been a lifeline for subsistence smallholder households for centuries and have several durable and desirable agronomic traits that are sought after for crop improvement. The diversity in traditional landraces is frequently favoured by smallholder farmers over improved varieties, due to tolerance to biotic and abiotic stresses, nutritional and taste preferences and familiarity in production (Thiele e.a., 2020). While smallholder farmers continue to cultivate diverse traditional landraces, this diversity is in jeopardy because of the accumulation of diseases and pests, agricultural intensification, socioeconomic and environmental issues and climate change.

Efforts to collect landraces and conserve them ex situ are underway, but the costs and difficulty of maintaining RTB landraces is challenging for most developing nations. The genotypes of sweetpotato landraces, as with all vegetatively-propagated RTB crops, cannot be conserved as botanical seed, which challenges conservation efforts. Currently, sweetpotato diversity in Africa is conserved in field collections, which are vulnerable and often lost due to pests and diseases, adverse weather and a lack of resources or staff. Conservation in vitro in international genebanks, such as the CGIAR-genebanks, diminishes the exposure to pests and diseases but is costly for long-term conservation. A panel of experts has called for a global effort for the long-term secure cryopreservation of vulnerable RTB collections (Acker e.a., 2017), which has taken form as the Global Plant Cryopreservation Initiative (GPCI). The sweetpotato landraces collected in this project will be safely conserved long-term under the GPCI and held in trust for humankind under the ITPGRFA by CIP in Peru.

This project will pilot a "Clean & Share" conservation approach for sweetpotato landraces. Project partners will collect, clean and process unique landraces for cryopreservation and, simultaneously, return disease-free planting material to smallholder farmers. Focussing on indigenous landraces that are locally adapted and preferred by women for processing and consumption, the project aims to not only increase yields, but also conserve irreplaceable diversity long-term and provide disease-free planting material into the future to help ensure sustained benefits.

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)
- International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)
- Global Goals for Sustainable Development (SDGs)

Q12b. National and International Policy Alignment

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.

This project supports the National Biodiversity Strategies and Action Plans of the partner countries, contributing to the strategic objective of both Madagascar and Zambia to maintain the genetic diversity of cultivated plants, domestic animals, and their wild relatives, as well as other species of social and cultural value. More specifically, the project responds to Madagascar's aim to develop conservation and use programs for genetic resources and elaborate conservation programs for crops that have a socio-economic value. Further, this project is aligned with the country's 2012-2025 National Climate Change Strategy to reduce the vulnerability of the agriculture sector to climate change. The project contributes to Zambia's objective to develop and implement strategies for minimizing genetic erosion and safeguard genetic diversity, and helps to achieve the National Agriculture Policy's first objective to increase production and productivity.

The project is also aligned with the policy priorities of Kenya and Peru. The planned activities underpin Kenya's national development goals (Vision 2030 and Green Economy Strategy), to transform into a newly industrializing country and to promote green innovation and technology development. Likewise, as sweetpotato originated in Latin America, the project will help Peru fulfill its aspiration to develop programs for conservation and sustainable use of genetic diversity for species or groups of species, of which the country is the center of origin and/or diversification, as well as for their wild relatives. Sweetpotato is listed in Annex 1 (i.e. it is covered under the Multilateral System) of the ITPGRFA, of which all project countries are Contracting Parties. The global sweetpotato collection is held and managed in trust by CIP under Article 15 of the ITPGRFA. All genetic resources collected and conserved in this project will be transferred to CIP with a Standard Material Transfer Agreement (SMTA), assigned Digital Object Identifiers (DOIs) by the ITPGRFA's Global Information System and made available globally for research, breeding and training with the SMTA.

With the development of an operational long-term cryopreservation methodology for conserving genetic diversity of sweetpotato in the context of the GPCI, this project directly contributes to Sustainable Development Goal 2 (SDG2), Target 2.5: to maintain the genetic diversity of cultivated plants through diversified seed and plant banks. It also contributes to Target 2a as it increases investment in technology development and plant genebanks to enhance agricultural productive capacity in developing countries. The choice of sweetpotato further supports SDG2 as a means to improve nutrition since sweetpotato is a source of monosaccharides, complex carbohydrates, dietary fibre, vitamin C, vitamin B6, anthocyanins and minerals, as well as beta-carotene (orange and yellow fleshed varieties). In addition to the roots, both leaves and shoots are also consumed as nutritious green vegetables with antioxidants in red-pigmented leaves and stems.

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 analysed historical and existing initiatives and are building on or taking work already done into account in project design. Please cite evidence where appropriate.
- The rationale for carrying out this work and a justification of your proposed methodology.
- How you will undertake the work (materials and methods).
- How you will manage the work (roles and responsibilities, project management tools, etc.).

The twofold outcome of this project is the secure, long-term conservation of at-risk sweetpotato landraces and increased sweetpotato yields for smallholder farmers. The project will provide proof of concept for the "Clean & Share" conservation approach for RTB crops, aiming for immediate impact at farmer level while ensuring that useful traits, genes and diversity in landraces are available to future generations for consumption, breeding, training and research. We focus on sweetpotato due to an urgent need to conserve unique varieties in drought-prone areas of Madagascar and southern Africa which have been identified as valuable by researchers, but which are not yet conserved ex situ.

Secure long-term conservation will be achieved by cryopreservation, a proven methodology utilizing liquid nitrogen to store plant tissues at ultralow temperatures (-196 degrees Celsius), resulting in the landraces remaining available for centuries. This benefits current and future generations of smallholder subsistence farmers. The cryopreservation protocol for sweetpotato has been developed at CIP but continues to be improved. This project will help support the refinement and implementation of the protocol with SSA landraces.

To support implementation and continued operation, a key component of the approach is building the capacity of National Agricultural Research Systems (NARS) to conserve, clean and multiply cleaned sweetpotato materials. The NARS, in turn, will train farmers in multiplying clean planting materials and identifying and managing diseases in the field.

The project capitalizes on and complements ongoing projects, while continuing to build strong links between CGIAR and NARS in SSA. Zambia and Madagascar are the focus of this project because: (1) there is an urgent need to conserve unique sweetpotato landrace diversity in these countries; (2) there are complementary activities underway in both countries. For instance, sweetpotato landraces have already been collected in Zambia by another project and will be ready for sharing back with farmers after cleaning in year 2 if this project is funded.

CIP has worked previously with SSA countries to conserve sweetpotato landraces and will use the following approach:

1. Sweetpotato landraces are characterized using standard descriptors and vines collected, along with passport data, by the national programs with Prior Informed Consent (PIC) from farmers, carefully balancing participation of men, women and youth.
2. Leaf material is harvested for DNA fingerprinting to assess the diversity and uniqueness of collected landraces compared to the global collection at CIP-Peru.
3. Collected vines are shipped to the CIP-Kenya facility at Kenya's Plant Health Inspectorate Service (KEPHIS) with an SMTA.
4. Landraces are introduced into in-vitro and cleaned of diseases utilizing thermotherapy and meristem isolation.
5. Disease-free material is shipped back to the national partners for vine multiplication.
6. Material is simultaneously shipped to CIP-Peru for verification of microbial elimination.
7. National partners multiply and distribute clean planting material to farming households using a gender-balanced and age-sensitive approach.
8. The benefits of repatriation of disease-free material (e.g., increased yields, increased on-farm diversity, enhanced food security) will be assessed by NARS using farmer focus group discussions (FGD) with the active participation of men, women and youth, and through comparison plots of non-cleaned and cleaned stock.
9. Certified disease-free material is entered into the global sweetpotato collection at CIP-Peru and cryopreserved. NARS' staff (ZARI in Zambia and FIFAMANOR in Madagascar) will be responsible for collecting and selecting sweetpotato landraces, coordinating vine multiplication and distribution, and analyzing sweetpotato yields and farmer satisfaction through FGD.

CIP-Kenya will coordinate the introduction of the collected landraces into in vitro, disease cleaning, repatriation to the countries of origin, and shipping material to CIP-Peru.

CIP-Peru will verify the disease-clean status of the landraces, optimize the cryopreservation protocol and cryopreserve the landraces. Capacity building will include training of NARS' staff in conservation and cleaning techniques, molecular and phenotypic characterization (that will help NARS study and use genetic diversity), vine multiplication, and disease management. NARS will be primary beneficiaries; however, training will also be offered to farmers and extension personnel.

Crop Trust will be responsible for overall technical and financial oversight, coordination and reporting to Darwin Initiative. Crop Trust will also be closely involved in scaling up the "Clean & Share" conservation approach after the project has ended. Two project meetings will take place, physically if possible, in year 1 and by the end of year 2/beginning of year 3. Project updates will be shared with partners on a bi-monthly basis. Information on the project will be disseminated through Crop Trust blogs and social media, and scientific outputs will be presented and published in events such as the Triannual African Potato Association Meeting.

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 and the post-project value to the country.

Although the urgent need for conserving the diversity of RTBs (including sweetpotato) is widely recognized, capacity of developing countries to do this effectively and efficiently is often limited. Lack of infrastructure, knowledge, skills, and funding constrain conservation efforts. This project will help NARS address these constraints, and also help farming communities conserve sweetpotato diversity, while increasing production through the use of diverse clean planting material and disease management.

Capacity building will be done using webinars, one-on-one virtual sessions, and field visits (travel restrictions dependent).

The Crop Trust will provide general training in quality management for genetic resources conservation for ZARI and FIFAMANOR, while CIP will provide training in diversity characterization, vine multiplication, outreach to farmers and disease management and cleaning. These workshops will follow a “Train-the-Trainer” model, where participants will be empowered to disseminate the knowledge they learn to others. Participants will include national genebank staff, extensionists, breeders and farmers. Although the funding provided will not be enough to build the capacity of NARS to carry out adequate disease cleaning for international exchange and cryopreservation themselves, the project will expose them to the principles and techniques involved, and ensure knowledge and clean materials are available to the partners. Access to disease-free material and improved disease management will result in increased sweetpotato yields that should be sustained through continued interaction among CIP-Kenya, KEPHIS, NARS and farmers. This project will also ensure long-term conservation of unique sweetpotato diversity in the Multilateral System, which will be freely available for research, breeding, and training for future generations. Valuable traits from these landraces, such as drought resistance, may be introduced into new varieties. Enhancing the role of KEPHIS/CIP-Nairobi’s as a centre of plant protection expertise in the region will also help to scale the “Clean & Share” conservation approach to other RTBs and countries.

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.

In SSA, sweetpotato is often grown by women on small plots primarily for family subsistence (and sale of any surplus), although men may cultivate it as a cash crop. Preferred sweetpotato traits vary significantly with the gender of the farmer, with women often favouring specific processing, cooking and nutritional traits, against men who may favour production-related characteristics (CIP, 2021; Mudege e.a. 2017). Sweetpotato characteristics might impact gender roles, e.g., when higher root yields require more labour for harvesting. Local knowledge and gender-awareness of project staff are key to achieving success and preventing unforeseen negative impacts. Concrete measures to ensure that gender, youth and diversity will be taken into account include:

- Collecting landraces: Gender differences will be recorded during collecting, and collecting teams will be gender-balanced. In selecting material for disease-cleaning and conservation, landraces with traits preferred by women will take up at least 50% of the 30 landraces to be collected in each country.
- Vine multiplication and distribution: In selecting farmers to receive disease-free vines, NARS will develop a distribution model that ensures recipients will be gender-balanced and includes young farmers. Factors that constrain the adoption by vulnerable groups will be addressed, e.g., group-activities for persons who do not have access to land or labour.
- Capacity-building: Participatory training-methods will be used to ensure that women farmers actively participate in training and their knowledge is recognized. Training events will be organized according to time-schedules of both men and women and take into account their specific needs.
- Continuous feedback and adjustments: Participation of men and women through FGD will help in assessing who is benefitting from project activities and allow for timely adjustments. At least one focus group will be made up entirely of women to ensure the capture of gender-specific elements of benefit, needs and future outlook.

Q16. Awareness and understanding

How will you raise awareness and understanding of biodiversity-poverty issues in your stakeholders, including who are your stakeholders, 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?

The project’s stakeholders include individual farmers, farmer communities, NGOs, NARS and extension services, as well as scientists and breeders. All play a part and can contribute to the protection of biodiversity and enhancement of smallholder farmers’ food security and as such, will be involved in project communication and information-sharing strategies.

Project communication builds first and foremost upon a wide range of methods that partners already use to share information with users, including databases, websites, social media, publications and flyers. The national partners will develop communications (e.g. 2-page fliers, radio or social media as appropriate) in local languages to promote the distribution of cleaned planting materials.

Genebank databases will be updated with information about the collected materials to facilitate their global availability. Data will be provided to the global genebank portal, Genesys (www.genesys-pgr.org), which brings together information on the millions of genebank accessions around the world in an easy-to-use website. Information on shared landraces will also

be recorded in the Global Information System (<https://www.fao.org/plant-treaty/areas-of-work/global-information-system/en/>) of the ITPGRFA through SMTA reporting.

Existing communication methods and tools will be complemented with FGD to assess benefits and satisfaction with project outputs. Structured user-groups in which various types of stakeholders participate (e.g., plant breeders, seed producers and disseminators, extension services, farmers, NGOs), with balanced participation of men and women, young and old, will help increase understanding. Farmer Field Schools (a group-based learning approach that supports farmers to experiment and solve problems independently) will help us reach more households and ensure that messages are well understood. The lessons learned will be captured as part of M&E, discussed among the project partners and shared with a broader public in meetings, conferences and publications. We also plan sharing results at the 13th Triennial Conference of the African Potato Association meeting in 2025.

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).

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.

Sweetpotato, an underground tuberous root, is relatively climate-resilient and can grow back after severe weather or abandonment. The wide diversity of landraces accounts for their resilience and can be used to combat climate change. The crop originates from Central and South America, where the genetic diversity is richest. However, the African continent is thought to be a secondary region of sweetpotato diversification (Glato e.a., 2017), where local landraces are genetically diverse due to adaptation to local conditions over a long period and contain unique traits. This project conserves these unique genetic resources in genebanks, ensuring not only their availability for use now and into the future, but also the wide sharing of benefits under the ITPGRFA.

In total, a minimum of 60 diverse sweetpotato landraces from Zambia and Madagascar will be collected and >50 will be conserved. This represents a significant proportion of sweetpotato diversity in these countries and fills an important gap in the global collection of more than 6,000 accessions. From the landraces collected, disease-free *in vitro* plantlets will be multiplied and sent for long-term conservation at CIP-Peru, while disease-free material from a minimum of 50 landraces will be repatriated to Zambia and Madagascar. These will be multiplied under controlled disease-free conditions by NARS and commercial vine multipliers, producing a minimum of 1600 vine cuttings of each landrace (80,000 in total) for distribution to farmers in a gender-balanced manner. More than 150 households will each receive 500 vines, enough to plant ~75 square meters (Gibson e.a., 2016). In Madagascar, 61% of smallholder farms are under 500 square meters (Harvey e.a., 2014) and thus the vines distributed should be enough to plant >15% of the average farmer's field with diverse and disease-free material.

Farmers' rights will be recognized through the use of PIC during the collecting process and the SMTA for international transfer of materials. The use of disease-free planting material will provide immediate benefits in the form of yield increases of up to 30% or more (Magezi e.a., 2019; Aighewi e.a., 2015). This enhanced productivity will be sustained by strengthening the capacity of both NARS and farmers to continue the cycle of using clean planting material and managing diseases.

However, disease-free conditions in the fields cannot be guaranteed over time. Hence, the continued availability of clean planting stock sourced from CIP will be essential for long-term benefits. Through the "Clean & Share" conservation approach, long-term conservation and availability is linked to increases in yields in the fields potentially for years, translating into enhanced food security and livelihoods.

The lessons learned from this new conservation approach will be fed back into the activities of CGIAR and Crop Trust on other RTBs, such as cassava, banana and yam, as part of the GPCI, a worldwide effort to cryopreserve highly vulnerable RTB collections. Finally, the invaluable climate-resilient traits of these unique sweetpotato landraces will be available from CIP to researchers and breeders globally, allowing them to be introduced into improved varieties through plant breeding for use by sweetpotato farmers worldwide.

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 how you expect your Outputs to contribute towards your overall Outcome and, longer term, your expected

Impact.

This project will conserve sweetpotato diversity long-term, in trust for the global public good, and increase yields for smallholder farmers now and into the future. Once conserved in the global collection at CIP, the landraces will be accessible long-term as a source of clean planting material for farmers and as a source of genetic variation for researchers and breeders for crop improvement.

This project also builds the supply chain for Zambia and Madagascar to enable them to disseminate clean planting materials to farmers. By the end of the project, 80,000 vine cuttings of 50 landraces will be disseminated to farmers, resulting in a yield increase of at least 20%. Benefiting from this result and the project's capacity building, it is expected that farmers will continue to use their disease management skills and ensure planting materials are clean, and that vine multipliers are enabled to continue supplying and potentially selling clean planting materials. The experiences, collaboration and good practices shared between the project partners may be expanded under larger related initiatives to other RTBs, geographical regions and countries, resulting in farmers more widely being enabled to conserve and use diversity and appropriate techniques to address the challenges presented by climate change.

Q19. Exit Strategy

How the project will reach a sustainable point and continue to deliver benefits post-funding? Will the activities require funding and support from other sources, or will they be mainstreamed in to "business as usual"? How will the required knowledge and skills remain available to sustain the benefits? How will your approach, if proven, be scaled?





The project is designed to sustain benefits post-funding through knowledge transfer and capacity building activities with NARS, extension personnel and farmers; this way, capacity remains in-country when the project ends. Applying a 'train-the-trainer' approach helps to sustain dissemination of knowledge, including the capacity to conserve, clean and multiply sweetpotato materials, insights on disease management, to study and use genetic diversity, as well as techniques for assessment of benefits at the farm level. NARS staff can use these tools in their daily work and carry training and knowledge beyond this project.

Long-term availability of disease-free sweetpotato landraces will be ensured through the conservation in the sweetpotato collection at CIP-Peru. Article 12.3.b) of the ITPGRFA prescribes that "Access shall be accorded free of charge". This means that users from countries worldwide are able to request for samples of these materials in perpetuity.

The "Clean & Share" conservation approach will be documented; if proven effective, it will be adopted through the continued work of both the Crop Trust and CGIAR. There are opportunities to scale up or enhance the approach as part of the CGIAR Genebank Initiative, which includes components of work on the conservation and cryopreservation of RTBs, germplasm health and on capacity building and partnership with national partners. Both CGIAR and Crop Trust will continue to develop the GPCI, and reach out to new national partners to support the rescue and cryopreservation of RTBs through the "Clean & Share" conservation approach. In addition, it is expected that KEPHIS/CIP-Kenya will continue as a hub for cleaning planting material through both of these initiatives.

Successes in this project will be publicized through genetic resources networks and, if applicable, published in peer reviewed journals. Dissemination of results will also involve experts in the field of genetic resources conservation, particularly RTB crops.

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

 [Annex](#)
 31/01/2022
 17:36:04
 pdf 276.33 KB

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
<p>Fiduciary</p> <p>Misuse, inappropriate use and/or unauthorized use of funds by project partners.</p>	Severe	Possible	Major	The Crop Trust has rigorous financial control mechanisms and procurement guidelines in place, including (but not limited to) annual audits, periodic reporting/assessment, regular finance-investment meetings, training of project partners in QMS, monitoring and evaluation of expenditures and project performance through periodic reports and implementation of the “four eyes” principle.	Minor
<p>Safeguarding</p> <p>Project interventions exacerbate existing socio-economic inequalities in project intervention area.</p>	Severe	Possible	Major	Project design involves a gender-balanced strategy that aims to reduce the impact of socio-economic inequalities, facilitating active involvement of men and women, young and old, in all project phases (design, implementation and follow-up), and identifying measures to overcome obstacles that might prevent their access to project opportunities and benefits.	Minor
<p>Delivery Chain</p> <p>Delays and losses in shipments and planting of materials due to complex procurement processes and import and customs regulations as well as delays, in cleaning due to resistant viruses.</p>	Severe	Possible	Major	Project partners, Crop Trust and CIP have knowledge and experience with clearance processes of sweetpotato material; and will support customs clearance processes and shipping. Phytosanitary cleaning can be challenging and hence the project will collect 30 landraces yet only guarantee 25 cleaned landraces for repatriation and distribution.	Minor
<p>Risk 4</p> <p>The NARS are unable to adequately facilitate the multiplication and dissemination of cleaned planting material, or provide required training.</p>	Severe	Likely	Severe	The project involves rigorous training programmes to strengthen the required capacities in the NARS; where possible it aligns with existing projects that complement other planned activities in communities; it uses the farming school methods to increase effectivity and efficiency; through user groups NARS will receive high-quality feedback from beneficiaries.	Minor
<p>Risk 5</p> <p>The Covid-19 situation complicates planning and imposes travel- and working restrictions.</p>	Major	Likely	Major	The project involves long-distance (virtual) capacity building sessions; M&E methods can be digital if needed; short-term planning and flexibility is possible; extension methods in the field can be adjusted to individuals or small groups.	Moderate

Risk 6	Severe	Possible	Major	The project builds upon other projects undertaken already and that have assured the collection of landraces (25 in Zambia and 9 in Madagascar); the multiplication of cleaned materials and its preservation will be coordinated from and complimented by the local partner organizations who will assure the persistence of seed material.	Moderate
Environmental constraints or natural disasters affect field based essential operations (collection of landraces, multiplication, planting of cleaned sweetpotato materials).					





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.

[Implementation Timetable Template](#)

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.

 [R28 Darwin Implementation Timetable Template F1](#)
[NAL](#)
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 pdf 114.36 KB

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](#)).

The Project Management Team (PMT) will support the effective implementation of the project and will meet monthly. It will comprise the Project Leader, Senior Technical Advisor, Administrative and Finance Support and a Director of Science at the Crop Trust. The PMT will be responsible for the overall implementation and oversight of the project. The Project Leader and Senior Technical Advisor will share the responsibility to liaise regularly with the partners to monitor the implementation of project activities and provide backstopping. The Project Leader will ensure that all activities are aligned and running according to schedule. The PMT will provide a link to other relevant projects and activities under way in the Crop Trust and CGIAR, including the GPCI. The necessary technical expertise for project implementation will be provided in this team, supported by the Senior Project Advisor; external advice may be sought if necessary.

All project partners are represented in the Project Board, which will meet virtually every year to strategically assess project

progress.

To set up the monitoring and evaluation (M&E) framework, an initial workshop with partners will take place, with facilitation from an M&E specialist, to review the project logframe and develop logframes and Gantt charts for each partner. These will provide the basis for project agreements and annual reporting. Detailed activities and milestones will be mapped on a monthly timeline. The project logframe will be viewed as a dynamic tool and adjustments made as necessary. Timing is critical since materials need to be shipped to CIP-Kenya early in the project to allow time for disease cleaning and the return of clean materials for multiplication in sufficient quantities to partner countries. "Time-out" stops will occur at specific milestones to assess the status of activities and whether adjustments in the schedule need to be made. In addition, on-site monitoring will be carried out by the Project Leader, Senior Technical Advisor and Senior Project Advisor at least annually (if Covid restrictions allow).

Technical and financial reporting will be carried out annually online and progress against all milestones will be reviewed by the PMT. The Crop Trust Finance Team will oversee financial management. The PMT is responsible for the risk register's update and decides on mitigating actions as necessary. Adjustments to the milestones or timelines will be made in discussion with partners. Additional backstopping or physical visits may be necessary as a result of the PMT's review of progress.

An important aspect of M&E will be the project benefit and satisfaction assessment in years 2 and 3. NARS partners will set up experimental plots to test the benefits of disease-cleaning versus the disease-free material provided by CIP-Kenya. They will also work with a limited number of farmers (3-5) to test the impact of disease-free vines versus regular vine cuttings on-farm. The extent of these trials will be limited by the project duration. In addition, multi-stakeholder FGDs will take place to assess project benefits and farmer satisfaction. Results will be written up for publication in a scientific journal.

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	68

Section 10 - Logical Framework





Q23. Logical Framework

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](#)

Please complete your full logframe in the separate Word template and upload as a PDF using the file upload below. – **please do not edit the template structure other than adding additional Outputs if needed as a logframe submitted in a different format may make your application ineligible.** Copy your Impact, Outcome and Output statements and your activities below - these should be the same as in your uploaded logframe.

Please upload your logframe as a PDF document.

 [R28 Darwin St2 Logical Framework Template FINAL](#)
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Impact:

Smallholder farmers in Sub-Saharan Africa have long-term access to phytosanitary clean sweetpotato diversity and other clonal crop diversity as a means to address future climate change and other challenges.

Outcome:

Increased sweetpotato yields for smallholder farmers in Zambia and Madagascar as part of a "Clean & Share" approach to

conserve and provide clean planting material of RTB diversity.

Project Outputs

Output 1:

50 sweetpotato landraces from partner countries are processed for long-term conservation in the global sweetpotato collection at CIP in Lima, Peru

Output 2:

80,000 cleaned vines (planting materials) of 50 sweetpotato landraces are made available to smallholder households in Zambia and Madagascar

Output 3:

Capacity of national genebanks in Zambia and Madagascar strengthened to conserve diversity and support its use by farmers.

Output 4:

Cryopreservation protocol refined and optimized specifically for sweetpotato.

Output 5:

No Response

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.

No

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.

- 1.1 Collection and selection of 60 sweetpotato landraces in Zambia and Madagascar
- 1.2 Carry out genetic characterization of 60 sweetpotato landraces
- 1.3 Cleaning 50 sweetpotato landraces of yield-limiting viruses and other pathogens at CIP-Kenya
- 1.4 Shipping 50 sweetpotato landraces to CIP-Peru for processing into the collection and ultimately for cryopreservation in the global collection at CIP-Peru.
- 2.1 Disbursement of 10+ clean cuttings/in vitro plants from CIP-Kenya of 25 landraces each to vine multipliers in Zambia and Madagascar for multiplication to 1600 samples per landrace
- 2.2 Distribution of 80,000 sweetpotato disease-free vines to farmers
- 2.3 At least 150 households receive each 500 clean vine cuttings for planting
- 3.1 Carry out bi-monthly meetings with national genebanks in Zambia and Madagascar and three workshops on 1) conservation techniques, 2) analysis of molecular data and assessment of benefits at the farmer level
- 3.2 Carry out training on disease recognition, disease management, and multiplication of clean planting material for vine multipliers, NARS and farmers in Zambia and Madagascar
- 4.1 Undertake experiments to improve cryopreservation protocol for sweetpotato
- 4.2 Test protocol pilot on 25 sweetpotato accessions

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 your completed Darwin Budget Form Excel spreadsheet using the field below.

 [Budget-over-£100k-Dec21-MASTER-update](#)

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Q25. Financial Risk Management

Explain how you have assessed the risks and threats that may be relevant to the successful financial delivery of this project. This includes risks such as fraud, bribery or corruption, but may also include the risk of fluctuating foreign exchange, delays in procurement or recruitment and internal financial processes such as storage of financial data.

Financial risk assessment forms an integral part of the Crop Trust' institutional finance policy, project planning and risk management procedures, and is carried out under the supervision of the Crop Trust Financial Director.

For this project, four key financial risks have been identified and mitigation measures put in place.

(1) Unfavourable GBP:USD exchange rate movement

For the budget, we used a conservative rate (0.75); we will continuously monitor exchange rate and time disbursement requests to obtain the best possible rate, and carry forward savings from favourable exchange movement and use these to compensate for periods of unfavourable movement. In cases of extreme negative movement, the workplan will be adjusted accordingly.

(2) Decreased purchasing power due to foreign exchange movements

Ensure commitments are made in an appropriate currency, matching income sources with expenditure commitments.

(3) Partners misuse funds

Implement strong internal controls and compliance monitoring; organize meetings to review accounting, documentation, and record keeping; ensure that partners follow reporting schedules by sending out timely easy-to-use templates

(4) Partners not providing appropriate and/or timely performance reports.

Clear, regular communication on contract requirements. Next programmatic steps implemented only subject to approval of report on activity to date.

Q26. Funding

Q26a. Is this a new initiative or does it build on existing work (delivered by anyone and funded through any source)?

New Initiative

Please provide details:

This project is new but builds upon the following work:

- CGIAR Genebank Initiative (2022-2024): supports CGIAR (including CIP's) genebanks, in particular the steps required to introduce accessions in cryopreservation. In previous years, CGIAR has supported a project to bring clean sweetpotato from other Sub-Saharan countries for conservation at CIP-Peru.

- Seeds for Resilience (2020–2022): a project coordinated by the Crop Trust which builds the capacity of the ZARI national genebank to conserve unique crop diversity. Training, equipment and support for regeneration of seed collections are being provided. Funding from the Darwin Initiative allows ZARI to complement these efforts by safety duplicating sweetpotato diversity at CIP and developing the capacity to multiply clean vines for distribution to farmers.
- Global Plant Cryopreservation Initiative (GPCI) (yet to be funded): CGIAR and Crop Trust are launching an initiative to support national genebanks worldwide to cryopreserve RTB collections. Funding from Darwin will enable the “Clean & Share” conservation approach to be piloted.
- Enhancing Agricultural Recovery in Drought-Affected Southern Madagascar (2022-2023): Emergency response to re-establish sweetpotato cultivation and promote a low-cost system for root storage, establishing 36 trained vine multipliers to support the project.

Q26b. Are you aware of any current or future plans for similar work to the proposed project?

No

Q27. 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.

The project will cover the expense of constructing specialist screenhouses in both Zambia and Madagascar that will be used to help keep a stock of sweetpotato landraces clean during the project. The screen on these houses should have a life of at least 5 years and longer if mended as necessary, and the frames should last at least 10 years. These will provide a means of keeping material clean for a limited time after the project ends. We will also purchase a GPS for each team to document location coordinates which should last for a decade or more after the project ends.

CIP-Kenya will purchase a Genetop Shaker and a GTAC reader, that will enable virus testing in an array format and these equipment have a lifespan of 10+yrs enabling long-term phytosanitary cleaning from this hub for all of Africa for at least a decade after the project ends.

Q28. Value for Money

Please describe why you consider your application to be good value for money including justification of why the measures you will adopt will secure value for money.

Conservation and availability of plant genetic resources is key to sustaining livelihoods through crop productivity. Climate change increases the urgency for conservation and increases the demand for germplasm in genebanks to help agriculture adapt (Jarvis, 2010). This project will contribute to a solution with a scalable model, “Clean & Share” conservation approach for RTBs vital to smallholder farmer survival in the African continent and beyond.

As an immediate result, 60 sweetpotato landraces will be selected for long-term conservation, and disease-clean vines from these landraces will be distributed to over 150 households, directly benefitting >750 individuals during the project lifespan. In-country infrastructure for sustained conservation of genetic resources and knowhow for disease control will be assured through capacity building activities, and availability of teaching materials for prolonged dissemination of the knowledge gained. The project will provide a sustained hub at KEPHIS/CIP-Kenya for the continued provision of phytosanitary cleaning services to guarantee the availability of local clean sweetpotato varieties preferred by farmers on the African continent.

Indirectly, the project will benefit smallholder sweetpotato farmers worldwide, who will benefit from the sustained availability with an SMTA of these landraces via long-term conservation under the ITPGRFA.

A long-lasting legacy of the project will be the development of an operational cryopreservation system for sweetpotato at CIP-Peru, which will ensure that not only the landraces from this project, but also the unique diversity in sweetpotato worldwide are conserved and available for centuries to come, to be used by future generations as tools for sustained crop productivity.

Section 12 - Safeguarding and Ethics

Q29. 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 downstream 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 your safeguarding policies in practice and ensure that downstream partners apply the same standards as the Lead Partner. Please highlight any key safeguarding risks, including human rights issues, their assessment and measures to mitigate and manage them.

As per its safeguarding policies, Crop Trust is committed to carrying out its operations in compliance with international and national standards on human and labour rights; procedures involve the required compliance and grievance mechanisms that allow for pre-emptive measures, early detection and immediate remediation. Following institutional policies, partnerships can only be established with organisations that are compliant with the same standards. To ensure this, Crop Trust conducts pre-engagement due diligence checks on potential partners, implements a detailed clearance process before contracting and secures conformity with its policies and the relevant international standards through contractual obligations and supporting monitoring processes. Crop Trust' partners confirm that they have ethical policies in place for preventing, reporting on, and dealing with human rights violations, child labour, discrimination, sexual harassment, exploitation, and abuse, and gender-based violence.

Crop Trust was recently subjected to an 'Environmental and Social Due Diligence' screening by one of its donors, the KfW Development Bank, and was classified as Category C, namely 'expected to have no or only minor adverse environmental and social impacts or risks and does not require any particular protection, compensation or monitoring measures'.

Q30. Ethics

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

The Crop Trust is an international organization committed to all legal and ethical obligations of the countries it works in, as well as all relevant international standards and regulations. Crop Trust requires its partners to confirm compliance and carries out due diligence activities to control this.

All parties involved in this project operate under the framework of the ITPGRFA. Subject to the policy guidance of its Governing Body, the Crop Trust is an essential element of the ITPGRFA's Funding Strategy. The partner countries are

Parties to the ITPGRFA. CIP-Peru manages an International Genebank under Article 15 of the Treaty. All partners are thus part of the Multilateral System established by the ITPGRFA to facilitate access to crop diversity and to share, in a fair and equitable way, the benefits arising from the utilization of these resources.

In this project, activities are designed to recognize the value of traditional knowledge and require prior and informed consent from the local populations. Compliance to this and all relevant national and international legal requirements is ensured as part of due diligence and M&E.

A copy of the Crop Trust' Values, Ethical Principles and Compliance Framework is attached in the Safeguarding Policies (p. 137-140).

Section 13 - FCDO Notifications

Q31. 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

Q32. 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?
Charlotte Lusty	Project Leader	17	Checked
Dave Ellis	Sr. Technical Advisor	30	Checked
Nelissa Jamora	M&E Specialist	6	Checked
Rosemary Gatimu	Researcher - Coordination of shipping, TC, phytocleaning	30	Checked





Do you require more fields?

Yes

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Andrew Waweru	Researcher - TC, greenhouse	50	Checked
Jan Low	Senior Project Advisor	3	Checked
Vania Azevedo	Head of CIP-Genebank	5	Checked
Tokinaiamalala Harena Razafindrazaka	Project coordination, field work, vine multiplication, distribution, assessment	25	Checked
Sitraka Maminaiaina Andriamihaja	Supervising field work, distribution, assessment	17	Checked
Noroseheno Ralisoa	Supervisor of the collection, the multiplication and the conservation of sweetpotato landraces in Madagascar	9	Checked
Graybill Munkombwe	Principal researcher -Project Coordination, collecting, shipping, assessment, project reporting	23	Checked
Rabson Mulenga	Research officer- Mass propagation, Hardening and assessment	8	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.

 [Project Staff](#)
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Have you attached all project staff CVs?

No

If you cannot provide a CV or job description, please explain why not.

We have provided 12 names and attached the corresponding CVs of the project's key staff members.

We didn't include the names and CVs of field technicians, administrative and financial support staff, or members that will dedicate only a limited portion of their time to the project.

Section 15 - Project Partners

Q33. 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:	Global Crop Diversity Trust (Crop Trust)
Website address:	https://www.croptrust.org
Details (including roles and responsibilities and capacity to engage with the project):	The Global Crop Diversity Trust (Crop Trust) will be responsible and accountable for overall project management, including administration, finances, agreements with partners, coordination of activities, annual reporting, contingency planning and execution, overall quality management of activities, and communication with partners addressing any challenges that arise during the course of the project. The Crop Trust is also responsible to ensuring on time deliverables of all items in the project to include the collection and phytosanitary cleaning of sweetpotato landraces from Zambia and Madagascar, the successful shipment of this material to CIP-Lima and the incorporation of the landraces into the in Trust collection under the ITPGRFA, the repatriation of disease-free materials to Zambia and Madagascar, the multiplication of vines and distribution of planting material to farming households and the assessment of benefits to farmers. The Crop Trust also has expertise in QMS and capacity building which will be used to ensure lasting success and impact from the capacity building elements of this project.
Allocated budget (proportion or value):	██████████
Represented on the Project Board	<input checked="" type="radio"/> Yes
Have you included a Letter of Support from this organisation?	<input checked="" type="radio"/> Yes
Have you provided a cover letter to address your Stage 1 feedback?	<input checked="" type="radio"/> Yes

Do you have partners involved in the Project?

Yes

1. Partner Name:	The International Potato Center (CIP)
Website address:	https://cipotato.org

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

Two International Potato Center (CIP) locations will be key partners in the project. CIP-Peru is the headquarters and the site of the CIP-genebank which is the caretaker of the global sweetpotato genetic resources collection which is held in trust under the auspices of the ITPGRFA. The CIP-genebank will be responsible for the long-term conservation of all sweetpotato landraces involved in this project, this includes receipt of material in Lima, maintaining the landraces through quarantine, verification of phytosanitary status, in vitro maintenance, cryopreservation, long-term storage of cryopreserved material, maintaining information on the landraces in a public database and distribution of material with an SMTA. CIP-Kenya is a major science and sweetpotato hub for the African continent and will play a role in project coordination on the continent. CIP-Kenya will receive vine material from the other partners, initiate in vitro cultures from the material, phytosanitary clean the material, ship material back to partners in Zambia and Madagascar repatriation and for vine multiplication and also ship material to CIP-Kenya for inclusion in the in trust sweetpotato collection.

Allocated budget: ██████████

Represented on the Project Board Yes

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

2. Partner Name: Zambia Agriculture Research Institute (ZARI)

Website address: https://www.agriculture.gov.zm/?page_id=4821

Details (including roles and responsibilities and capacity to engage with the project): The Zambia Agriculture Research Institute (ZARI) is a department of the Ministry of Agriculture and Livestock and houses the Zambian National Plant Genetic Resources Center at the Mt. Makulu Research Station. ZARI will be responsible for the project activities in Zambia. ZARI is coordinating the collection, characterizing the landraces with standard descriptors, shipment of the landraces to SIP-Nairobi with an SMTA and genotyping of the Zambian sweetpotato landraces under a separate project entitled Seeds for Resilience. After shipment of the landraces to CIP-Kenya, the Darwin Initiative project will take over and ZARI will be responsible for the coordination for shipping phytosanitary clean sweetpotato material back to Zambia, coordination with vine multipliers for the clean multiplication of vines, identification, distribution and coordination of smallholder farming families to receive and plant the vines and for the assessment of benefits to farmers during growth and at harvest. ZARI will also participate in the project workshops, prepare periodic project reports as needed and assume the role of farmer education on disease management after the project ends.

Allocated budget: ██████████

Represented on the Project Board Yes

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

3. Partner Name: Fiompiana Fambolena Malagasy Norvéziana (FIFAMANOR)

Website address: No website available but see <https://www.sweetpotatoknowledge.org/project/fifamanor/>

Details (including roles and responsibilities and capacity to engage with the project): FIFAMANOR is a public institution whose main objective is improving the standard of farmers in Madagascar. FIFAMANOR will be responsible for the project activities in Madagascar. This will include coordinating the collection of sweetpotato landraces, characterizing the landraces with standard descriptors, shipping samples of leaf material to Diversity Arrays for DNA extraction and genetic marker generation, shipping the landraces to CIP-Kenya with an SMTA, coordination for shipping phytosanitary clean sweetpotato material back to Madagascar, coordination with vine multipliers for the clean multiplication of vines, identification, distribution and coordination of smallholder farming families to receive and plant the vines and for the assessment of benefits to farmers during growth and at harvest. FIFAMANOR will also participate in the project workshops, prepare periodic project reports as needed and assume the role of farmer education on disease management after the project ends.

Allocated budget: ██████████

Represented on the Project Board Yes

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

4. Partner Name: *No Response*

Website address: *No Response*

Details (including roles and responsibilities and capacity to engage with the project): *No Response*

Allocated budget: £0.00

Represented on the Project Board Yes
 No

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

5. Partner Name: *No Response*

Website address: *No Response*

Details (including roles and responsibilities and capacity to engage with the project): *No Response*

Allocated budget: £0.00

Represented on the Project Board Yes
 No

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

6. Partner Name: *No Response*

Website address: *No Response*

Details (including roles and responsibilities and capacity to engage with the project): *No Response*

Allocated budget: £0.00

Represented on the Project Board Yes
 No


Have you included a Letter of Support from this organisation?


- Yes
 No


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

No Response

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


 [Support Letters](#)


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 [Cover letter](#)

 31/01/2022

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Section 16 - Lead Partner Capability and Capacity

Q34. Lead Partner Capability and Capacity

Has your organisation been awarded a Darwin Initiative funding before (for the purposes of this question, being a partner does not count)?

No

If no, please provide the below information on the lead partner.

What year was your organisation established/ incorporated/ registered?

01 January 2004

What is the legal status of your organisation?

Other (if selected, please explain below)

Other explained

The Global Crop Diversity Trust (the "Crop Trust") is an autonomous international organisation established under international law and possesses full international legal personality,

How is your organisation currently funded?

The Crop Trust funds its core activities through a self-sustaining Crop Diversity Endowment Fund. This innovative financial instrument was established in recognition that crop diversity is too valuable and too vulnerable to be exposed to the inevitable swings in annual government or institutional budgets and policies. Its aim is to maintain investment funds for the long-term and draw the annual income from the funds to provide in perpetuity support to the world's most important crop collections.

This income is complemented with shorter-term projects that are financed by private foundations, national governments, the private sector, development banks, farmer organisations, among others.

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

Aims	The Crop Trust was established in 2004 by CGIAR and FAO to help design, and support sustainably, an efficient and effective global system for the ex situ conservation of crop diversity. The mission is to ensure the conservation and availability of crop diversity for food security worldwide.
Activities	The Crop Trust funds the long-term conservation and availability of collections of unique, globally valuable crop diversity held in key genebanks around the world. The Crop Trust also supports genebanks through a range of shorter-term projects to build capacity and partnerships in the conservation of crop diversity.
Achievements	The Crop Trust has been a partner in the Svalbard Global Seed Vault since its inception, and is an essential element of the funding strategy of the ITPGRFA. Crop Trust contributed to build the global system of crop diversity conservation from the bottom up to ensure crop diversity.

Provide details of 3 contracts/projects held by the lead partner that demonstrate your credibility as an organisation and provide track record relevant to the project proposed.

These contracts/awards should have been held in the last 5 years and be of a similar size to the grant requested in your Darwin application.

Contract/Project 1 Title	National Seeds Collections for Climate-Resilient Agriculture in Africa - Seeds4Resilience
Contract Value/Project budget (include currency)	[REDACTED]
Duration (e.g. 2 years 3 months)	6 years
Role of organisation in project	Crop Trust is the project lead and coordinator of the project, and responsible for M&E and donor communication. Crop Trust provides support so NSCs can reach international genebank standards through a QMS approach, including training of staff, risk management, safety and succession, and other key elements of effective institutional management.
Brief summary of the aims, objectives and outcomes of the project	<p>Aim: enhanced resilience of crop and food production systems in risk-prone environments in Africa</p> <p>Objective: strengthen key national seed collections in five countries in Africa to act as entry points of diverse crops and varieties for direct use for farmers and for developing new, climate- resilient crop varieties.</p> <p>Outcomes:</p> <ol style="list-style-type: none"> 1) Essential operations of five national seed collections in Africa safeguarded in perpetuity through an endowment fund; 2) National seed collections are managed and documented appropriately for conservation and use; 3) Use of national seed collections for increasing the diversity of varietal options with which farmers can respond to climate change.
Client/independent reference contact details (Name, e-mail)	<p>Federal Government of Germany through the German Development Bank (KfW)</p> <p>Contact details: [REDACTED] [REDACTED]</p>

Contract/Project 2 Title	Safeguarding crop diversity for food security: Pre-breeding complemented with innovative finance
Contract Value/Project budget (include currency)	[REDACTED]
Duration (e.g. 2 years, 3 months)	3 years
Role of organisation in project	Crop Trust is project lead. As project coordinator, Crop Trust is responsible to reach the project objectives in close collaboration with the international agricultural research centers ICARDA, ICRASAT and JHI, carrying out capacity building, M&E, donor communication as well as financial control.
Brief summary of the aims, objectives and outcomes of the project	<p>Aim: to secure and make available crop diversity to sustainably increase resilience of agricultural production systems in Africa</p> <p>Objective: to bridge the gap between genetic resource collections (i.e. genebanks) and users and contribute to a more widespread use of genetic resources as well as sustainable funding sources to ensure that genetic resources are adequately conserved and made available through well-managed conservation facilities</p> <p>Outcomes:</p> <p>(1) Improved breeding of grass pea and finger millet crops that enhance human health, increase income for rural poor and have clear environmental benefits</p> <p>(2) Innovative and sustainable finance mechanisms identified to safeguard crop diversity in perpetuity</p>
Client/independent reference contact details (Name, e-mail)	<p>Templeton World Charity Foundation</p> <p>Contact details:</p> <p>[REDACTED]</p> <p>[REDACTED]</p>

Contract/Project 3 Title	Conservation of African Sweetpotato Landraces - Genebank Platform
Contract Value/Project budget (include currency)	[REDACTED]
Duration (e.g. 2 years, 3 months)	2 years
Role of organisation in project	The Crop Trust provided coordination, technical and financial monitoring, and implementation of the CIP-Peru project for the conservation of previously collected sweetpotato landraces from Ghana, Sierra Leone, Mozambique and Kenya.

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

Sweetpotato landraces, collected in Sierra Leone, Ghana, Kenya and Mozambique by different projects over the past decade were being lost in the field, along with the unique diversity and investment spent for their collection. This project coordinated the shipment of these landraces to CIP-Peru through CIP-Kenya. The material from >100 landraces was successfully shipped to CIP-Kenya where it was put into in vitro culture when the COVID pandemic struck, disrupting shipments to Peru. Despite the challenges, the project was a success and it greatly improved the process of shipping material from Kenya to Peru, which will benefit this Darwin project.

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

Contact details:

[Redacted]

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

Q35. Certification

On behalf of the

Trustees

of

Global Crop Diversity Trust

I apply for a grant of

[Redacted]

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, letters of support, 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

Stefan Schmitz

Position in the organisation

Executive Director





Signature (please upload e-signature)





 [Certification](#)
 31/01/2022
 18:12:54
 pdf 33.4 KB

Date





31 January 2022

Please attach the requested signed audited/independently examined accounts.

 [Financial Statement including audit report 2020](#)
 31/01/2022
 18:09:54
 pdf 1.47 MB

 [Financial Statement including audit report 2019](#)
 31/01/2022
 18:09:54
 pdf 1.26 MB

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

 [Crop Trust Safeguarding Policies](#)
 31/01/2022
 18:10:25
 pdf 2.86 MB

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 included a 1 page CV or job description for all the Project Staff identified at Question 32, 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 33, 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 29.	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 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).