

---

# **DIR28CC\1088**

## **Enhancing the capacity and capability of orchid conservation in Armenia**

Orchids represent one of the largest plant families, including species that have great ecosystem and economic value. Those found in the Caucasus are threatened with local extinction due to habitat loss and unsustainable trade. Effective conservation of orchids needs to include a combination of in situ and ex situ methodologies. This project will enhance the knowledge and skills of in-country practitioners alongside local communities to conserve orchid populations in situ and establish capacity to conserve seeds of orchids for Armenia.

---

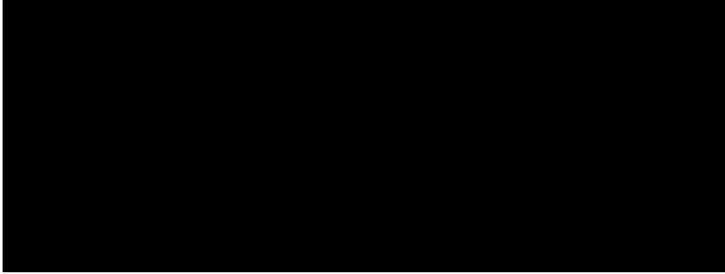
## Section 1 - Contact Details

---

### PRIMARY APPLICANT DETAILS

---

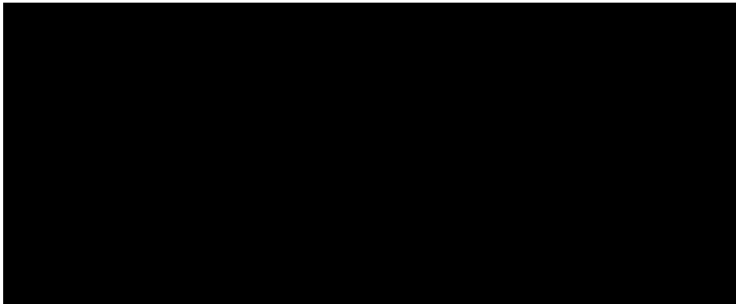
<b>Name</b>	Aisyah
<b>Surname</b>	Faruk



### GMS ORGANISATION

---

<b>Type</b>	<b>Organisation</b>
<b>Name</b>	Royal Botanic Gardens Kew



## Section 2 - Title & Summary

---

### Q3. Title:

Enhancing the capacity and capability of orchid conservation in Armenia

### Q4. 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.**

Orchids represent one of the largest plant families, including species that have great ecosystem and economic value. Those found in the Caucasus are threatened with local extinction due to habitat loss and unsustainable trade. Effective conservation of orchids needs to include a combination of in situ and ex situ methodologies. This project will enhance the knowledge and skills of in-country practitioners alongside local communities to conserve orchid populations in situ and establish capacity to conserve seeds of orchids for Armenia.

## Section 3 - Title, Dates & Budget Summary

---

### Q5. Project 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	Armenia	Country 2	No Response
Country 3	No Response	Country 4	No Response

Do you require more fields?

No

## Q6. Project dates

Start date:	End date:	Duration (e.g. 2 years, 3 months):
01 April 2022	31 March 2024	2 years

## Q7. Budget summary

Year:	2022/23	2023/24	Total request
Amount:	£73,417.00	£58,001.00	£ 131,418.00

Q8. Proportion of Darwin Initiative budget expected to be expended in eligible countries: %

Q9a. Do you have matched funding arrangements?

Yes

What matched funding arrangements are proposed?

Matched funding proposed include Kew overheads. Partner organisation match funding include overheads and equipment.

Q9b. Total confirmed & unconfirmed matched funding (£)



Q9c. If you have a significant amount of unconfirmed matched funding, please clarify how you will fund the project if you don't manage to secure this?

All matched funds are confirmed.

## Section 4 - Project need

Q10. The need that the project is trying to address

Please describe evidence of the capability and capacity need your project is trying to address with reference to biodiversity conservation and poverty reduction. For example, how have you identified the need? Why should the

## need be addressed or what will be the value to the country?

### Please cite the evidence you are using to support your assessment of the need (references can be listed in a separate attached PDF document).

The urgency of protecting our world's biodiversity is now becoming apparent, with an estimated 39% of all vascular plants threatened with extinction [1]. A cost-effective way of conserving plants is through long-term seed banking; however, some species have seeds that are unsuitable for conventional seed banking techniques. These are known as "exceptional species", which include orchids [2]. The approach to conserve orchids requires an integration of in situ and ex situ conservation [2].

Armenia is part of the Caucasus global biodiversity hotspot [3], with 42 orchid species. A recent study found nationally important orchid species outside of designated protected areas [4], at threat from habitat loss/degradation. Additionally, the trade of orchid tubers in the Central Asian region has raised concern over its effects on wild populations [5]. The collection and use of orchids in Armenia are undocumented, further threatening local populations from illegal collections that can contribute towards species loss, as seen in neighboring countries (e.g., Turkey and Iran). Armenia currently lacks an ex situ strategy for orchids due to limitations in the capability and capacity to store and duplicate seeds of "exceptional species".

Many orchid species in Armenia are shared with the UK, opening opportunities for knowledge exchange and comparative research. RBG Kew's Millennium Seed Bank (MSB) is at the forefront in seed conservation techniques and for over two decades has been developing research-based practical solutions for extending the longevity of orchids seeds in storage [6]. The proposed project involves technical work placements, imparting key knowledge and skills from a team with expertise at conserving orchids to members of the Armenian National Seed Bank team. The MSB has a proven track record of capability and capacity strengthening, with over 2,000 people trained in seed conservation techniques. The project will develop a working protocol enabling seeds to be stored in-country and duplicated to MSB's cryo-facilities.

The project will strengthen awareness of national and international legislation for trade in orchids. RBG Kew's CITES and Policy Team will deliver training for those working within the Armenian Environmental Ministry, and species conservation NGOs. The in-country project team will also gather evidence on orchid use and trade by local people through a participatory approach (see Methodology) [4].

Orchids have an intrinsic link to their habitat [7], therefore, the preservation of orchids in situ will be key to conservation success. The project will work with the Yenokavan community, situated within an area of high orchid diversity and increasing encroachment from farming and eco-tourism activities. Project members will work with the local community to identify threats to orchid populations and strategies that can ensure their protection without impacting livelihoods. The project will develop best-practice in participatory mapping together with an anthropologist from University College London.

The work is new and builds on prior training and capacity building projects in the Central Asian region focused on orthodox species (i.e., species suitable for conventional seed banking). The grant will leave a clear legacy, not only in Armenia, but regionally and globally (see Exit Strategy).

## Section 5 - Darwin Objectives and Conventions

---

### Q11. Biodiversity Conventions, Treaties and Agreements

**Q11a. Your project must support the commitments of one or more of the agreements listed below.**

**Please indicate which agreement(s) will be supported.**

- Convention on Biological Diversity (CBD)
- Nagoya Protocol on Access and Benefit Sharing (ABS)
- Convention on International Trade in Endangered Species (CITES)
- Global Goals for Sustainable Development (SDGs)

## Q11b. 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.**

The project outputs will contribute towards Armenia's National legislation on Red List Species, and its Development Strategy 2014-2025, particularly Strategic Directions 2.6.1.b, to enhance training of specialists in biodiversity studies. The project activity aligns with the IUCN/SSC Orchid Specialist Group Conservation Action Plan (<https://portals.iucn.org/library/efiles/documents/1996-024.pdf>).

Armenia has been a signatory of the CBD since 1992 and a party since 1993. This project will contribute towards the CBD strategic goals A-E in the following ways:

Aichi Targets (AT) 1, 4 and 5 through identifying key stakeholders within important biodiversity areas and raising awareness of the biodiversity and threats to orchid diversity. Participatory mapping and project learning will disseminate key strategies that can ensure landscape level conservation whilst improving rural livelihoods at the local level.

AT 12: Through ex situ conservation activities, the project will contribute towards halting the extinction of threatened species.

AT 18: Open consultative process with one local community will ensure the project outputs respect the knowledge and practices of local communities.

ABS: Kew's Access to Genetic Resources and Benefit Sharing policy (<https://www.kew.org/sites/default/files/abs-policy.pdf>) has been in place since 2001 and ensures project material is legally acquired and any benefits are shared fairly as agreed with partners in Access and Benefit Sharing Agreements. These are currently in place with proposed project partner.

CITES: All orchids are covered under Appendix II or I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (n.d.), <http://www.cites.org>). The project will enhance understanding of CITES within Armenia, with links made between protect teams and key project stakeholders.

SDGs 15: The project aims to halt the degradation of natural habitats, and to integrate ecosystem and biodiversity values into local planning and development processes, particularly land-use such as agriculture and tourism.

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

---

### Q12. Methodology

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

- How have you reflected on and incorporated evidence and lessons learnt from past and present similar activities and projects in the design of this project?
- Justification of your proposed approach, and how you will undertake the work (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.).
- What practical elements will be included to embed new capabilities?

Impact: Enhanced conservation of terrestrial, temperate orchids and their associated habitats in the Caucasus Biodiversity Hotspot.

Outcome: Increased capability and capacity of local communities, civil institutions, and NGOs to identify and conserve orchids in situ and ex situ.

All output indicators will be aggregated by gender and include measures of project learning through training assessments and questionnaires pre- and post-event. All written material, training resources and questionnaires will be in the local language and English.

Output 1: In situ conservation

Year 1: the project will increase awareness of orchid collecting and trade, national and international legislations, and measures on reducing impact on local populations. This will be led by the RBG Kew's Policy Team and participants will

include staff of NH, Institute of Botany, the Ministry of Environment, and local NGOs. The project team will be guided on best-practice in conducting participatory mapping led by University College London Institute for Global Prosperity, increasing capacity to gather data on land-use and orchid use through local community participation.

The skills and knowledge gained will be used to work alongside Yenokavan community (total population ~400) and develop strategies for effective conservation measures of orchid populations in situ. Semi-structured interviews will be used to gather data on perceived benefits and risk of orchid conservation and use. This will serve as a baseline for project learning and identify the relevant stakeholders for participatory mapping.

In-country partners will lead coordination of participatory mapping workshop to ensure equal participation from men and women. Female facilitators will lead workshops making it a safe space for equal participation by female stakeholders. The aims and proposed outputs of the project will be shared with project participants before the interviews and workshops, and Prior Informed Consent (PIC) will be sought.

A local MSc student will be engaged to focus on identifying local orchid populations, conduct habitat surveys and threat assessments, co-supervised by project staff members (Anush Nersesyan & Aisyah Faruk). The inclusion of an MSc student will further increase the capacity in orchid research in-country.

Year 2: project learning and networking workshop will be held to disseminate the final land-use and orchid conservation map, orchid population, and identification guides to all relevant stakeholders. There will be opportunities for feedback on proposed conservation strategies and to discuss income diversification for local communities. Results from orchid use/collection will be reported to the CITES Authority in Armenia and the UK's CITES team (see Exit Strategy).

#### Output 2: Ex situ conservation

Seeds of many orchid species are notoriously difficult to conserve, as viability can vary between species and storage temperatures [2,6,8]. For Armenia, where specialist equipment (e.g. cryopreservation via the use of liquid nitrogen storage) is difficult to procure and maintain, developing protocols that will maximise longevity in-country and establishing duplication of highly viable seeds to the MSB will improve conservation outcomes.

Year 1: Two staff members from the National Seed Bank managed by the Institute of Botany will spend 2-weeks at the MSB under a technical work placement focusing on the process of collecting, cleaning, drying, storing, and testing viability of orchid seeds. During this time, they will consult with RBG Kew staff members with experience of in vitro germination, viability testing with vital staining and storage options of seeds. Learning will be shared with other staff members through a training session in Armenia.

To enhance protection at the species and genetic levels, seeds of 10 orchid species from different populations will be identified and collected by members of the NH team. Data on the population (e.g., estimated size and number of mature plants) and potential seed yield (e.g., number of capsules per spike, estimated seeds per capsule) will be collected to aid future collecting strategies and inferred genetic diversity.

Year 2: There is empirical data indicating the -196°C expands longevity of the orchid seeds compared to -20°C [8], but limited data for seeds in -80°C, although some seed banks do use this option (e.g., Tuscia seed bank in Italy). To enhance conservation options, seeds will be stored at -20°C and -80°C in Armenia. A subset from each collection will be sent to the MSB cryopreservation unit (-196°C) within 6-months of collection. The FDA method [4] will be used to measure viability of seeds at pre-storage in-country and at the point of arrival to the MSB. The data will be an initial baseline for the routine re-testing after 5-years. The final protocol will be shared with the seed banks within the MSBP with similar capacity and flora (see Exit Strategy).

### **Q13. How will you identify participants?**

#### **How did/will you identify and select the participants (individuals and organisations) to benefit from the capability and capacity building activities? What makes these the most suitable participants? How will you ensure that the selection process is fair and transparent?**

Nature Heritage NGO (NH) is a local non-governmental organisation committed to the in situ and ex situ conservation of threatened and economically important plant species of Armenia. NH and RBG Kew had a successful collaboration under a previous Darwin Initiative project (25-017), including engagement with plant collectors in the south of Armenia.

NH has an MoU with the Institute of Botany (IoB), who manages the National Seed Bank. Staff from NH and IoB are trained in conventional seed banking through a programme led by the Millennium Seed Bank (MSB) in 2015. They have a proven

track record in conserving seeds of orthodox species, with NH leading the collecting and seeds banked at the National Seed Bank. In total, ~558 species have been safeguarded in-country and duplicated to the MSB. Participation of these institutions will enable the inclusion of learned knowledge to be put into practice, ensuring all threatened species are conserved into the future.

All structured training opportunities will be openly advertised to all members of staff. The selection of participants will involve the use of a standard Training Needs Assessment, which identifies individuals based on their current knowledge, level of skill and relevance to their day-to-day work. For the MSc student, the opportunity will be distributed amongst the third year BSc cohort. An interview process will be conducted by members of the project team and guided by candidate selection policy of the Yerevan State University and RBG Kew (available upon request).

The Yenokavan community sits within an area important for biodiversity. There is a push for stricter management of land for conservation in the area, alongside an expanding and lucrative tourist trade and land used by local community for their livelihoods. The community was chosen based on their locality and willingness to participate in the project.

## Q14. Gender equality

**All applicants must consider whether and how their project will contribute to reducing inequality between persons of different gender. Explain your understanding of gender equality within the context of your project, and how is it reflected in your plans.**

There are differences in the way women and men utilise the landscape. For example, in Armenia women are typically responsible for gathering wild herbs, while men tended to farm-land and livestock. It is therefore important that these differences are understood and considered for effective participation and sustaining conservation impact at the landscape level. In rural populations, where there is typically a higher proportion of women (~52%), traditional gender norms prevail. There are stark gender inequalities present in all aspect of work and family life, with women having little involvement in governance [9]. During the participatory mapping, project partners will take the opportunity to promote gender equality, with men and women participating in identifying individual areas of use and facilitating in making joint decisions. Indicators to monitor progress in gender equity will be measured through questionnaires before and after the workshop to gauge the level of confidence in the decision-making process. The proportion of women to men in the final networking meeting will be a measurable indicator in the final year of the project, with a higher proportion of female participation highlighting progress towards gender equity within land-use and conservation governance. Semi-structured interviews will be conducted by women from the project team to ensure open participation of women and girls within the community. There are more men in employment compared to women, but women that hold a higher degree of education are more likely to gain employment [9]. Therefore, enhancing opportunity through gaining skills in advanced techniques of biodiversity conservation will contribute towards reducing gender inequality.

The project plans will promote equitable participation of men and women throughout, with indicators aggregated by gender. Skills and knowledge gained will be captured through training questionnaire before and after each training event between male and female participants.

## Q15. Change expected

**Detail the expected changes to in-country capability and capacity will deliver for both biodiversity and poverty reduction. You should identify what will change (the Outcome) 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.**

There are currently no viable seeds of orchid populations from Armenia in long-term ex situ conservation either in-country or safeguarded at the MSB. Training 10 staff from the National Seed Bank, procurement of equipment and funds for collecting, cleaning, drying, and storing orchid seeds will deliver the first genetically diverse and viable collections of orchid seeds for Armenia. 25% of Armenia's orchid flora will be conserved in-country and at the MSB (short-term), increasing the global percentage of orchids in ex situ conservation available for future research, habitat restoration and species

reintroductions (long-term).

Viability results from collections stored at different temperatures (-20°C, -80°C and -196°C) will generate novel data crucial for the development of working protocols for seed conservation of terrestrial temperate orchids in Armenia (short-term) and applicable globally (long-term). In addition, this unique dataset will support research directly benefiting ~50 seed banks associated with the MSBP, many of which are within highly biodiverse regions with pronounced orchid diversity (long-term).

Through community participation, the project will enhance understanding of land-use and threatened species populations within a highly biodiverse landscape. At the community level, key ecosystem services will be highlighted to stakeholders that utilise the local landscape (short-term). At the national level, the orchid population, trade and threat information gathered will contribute towards updating the Red Book of Armenia, thereby increasing the preservation of orchids and their natural habitats (long-term).

10 people from Armenia's Ministry of Environment, Institute of Botany and local NGOs will have increased understanding of national and international legislation on orchid collection and trade (short-term). Over 70% of these will be women, increasing the opportunity for women to be involved in future state legislation and governance, thereby contributing towards gender equality (long-term).

10 people from the National Seed Bank of Armenia will gain skills and knowledge in advanced techniques in seed conservation beyond conventional seed banking at -20°C. Procurement of equipment will improve facilities and conservation outcomes (short-term), which will increase the possibility of attracting additional funds relating to biodiversity conservation and scientific research grants (long-term).

1 local student will gain a Masters degree during the project (short-term), which will contribute towards increasing potential employment at a higher salary (long-term).

5 in-country partners will gain knowledge and skills in community engagement practices, which will benefit:

1. ~20 households through participatory mapping highlighting key resources used by the communities and identifying mutually beneficial conservation management at the landscape level (short-term), indirectly contributing towards poverty alleviation through ensuring important areas for local livelihoods are not impacted by land-use planning (short-term) and build empowerment towards marginalised and rural communities (long-term).
2. 100 households through increased awareness of links between biodiversity conservation and poverty alleviation, and strategies for conservation within and around their community (short-term). Conservation of orchid species and their associated habitats will improve the maintenance of the natural capital of ecosystems, thereby securing crops and livelihoods potentially for >200 households within the community (long-term).

## Q16. Exit Strategy

**How will the built capability and capacity be maintained in-country? How will the new capability and capacity be replicated to strengthen additional future environmental leaders beyond the project? How will the benefits be scaled? Are there any barriers to scaling and if so, how will these be addressed? How will the materials developed during the project be made more widely accessible during and after the project?**

Maintenance:

Armenia is a party within the CBD, with commitments that align to the post-2020 Global Strategy for Plant Conservation, of relevance are 2050 Goals A and C. Capacity built through the project will be maintained through the state's national and international commitment towards biodiversity conservation. Trained staff within the seed bank are on permanent contracts, enabling the retention of skills and knowledge learnt through the project. In-country training for younger staff members will mitigate against risk of loss due to staff turn-over.

NH is a long-term partner within the MSBP through an Access and Benefit Sharing (ABS) agreement. Building up capability and capacity through skills training and procurement of equipment will increase the opportunity to gain funding for novel projects focused on rare and threatened species with seeds that are not suitable for conventional seed banking ("exceptional species").

Strengthening future environmental leaders:

Training of staff and procurement of equipment enabling orchid seed research, and strong links with the local university cultivated through this project will encourage future seed conservation research, attracting young researchers and



students. This will lead to strengthening the future of leaders within environmental science for the region.

MSc student will receive training and their degree. Investing in the next generation of conservation scientists ensures future skilled practitioners, contributing towards leaders in environmental science.

Scaling up of benefits:

The research into 'exceptional species' is both a scientific and conservation priority, and will have wider applications for seed banking protocols globally [10,11]. Existing MSB partners with limited capacity to maintain specialist equipment for cryopreservation will benefit from this project, as many are within high biodiverse regions, with high proportion of "exceptional species". Barriers to scaling this up to other countries include the possible need to develop country specific case studies to further refine the protocol for use outside Armenia.

Materials developed shared:

During the project, the land-use maps and guides will be shared across all relevant stakeholders (i.e., 100 households, local tourism operators, NGOs, and government officials). Final protocols will be shared to the staff members of the National Seed Bank. Dissemination of the project and activities will be shared through a Kew Blog (~over 51k people accessing content between Nov 2020 to Nov 2021) and an article within the IUCN Orchid Specialist Group Newsletter (~180 readership) and the MSBP newsletter (~650 readership). Information on orchid use and trade will be relevant to CITES Parties and will be submitted via the UK CITES Scientific Authority in line with the CITES Plants Committee's ongoing work on Appendix II.

After the project, viability/germination data of orchids duplicated to the MSB will be made available on the Seed Information Database (SID) and the analysed data will be the basis of an Open Access article in a peer-reviewed conservation journal. Project learning will contribute towards training resources in the form of Technical Information Sheets (<http://brahmsonline.kew.org/msbp/Training/Resources>), made publicly available on the MSBP Brahm's website, and the MSBP Seed Conservation Techniques course materials.

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



## Section 7 - Risk Management

---

### Q17. 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 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	Residual Risk
------------------	--------	-------	------------	------------	---------------

---

<b>Fiduciary</b> Funds are mishandled and not used to enhance capacity of local stakeholders for in situ and ex situ orchid conservation	Major	Rare	Moderate	RBG Kew standard Grant Agreement (GA) will be signed by all partners. GA will have a specified budget. Article 3.6 onwards outlines action and consequences due to mishandling of funds. Funds paid in instalments with a satisfactory report and associated receipts made available before the release of additional instalments.	Low
<b>Safeguarding</b> Vulnerable participants taking part in project-related training events are subjected to exploitation, abuse, bullying and harassment	Major	Rare	Moderate	Project staff completed Safeguarding training prior to travel overseas. In-country project staff are briefed on RBG Kew's safeguarding policy at the start of the project, with a clear understanding of protocol at the onset of an event.	Low
<b>Delivery Chain</b> Main in-country partner (NH) are unable to deliver key project activities (e.g., community engagement, seed conservation) due to restricted access to community, and use of facilities of the national seed bank.	Severe	Unlikely	Major	Current MoU between the national seed bank and the in-country partner are shared with Lead Organisation and kept current throughout the project's lifetime. Agreement with community leader in place at the start of the project understanding the project's aims and activities.	Low
<b>Risk 4</b> COVID-19 pandemic restricts travel between Armenia and the UK Travel and community engagement work is restricted due getting COVID Local lockdowns in place due to resurgence	Major	Likely	Major	Design of virtual training events for CITES and community engagement training. All project members travelling have completed full dose of vaccinations and comply with governmental rules and recommendations. Reducing numbers for participatory mapping and hold over a longer period of time to ensure social distance measures can be in place.	Moderate
<b>Risk 5</b> Orchid populations are not found and/or seeds are not available for collection.	Moderate	Unlikely	Moderate	Pre-assessment trips built into the project design to identify appropriate populations. Use of herbarium material to identify previously known sites. Targeting of multiple populations per species built into project design.	Low
<b>Risk 6</b> Political instability leads to war breaking out between Armenia and Azerbaijan	Minor	Unlikely	Minor	Project partners continue to monitor current events. Design of virtual training events in place for CITES and community engagement training. Health and safety risk register for all participants travelling for project are in place, with key areas of high potential conflict zones identified and avoided.	Low

## Section 8 - Implementation Timetable

---

### Q18. 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, linking them to your Outputs. Complete the Word template as appropriate to describe the intended workplan for your project ready for upload on Flexi-Grant.

[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.



## Section 9 - Monitoring and Evaluation

---

### Q19. 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 [Financial Guidance](#)).

Outcome: Increased capability and capacity of local communities, civil institutions, and NGOs to identify and conserve orchids in situ and ex situ in Year 2

Date source: Pre- and post training assessments; final protocol for seed conservation review

Outputs

The following will be collated for the outputs:

1. Total number of people attending the start and end of training, workshops, and interviews
2. Number of MSc student contract signed, and number of field surveys completed
3. Number of completed map
4. Number of guides ready for distribution at end of Year 2
5. Number of staff attending work placements
6. Training Assessment forms completed for work placements, training and workshops
7. Number of orchid populations found with mature seeds
8. Number of seeds and associated herbarium and data collected
9. Number of seed collections with viability test data pre- and post-storage captured at international standards for future comparative study
10. Number of collections duplicated to the MSB with viability test data showing no significant decline

Data sources will include attendance/interview registers aggregated by gender; PDFs or scans of completed work (e.g., maps, thesis etc); completed pre- and post-training assessment forms; completed pre-collection orchid population assessment; completed seed data transfer template; completed viability assessment datasheet.

NH will have overall responsibility of capturing the appropriate data sources in-country, while RBG Kew will be responsible

for analysis and reporting.

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

25

---

## Section 10 - Indicators of Success

---

### Q20. Indicators of success

Please outline the Outcome and Outputs of the project and how will you show that they have been achieved by using SMART indicators and milestones.

See the [Monitoring, Evaluation and Learning Guidance](#), and internet resources, for advice on SMART indicators and milestones.

Please note that the number of participants in training is not an output, please consider how to measure the success of the training rather than participation in training.

In the table below please outline your Outcome and between 1-4 Outputs. Each statement should have between 2-3 SMART indicators and end target (figure/state/quality) including how you would evidence achievement – i.e. “Means of Verification”.

SMART Indicator

Means of Verification

---

**Outcome**

Increase in capability and capacity of local communities, research institutions and private sector stakeholders to identify and conserve orchids in situ and ex situ

By March 2023, 21 individuals working in conservation have an increased understanding on challenges and solutions for orchid conservation

By December 2023, 20 households will have contributed to identifying key areas for conservation and orchid collection/use, imparting this knowledge to environmental ministry, local NGOs, private sector stakeholders and 100 households within the Yenokavan community by March 2024

By January 2024, 10 species of orchids are conserved ex situ in their country of origin.

By March 2024, an MSc thesis on key orchid habitats and their threats are made available to all relevant stakeholders

By March 2024, a working protocol for safe duplication of orchids to MSB, leading to their long-term conservation is adopted by staff members of the National Seed Bank.

Attendance register and Training assessment forms

Attendance register, final map, distribution letter and photos

Data transfer forms

Thesis

Collection transfer form, viability assessment form and draft protocol

## Output 1

Enhanced capability to identify and protect orchid diversity in situ by local stakeholders within the Yenokavan community

10 in-country staff, including the environmental ministry, protected area rangers, eco-tourism operators and research institutions (>60% women) trained on challenges in orchid conservation and trade by July 2022.

MSc student in place by December 2022, and capable of conducting orchid identification and habitat surveys by March 2023.

Semi-structured interviews with 90 community members (~25% of Yenokavan community) to identify socio-economic background, current knowledge of in situ plant conservation, perceived benefit from orchid protection and orchid use completed by February 2023 and analysed by March 2023.

Key orchid populations and current threats (including land and species use) gathered through community participatory mapping with 20 households (~20 women and 20 men) identified by December 2023.

Resources and information on orchid identification, botanical guides and conservation action developed and distributed to ~100 households, local guides, and protected area rangers.

MSc and partner present project findings to local communities, local land managers, NGOs, and private eco-tourism companies in a networking workshop by March 2024

Attendance register, Training Assessment

Scan of MSc contract, data from field surveys

Interview register and data

Attendance register, scan of map

PDF copy of guide, distribution declaration

Attendance register, copy of presentation; minutes of meeting

## Output 2

Armenian institution have capacity to conserve native orchid species ex situ, able to duplicate to the MSB cryopreservation unit, and able to disseminate learning to other MSBP partners

Two Armenian seed bank team attend a 2-week orchid seed conservation technical attachment training programme at the MSB and capable of cleaning, banking, and evaluating viability by August 2022  
Trained staff members imparting learned knowledge and skill in seed banking and duplicating orchid seeds to another 8 in-country conservationists (60% women) by March 2023  
At least two populations of 10 orchid species identified through completed locality surveys, and partners ready for collecting activities by December 2022  
Seeds, herbarium, and associated data collected from two populations per species for 4 species by December 2022 and a further 6 species by September 2023

100% of seed collections cleaned, dried, and stored using equipment available in-country and subset duplicated to the MSB showing no significant fall in viability for at least 70% of collections by March 2024  
Project related results disseminated throughout the Millennium Seed Bank Partnership through articles and a blog

Attendance register, training assessments

Attendance register, training assessments

Field data, procurement receipts for collecting equipment

Data transfer form

Procurement receipt for processing equipment, viability assessment sheet, data, and collection transfer form

Link to online article and blog post, email correspondences

---

## Output 3

No Response

No Response

No Response

---

## Output 4

No Response

No Response

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.**

- 1.1 Challenges and perspectives in orchid conservation and trade training taking place in Yerevan in July 2022
  - 1.2 Recruitment and training of MSc student by partner institution on orchid identification and habitat assessment
  - 1.3 Best-practice on semi-structured interviews and community participatory mapping developed
  - 1.4 Partners and MSc student engage with and conduct semi-structure interviews
  - 1.5 Partners participatory mapping exercise with community members
  - 1.6 MSc student conduct orchid and habitat surveys
  - 1.7 Orchid habitat and land use map finalised for final networking meeting
  - 1.8 Orchid guidebook developed and 100 copies printed for distribution
  - 1.9 Networking meeting delivered to key stakeholders within the area (community members, NGOs, private tourism companies and local land managers) for networking meeting
- 
- 2.1 Two Armenian seed bank team travel to MSB for 2-week training attachment programme

- 2.2 Delivery of in-country training on orchid ex situ conservation
- 2.3 Procurement of equipment for collecting, cleaning and banking
- 2.4 Locality survey of orchid populations for seed collection activity
- 2.5 Seeds, herbarium, and data of 10 orchid species collected from multiple populations
- 2.6 Seeds are cleaned, dried and pre-storage viability determined in Armenia
- 2.7 Seeds are stored in -20 degrees Celsius and -80 degrees Celsius in-country
- 2.8 Subset of seeds from the different storage conditions are sent to the MSB
- 2.9 Seed viability determined upon arrival at the MSB
- 2.10 Seeds at the MSB placed in -196 degrees Celsius
- 2.11 Article written for MSBP newsletter to outline project findings
- 2.12 Blog post for Kew and local institution webpage

### **Important Assumptions:**

**Please describe up to 6 key assumptions that, if held true, will enable you to deliver your Outputs and Outcome.**

- Community members, rangers and private company staff are willing to take part in project activities and share information with project staff
- Suitable MSc student candidates can start by the proposed time
- Travel to between the UK and Armenia is permitted
- Sufficient number of mature seeds available for collection, duplication and multiple storage facilities
- Methods for viability (in vitro, vital stain) assessment equally applicable across species
- National Seed Bank staff agree to accept working protocol and use equipment

## **Section 11 - Budget and Funding**

---

### **Q21. 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 there are different templates for projects requesting over and under £100,000 from the Darwin budget. Please refer to the [Finance Guidance](#) for more information.**

- [Budget form for projects under £100,000](#)
- [Budget form for projects over £100,000](#)

**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.**



### **Q22. Funding**

**Q22a. 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 is a new initiative with no other work or funding to describe.

**Q22b. Are you aware of any current or future plans for similar work to the proposed project?**

No

**Q23. 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.**

Minimal purchase of capital items for this project (<10% of the overall costs):

High resolution camera

Freezer -20C

Freezer -80C

Laptop/PC

Microscope with UV light

All capital items will be donated to the partner institution in-country after the project end.

**Q24. 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.**

Placing a monetary value to the long-term conservation collections is difficult, although a recent estimate on the wild relatives of crop seeds held at the MSB alone amounted to [REDACTED] [12]. Therefore, the short-term output of the collections will be a significant legacy of the project, making seeds available for future research and restoration activities for decades. The impact of the project will contribute towards the horticultural, medicinal, and nutritious value of orchids (e.g., Salep, Chikanda etc), in addition to an opportunity to support sustainable practices in commercial industries over the long-term. Finally, the resulting materials from the project will be equitably shared across the global partnership and public.

The services that intact and biodiverse ecosystems provide have been equated to the billions (e.g., the global value of pollinators alone is estimated to be around [REDACTED]). The in-situ conservation component of this project will greatly contribute towards the preservation of key natural systems within the Armenian landscape. Through community led participation, the project will ensure that key ecosystem services, such as areas for wildlife, pollinators, and wetlands, and sustainably conserved.

PI will work closely with project partners and RBG Kew's finance department to ensure budget forecasting are done every 6-months. Procurement of equipment will be done in accordance with RBG Kew's procurement policy (available upon request). 17% of in-kind contribution will be available for the project.

---

## Section 12 - Safeguarding and Ethics

**Q25. 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.

<b>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</b>	Checked
<b>We have attached a copy of our safeguarding policy to this application (file upload on certification page)</b>	Checked
<b>We keep a detailed register of safeguarding issues raised and how they were dealt with</b>	Checked
<b>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</b>	Checked
<b>We share our safeguarding policy with downstream partners</b>	Checked
<b>We have a whistle-blowing policy which protects whistle blowers from reprisals and includes clear processes for dealing with concerns raised</b>	Checked
<b>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</b>	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.**

RBG Kew's Safeguarding policy outlines the key procedures in place that need to be adhered to when a safeguarding incident is found or reported. The first action is to record the incident in a safeguarding incident form, which will be made available to all project staff member. A report will then be made to the immediate line manager. Downstream partners will be briefed on the safeguarding policy and protocol at the start of the project during the first kick-off meeting. They will have the opportunity to ask questions and give feedback on the procedures.

## Section 13 - FCDO Notifications

---

### Q26. 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

---

### Q27. 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?
Aisyah Faruk	Project Leader	15	Checked
Carly Cowell	CITES lead	3	Checked
Anush Nersesyan	In-country project manager	40	Checked
Astghik Papikyan	In-country project coordinator	30	Checked

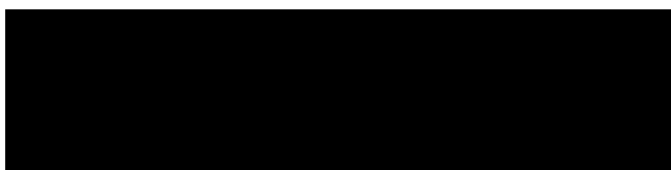
Do you require more fields?

Yes

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Narine Mirakyan	Project accountant	6	Checked
Sona Galstyan	MSc supervisor	10	Checked
Yevgenya Navasardyan	Seed Bank Manager	8	Checked
Ashkhen Danielyan	Seed Bank Assistant	8	Checked
Marine Hovhannisyan	Seed Bank Assistant	8	Checked
No Response	No Response	0	Unchecked
No Response	No Response	0	Unchecked
No Response	No Response	0	Unchecked

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.



Have you attached all project staff CVs?

Yes


## Section 15 - Project Partners

## Q28. Project partners

Please list all the Project Partners (including the Lead Partner), 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.

<b>Lead partner name:</b>	Royal Botanic Gardens Kew
<b>Website address:</b>	<a href="https://www.kew.org/science">https://www.kew.org/science</a> and <a href="http://brahmsonline.kew.org/msbp">http://brahmsonline.kew.org/msbp</a>
<b>Why is this organisation the Lead Partner, and what value to they bring to the project?</b>  <b>(including roles, responsibilities and capabilities and capacity):</b>	<p>Since 2000, the Millennium Seed Bank (MSB) Partnership, managed by RBG Kew, has worked in partnership with ~97 different countries and overseas territories. The MSB has &gt;20 years' experience of project design and delivery. Well-established partnerships exist with the proposed partner. Partners have been closely involved in the development of this application.</p> <p>The Project Leader, Dr Aisyah Faruk, has an academic background in biological conservation. She has worked for Kew for six years, managing the MSB's seed conservation projects in the Caucasus, Europe, Middle East and Australia. She will be responsible for overseeing project progress and maintain project partnerships, attend in-country meetings and trainings, and manage project and financial reporting.</p> <p>The MSB will be responsible for project coordination, including: disbursement of project funds to partners; procurement and shipping of equipment; hosting and supervision of visiting project staff and students; providing training by the Policy and CITES unit; providing duplicate seed storage facilities; assessing the quality of duplicated seed collections and sharing results with partners; coordinating and conducting research activities; participating in a peer-reviewed research publication, and newsletters.</p>
<b>International/In-country Partner</b>	<input checked="" type="radio"/> International
<b>Allocated budget (proportion or value):</b>	
<b>Represented on the Project Board</b>	<input checked="" type="radio"/> Yes
<b>Have you included a Letter of Support from this partner?</b>	<input checked="" type="radio"/> Yes
<b>Have you provided a cover letter?</b>	<input checked="" type="radio"/> Yes

**Do you have partners involved in the Project?**

Yes

<b>1. Partner Name:</b>	Nature Heritage NGO
<b>Website address:</b>	N/A
<b>What value does this Partner bring to the project?</b>  <b>(including roles, responsibilities and capabilities and capacity):</b>	Nature Heritage (NH) NGO and RBG Kew have been working in partnership since 2011. Project design has significant input from members of the NH team. The team consists of skilled staff from the Institute of Botany, many of whom are experts on the Armenian flora. The institute oversees the National herbaria, Seed Bank of Armenian Flora and the Botanic Gardens where orchid material from this project will be stored. NH have over 10 years of experience in coordinating and implementing field work and seed banking activities. Staff members have worked closely with rural communities across Armenia (e.g. awareness campaigns, sustainability, and propagation training), and have links with local tourism industry.
<b>International/In-country Partner</b>	<input checked="" type="radio"/> In-country
<b>Allocated budget:</b>	
<b>Represented on the Project Board</b>	<input checked="" type="radio"/> Yes
<b>Have you included a Letter of Support from this partner?</b>	<input checked="" type="radio"/> Yes

<b>2. Partner Name:</b>	No Response
<b>Website address:</b>	No Response
<b>What value does this Partner bring to the project?</b>  <b>(including roles, responsibilities and capabilities and capacity):</b>	No Response
<b>International/In-country Partner</b>	<input type="radio"/> International <input type="radio"/> In-country
<b>Allocated budget:</b>	£0.00
<b>Represented on the Project Board</b>	<input type="radio"/> Yes <input type="radio"/> No
<b>Have you included a Letter of Support from this partner?</b>	<input type="radio"/> Yes <input type="radio"/> No

**3. Partner Name:** *No Response*

---

**Website address:** *No Response*

---

**What value does this Partner bring to the project?** *No Response*

**(including roles, responsibilities and capabilities and capacity):**

**International/In-country Partner**  International  
 In-country

---

**Allocated budget:** £0.00

---

**Represented on the Project Board**  Yes  
 No

---

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

---

**4. Partner Name:** *No Response*

---

**Website address:** *No Response*

---

**What value does this Partner bring to the project?** *No Response*

**(including roles, responsibilities and capabilities and capacity):**

**International/In-country Partner**  International  
 In-country

---

**Allocated budget:** £0.00

---

**Represented on the Project Board**  Yes  
 No

---

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

---

**5. Partner Name:** *No Response*

---

**Website address:** *No Response*

---

**What value does this Partner bring to the project?** *No Response*

**(including roles, responsibilities and capabilities and capacity):**

---

**International/In-country Partner**  International  
 In-country

---

**Allocated budget:** £0.00

---

**Represented on the Project Board**  Yes  
 No

---

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

---

**6. Partner Name:** *No Response*

---

**Website address:** *No Response*

---

**What value does this Partner bring to the project?** *No Response*

**(including roles, responsibilities and capabilities and capacity):**

---

**International/In-country Partner**  International  
 In-country

---

**Allocated budget:** £0.00

---

**Represented on the Project Board**  Yes  
 No

---

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

---

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

*No Response*

**Please provide a cover letter and a combined PDF of all letters of support.**

---

## Section 16 - Lead Partner Capability and Capacity

---

### Q29. 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)?**

Yes

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

Reference No	Project Leader	Title
28-012	Maria Vorontzova	Native grass forage management to feed people and protect forests
CV19RR01	Martin Hamilton	Impacts and consequences of Covid-19 on conservation in the BVI
CV19RR12	Carly Cowell	Uncovering the illegal online trade in South African succulents
27-014	Aaron Davis	Coffee natural capital for environmental and livelihood sustainability in Uganda
26-024	Bente Klitgaard	Improving indigenous Bolivian Chiquitano people's livelihoods through sustainable forest management
DPLUS084	Martin Hamilton	Identifying and conserving resilient habitats in the British Virgin Islands

**Have you provided the requested signed audited/independently examined accounts (or other financial evidence - see Financial Guidance)?**

Yes

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

## Section 17 - Certification

---

### Q30. Certification

**On behalf of the**

Trustees

**of**

Royal Botanic Gardens Kew

**I apply for a grant of**

£131,418.00

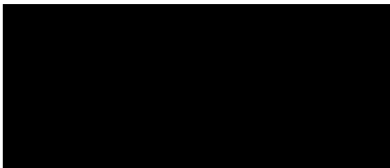


I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.

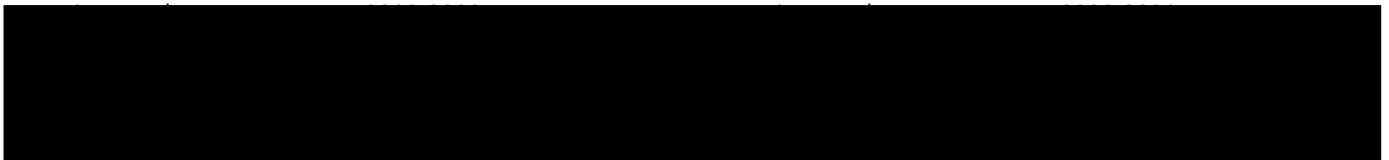
(This form should be signed by an individual authorised by the applicant institution to submit applications and sign contracts on their behalf.)

- I have enclosed CVs for project key project personnel, letters of support, budget, 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 (or other financial evidence - see Financial Guidance) are also enclosed.

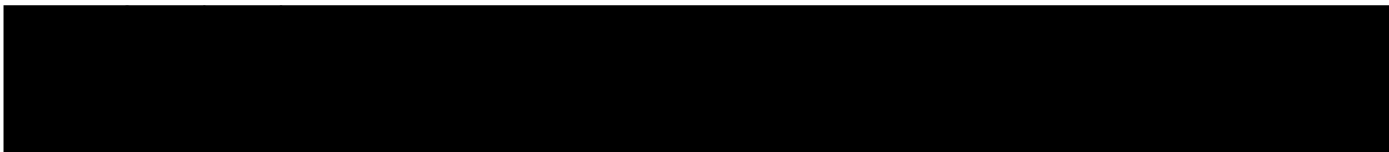
Checked

<b>Name</b>	PROF ALEXANDRE ANTONELLI
<b>Position in the organisation</b>	Director of Science
<b>Signature (please upload e-signature)</b>	
<b>Date</b>	06 December 2021

Please attach the requested signed audited/independently examined accounts.



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



## Section 18 - Submission Checklist

### Checklist for submission

	Check
<b>I have read the Guidance, including the "Darwin Initiative Guidance", "Monitoring Evaluation and Learning Guidance", "Supplementary Guidance for Capability &amp; Capacity Projects", "Risk Management Guidance", and "Financial Guidance".</b>	Checked
<b>I have read, and can meet, the current Terms and Conditions for this fund.</b>	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
(If copying and pasting into Flexi-Grant) I have checked that all my responses have been successfully copied into the online application form.	Checked
I have included a 1 page CV or job description for all the Project Staff identified at Question 27, 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 28, 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 25.	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 other financial evidence – see Financial Guidance), 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).