

Darwin Initiative Main Annual Report

To be completed with reference to the “Project Reporting Information Note”: (<https://www.darwininitiative.org.uk/resources-for-projects/information-notes-learning-notes-briefing-papers-and-reviews/>).

It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Submission Deadline: 30th April 2022

Darwin Initiative Project Information

Project reference	27-016
Project title	Responsible exchange of plant genetic resources for research and development
Country/ies	Ethiopia, Uganda
Lead partner	Botanic Gardens Conservation International (BGCI)
Project partner(s)	Addis Ababa University (Ethiopia) Makerere University (Uganda) University of Vienna (Austria) African Botanic Garden Network European Botanic Gardens Consortium
Darwin grant value	£326,530
Start/end dates of project	1 July 2020-31 Mar 2023
Reporting period (e.g. Apr 2021 – Mar 2022) and number (e.g. Annual Report 1, 2, 3)	Apr 2021-Mar 2022
Project Leader name	Paul Smith
Project website/blog/social media	https://www.bgci.org/our-work/projects-and-case-studies/responsible-exchange-of-plant-genetic-resources-for-research-and-development/
Report author(s) and date	Paul Smith, Sebsebe Demissew, James Kalema, Michael Kiehn. 30 April 2022

1. Project summary

Foresters, agronomists and plant conservationists in developing countries are prevented from exchanging plant material because of poor quality collections, incomplete data, poor knowledge of access and benefit sharing, biosafety, CITES and other compliance requirements, and uncertainty about how material is handled and tracked. Under this project, we will develop unique tools that enable researchers and practitioners to access and share plant material and data with international collaborators responsibly and safely, leading to positive impacts on biodiversity conservation and sustainable development.

This project focuses on Europe and Africa, but has global relevance.

2. Project stakeholders/ partners

The main project partners are Botanic Gardens Conservation International (UK), Addis Ababa University (Ethiopia), Makerere University (Uganda) and the University of Vienna (Austria). In addition, the European Consortium of Botanic Gardens and the African Botanic Gardens Network have been engaged with the project through BGCI, which provides the secretariat for both of these networks. The partnerships are demand driven, with a previous Darwin Initiative project ([3319](#)) identifying impediments to the exchange of plant material with African botanical institutions, and European botanic gardens raising concerns about increased bureaucracy associated with EU regulations on biosecurity and the Nagoya Protocol. All partners were involved in the project planning, and all have been actively engaged since the project started in July 2020.

Achievements

In year 1, Makerere University appointed a student (Peter Omaswa) to carry out the first MSc study on **the importance of the exchange of plant material to plant conservation and sustainable development**. Professors James Kalema and Patrick Mucunguzi are supervising Peter's study. In year 2, Peter produced a dissertation on the topic above as part of the requirements for his Masters degree. The dissertation is under examination but appended to this report (Supporting paper 1).

In year 1, Addis Ababa University have appointed a student (Ashenafi Ayenew) to carry out the second MSc study on **the exchange of plant material between developed and developing countries, and impediments to such exchange**. The European Consortium provided substantial data on plant material sent out and received over the last 10 years to support this research, and Ashenafi presented his preliminary results during the project consultation [workshop](#) on March 9th 2021. Ashenafi also developed a [questionnaire](#), which requested information from botanical institutions on exchange of plant material, which closed on March 15th 2021. In year 2, the results of Ashenafi's research have been written up into a paper, which will be submitted to the journal Plants, People, Planet. The draft paper is appended to this report (Supporting paper 2).

In year 1, the University of Vienna worked with BGCI to develop and submit a paper entitled **The Nagoya Protocol and Access and Benefit Sharing regulations of the Convention on Biological Diversity (CBD) and its impacts on botanic gardens' collections and research** to CAB Reviews. This paper was submitted on 29th January 2021 and was accepted for publication on 12th April 2021. The paper is appended to this report (Supporting paper 3).

In Year 2, consultative workshops took place involving both African and European partners. On the 20th September 2021, an online workshop was held with African partners in Ethiopia to review and discuss draft ABS/biosecurity/CITES compliance criteria to be used as the basis of an institutional accreditation scheme (Output 4 – a mutually agreed, peer-reviewed global mechanism for recognising botanical research institutions that apply best practice ABS and biosafety procedures). The workshop was attended by Ethiopian partner institutions but also by the Ethiopian Biodiversity Institute who are responsible for ABS compliance in Ethiopia. The Workshop agenda and workshop report is appended to this report (Supporting papers 4 and 5).

On November 9th 2021, 34 participants – mainly from European botanic gardens - joined an online workshop focused on reviewing the design of the digital plant material exchange platform (Output 3). The workshop was co-led by Keith Damiani (software developer, US). A video of this workshop is available [here](#).

Challenges

Project workshops had originally been planned as face to face meetings to be held in Ethiopia and at Eurogard in Budapest in May 2021. However, due to COVID-19 (a Change Request was granted), workshops were held online on Zoom instead, which worked well. Further consultation with project partners and more widely on Outputs 3 and 4 will take place face to face at the rescheduled Eurogard meeting in Budapest during the week of May16-20th 2022. Postponement of COP-15 due to COVID-19 has also meant that we have had to delay the drafting of ABS

compliance guidance until year 3 – particularly due to the disagreements about Digital Sequence Information (DSI) under the Nagoya Protocol (see below).

Other stakeholders

The main specialist who has been involved is Keith Damiani, a software developer who has been contracted to develop the plant material exchange platform, which will be one of the main outputs of this project. Keith gave an impressive demonstration of his design prototype for the platform during the [workshop](#). In addition, Cambridge University Plant Sciences are assisting the project with analysis of >17,000 requests for plant material made through BGCI's PlantSearch platform over the past 10 years. The University has contributed student time and their expertise in analysing specific uses of material to support plant conservation and sustainable development. In addition, as mentioned above, the Ethiopian Biodiversity Institute has contributed time and expertise into developing an accreditation scheme recognising best practice in ABS, biosecurity and CITES compliance. Finally, the University of Tasmania has developed a Climate Resilience Assessment Tool, which will be made available as part of the plant material exchange platform to help ensure that appropriate plant species are exchanged in current and future climate change scenarios.

3. Project progress

3.1 Progress in carrying out project Activities

The project commenced on July 1st 2020 due to late notification of funding approval from Defra. Progress to date as follows:

Output 1. Levels of plant material/data exchange between European and African PGR organisations characterized and quantified.

Activity 1.1. Two MSc studies carried out on the extent and nature of plant material exchange for biodiversity conservation and sustainable development (years 1 and 2)

Activity 1.2. At least one peer reviewed paper published on the value of biodiversity for sustainable development, and impediments to its use by end of year 2

The main Output 1 activities this year have comprised the publication of a dissertation and a peer-reviewed paper in support of higher degrees at Makerere and Addis Ababa Universities, respectively. Peter Omaswa has produced a dissertation on *Topic 1: the importance of the exchange of plant material to plant conservation and sustainable development* in support of his MSc at Makerere University (Supporting paper 1). Ashenafi Ayenew has produced a manuscript paper entitled 'A study on exchange of plant material between European and African Plant Genetic Resource organizations for research and development' (Supporting paper 2), which will be submitted to the peer-reviewed journal *Plants, People, Planet* in support of his MSc/PhD at Addis Ababa University (Activity 1.2). One peer-reviewed paper entitled 'The Nagoya Protocol and Access and Benefit Sharing regulations of the Convention on Biological Diversity (CBD) and its impacts on botanic gardens' collections and research' has already been submitted to and published by *CAB Reviews* (Supporting paper 3). In addition, BGCI has published another paper pertinent to the importance of botanic garden collections for sustainable development: Hudson, A., Smith, P., Gori, B. and Sharrock, S. (2021) Botanic Garden Collections—An Under-Utilised Resource. *American Journal of Plant Sciences*, **12**, 1436-1444. doi: [10.4236/ajps.2021.129101](https://doi.org/10.4236/ajps.2021.129101) (see Supporting paper 7).

Output 3. Digital platform for efficient and responsible exchange and tracking of plant data and material designed, developed, launched and used by the global research community

Activity 3.2. Country by country data on ABS, biosafety and CITES compliance regulations gathered and incorporated into the digital platform by the end of the 2nd quarter year 2

Activity 3.3. Digital platform tested and launched by the end of year 2

Activity 3.2 has been carried forward to Year 3 under a Change Request following the repeated postponement of COP-15 due to COVID-19, and continued uncertainty about the status of Digital Sequence Information under the Nagoya Protocol. It is possible that no resolution on DSI will be achieved, in which case ABS compliance information will need to be caveated accordingly.

Testing of the digital exchange platform has continued, including through an online consultation workshop held on November 9th 2021. A video of this workshop is available [here](#). Launch of the platform has been postponed under a change request until the rescheduled Eurogard meeting takes place in the week of May 16-20th but the digital platform is available for review [here](#).

Output 4. A mutually agreed, peer-reviewed global mechanism for recognising botanical research institutions that apply best practice ABS and biosafety procedures is developed and launched.

Activity 4.1. Side-meetings held at Eurogard Conference in Hungary to test digital platform and to discuss accreditation methodology for recognising ABS and biosafety best practice by end of 2nd quarter year 2

Activity 4.1. Accreditation scheme consultation carried out, and scheme agreed by end of year 2

Activity 4.2. Online accreditation scheme developed by end of 2nd quarter year 3

As mentioned above, a draft set of criteria and questions related to ABS/biosecurity/CITES compliance accreditation were presented to our Ethiopian partners at a consultation workshop held on 20th September 2021 (see supporting papers 4 and 5). The draft criteria and questions were modified following this consultation (see Supporting paper 6). Ethiopia was selected for this consultation because ABS legislation in Ethiopia is amongst the toughest in the world. As a consequence, the bar has been set very high in the draft online accreditation scheme that has been designed as a result of this workshop, which can be found [here](#). Further consultation will take place with our European partners at the Eurogard meeting in Budapest in May.

3.2 Progress towards project Outputs

Excellent progress has been made against all of the project outputs so far, albeit with a few unavoidable delays due to COVID-19. Taking each output in turn:

Output 1: Levels of plant material/data exchange between European and African PGR organisations characterized and quantified.

The European Consortium has provided substantial data on plant material sent out and received over the last 10 years to support this research, and Ashenafi presented his preliminary results during the 1st project consultation [workshop](#) on March 9th 2021. Ashenafi also developed a [questionnaire](#), which requested information from botanical institutions on exchange of plant material, and which was used in his reach, and the research carried out by Peter Omaswa (see below). The findings of Ashenafi's research will be published in a peer-reviewed paper entitled 'A study on exchange of plant material between European and African Plant Genetic Resource organizations for research and development' (Supporting paper 2), which will be submitted to the journal *Plants, People, Planet* in support of his MSc/PhD at Addis Ababa University. The findings of the paper are summarised as follows:

- The aim of this study was to assess the extent of plant material exchange between European and African PGR organizations for research and development.
- Data were collected from Index Seminum databases and through a survey questionnaire, and statistically analyzed, using a chi-square test and Spearman correlation coefficient using SPSS, Version 25.
- The study indicated that the extent of plant material exchange between African and European PGR organizations for research and development is insignificant compared to exchange between northern institutions.

- Plant material exchange mostly included benefit sharing, and the most commonly shared benefits were knowledge transfer, participation in research, access to research results and co-authorship of publications.
- Many of the respondents were not very familiar with ABS principles and regulations. The major constraints to plant material exchange were found to be overly bureaucratic regulations, poor knowledge of compliance requirements, lack of national ABS regulations, poor quality of data associated with collections and lack of tracking mechanisms.
- The low level of plant material exchange between African and European institutions is most probably due to limited human and technological capacity in African institutions that restricts their involvement in research and development. Overly bureaucratic regulations and permits were identified as the biggest constraint but this is most likely associated with lack of tracking mechanisms and lack of trust in compliance regulations.
- Therefore, there is a need to build trust, human and technological capacity to strengthen collaboration by ensuring facilitated exchange and equitable benefit sharing.

Output 2: Constraints to germplasm/data exchange identified and mutually agreed mechanisms for efficient and responsible exchange of plant data and material agreed by African and European PGR institutions

Peter Omaswa's MSc dissertation entitled '*Relevance and factors affecting exchange of plant material and data for conservation*' is complementary to the study carried out by Ashenafi Ayenew in Ethiopia, and draws many of the same conclusions, although with more of a focus on constraints to exchange and the consequences of lack of exchange of material/data. The main findings of Peter's study (Supporting paper 1) are as follows:

The study looked at how African and European botanic institutions exchanged plant material and data. It focused on the nature of exchange and how it is being conducted, the opportunities and constraints to the exchange, and the benefits arising from the exchange in support of biodiversity conservation. To achieve the above, the study adopted a cross sectional survey and used both qualitative and quantitative approaches to gather primary and secondary data. Questionnaires were used to gather information from key informant respondents. Plant material exchange records for ten years (2010-2020) were retrieved from the *Index Seminum* database and individual institutional records. The study found that, a large number of botanic institutions are exchanging plant material and data in a formalised manner. This exchange, however, was greater in the European region than in the African region. Similarly, when compared to their African counterparts, European institutions shared the biggest proportion of material at a very frequent rate. As a result, both the sending and receiving of plant materials and data was dominated by the European region. Bureaucratic exchange procedures at the national and institutional levels are substantially limiting the exchange. Nonetheless, institutions participating in the exchange have reaped considerable financial and non-monetary benefits, including access to technology, infrastructure, and the sharing of invaluable knowledge for conservation-related applications. While many institutions are eager to share materials for conservation, it has been determined that only a small part of the material transmitted is used to directly conserve biodiversity. The findings also demonstrate that developing a digital platform for plant material and data exchange will have a considerable influence on not only the quantity of materials shared, but also overall exchange engagement. As a result, the study suggests that more African institutions be drawn into the exchange, particularly through IPEN enrolment and purposeful support from European institutions through increased collaboration, training and funding. Less bureaucratic exchange methods, particularly through an internet platform, are also advised.

Further progress has been made in year 2 in designing and implementing the digital exchange platform, including a second consultation workshop held on 20th November 2021, which can be viewed online [here](#). The new platform (see below) will enable institutions to exchange material through a regulated central platform online for the first time. Plant material will be flagged if biosecurity or ABS compliance regulations apply, and suppliers and recipients of plant material

and data will hold accounts that enable tracking of material, submission and receipt of feedback on quality of material, and access to supplementary tools, such as a climate resilience tool that assesses the suitability of material for cultivation under current and future climate scenarios.

Output 3: Digital platform for efficient and responsible exchange and tracking of plant data and material designed, developed, launched and used by the global research community

The draft online material exchange platform can be viewed [here](#). The platform will be formally launched at the delayed Eurogard meeting in Budapest during the week of May16-20th 2022.

Output 4: A mutually agreed, peer-reviewed global mechanism for recognising botanical research institutions that apply best practice ABS and biosafety procedures is developed and launched

A draft accreditation framework (Supporting paper 6) for ABS, biosecurity and CITES compliance was developed in year 2, and reviewed at a workshop held online and face to face in Ethiopia on 20th September 2021 (see supporting papers 4 and 5). The draft online accreditation questionnaires for ABS, biosecurity and CITES compliance certification can be found [here](#). Further consultation on the accreditation will take place at the delayed Eurogard conference in May 2022.

3.3 Progress towards the project Outcome

The project outcome is '*Improved capacity for biodiversity conservation and sustainable development in developing countries achieved through increased sharing of knowledge, facilities, data and plant material between institutions in the north and south*'. The project is on track to deliver the outcome, and current indicators appear to be adequate for measuring progress towards this outcome. As detailed above, significant progress has been made against Indicator 0.1 *Baseline survey carried out on extent and nature of plant material and data exchange between European and African organisations*; Indicator 0.2 *Consultation workshop held and specifications for a digital platform enabling responsible exchange and tracking of plant data and germplasm developed by the end of year 1*; Indicator 0.3. *Digital platform for germplasm/data exchange and tracking designed, developed and launched by end of year 2 results in increase in exchange of data and material between African and European institutions of at least 20% against the project baseline by end of project*, and; Indicator 0.4. *Accreditation methodology for recognising ABS, biosafety and CITES best practice agreed by the end of year 2, and scheme developed to assess and accredit organisations adhering to ABS, biosafety and CITES best practice launched and adopted by at least 20 organisations by project end*.

It is clear from the research carried out under Output 1 that lack of research capacity in African botanical institutions is the main constraint to exchange of material and data, and clear also from the ABS consultation that northern institutions need to do more to support African research institutions. The exchange platform and accreditations will help to achieve this.

3.4 Monitoring of assumptions

Key project assumptions were as follows:

- *Assumption 1: University closures/strikes are not in place in Uganda and/or Ethiopia*
To date, although the COVID pandemic has delayed some courses or moved them online, both universities have remained open, and it has been possible to register the students and for them to their (desk-based) research studies.
- *Assumption 2: The political situation in Ethiopia remains stable, and the country is safe to visit.*
The political situation in Ethiopia has stabilised over recent months with the war in Tigray. In addition, Ethiopia and Uganda are no longer red listed by the UK Government, meaning that the countries are currently safe to visit. In Years 1 and 2, we

were able to adjust to online consultation and meetings, but in year 3, we are expecting to resume face-to-face activities.

- *Assumption 3: National legislation or permitting procedures do not prevent the exchange of germplasm between some countries. In some cases, procedures may continue to be prohibitive and/or slow to adapt regardless of project outcomes. It is too soon to say whether this is a risk to project delivery.*
- *Assumption 4: Consensus can be reached about how to measure compliance amongst users. This risk/assumption relates to Output 4 – the accreditation mechanism. This is a key output for years 2 and 3 of the project, and we will know more about this assumption following the consultation process planned for year 3.*

3.5 Impact: achievement of positive impact on biodiversity and poverty alleviation

The project impact statement is *'Biodiversity conservation and the well-being and livelihoods of poor people in developing countries is improved through increased north-south collaborative research in plant conservation and sustainable development.'*

This project is making a significant contribution to understanding the extent and nature of north-south collaborative research on plant genetic resources, and the constraints to such collaboration. Currently, exchange of plant material between institutions in Europe and Africa is minimal, and 92% of questionnaire respondents felt that there were major constraints to international exchange of plant material, with 90% of respondents saying this had negative impacts on collaborative scientific research, 83% indicating negative impacts on plant conservation, 48% saying it had negative impacts on higher education opportunities and 43% indicating it had negative impacts on sustainable development. Based on responses to the questionnaire and consultation workshop discussions, the main reasons for the lack of collaborative research are overly bureaucratic regulations and permitting procedures (83%); poor knowledge of ABS, biosecurity etc. compliance requirements (41%); lack of ABS legislation and permitting systems (33%); poor quality data (30%); lack of tracking mechanisms for shared material (22%) and lack of trust in compliance mechanisms in recipient organisations (20%). This project is designed to address the most important of the issues identified. Specifically:

1. The plant material exchange platform will flag ABS compliance requirements, and streamline the plant material/data exchange process.
2. The platform will track exchanged material increasing confidence amongst providers of material and data that material is being used responsibly for research and not for commercial purposes
3. The ABS/biosecurity/CITES compliance accreditation will help to provide assurance to provider organisations that best practice will be followed and it will also explicitly recognise benefit-sharing by recipient organisations, including capacity building support.

4. Project support to the Conventions, Treaties or Agreements

This project supports the goals and targets of the CBD by supporting sustainable use (Strategic Goal B), improving the status of biodiversity by safeguarding ecosystems, species and genetic diversity (Strategic Goal C), enhancing the benefits to all from biodiversity and ecosystem services (Strategic Goal D) and enhancing implementation through participatory planning, knowledge management and capacity building (Strategic Goal E). The project particularly addresses Aichi Target 19 'By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.'

This project has a particularly strong focus on the implementation of the Nagoya Protocol, by ensuring that germplasm and data exchange complies with ABS laws and regulations. We will also work closely with organisations implementing the ITPGRFA, sharing lessons and approaches between the two communities. Finally, the main output of this project – a digital

platform enabling the responsible exchange of plant material and data – will flag species listed under CITES, helping to ensure CITES compliance.

The CBD focal points for Uganda (National Environment Management Authority) and Ethiopia (Ethiopian Biodiversity Institute) participated in the consultation workshops on March 9th 2021 and 20 September 2021, and have been engaged with the project throughout.

5. Project support to poverty reduction

This project is primarily focused on facilitating north-south collaborative research to support sustainable development and plant conservation. Therefore, impacts on poverty alleviation are likely to be indirect and long term. The research being carried out by Cambridge University (see Supporting paper 8), based on >17,000 requests for botanic garden material to support collaborative research, education, horticulture and conservation over the past 10 years has yet to be fully analysed and written up, but shows that the majority of material requested is to support research and education. We also know from data showing the levels of actual international exchange of plant material and data that current exchange between European and African institutions is almost non-existent – despite strong historic links between the two continents (Indicators 1.1 and 2.1). Finally, analysis carried out by BGCI recently, looking at the proportion of socio-economically important plant species in botanic garden/arboretum living collections, suggests that this is higher than that in crop and forestry gene banks (see Supporting paper 7). Clearly, if 99% of this plant material exchange is between institutions in the north, as Ashenafi and Omaswa's studies show, then African institutions are missing out on research and education opportunities related to socio-economically important species, and this will negatively impact poverty alleviation.

6. Consideration of gender equality issues

The project has encouraged equal gender participation, and has tracked participation through disaggregated gender data.

46% of questionnaire respondents were female, and 47% of the participants in the year 2 exchange platform consultation workshop were female.

7. Monitoring and evaluation

Face to face Steering Committee meetings have not been possible, as originally planned, due to the COVID pandemic and related travel restrictions. Instead, the lead partners (BGCI, AAU, MU and UV) have met online through Zoom frequently (July 13, August 18, September 20, October 26, November 9, November 22, January 13, February 2, 22; March 1, 17, 25). Platform development meetings have taken place weekly since October. In addition, Professor Demissew visited BGCI from 25 Feb to 8 March for discussions on Ashenafi's paper, the accreditation framework etc. Information has also been shared through very frequent email contact. Project activities and outputs have frequently been reviewed, and so far these are on track.

8. Lessons learnt

As mentioned in last year's report, we have adapted to Zoom/Teams meetings very well, and have probably benefited in some ways from increased participation.

Where COVID has had more of an impact has been in outsourcing pieces of work. For example, it has been difficult to find an institution in the European Consortium to carry out a review of ABS/biosecurity/CITES compliance regulations. We put out a call several times but had no takers. Probably because most institutions were engaged in crisis management. COP-15 has been delayed too, so incorporating principles related to digital sequence information has not yet been possible.

All of these elements have been outside our control and due to unique circumstances. They have also not impeded progress in any major way, so I don't think I would design the project differently if I were to do it again.

9. Actions taken in response to previous reviews (if applicable)

The Year 1 review referred to the contributions from Cambridge University Botanic Garden (CUBG) and the University of Tasmania, the fact that neither were mentioned as project partners, and asked on what basis the work was done. This has largely been opportunistic.

CUBG have contributed some staff and student time to analysing the PlantSearch requests for material and data (see Supporting paper 8). Although, CUBG are not interested in exactly the same questions as we are, they have gone some way towards sorting and categorising the uses of material showing, for example, that the majority of material requests are to support research. In Year 3, the project will further interrogate this data set and will produce a report and paper on what kind of research botanical collections support. This will help us to understand specific impacts on conservation and sustainable development.

The Climate Resilience Assessment Tool developed by the University of Tasmania can be viewed [here](#). It will be an additional tool, which can be added to the material exchange platform to guide users on bioclimatic conditions suitable for growing the plants concerned (so far only trees) under different climate scenarios. Currently the prototype is designed for botanic garden managers only but it will be modified so users can put in any lat/long where they want to plant the tree species.

10. Other comments on progress not covered elsewhere

The main difficulty has been in achieving face-to-face consultation. Virtual platforms are not conducive to detailed discussions. In particular, the proposed accreditation methodology (available [here](#)) is likely to be contentious – especially as the bar has been set very high for organisations to show that they are carrying out best practice when it comes to ABS, biosecurity and CITES compliance. Meeting these criteria will cost time and money, and there is a risk that organisations will reject it on this basis. However, we will know more after the Eurogard meeting in May when we have had a chance to get face-to-face, detailed feedback from European botanical institutions.

11. Sustainability and legacy

Year 1 of the project focused on getting the project started and carrying out the ground work for the main project products (research papers, digital platform and accreditation scheme). Year 2 has seen the first products launched/developed (research papers and digital platform), and these will be open access.

Our planned exit strategy is still valid. The main project outputs are:

1. a digital platform for efficient and responsible exchange of plant material and data, and;
2. a mutually agreed, peer-reviewed global mechanism for recognising botanical research institutions that apply best practice ABS and biosafety procedures.

Both of these outputs are stable and sustainable end points. Both will require continued maintenance and upgrading but they build on existing tools and processes, already widely adopted by the botanical community, and both will continue to be maintained by BGCI and its partner institutions as has been the case hitherto. The training component is initially project dependent but BGCI will continue to maintain and improve its web-based training as it already does for its other training modules, and this should help to ensure a steady increase in the number of people trained in data management and exchange of material beyond the project and well into the future.

12. Darwin identity

The Darwin Initiative is acknowledged as the funder of this project at the top of the project page on BGCI's website, which can be seen [here](#). The project is recognised as distinct, and has generated a lot of interest in the host countries and internationally. BGCI has promoted the

project through its website, social media accounts and newsletter, Cultivate, which reaches >13,000 people working in the botanical research community.

13. Impact of COVID-19 on project delivery

See above. Because this is largely a desk-based project, COVID has not significantly impacted the delivery of project activities. The main adjustment has been to shift planned face to face meetings online, which has worked well – in the case of the consultation workshops, better than if we had met face to face. BGCi and all of the partners have taken the necessary precautions (social distancing, wearing of masks etc.) to keep students and staff safe.

It is possible that some of the research that the project outputs will support, will have relevance to managing pandemics and/or reducing the likelihood of zoonotic diseases in the future. We will know more once we have the full results of the University of Cambridge research.

In year 3 of the project, we will reduce international travel and face to face meetings as required. We do not expect this to have a detrimental impact on project delivery.

14. Safeguarding

Please tick this box if any safeguarding or human rights violations have occurred during this financial year.

If you have ticked the box, please ensure these are reported to ODA.safeguarding@defra.gov.uk as indicated in the T&Cs.

BGCi has recently updated our legal policies, including safeguarding, whistle-blowing etc. These can be found on our website [here](#).

BGCi staff and contractors must formally agree to conform to these policies by signing our standard contracts and grant agreements (copies available on request). Similarly, all partners of this project will formally agree to adhere to BGCi's policies when signing project agreements.

15. Project expenditure

Please expand and complete Table 1. If all receipts have not yet been received, please provide indicative figures and clearly mark them as Draft. The Actual claim form will be taken as the final accounting for funds.

Table 1: Project expenditure during the reporting period (1 April 2021 – 31 March 2022)

Project spend (indicative since last Annual Report)	2021/22 Grant (£)	2021/22 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)	██████	██████	██████	BGCi underspend
Consultancy costs	██████	██████	██████	Software devt underspend
Overhead Costs	██████	██████	██████	BGCi due to underspend
Travel and subsistence	██████	██████	██████	BGCi intl travel underspend
Operating Costs	██████	██████	██████	Website devt underspend
Capital items (see below)	█	█		
Monitoring & Evaluation (M&E)	█	█		
Others (see below)	█	█		
TOTAL	115,012	94,074	-18.2%	

Highlight any agreed changes to the budget and **fully** explain any variation in expenditure where this is +/- 10% of the budget. Have these changes been discussed with and approved by Darwin?

16. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

I agree for the Darwin Initiative Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here).

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Yes
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	N/a
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
Do you have hard copies of material you need to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	N/a
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	