

## Darwin Initiative Main Annual Report

Submission Deadline: 30<sup>th</sup> April 2021

### Darwin Project Information

Project reference	26-023
Project title	Bridging agriculture and environment: Southern African crop-wild-relative network
Country/ies	Malawi, Tanzania and Zambia
Lead organisation	Bioversity International (now the Alliance of Bioversity International and CIAT).
Partner institution(s)	University of Birmingham (UoB); Southern African Developing Community (SADC) Plant Genetic Resources Centre (SPGRC), Lusaka, Zambia; Malawi Plant Genetic Resources Centre (MPGRC), Lilongwe, Malawi; National Plant Genetic Resources Centre (NPGRC) Tropical Pesticides Research Institute (TPRI), Arusha, Tanzania; Zambia Agricultural Research Institute (ZARI), Lusaka, Zambia.
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## 1. Project summary

Crop Wild Relatives (CWR) are wild plant species related to crops offering trait diversity for crop improvement. Globally, CWR annually contribute about [REDACTED] value to crop improvement that sustains food production and mitigates climate-change impact, enhancing long-term food/nutrition security and poverty alleviation. A diverse range of CWR traits is increasingly used in breeding programmes especially for novel cultivar development, but breeders are limited by access to them as CWR are poorly represented in genebanks and in some inadequate Access and Benefit Sharing policies. CWR are rarely used by farmers, but evidence exists that local farmers play a vital role in maintaining the interaction between wild relatives and their domesticates. Yet farmers are neither recognised nor rewarded for the public-good conservation service they provide and have no incentives to continue to maintain them.

CWR face similar threats to wild biodiversity from climate change, habitat degradation, invasive species, overexploitation, and pollution. In a previous SADC-CWR project (2014-2016) funded by ACP-EU, these drivers were also recognised by the partner countries when developing National Strategic Action Plans for the Conservation and Utilization of CWR. Loss of CWR genetic diversity, and their useful climate-change adaptive traits will constrain breeders' capacity to find long-term solutions to mitigate impacts of climate change and to help ensure long-term food security.

CWR species are often neglected due to inadequate appreciation and knowledge of their potential agricultural and nutritional value by policymakers and wild habitat (including for non-protected areas) managers. The ACP-EU SADC-CWR project highlighted limited coordination between agriculture and environment stakeholders and lack of a regional network with an enabling governance structure. This resulted in poor representation of more than 1,900 reported CWR species for regionally important crops in gene banks and very few *in situ* conservation actions. There is limited capacity among national-level scientists to effectively conserve/use CWR due to lack of tools/means to assess CWR distribution, identify potential novel traits for breeding, and design mechanisms to ensure that farmers benefit more directly from CWR.

The Darwin SADC-CWR Network project spans three years (2019-2022) and aims to tackle these issues to enhance conservation of CWR, both in their wild habitats in southern Africa, especially in Malawi, Tanzania and Zambia and in gene banks to facilitate their use. The objectives of the project are to a) Establish strategic partnerships and a network of protected areas for *in situ* conservation of CWR and use; b) Design mechanisms to enhance the benefits for farmers from conserving CWR; c) Increase access to CWR germplasm, and finally d) Build gendered capacity in southern Africa on *in situ* conservation and use of CWR.

## 2. Project partnerships

The year 2020-2021 has been an exceptional year characterized by the COVID-19 pandemic situation, which has significantly changed the way of doing business. There have been missed opportunities for strengthening the partnerships between the lead institution and its partners at several planned physical project meetings and visits (annual meeting, steering committee, training workshop, technical backstopping etc.) preventing face-to-face interactions. However, the project has adjusted to the situation and found new ways to interact. The Project Coordination Committee (PCC) continued to provide a platform for regular meetings and discussion among the partners. During the second year seven PCC meetings were held (Annex 4). The PCC provided the opportunity for partners to interact and exchange their experiences and build up strong team spirit, each motivating and being motivated by different partners. As expressed in our first-year annual report, internet connectivity especially with Tanzania and Zambia were difficult and ineffective. The project coordinator followed up regularly with each partner using WhatsApp or Skype, which proved to be very effective in communicating directly with partners. This also allowed a more personalised interaction and helped develop a strong partnership with them. The COVID-19 situation also caused many events to be held virtually and allowed an increased participation of project partners and their stakeholders. For example, the training workshop which was planned to be a few days of physical meeting was converted into a virtual training programme, coupled with one-to-one mentorship which allowed more participants from the SADC region to participate and benefit from it (see section 3.1). A new partnership was also

developed in the second year with the BIOPAMA network of protected areas within southern and eastern Africa region. This was made possible at a meeting organised by our SADC partner with their International Cooperating Partners in the region and where both the Darwin project and the BIOPAMA programme were presented. Stakeholders from both the Darwin project and BIOPAMA subsequently elaborated a plan of action for collaboration (Annex 5) since their activities were complementary. This led to organisation of a joint webinar, assistance with survey on access and benefit sharing (ABS) from CWR within protected areas and agreement to collaborate in the planning of final project conference and meeting. At the national level, our country partners continued to engage with local stakeholders in different institutes (Departments of Wildlife, Forestry, breeding institutes, herbaria, universities, and local communities) via their multi-stakeholder meetings and field visits.

### **3. Project progress**

#### **3.1 Progress in carrying out project Activities**

In this section we report against revised activities and tasks contained in the revised logical framework, (Annex 2), as approved in our change requested to LTS International on 18<sup>th</sup> November 2020 by email.

##### **Activity 1- Establishment of regional SADC CWR network**

Activity 1 consists of 6 tasks. The tasks (1.1., 1.4, 1.5 and 1.6) relate to the preparation of i) the concept note document (task 1.1), ii) a draft white paper on the establishment of a regional SADC CWR network (task 1.4), iii) their endorsement by SADC Secretariat (task 1.5) and iv) by the SADC Council of Ministers (task 1.6). Discussions were held with the director of the Food, Agriculture and Natural Resources Directorate of SADC Secretariat on the procedures for submitting the white paper to the SADC Council of Ministers. It was decided that the draft white paper should instead be submitted to the Joint meeting of SADC ministers of agriculture and food security, and fisheries and aquaculture. The draft concept note on the governance structure, functions and funding mechanism of the network initiated in the first year of the project was reviewed by the project's steering committee and then finalised as a draft white paper (Annex 6). This draft white paper was then submitted to SADC Secretariat and it was endorsed by the SADC Director Committee (Annex 7) in October 2020 for approval at the next session of the Joint meeting of SADC ministers of agriculture and food security, and fisheries and aquaculture to be held in 5-7 May 2021 (Annex 8).

The tasks 1.2 and 1.3 relate to (a) the draft document on harmonisation of the access and benefit sharing (ABS) of *in situ* genetic resources within the CWR network and (b) the ABS validation workshop. Under (a), a concept note (CN) was written together with both the International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGRFA) under the UN Food and Agriculture Organisation (FAO), and the Nagoya Protocol under the Convention on Biological Diversity (CBD). The CN was shared with their SADC region national focal points to establish a first contact, but also to raise awareness on the project and this particular activity (Annexes 9a, b). This was followed by an ABS survey sent to different SADC and eastern African region stakeholders. It covered existing policies and instruments on ABS of *in situ* plant genetic materials including CWR (Annex 10). Responses to the survey were initially relatively low, and the deadline for responding to the survey had to be extended several times to solicit more participation. This caused delay in the drafting of the document. The survey was closed by end of March 2021 and the responses received are currently being analysed, so a first draft should be completed in the first quarter of the third year. Regarding b), the ABS workshop, a task force has been established for the organisation of ABS workshop. The task force included representatives from the secretariats of the ITPGRFA and Nagoya Protocol, the Bioversity-CIAT Alliance, and the Southern African Developing Community (SADC) Plant Genetic Resources Centre (SPGRC). Due to the COVID-19 pandemic, the task force decided to postpone the workshop to year 3 and to hold it virtually, tentatively at the start of 2022 (Annex 11). This change request was approved by LTS International.

##### **Activity 2 - Enhanced SADC *in situ* CWR conservation Malawi, Tanzania and Zambia**

Malawi held one face-to-face multi-stakeholder meeting (Annex 12) (task 2.1), however due to COVID-19, it was not possible to hold a physical multi-stakeholder meeting in Tanzania and Zambia. In Zambia, the partner held online meeting with the various stakeholders and Tanzania has rescheduled its meeting for April 2021. The country partners Malawi, Tanzania and Zambia, and other countries (Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Mozambique, Seychelles, and Zimbabwe) also produced national checklists of CWR (task 2.2) as a result of the training activity (see below). The main task for the second year was to complete the conservation planning of CWR *in situ* sites/populations in Malawi and Tanzania (task 2.3), with distribution maps and priority sites for reserve establishment. Progress has been made as scheduled, as both countries were able to identify their priority CWR and the priority sites for establishing *in situ* conservation and carrying out ground-truthing surveys (tasks 2.3, 2.6 and 2.7). In Malawi, out of four selected protected areas (Nyika and Lengwe National Parks and South Viphya and Zomba Forest Reserves), based on scientifically sound criteria and field ground truthing, the Nyika National Park and Zomba Forest Reserve were chosen as the two protected areas to be designated as genetic reserves for *in situ* conservation of CWR of Asparagus (*Asparagus*); Coffee (*Coffea*); Cowpea (*Vigna*); Cucumber, melon, gherkin (*Cucumis*); leguminous forages and pigeon pea (*Cajanus*); Passion fruit (*Passiflora*); Potato, Tomato, Egg-plant (*Solanum*); Rice (*Oryza*); Sesame (*Sesamum*); Sorghum (*Sorghum*); Sweet potato (*Ipomoea*); and various beans and grams (*Lablab*) (task 2.7). These protected areas have been signposted as shown in the photos in Annex 13. Furthermore, Malawi identified a less formal *in situ* conservation site in Nkhotakota, Lunga 1 section. The aim of establishing this site is to enhance farmer benefits derived from use and conservation of CWR. In Tanzania, eight priority sites for *in situ* conservation of CWR were identified using DIVA-GIS from their occurrence data and based on high numbers of CWR species, including CWR for Coffee (*Coffea kihansiensis*, *C. pseudozanguebariae*), Cotton (*Gossypium longicalyx*), Cowpeas/ others (*Vigna unguiculata*, *V. vesillata*), Enset (*Ensete ventricosum*), and Rice (*Oryza longistaminata*, *O. barthii*), in both protected and outside the protected areas. In Zambia, the validation visits were undertaken in three national parks, namely Kafue, Kasanka and south Luangwa, which were selected as their priority conservation sites. The three national parks have crop wild relatives of cowpea (*Vigna* spp.); pearl millet (*Pennisetum* spp.); rice (*Oryza longistaminata*, *O. barthii*, *O. punctata*); sorghum (*Sorghum versicolor*); and sweet potato (*Ipomoea* spp.).

Both Malawi and Tanzania have also initiated the preparation of their National Strategic Action Plans (NSAP) for CWR conservation through the drafting of the technical background document associated with the NSAP (task 2.4) while Zambia has revised their existing NSAP (Annex 14).

Regarding task 2.5, two drafts of the paper 'Integrating diversity and climate-change analyses in conservation planning of crop wild relatives in Southern Africa' (draft title), were produced and reviewed by the project team and will be submitted for publication in a peer reviewed journal. This will now form the basis for the preparation of the Regional Strategic Action Plan for CWR conservation in the third year.

All country partners are working closely with national parks, wildlife, or forestry departments to revise the management plans of selected protected areas (PA) (task 2.8). In Malawi, an assessment of the management plans of the four protected areas was done in collaboration with the key stakeholders, including PA managers, and the project partner (Malawi Plant Genetic Resources Centre - MPGRC) has been invited by the Zomba Forest Reserve and Nyika National Park to review their management plans to include a section of CWR conservation. In Zambia, meetings were held with the Department of National Parks and Wildlife and the review of management plans of the priority sites is dependent on when the department will get enough resources to do this exercise.

### **Activity 3 – Enhanced SADC *ex situ* CWR conservation**

Good progress was made in strengthening the SPGRC regional genebank based in Lusaka during the year (task 3.1). The aluminium foils that were ordered in the first year were finally delivered in the first week of June 2020, due to disruption of flights by COVID-19. Quotations for upgrading of the SPGRC genebank with an electronic temperature monitoring alarm system have been received from three companies and were reviewed by a number of genebank experts from International Institute of Tropical Agriculture (IITA) and Aarhus University. Rotronic

(<https://www.rotronic.com/en>) equipment was selected and suppliers from South Africa were contracted to supply and deliver the equipment. The equipment has now been shipped to Lusaka and is awaiting instalment. Delays were caused by lack of flight availability and also due to requirements for administrative processing of import permits of electronic equipment in Zambia (Annex 15).

All three countries collected seed samples of CWR during field visits (task 3.2), but none was able to send material for duplication to the SPGRC, given the low number of viable samples (task 3.3). The pandemic has reduced the mobility of the partners, who missed the fruiting seasons of some species, thus accounting for the low numbers of samples that were collected. Nevertheless, Malawi conducted three collection missions and collected in total 47 samples of priority CWR. Collections were done from the districts of Salima, and Nkhotakota, from the protected areas of Nyika and Lengwe National Parks and South Viphya and Zomba Forest Reserves. The third collection mission was done during establishment of less formal sites where eight samples were collected from Salima, Nkhotakota and Nkhatabay districts. The collections were made on the genera – *Asparagus*, *Cajanus*, *Coffea*, *Cucumis*, *Ipomoea*, *Lablab*, *Oryza*, *Passiflora*, *Solanum*, *Sesamum*, *Sorghum*, and *Vigna*, (Annex 16a). In Tanzania, three samples of *Eleusine indica* were collected while in Zambia, a total of 24 samples of rice (*Oryza longistaminata*, *O. barthii*, *O. punctata*), *Vigna* spp. and *Sorghum versicolor* were collected (Annex 16b).

Some efforts have been made especially in Malawi to distribute the CWR collected in the project to breeders (task 3.5). The MPGRC genotyped 35 accessions of wild relatives of rice collected during the field visits and that have been identified as harbouring genes for drought tolerance that could be shared with rice breeders. In addition, MPGRC has documented traits of economic importance of *Vigna unguiculata* L. var *unguiculata*, *Sorghum arundinaceum*, *O. barthii*, *O. longistaminata* and *O. punctata*. These will be shared with respective breeders for their reference. In Zambia, no CWR accessions were distributed to breeders but the Zambian National Plant Genetic Resources Centre has planted collected accessions aiming to multiply the seeds for possible distribution to the breeders. No distribution of accessions was reported from Tanzania.

#### **Activity 4: Enhanced SADC CWR use in crop improvement**

Three main tasks were scheduled for the second year regarding data on farmer traits (task 4.2), predictive characterisation (task 4.3), and quantification of CWR accessions being used in pre-breeding programmes (task 4.4). The task 4.2 on farmers traits was not able to be carried out due to COVID-19. The choice of which priority crops and traits to be used for predictive characterisation was made based on the experience of the national partners working with farmers in their respective countries (task 4.3). A virtual meeting was organised with the country partners, where it was decided that cowpea (*Vigna* spp.) and drought tolerance will be used at the regional level for the predictive characterization. Malawi identified drought tolerance as the desired trait in rice, Tanzania identified drought and salinity tolerance in *Oryza* and *Vigna* and for Zambia, the species would be *Sorghum* and *Oryza* for heat-stress tolerance and drought tolerance respectively (Annex 4).

The predictive characterization study on wild relatives of cowpea (*Vigna unguiculata* (L.) Walp.) was conducted for the SADC region to identify populations with potential for drought and salinity tolerance. Different maps of the SADC region at a resolution of 2.5 arc minutes (approx. 4.5 km at the equator) were produced that are based on CWR of cowpea: (i) an Ecogeographic Land Characterization (ELC) map for CWR using CAPFITOGEN tools in which 28 different ELC categories were identified; (ii) 2 Maps showing an initial subset of 65 cowpea accessions with a high probability of containing traits for drought tolerance, and (iii) a list and a map of a final subset of 27 CWR accessions of cowpea and the corresponding 5 ELC categories, likely to contain traits for both drought and salinity tolerance (Annex 17). The maps are available in GIS format to be made available to SADC and CGIAR breeders and to be published on the project website. The application of this methodology at the national levels has been delayed due to the COVID-19 pandemic, which prevented Alliance staff from travelling to travel partner countries and supporting their application. Instead, the project partners were briefed and trained on how to carry out the predictive characterisation task with guidance from Alliance and University of Birmingham (UoB) staff virtually.

For task 4.4, a literature review was planned for examining any published data on use of CWR in pre-breeding programmes in the SADC region, however, this is yet to be done.

## **Activity 5 – Enhanced farmers benefits from CWR conservation and use**

The tasks under this activity were rescheduled for the third year. Due to COVID-19, the Tool Kit publication (task 5.2) was delayed, as the related field survey could not be carried out on time (originally scheduled for months 11-13, now for month 30) and difficult communications with national partners. The scheduled field surveys (task 5.3) had to be reviewed in terms of number of participants, to minimise contact and transmission and for the safety of the national fieldwork team as well as for budget considerations. Field survey implementation took place in Malawi in March 2021 and is being planned for Tanzania to begin as of April/May 2021.

The Malawi field survey (Annex 18a) was conducted in three districts, namely Salima (Chipoka and Maganga Extension Planning Areas [EPAs]), Nkhotakota (in Linga and Mphonde EPAs) and in Nkhatabay (in Chitheka EPA, Kangoma section). The survey involved 13 farmer group discussions (involving 283 farmers, 70% of which were women), two of which were located close to the protected areas of Nkhotakota game reserve and South Viphya forest reserve. The survey included a series of focus group discussions which allowed the farmers to identify all the CWR known to occur within their communities. Amongst other things, information related to use, diversity/abundance, adaptation, economic benefits of CWR was recorded from farmers. In addition to farmers, Protected Area (PA) managers and other staff (four, all male) were also interviewed about their knowledge of CWR occurring in their PAs and how the surrounding communities have benefitted from utilising them. Preliminary findings indicate that CWR are mostly utilised for food and medicinal purposes.

Information regarding the willingness of the farming communities to participate in CWR conservation activities was also collected during this field survey through a conservation service tender process. The tender process included i) training in how tenders work; ii) the rules associated with participating in this particular CWR tender (who may participate, participation conditions); iii) identifying the different types of conservation activities that could be undertaken; iv) the (opportunity) costs likely to be associated with these activities, and v) the group-level in-kind rewards that the farmers would require in order to be able to participate in such activities. Preliminary findings indicated a high level of willingness to participate, strong preferences for working on communal lands rather than private plot areas and to receive their reward payments for the provision of a public good conservation service in the form of farm implements (Annex 18b).

In addition to the field survey and conservation tender-related activities, which are associated with a direct support mechanism for enhancing farmers' benefits from the conservation and use of CWR, progress was also made regarding the indirect support mechanisms. These relate to exploring the potential for farmers to better capture the benefits of plant breeding that make use of CWR. A literature review was realised along with a number of expert discussions, leading to the identification of key variables for the assessment of actual/potential CWR breeding programme costs and benefits. These include around 30 variables related to collection, *ex situ* conservation, characterization, breeding and evaluation, field testing and adoption. The model is now ready to be validated and populated with the necessary data (or gaps identified) by the national teams, prior to further analysis.

## **Activity 6 - Capacity building**

The COVID-19 pandemic did not allow holding the face-to-face training workshop (task 6.2). Instead, it was proposed to turn the workshop into an online training programme that would run over the project's second- and third- years (Annex 19a). The preparatory phase of the training programme included a series of Zoom sessions where presentations about specific conservation planning steps were presented and assignments were explained to trainees. After each introductory Zoom session, a follow up email with instructions on the assignments, templates, relevant references and important deadlines, was sent to all the trainees. Additionally, these introductory sessions were then followed by Q&A sessions where the questions that were sent prior to these sessions were answered by the trainers. The trainees would then send their assignments to UoB and the Alliance for feedback. By the end of March 2021, a total of 26 trainees, 20 from amongst 13 SADC countries and 6 from outside the SADC region (Nigeria, Sudan, Saudi Arabia and the UK), who are mostly research assistants, but also some are students, participated in at least one session of the CWR conservation planning training

programme (Annexes 19b, c). [A survey<sup>1</sup>](#) about the status of completion of the various assignments (i.e. CWR national checklists, list of priority CWR, occurrence data for priority CWR) was sent to the trainees to monitor for progress. Out of the 7 respondents from the SADC region, 2 reported completed CWR checklists and priority lists of CWR and 5 partially completed, 5 partially completed occurrence datasets of CWR and 2 not completed, 5 partially completed TBD and 2 not completed. A series of small-groups workshops are still being planned to complete the training.

Finally, a [series of webinars<sup>2</sup>](#) took place for the BIOPAMA (Biodiversity and Protected Areas Management) network members to engage them in the conservation of CWR in protected areas (Annex 20). A call for support for the final conference organization has been made to the regional coordinator of the BIOPAMA programme, which was received positively (task 6.4) (Annex 21) and potential events have been identified, including the next IUCN African Protected Areas Congress which will be held in Kigali, Rwanda from 7-12 March 2022. The project coordinator has initiated contact with the Alliance's communication team to start preparing for the promotion of the final conference.

### 3.2 Progress towards project Outputs

#### **Output 1: SADC CWR in situ network established as part of existing SADC plant genetic resource network**

Good progress on the delivery of this output has been made ahead of time, given that the draft SADC regional CWR network Policy White paper for establishing the Regional CWR *in situ* network has been finalized and endorsed by the SADC Secretariat and is being tabled for approval by joint meeting of SADC ministers responsible for agriculture and food security, and fisheries and aquaculture to be held on 5-7 May 2021 (Annexes 6,7,8) instead by Month 36 of project, (indicator 1.6).

**Indicator 1.1:** Completed and draft concept note was endorsed (Annexes 6,7).

**Indicator 1.2:** The drafting of the harmonization paper on Access and Benefit Sharing of *in situ* genetic resources within the CWR network has been delayed, as the validation workshop had to be postponed to end of the year 2021 after discussion with the secretariat of Nagoya Protocol of CBD and the International Treaty on Plant Genetic Resources for Food and Agriculture due to the COVID-19 pandemic. A change request was made to LTS International and this was endorsed.

**Indicator 1.3:** Postponed. As mentioned above the validation workshop was postponed to year 3 (month 33).

**Indicator 1.4:** Completed ahead of time.

**Indicator 1.5:** Completed ahead of time.

**Indicator 1.6:** Completed ahead of time.

#### **Output 2: Enhanced *in situ* CWR conservation in SADC region with emphasis on Malawi, Tanzania, and Zambia**

**Indicator 2.1:** Each partner country should hold bi-annual multi-stakeholders' meetings. Achieved in Malawi (Annex 12) and Zambia (virtually) and not achieved in Tanzania, as they had to postpone their multi-stakeholder meeting to April 2021 because of travel restrictions.

**Indicator 2.2:** Malawi had completed this task in year 1. Tanzania finalised their national CWR checklist (526 spp.) and their priority CWR species list (20 spp.), which have been validated by the national multi-stakeholders' committee (Annexes 22a, b, c). Zambia updated their existing checklist.

**Indicator 2.3:** Achieved. As reported above all partner countries were able to identify their priority sites for *in situ* conservation of CWR (Annexes 16a, b).

**Indicator 2.4:** Not due until month 36. All the countries have initiated the preparation of their National strategy and Action Plan (NSAP), Zambia has updated their existing NSAP (Annex 14).

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<sup>1</sup> <https://forms.office.com/r/z3cvH8iQHM>

<sup>2</sup> <http://www.cropwildrelatives.org/resources/webinars/>

**Indicator 2.5:** In progress. As reported above, the preparation of the paper was delayed due to lockdown caused by COVID-19 and unavailability of time to complete this work. Regional strategy is not due until month 33.

**Indicator 2.6:** Partly achieved, but output indicator is not due until month 30. However, partners have undertaken field activity in some priority sites for ground-truthing the CWR populations and more field work will take place in year 3.

**Indicator 2.7:** Not due until month 30. Malawi has made some progress and three sites have been earmarked for nominations as genetic reserves. Tanzania has identified eight priority sites and is waiting for the multi-stakeholders' committee meeting to validate four of them for nomination.

**Indicator 2.8:** Not due until month 36.

### **Output 3: Enhanced SADC *ex situ* CWR conservation**

**Indicator 3.1:** Output indicator changed to replace cold room facility by the upgrading with automatic alarm monitoring system for temperature and humidity. Changed request submitted and endorsed by LTS International. The indicator is partly achieved as the equipment has been ordered and in the process of being shipped and installed. Delay was caused by COVID-19, affecting flights and administrative issues.

**Indicator 3.2:** Achieved for year 2. Some collection of CWR were made by all the countries.

**Indicator 3.3:** Not due until month 36.

**Indicator 3.4:** Achieved for year 2. Malawi collected 47 accessions of 12 species, Tanzania added three accessions of *Eleusine indica* and Zambia collected 24 accessions of five species.

**Indicator 3.5:** None of the partner countries had distributed any CWR accessions. Zambia has highlighted that the NPGRC does not receive requests for CWR accessions from breeders. Malawi highlighted the similar issue, however has proposed identifying a list of the available CWR accessions in their NPGRC and planned to produce brochures with the information on their potential traits and their availability to share with breeders so that they are aware of the *ex situ* CWR material available. A similar approach has been recommended to Tanzania and Zambia to increase the awareness and demand of the CWR accessions by breeders.

### **Output 4: Enhanced SADC CWR use in crop improvement**

**Indicator 4.1:** Completed in year 1.

**Indicator 4.2:** Not achieved. This indicator relating to data on farmer traits priorities will not be met, but an alternative strategy to get the information from farmers through the intermediary of the national country partners was pursued to take decision about which the priority crops and traits are of importance for farmers (Annex 4).

**Indicator 4.3:** Partially achieved. Regional analysis was done (Annex 17), but predictive characterisation task is now being pursued at the national level with the country partners.

**Indicator 4.4:** SPGRC was attributed this task to carry out a thorough literature review of the CWR accessions being used for pre-breeding programmes, upon the recommendation of the steering committee members. The process is on-going.

### **Output 5: Enhanced farmers benefits from CWR conservation and use**

**Indicator 5.1:** Achieved in the first year.

**Indicator 5.2:** Delayed, as previously advised. As noted above, the related output ("How To" Tool Kit) was rescheduled for month 30 as due to COVID-19, the work related to the field survey could not be carried out on time.

**Indicator 5.3:** Partially achieved: Field survey conducted in Malawi involving 13 communities and ≈280 farmers (70% women) (Annexes 18a, b). In Tanzania, the survey is planned to be carried out as of April 2021, with delay in part attributable to the need to split limited annual Output 5 budget over different Darwin financial years. Documentation and/or modelling of the benefits that farmers derive or could derive from CWR conservation is still on track for completion by end of Month 34.

## **Output 6: Enhanced Capacity of SADC CWR stakeholder in conservation and use of CWR**

**Indicator 6.1:** Completed in year 1.

**Indicator 6.2:** Partly achieved (Annexes 19a, b, c). Training session ongoing and will extend in year 3.

**Indicator 6.3:** Ongoing. The mentoring programme has been merged with the training programme. The three partner countries have two people involved in the training respectively.

**Indicator 6.4:** Not due until month 35.

### **3.3 Progress towards the project Outcome**

**Outcome: Establish SADC CWR network of *in situ* sites/populations, *ex situ* genebanks and stakeholders (farmers, environmentalists, breeders and policy makers) resulting in 70% improved CWR conservation and use for crop improvement.**

The project is on track to achieve its outcome. As a result of changes in the process for getting the endorsement of white paper for the creation of a Regional CWR Network for the conservation and use of crop wild relatives in the SADC region, as discussed with SADC Secretariat, the logframe indicator 0.1 was modified. It was advised that an Edict paper was not necessary, but a white paper for the creation of network was sufficient for approval by the joint meeting of SADC ministers responsible for agriculture and food security, and fisheries and aquaculture. This revised logframe was endorsed by LTS International. It is likely that the network will be established during the course of the project, if the joint meeting of SADC ministers approves the white paper in May 2021. Partner countries have been identifying key hotspots areas for CWR to establish them as genetic reserves to be part of the regional network (e.g. Annexes 13, 16a, b). Other countries in the SADC region engaged in the training programme are getting technical support from the project to identify sites that could be part of the network. Furthermore, a regional assessment undertaken by the previous EU-ACP project identified a network of sites of regional importance (i.e. to conserve regionally priority CWR) (Annex 23a) and this information was shared with the protected area authorities in each country encouraging them to enlist these sites as part of the network (indicator 0.2) in collaboration with BIOPAMA network so that the regional CWR network will have sustainability beyond the project lifespan (Annex 23b). However, in the end, it remains at the discretion of the country/protected area authority to make this decision. The project is also encouraging NPGRCs to collect and conserve the CWRs species from the identified hotspots for conservation in their genebanks (indicator 0.3). There is evidence that this is already happening in project countries (Annex 24). Achieving the targeted number of CWR distributed to users will be slow, and this will not happen during the lifetime of the project. It will be dependent on various factors including addressing some of the constraints in accessing materials from protected areas and ABS policies, and characterising CWR to demonstrate that they have value for use by breeders. While the project is laying the ground to address these issues, its implementation may take quite a long time to achieve.

### **3.4 Monitoring of assumptions**

**Assumption 1 (Outcome):** Willingness of the SADC member states to commit to establishment of regional CWR network as a contribution to the global efforts in biodiversity conservation and access to genetic materials as called forth by the Convention on Biological Diversity and Nagoya protocol.

**Comment:** This assumption still holds true. As reported last year all member states continue to be engaged in the negotiations of the new Post 2020 Global Biodiversity framework, where both the importance of CWR and ABS issues are high on the agenda. The project coordinator is actively participating in the discussions of goals and targets for the Post 2020 GBF and co-authored a report to the CBD secretariat calling for visibility for genetic diversity and CWR within the framework (Annexes 25a, b). The project is also working hand in hand with both Nagoya Protocol of CBD and ITPGRFA to co-organise the ABS workshop with participation of National focal points for facilitating access to genetic materials held *in situ* (Annex 11).

**Assumption 2 (Outcome):** No logistical barriers to the smooth operation/ implementation and communications between countries and stakeholders involved in SADC CWR network.

**Comments:** This assumption is also holding true. There is a clear endorsement from the SADC Secretariat and willingness to host and facilitate the implementation of Regional CWR Network, provided the white paper is approved by the joint meeting of SADC ministers. BIOPAMA is fully on board to support the conservation of CWR within their network of protected areas (Annex 21).

**Assumptions (Output 1):** Full participation of the member states of the SADC region; Representatives of countries attending the regional workshop have the credentials to discuss and negotiate the draft protocol on the establishment of the SADC CWR network; SADC Council of Ministers willing to support establishment of SADC CWR *In situ* network.

**Comments:** The first two assumptions are no longer an issue because the draft white paper has been circulated to all member states' focal points for SADC Plant Genetic Resources programme and was endorsed by SADC Director's Review Committee (Annexes 6,7,8). However, the final assumption that SADC ministers responsible for agriculture and food security, and fisheries and aquaculture will support establishment of SADC CWR *in situ* Network remains valid.

**Assumptions (Output 2):** Different stakeholders especially agriculture, forestry and environment are willing to work in a collaborative way; Community support for *in situ* conservation management of CWR in their neighbourhoods; Full support from policy makers are provided.

**Comments:** Countries reported that they have been getting full support from their stakeholders from agriculture, forestry and national parks and wildlife departments and they are actively collaborating with them to undertake field work, providing them access into the protected areas and joint collecting efforts. They also collaborated in developing the National Strategy and Action Plan. All these provide evidence of strong collaboration among the various stakeholders.

**Assumptions (Output 3):** Genebanks willing to hold safety backups of CWR *in situ* populations.

**Comments:** There exists a functioning plant genetic resources gene bank network in the region through which genetic resource materials (including CWR) are collected at national level and sent to the regional safety back-up collection based in Lusaka, Zambia for safety duplication. While there is a willingness among the NPGRCs to do so, there are challenges in terms of quantity of materials available at NPGRC for safety duplication, financial resources to cover for shipping costs, phytosanitary measures. In addition, the COVID-19 situation has somehow reduced this activity and no safety back-up has been possible in the past year, but every effort will be made in the third year for safety duplication, subject to the evolution of the COVID-19 pandemic.

**Assumptions (Output 4):** Users are aware of Nagoya Protocol and ABS policy process and make application for germplasm use; CGIAR able to supply pre-bred CWR trait lines to SADC breeders and farmers for crops of interest; SADC breeders and farmers willing to work with pre-bred CWR trait lines to generate climate smart material for SADC farmers.

**Comment:** While most countries are aware of the Nagoya Protocol and ABS policy process, the survey carried out on ABS in the SADC region is showing that holders of the germplasm are unclear about the process for ABS between the Nagoya Protocol and provision to ABS by the ITPGRFA. As reported last year, breeders are still very interested with traits found in CWR, but their access and breeding remain a challenge. This challenge is being addressed by the project.

**Assumptions (Output 5):** Farmers willing to participate in CWR conservation and use activities; Appropriate existing CWR-derived materials can be identified, and access provided to farmers; Security concerns/civil strife does not impede farmer field visits in project sites.

**Comment:** A major assumption is the effective identification of existing availability of CWR derived materials and providing them access to such materials. However, farmers are aware of the presence of CWR in or around their fields and are willing to collaborate with the project in the conservation and use of CWR. In Malawi, for example, the farmers were able to freely list all crop wild relatives known to occur within their communities and provided information on their use of CWR for food and medicinal purposes, adaptation of CWR, diversity/abundance and food and economic benefits of CWR (Annex 18b). Despite the COVID-19 pandemic and limited travel restrictions imposed by government authorities, the national partners have been able to gather

limited number of farmers during the field visits. This will impede the attainment of the targets of number of farmers under indicator 5.3.

**Assumptions (Output 6):** Willingness among protected areas managers and local communities to engage in the *in situ* conservation of CWR species; capacities for wild population management of CWR in partner countries are lacking; There is sufficient interest among young male and female research scientists in the partner countries to embark on research activities within the scope of this of this project.

**Comment:** Countries are reporting that there is good collaboration from the forestry and nature protection authorities to work together for identifying sites and for *in situ* conservation of CWR. Lack of capacities in conservation planning was identified in the needs' assessment report carried out in the first year 1 of the project (Annex 26). Given the inability to hold a physical training workshop, an online training programme was designed and 26 participants (15 female/11 males) attended virtual webinars, showing that national researchers are interested in such research activities (Annexes 19a, b, c).

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

The project's intended impact is to increase the adaptive capacity and to reduce socio-economic vulnerability to enhance food security of 130 million people in southern Africa through improved conservation and use of CWR in breeding. The project is thus both linked to the biodiversity (CWR) conservation and contributes to the food security of the human populations within the SADC region. Essentially, the project aims at ensuring the *in situ* conservation of CWR in the region through the development of National Strategy Action Plans and establishment of genetic reserves. The project also promotes the safety back-up of the genetic materials of CWR in national and regional genebanks to increase their accessibility to breeders. This in turn will ensure sustainability of crop production to ensure food security of human population. In the second year of the project, good progress was made in identifying CWR-rich sites, which are targets for genetic reserves establishment and the diversity of CWR were collected and are now being characterised for use by breeders and conserved in national genebanks.

## **4. Contribution to the Global Goals for Sustainable Development (SDGs)**

The project contributes directly towards SDG 2 - Zero hunger and food security, more specifically, to target 2.5 "*By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species*". A survey has been carried out among all stakeholders of the SADC and Eastern African region (breeders, protected area managers, ITPGRFA - FAO focal points, and the Nagoya Protocol under the CBD) to collate information on existing policies and strategies for the safeguarding and improving the accessibility and use of genetic diversity of CWR both *ex situ* and *in situ*. Results of the survey together with a background literature review will be used to develop a harmonized document on access to and benefit sharing of the genetic diversity in the region. The project also contributed to Goal 5 on gender equality by supporting female participation in the training programme on conservation planning and the field surveys in Malawi, under the Indicator 5.1, ensured balanced participation of both male and female farmers (~70% female participation was noted). The project is also indirectly taking actions to achieve Goal 13 (Climate action) under the indicators 2.3, 2.6 and 4.3 related to conservation planning, ground-truthing and mapping of priority CWR occurrences to detect the projected impacts of climate change in the priority conservation sites to enable development of effective climate-change mitigation measures. Partners have been provided with technical guidance on how to carry out predictive characterization of preferred adaptive traits of CWR to improve crop breeding of certain key crops, like rice, sorghum, cowpea. Goal 15 (Life on land) is also being addressed through the series of training sessions with the SADC countries, where they have been trained to establish baseline information on the CWR diversity to develop national strategies that would conserve not only the CWR but also their habitats and promote their sustainable use. Under Goal 17 (Global partnership), the project has established new partnership with the Biodiversity and Protected Areas Management (BIOPAMA) Programme under the IUCN, to reach out to protected area managers in the African region as they are the key stakeholders for ensuring sustainable *in situ* conservation of CWR. Among other institutional partnerships, the ITPGRFA under FAO and Nagoya Protocol under CBD have been contributing in discussions to

organize a regional workshop on ABS. Project partners also have been establishing contacts with national parks and proposed to help review their management plans to integrate *in situ* CWR conservation.

## 5. Project support to the Conventions, Treaties or Agreements

The project is directly contributing to CBD, Nagoya Protocol on ABS and the ITPGRFA. It also addresses several Priority Areas (PA) of the FAO Second Global Plan of Action (GPA), such as: PA1 – surveying and inventorying CWR and establishing specific sites for their *in situ* conservation; PA 4 - in promoting the *in situ* conservation and management of CWR; PA 5 - in supporting targeted collection of CWR to enrich the national genebanks; PA 6 – expanding *ex situ* conservation of CWR; and PA 8: enhancing the use of CWR in genebanks and identifying germplasm of potential value in crop improvement.

The project addresses in particular Aichi Target 13 of CBD Strategic Plan on biodiversity, in maintaining and developing strategies to safeguard genetic diversity of CWR. The project coordinator has been actively contributing to the development of new goals and targets for the succeeding post 2020 Global Biodiversity framework ensuring that safeguard of CWR is included in the new global biodiversity framework (Annex 25a). Partner countries have also been actively in contributing to the NBSAP of their respective country and report on the work of the project (e.g. Annex 27a). The project is partnering with secretariats of Nagoya Protocol unit of CBD and ITPGRFA to co-organise an ABS workshop, targeting the national focal points of these two secretariats (indicator 1.3). The national focal points of the 16 countries of the SADC were contacted to participate in a survey on policies on ABS in their country and 19 responses were received. Partner countries have also been contributing to their country report on their progress made on the implementation of FAO second GPA, addressing the PAs mentioned above (e.g. Annexes 27b, c).

## 6. Project support to poverty alleviation

As indicated in last year's AR1, the ultimate beneficiaries of the project are the local communities, male and female farmers who depend on local food production for their food security and livelihoods. In the project, we argue that CWR can provide a long-term solution as a source of resistance genes and adaptive trait diversity for crop improvement to meet the needs of these farmers. It is clear though that there will not be any immediate direct impact to farmer's food security and livelihood, within the timeline of the project. The supply chain for these useful traits from CWR wild populations *in situ* needs to move to breeders for developing into climate-resilient varieties and then to reach farmers through local/formal seed systems so that they ultimately benefit from the fruits of initial conservation *in situ*. This is a lengthy process, and often limited by ABS constraints, identification of desirable traits, pre-breeding and technical capacity at country level. However, the project will make a significant contribution to addressing these constraints and facilitating the flow of genetic materials along the supply chain described above. During the past year, the project has been addressing the ABS issue by initiating a survey among breeders, NFPs of the Nagoya Protocol and ITPGRFA. Countries have been working with breeders to facilitate access to and promote the use of CWR within their breeding programmes, as well as working with farmers directly to conserve CWR within their farms and encourage gene flow to their crops so that they may develop resistance to stresses and resilience to climate change.

## 7. Consideration of gender equality issues

While the project does not directly address gender inequality, efforts have been made to include a representative number of genders in the different activities, notably under Output 5.3 (Enhanced farmers benefits from CWR conservation and use) and Output 6 (Capacity building).

**Fieldwork Survey and Conservation Tender:** In Malawi, 198 female and 85 male farmers (totalling to 283, ~70% female) participated in focus discussion groups on the farmers' trait priorities for crop improvement (Annex 18b).

**Capacity building:** By the end of March 2021, 26 trainees (13 female, 11 male) from 13 SADC countries and 6 (2 female, 4 male) from outside the SADC region (Nigeria, Saudi Arabia, Sudan and UK), who are mostly research assistants but also some are students, participated in at least

one session of the CWR conservation planning training programme (Annex 19b). The training was provided by two female and one male staff from University of Birmingham and the Alliance.

## **8. Monitoring and evaluation**

Progress on deliverables has been monitored using the Monitoring and Evaluation Tool which is based on the logical framework and the same logframe indicators are used in M&E plan to measure progress in activities (Annex 28). The project partners were requested to fill in and circulate to project's coordinator, prior to the coordination meetings, where the issues raised are discussed. Regular coordination meetings (seven in total) have been organised throughout the second year whereby project partners accounted for their progress and were advised on how to tackle their highlighted difficulties in carrying out certain activities given the COVID-19 pandemic (Annex 4). The project's WhatsApp group has been maintained to reach out to partners and share any relevant events that they could participate in. Some partners still have internet connection issues and were unable to attend most of the coordination meetings, however, they were individually called by the project coordinator to assess their progress. The steering committee also held a two-hours virtual meeting on the 13<sup>th</sup> October 2020 to monitor the progress made and to give recommendations on how to tackle possible delays caused by the pandemic (Annex 29).

## **9. Lessons learnt**

One of the most important lessons learnt during this second year is that project activities sometimes do not go according to plan, demonstrating the importance of being adaptable and having the ability to respond promptly to changing circumstances. The COVID-19 pandemic called for many changes in how the project was implemented to keep the project on track and ensure the delivery of our outputs (see section 3.2 for details). Given that the pandemic did not allow for international travel, much of the work had to be done virtually and the pandemic taught us a lot about how to implement certain activities virtually. During the year what worked well was an improved and smoother communication with most of the project partners, despite some connectivity issues experienced with some partners. We learnt on how to communicate via different channels. The partnership with SPGRC has been excellent and allowed us to quickly make progress in the process of establishing the SADC regional *in situ* CWR network which is the main goal of the project. We were able to take advantage of important meetings at the SADC Secretariat level to get the white paper on the establishment of regional network endorsed, ahead of its planned time. Travel to the countries was not possible, therefore, all planned meetings had to be done virtually. Although it did not allow for close bonding among the project teams, the virtual meetings worked fairly well and allowed progress to be made according to the initial plans. Due to COVID-19, we also ran the planned face-to-face training workshop virtually. This worked very well and allowed a greater number of participants to attend the training sessions and integrated the mentorship programme in the training programme, which was very successful. The change in travel plans also forced us to allocate more travel resources to country partners to carry out field activities, which allowed partners to do more in-depth work on the ground and this proved to be very beneficial for the partners and the project. However, it was difficult to assess the quality of the work accomplished, which would have been done through technical visits to the countries. Despite this weakness, another lesson learnt is to properly resource national partners to be able to do their work and develop trust in them, while ensuring that there are solid checks and balances to monitor that their activities are done according to agreed plans and budget.

At both country and regional levels, the project was able to develop a close working collaboration between the stakeholders of the environment and agriculture sectors. Joint field work was accomplished between NPGRCs and protected areas managers. At regional level we also held a joint project webinar with the BIOPAMA network of protected areas.

## **10. Actions taken in response to previous reviews (if applicable)**

There were 4 issues that were raised by the reviewer on last year's annual report.

**REVIEWER AR1:** Please format next year's report in a more reader-friendly manner.

**RESPONSE:** In last year's report we organised our reporting on the progress of activities outputs and outcomes in a tabular format in landscape, which the reviewer found confusing. The reviewer also commented that the heading of the column activities is confusing with a paraphrased output wording and that the activities section contained a non-log frame activity (Activity 7, management,

and coordination). We have changed our reporting style to a formal style. The reporting on the management (Activity 7) is not reported under this section and dealt with in section 11 below.

**REVIEWER AR1:** What can be done about the high projected costs of activities under Output 5?

**RESPONSE:** As noted above, in the context of COVID-19, scheduled field surveys had to be reduced in terms of number of communities and participants in order to minimise transmission potential between communities and for the safety of the national fieldwork team. Along with the fact that international travel of project staff was not possible, this contributed to some savings. However, the budget for field activities across two countries under Output 5 is GBP3,000 per year for two years, which has remained unchanged. The budget does not seem disproportionate in terms of the total project budget nor that of the other Outputs. In fact, the limited nature of this budget has meant that field survey activities have had to be staggered across countries so as not to fall under the same financial year. Furthermore, only one conservation tender can be realised in each country (Malawi and Tanzania) during the project lifetime.

**REVIEWER AR1:** Annex 3 (standard measures) has some confusing figures, please check.

**RESPONSE:** The figures have been reviewed (Annex 3).

**REVIEWER AR1:** Consider whether partners in Malawi, Tanzania and Zambia should all use the same reporting template for their multi-stakeholder committee meetings.

**RESPONSE:** This was rectified, and a reporting template was designed (Annex 30), and country partners were requested to use this template for the reporting of their multi-stakeholder meetings (e.g. Annex 12).

## **11. Other comments on progress not covered elsewhere**

The COVID-19 situation has forced the project's coordination team to review the project implementation and to redesign some of the activities as further described in section 14 below. Besides the COVID-19 pandemic itself, other difficulties encountered included the administration of the letter of agreement with partners and payments transfer to partners. The problem was exacerbated by the COVID-19 situation and due to lockdown, the responses to any administrative queries have been very slow. It has required considerable perseverance in contacting the different responsible officers to follow up with the banks. However, the patience and collaboration of partners have been excellent and their effort to keep the project going despite the delay in payment is much appreciated. In terms of risk, the progress made is good and it is likely that all the deliverables will be achieved by the end of the project. The biggest risk is the outcome of SADC ministers of agriculture and food security, and fisheries and aquaculture not endorsing the white paper on the establishment of SADC Regional CWR network. We are positive that this will not be the case. The Alliance is currently working with its communication team to produce a policy brief to promote the network in the region and other options of facilitating the network, possibly via the BIOPAMA network can be envisaged.

## **12. Sustainability and legacy**

Over the past year the project has managed to raise awareness of the importance of conserving CWR in their natural habitats within the region. The quick and smooth endorsement of the white paper for establishment of the SADC regional CWR *in situ* network, by the Technical committee of SPGRC shows the increasing interest in the region for the conservation of CWR. The committee is composed of the Members States of SADC and by the SADC Committee of Directors, The SADC Secretariat has also launched the preparation of the draft Regional Strategy for Plant Genetic Resources Conservation and Sustainability Utilization, which will include the results from this Darwin project. The above shows the commitment from SADC Member States and the SADC Secretariat in supporting the project objectives and ensuring its sustainability. From the country reports, there is evident significant support for the implementation of the project in the partner countries. In Malawi, for example, the protected areas managers of the selected national parks are fully engaged in the process of the demarcation of the genetic reserves within their national parks, and are aware of the importance of CWR that they commit to preserve within their reserve areas. Similar efforts have made in Tanzania and Zambia where the National PGR Centres are working closely with protected areas managers. The project coordinator and Head of SPGRC are also working closely with FAO GEF on the development of funding proposal to support the implementation of the regional conservation CWR network. Further discussion with

BIOPAMA network is also showing much interest from their side to include CWR *in situ* conservation in their programme of work. Considering that we are embedding the governance of SADC CWR network within the SPGRC Secretariat Food and Agriculture and Natural Resources Directorate (FANR) and this has been endorsed by the SADC Director's committee is evidence that our planned exist strategy is still valid.

### 13. Darwin identity

The Darwin Initiative and the UK government logos have been used in all communications and documents throughout the second year. Additionally, in any activities of project promotion, presentations carried the project's logo and that of the funder. Specific activities for project and Darwin Initiative funding promotion included the following:

A concept note (Annex 9a) was developed under the Output 1.3 to share with the national focal points of the ITPGRFA and Nagoya Protocol where the project was introduced and the value of CWR was highlighted and activities regarding ABS were elaborated on in view of the upcoming regional ABS workshop.

A two-day series of webinars were organized on 8-9 February 2021 for the BIOPAMA (Biodiversity and Protected Areas Management) network members (<https://biopama.org/>) aiming at i) introducing protected area managers to the value of CWR, (ii) providing an overview of the methodologies used in CWR conservation planning, (iii) raising and discussing the Access to and Benefit Sharing (ABS) of *in situ* genetic resources within the SADC protected areas, (iv) and providing protected area managers with practical guidelines on how to manage the target CWR populations and the protected areas where they are being conserved (Annex 31).

The project coordinator and partners participated in a couple of webinars where they highlighted the project and its importance. The main virtual events attended were:

- i) "Creating a harmonious plant genetic resources conservation and utilization policy environment for enhanced agriculture development in Southern Africa" organized by SADC SPGRC on 17 March 2021.
- ii) "First International Multi-stakeholder Symposium on Plant Genetic Resources for Food and Agriculture" organized by FAO on 29-30 March 2021 where our partner from Zambia shared their experience on how the project is creating communities of practice – the presentation can be accessed here: <https://youtu.be/KNDWurXVzi8>.

A series of short stories on the various project activities has been created and shared on the project's website under [Latest News](#)<sup>3</sup> and the webinars were also made available on the [CWR portal](#)<sup>4</sup> to target a larger audience. The project has been highlighted in a number of blogs including the Darwin Initiative Newsletter (Issue December 2020- Hungry for Biodiversity – Annex 32a), the BIOPAMA Newsletter (Issue October 2020 – Annex 32b) highlighting the ABS survey and a [blog](#)<sup>5</sup> on the two-day webinar as well as the SPGRC Newsletter (Issue August 2020 – Annex 32c) on the online training on conservation planning.

### 14. Impact of COVID-19 on project delivery

The COVID-19 pandemic has affected the project in several ways. First and foremost, it has significantly affected the holding of four major meetings and workshops which were planned in the second year. These meetings included the project annual meeting, its steering committee meeting, a training workshop, and a workshop on ABS among National Focal Points of International Treaty on PGRFA and Nagoya Protocol. Thus, it was necessary to review these activities. We held the steering committee virtually and included all the members of the project to join and review the progress we have made in the project. We continued to have regular meeting with project partners virtually. We converted the face-to-face training workshop into a virtual online training programme with various Zoom sessions (see details under section 2). This required a lot of interaction with the trainees and providing them with assignments to finalize the CWR checklists, lists of priority CWR and the occurrence datasets for priority CWR. Many

<sup>3</sup> <http://www.cropwildrelatives.org/sadc-cwr-net/latest-news/>

<sup>4</sup> <http://www.cropwildrelatives.org/resources/webinars/>

<sup>5</sup> <https://biopama.org/crop-wild-relative-conservation-in-protected-areas-in-southern-africa/>

sessions needed to be adjusted since the trainees showed difficulties in meeting the initial deadlines due to circulation restrictions that resulted from the pandemic, to access data and also due to the difficulty in undertaking the training programme tasks and carry out their normal work. We engaged with the secretariats of International Treaty and Nagoya Protocol in organizing the ABS workshop virtually and decided that it would best be done in the third year of the project with a face to face meeting if the pandemic situation improves. All of these have required additional staff time to manage these meetings. COVID-19 also restricted the activities in the partner countries. Due to travel restrictions and the number of people that could be gathered, meetings with stakeholders were more limited and the farmers' field surveys and target number of farmers that we could impact were also restricted. We decided to provide additional resources to country partners to allow them to travel, to visit farmers and stakeholders in smaller groups, following strict adherence to countries instructions for social distancing, limited number of people allowed in meetings, sanitary precautions for ensuring the health and safety of staff and beneficiaries (farmers and other stakeholders). This whole process delayed the gathering of information to complete some deliverables such as farmers field survey (activity 5.3), finalization of the A Tool Kit "How To" manual for informing mechanism design and assessment (activity 5.2), field ground-truthing (activity 2.4) and *ex situ* gap filling activities (activities 3.2 and 3.3). The lockdown imposed by COVID-19, especially in Europe (UK and Italy) has also significantly slowed down the ability for project staff based there to work normally. It led to a significant delay in finalizing the paper on conservation planning of priority CWR in the SADC region and on the 'SADC Strategic Action Plan for the Conservation and Use of CWR (output 2.5). The lockdown also resulted in delayed action on several administrative and financial issues. For example, getting the clearance of Letters of Agreement and financial reports from the project partners, particularly from the University of Birmingham were very problematic. Reduced flights delayed the delivery of the materials and equipment to SPGRC in Zambia. A change request was made to Darwin LTS to consider changes to some project activities and change in budget lines, which has been approved by the donor (DEFRA).

## 15. 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](mailto:ODA.safeguarding@defra.gov.uk) as indicated in the T&Cs.

As reported in AR1, clearance of the security issues in the participating countries (Malawi, Tanzania and Zambia), as well as the respective UK embassies in these countries were sought during the project proposal development. The project continues to comply with CGIAR Guiding Principles for Management of intellectual assets specially to article 3 (farmers' rights). In striving to protect indigenous knowledge, and locally sourced germplasm, the Alliance has pioneered mutual recognition of traditional and scientific knowledge, respecting knowledge-stewards' rights and the ownership of local populations and landraces. The project will promote awareness of indigenous peoples' and local communities' rights, regarding prior informed consent (PIC) for engaging in research activities and providing germplasm and related information subject to the CBD, Nagoya Protocol and ITPGRFA. In this respect, the project conducted a survey among National Focal Points of the ITPGRFA and CBD Nagoya Protocol and other stakeholders on access and benefit sharing and has ensured that data are kept confidential, by including a privacy notice in the survey form. The survey form and privacy notice were submitted to the Alliance's Institutional Review Board and was approved (Annexes 33a, b). Project stakeholders have been briefed so that they gain an understanding of the project goals, roles, rights to participate (or not), and how project outputs will be shared (only under acceptable conditions). Work will develop capacity and mechanisms to support access seekers' compliance with ethical standards for PIC and mutual agreement of terms.

## 16. Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2020 – 31 March 2021)

Project spend (indicative) since last annual report	2020/21 Grant (£)	2020/21 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Monitoring & Evaluation (M&E)				
Others (see below)				
<b>TOTAL</b>				

## Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2020-2021

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
<p><b>Impact</b></p> <p>Increased adaptive capacity and reduce socio-economic vulnerability to enhance food security of 130 million people in southern Africa through improved conservation and use of CWR in breeding.</p>		<p>Establishment of two genetic reserves in Malawi for <i>in situ</i> conservation of CWR and identification of the key priority CWR hotspots and their ground-truthing for <i>ex situ</i> collections in all three partner countries show a <b>positive impact on the biodiversity</b>. The ABS survey has demonstrated the interest of focal points of Nagoya Protocol and ITPGRFA, breeders and protected area managers to conserve and ensure a harmonisation of policies dealing with access and benefit sharing of <i>in situ</i> plant genetic material, including CWR. Traditional knowledge of farmers on CWR and their interest in safeguarding them for sustainable use is also encouraging.</p>	
<p><b>Outcome</b></p> <p>Establish SADC CWR network of <i>in situ</i> sites/populations, <i>ex situ</i> genebanks and stakeholders (farmers, environmentalists, breeders and policy makers) resulting in 70% improved CWR conservation and use for crop improvement</p>	<p><b>Indicator 0.1:</b> SADC Council of Ministers by 2022 endorse the white paper on the establishment of the SADC Regional CWR network thereby establishing the network in the SADC region.</p>	<p>The project is on track to achieve its outcome. The white paper for the creation of a Regional CWR Network for the conservation and use of Crop Wild Relatives in the SADC region, as discussed with SADC Secretariat has been tabled for endorsement by the SADC ministers of agriculture, food security, fisheries and aquaculture.</p>	<p>The white paper is awaiting approval from the SADC ministers of agriculture, food security, fisheries and aquaculture, which will hold a meeting in May 2021.</p>

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
	<p><b>Indicator 0.2:</b> Trends in number of CWR genetic reserves established and nominated by countries to be part of the SADC-CWR network, measured annually and reported to the Council of Ministers</p>	<p>Malawi has already established two formal and one informal genetic reserve; Tanzania has identified eight priority CWR hotspot sites which will be validated in their next multi-stakeholders' meeting.</p>	<p>Tanzania and Zambia will validate their priority CWR sites and negotiate to have them designated as genetic reserves with the competent authorities by end of the project for eventual nomination for the SADC-CWR network.</p>
	<p><b>Indicator 0.3:</b> Trends in the number of CWR conserved in National plant genetic resources centres and regional SADC genebank, measured annually and reported to the Council of Ministers</p>	<p>The number of conserved CWR accessions was 47, 3 and 24 in Malawi, Tanzania and Zambia respectively.</p>	<p>All three countries will be making further collections in the next field visits.</p>
	<p><b>Indicator 0.4:</b> Trends in the number of CWR distributed to users, measured annually, and reported to the Council of Ministers</p>	<p>None of the countries have distributed CWR accessions so far. However, progress is being made to raise awareness on CWR among breeders, so that they may request for the material in the near future.</p>	<p>Partner countries must come up with brochures reflecting the different CWR accessions available in their NPGRCs and the adaptive traits they offer, to share with local and international breeders.</p>
<p><b>Output 1.</b> SADC CWR in situ network established as part of existing SADC plant genetic resource network</p>	<p><b>Indicator 1.1:</b> A Draft document on the governance structure, functions and funding mechanism prepared and circulate to all SADC state members for inputs by end of year 1</p>	<p>This has been achieved, the draft concept note has been finalised and reviewed by the steering committee and circulated to the Member States of the SADC by SPGRC.</p>	
	<p><b>Indicator 1.2:</b> Draft document on harmonisation of the access and benefit sharing of in situ genetic resources within the CWR network prepared by Month 24.</p>	<p>Drafting of the harmonisation paper has been partly delayed but is in progress. Evidence provided in section 3.2 of report and Annexes 9a, b.</p>	
	<p><b>Indicator 1.3:</b> A face to face or virtual workshop on ABS of in situ genetic materials attended by National focal points of ITPGRFA,</p>	<p>Due in Year 3. But a taskforce has been established to organise this workshop. Evidence is provided in section 3.1 and 3.2 Annex 11.</p>	

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
	Nagoya protocol (CDB) of 16 member countries held by Month 33.		
	<b>Indicator 1.4:</b> Draft SADC regional CWR network Policy White paper on governance structure, function and funding mechanism including ABS of in situ genetic materials prepared by Month 30 of the project	Due in Year 3. But the draft White paper was completed and finalized, submitted to SADC secretariat.	
	<b>Indicator 1.5:</b> Validation of SADC regional CWR network Policy White paper on SADC CWR in situ network governance functionality, structure, management and post-project financing by SADC Technical Committee on PGRFA held by Month 30 of the project.	Due in Year 3. But was achieved in year 2. The draft white paper was submitted and endorsed by the SADC Technical Committee on PGRFA in September 2020 and SADC Director's committee. Evidence provided in section 3.2 of report and Annexes 6,7,8.	
	<b>Indicator 1.6:</b> Finalised SADC regional CWR network Policy White paper submitted to the SADC Council of Ministers by Month 36 of project	Due in Year 3. But the finalized draft White paper was endorsed by the SADC Directors Committee and submitted for approval to the Joint meeting of SADC ministers of agriculture, food security, fisheries and aquaculture meeting to be held in May 2021.	
<b>Activity 1.1</b> Preparation of documents on the governance structure, functions and funding mechanism		A draft concept note document has been finalised and reviewed by the steering committee and circulated to the Member States of the SADC by SPGRC.	Completed.
<b>Activity 1.2</b> Preparation of guidelines to harmonise the access and benefit sharing of <i>in situ</i> genetic resources within the CWR network.		In progress.	A draft document will be produced and used for consultation during the ABS workshop.
<b>Activity 1.3</b> Hold Access and benefit Sharing (ABS) workshop with representative set of National focal points to Nagoya protocols, ITPGRFA and CBD of the SADC region to discuss harmonisation of Access and benefit sharing of in situ conserved materials.		A taskforce has been established to organise the workshop and is under discussion with the secretariats of CBD Nagoya Protocol and	The date and place of the workshop is yet to be decided.

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
		International Treaty on plant genetic resources for food and agriculture.	
<b>Activity 1.4</b> Preparation of network policy white paper and Ministerial edict for the establishment of regional CWR network in the SADC region for endorsement /ratification by SADC Member states.		Due in year 3, but draft network policy paper was prepared and finalised. Note the Ministerial edict document was removed from the output as approved by our change request, but this language still appears in this activity and should have been deleted.	Completed.
<b>Activity 1.5</b> Endorsement of network policy white paper and ministerial edict by SADC secretariat Technical Committee on PGRFA.		Due in year 3 but completed in year 2.	Completed.
<b>Activity 1.6</b> Finalisation of the SADC regional CWR network Policy white paper and draft Edict paper and submission to SADC Council of Ministers for approval		Due in year 3 but completed. Again, note above comment in activity 1.4 about t edict paper.	The draft SADC regional CWR network Policy white paper will be discussed at the next session of the joint meeting of SADC ministers of agriculture, food security, fisheries and aquaculture meeting to be held on 5-7 May 2021.
<b>Output 2.</b> Enhanced <i>in situ</i> CWR conservation in SADC region with emphasis on Malawi, Tanzania, and Zambia	<b>Indicator 2.1:</b> A National participative multi-stakeholder committee on CWR established to oversee development of national and regional strategies for CWR conservation and use, by project month 4 and holds bi-annual meetings over the project period.	Being done on a regular basis in Malawi and Zambia. Tanzania had to postpone the meeting due to travel restrictions given the COVID-19 pandemic. Evidence provided in section 3.2 of report and Annex 12.	
	<b>Indicator 2.2:</b> National checklists and inventories of CWR in Malawi and Tanzania published and made available on project website within the first 6 months of the project. (Already available for Zambia under	In our last report, Tanzania had not yet finalised the national checklists and have now completed. Evidence provided in section 3.2 of report and Annexes 22b, c.	

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
	previous ACP-EU SADC-CWR project).		
	<b>Indicator 2.3:</b> Conservation planning of CWR in situ sites/population in Malawi and Tanzania completed with distribution maps and priority sites for reserve establishment by Month 24.	Completed. Evidence provided in section 3.2 of report and Annexes 16a, 23a, b.	
	<b>Indicator 2.4:</b> Two National CWR Conservation Strategic Action Plans covering <i>in situ</i> sites, <i>ex situ</i> genebanks and stakeholder priorities endorsed by respective governments of Malawi and Tanzania by Month 36.	In progress and due in year 3. Zambia has revised their existing National Strategic Action Plan. Evidence provided in section 3.2 of report and Annex 14.	
	<b>Indicator 2.5:</b> Scientific peer review paper on assessment of CWR across SADC region submitted for publication by end of January 2021 (Month 22) and a Regional Strategy for the establishment of SADC-CWR network prepared and published on project website by Month 33	The scientific peer review paper has been drafted and will be used as basis to produce the regional strategy due in year 3. Evidence provided in section 3.2 of report and Annex 23a.	
	<b>Indicator 2.6:</b> Ground-truthing of selected sites to assess CWR presence in GIS predicted sites and site climate viability assessment of initial identified potential CWR in situ sites by Month 30	All three countries have done a first ground-truthing exercise in their identified key CWR hotspots. Evidence provided in section 3.2 of report and Annexes 16a, b.	
	<b>Indicator 2.7:</b> Nomination of at least existing 9 protected areas and 3 newly established, less formal sites associated with farming	Malawi has already established 2 genetic reserves and one informal genetic reserve. Tanzania and Zambia are yet to nominate their priority sites. Evidence provided in section 3.2 of report and Annexes 16a, b.	

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
	communities for network membership (3 protected areas and 1 less formal sites in each of Malawi, Tanzania and Zambia, plus additional sites from other SADC countries by Month 30		
	<b>Indicator 2.8:</b> Revision of management plans for 9 protected areas / genetic reserves and writing of management agreements for 3 newly established, less formal sites by Month 36	Under progress. Evidence provided in sections 3.1 and 3.2 of report.	
<b>Activity 2.1</b> Establish a National participative multi-stakeholder committee on CWR to serve as the collaborative stakeholder platform in each country and holding of bi-annual (twice a year) meeting.		On track.	All partner countries will hold biannual stakeholder meetings.
<b>Activity 2.2</b> Preparation of national checklists and inventories of CWR in Malawi and Tanzania.		Completed.	
<b>Activity 2.3</b> Undertake conservation planning for CWR Conservation in Malawi and Tanzania.		Completed.	
<b>Activity 2.4</b> Prepare National Strategic Action Plans for CWR Conservation in Malawi and Tanzania.		In progress. Due in year 3.	Partners have drafted the technical background document that accompanies the strategic action plan. Preparation of NSAP will be done in collaboration with the National Multi-Stakeholder committee in Malawi and Tanzania.
<b>Activity 2.5</b> Preparation of scientific peer review paper for publication in peer review journal and preparation of a Regional Strategic Action Plan for CWR Conservation for the SADC region based on the previous regional CWR assessment made in SADC-CWR project.		In progress. A first draft of the scientific peer review paper has been developed.	Finalisation and submission of the scientific paper to a peer-reviewed journal and the regional strategic action plan will be developed.
<b>Activity 2.6</b> In depth studies validating priority conservation sites of CWR population for inclusion in the SADC Regional CWR network.		In progress. All three countries have done ground-truthing activities to the priority sites.	Additional visits to the priority sites for validation will be done, after

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
			consultation with multi-stakeholders committee members.
<b>Activity 2.7</b> Nominations of protected areas in partner countries and elsewhere in SADC region.		In progress. Malawi has already designated two protected areas as genetic reserves.	All three countries will nominate their priority sites after consultation and validation with multi-stakeholders committee members.
<b>Activity 2.8</b> Revision of management plans of selected protected areas sites and writing of management agreements for 7 newly established, less formal sites to be part of the regional SADC in situ.		In progress. Partners are in communication with the protected area managers to propose guidelines on CWR management.	Partners will provide their contribution to the management plans when they will be called upon by the responsible authorities.
<b>Output 3.</b> Enhanced SADC <i>ex situ</i> CWR conservation	<b>Indicator 3.1:</b> The Regional SADC genebank for <i>ex situ</i> conservation of CWR will be strengthened with an automated alarm monitoring system for temperature and humidity by end of the Month 24.	The automated alarm monitoring system is expected to be installed imminently. The purchase and shipment have been dealt with. Evidence provided in sections 3.1 and 3.2 of report, Annex 15.	
	<b>Indicator 3.2:</b> Representative CWR <i>ex situ</i> gaps filling of 450 populations identified in National CWR Conservation Strategies and Action Plans and Regional Assessment of CWR across SADC region in active collections of national and regional genebanks, in two collecting missions held by Month 24 and 36.	All three countries were able to collect a total of 74 samples of CWR in their first collecting missions, however the number is limited as some of the fruiting seasons had been missed due to COVID-19. Evidence provided in sections 3.1 and 3.2 of report.	
	<b>Indicator 3.3:</b> Safety backup of SADC regional CWR network CWR <i>in situ</i> sites/populations 'black box' stored in national and regional genebanks, and appropriate CGIAR centres, by Month 36.	Due in year 3.	
	<b>Indicator 3.4:</b> Trends in the number of accessions of CWR conserved in <i>ex situ</i> collection monitored	Partially achieved. Evidence provided in sections 3.1 and 3.2 of report, Annex 24.	

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
	annually. annually in Month 12, 24 and 36		
	<b>Indicator 3.5:</b> Trends in the number of accessions of CWR distributed to end users annually, annually in Month 12, 24 and 36	Countries have not yet been able to distribute CWR accessions. Reasons have been provided in section 3.1 and 3.2 of this report.	
<b>Activity 3.1</b> Strengthen the <i>ex situ</i> conservation facilities and personnel at the SPGRC regional genebank in Lusaka to receive CWR samples for conservation.		Completed.	The automated alarm monitoring system will be installed first months of year 3.
<b>Activity 3.2</b> Gap filling collecting of CWR genetic resources and local knowledge from <i>in situ</i> sites and their conservation in national and regional genebanks.		In progress.	Second collecting missions will be organised in each partner country depending on fruiting seasons of priority CWR.
<b>Activity 3.3</b> Back up of germplasm for safety duplication in regional and international genebanks		Due in year 3.	Safety duplication activities will be carried out in year 3.
<b>Activity 3.4</b> Enrich SADC Documentation Information System (SDIS) to provide information on CWR such as passport data, identified traits and other useful information that facilitates use of CWR genetic resources		SDIS data base has been updated with new information.	Database will be updated annually as new accessions are added to the collection.
<b>Activity 3.5</b> Distribution of CWR accessions to breeders at national regional and international breeding centres		No distribution has been done yet, however progress is being made on producing baseline information to provide to breeders.	To reassess the number of distributed CWR accessions by end of third year.
<b>Output 4.</b> Enhanced SADC CWR use in crop improvement	<b>Indicator 4.1:</b> SWOT analysis report on the potential use of CWR in breeding programmes at the national and SADC regional level submitted by the Month12	Completed.	
	<b>Indicator 4.2:</b> Data on farmer trait priorities for crop improvement of 4 major priority SADC crops produced and published on project website by Month 24.	This indicator will not be met, but an alternative strategy to get the information from farmers through the intermediary of the national country partners. Evidence is provided in sections 3.1 and 3.2 and Annex 4.	

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
	<p><b>Indicator 4.3:</b> Maps of SADC region showing populations of CWR with priority traits produced, made available to SADC and CGIAR breeders and published on project website by Month 24.</p>	<p>Partially achieved. Regional analysis was done (Annex 17), but predictive characterisation task is now being pursued at the national level with the country partners, and maps will be made available in year 3</p>	
	<p><b>Indicator 4.4:</b> Number of accessions of CWR being used by national and international breeding institutions in pre-breeding programmes reported by Month 24 and 36.</p>	<p>In progress. A list of the CWR accessions being used in pre-breeding programmes is being compiled.</p>	
	<p><b>Indicator 4.5:</b> Quantity of seeds of novel cultivar and improved local landrace material improved with CWR made available to SADC farmers by end of Month 36.</p>	<p>Due in year 3.</p>	
<p><b>Activity 4.1</b> Feasibility study on the potential use of CWR in breeding programmes at the national and SADC regional level (SWOT analysis)</p>		<p>Completed.</p>	
<p><b>Activity 4.2</b> Assessment of farmer's trait priorities for the potential use of CWR in breeding programmes at the national and SADC regional level.</p>		<p>In progress. Has been carried out in Malawi.</p>	<p>Survey will be done in Tanzania in third year.</p>
<p><b>Activity 4.3</b> Predictive characterisation study on the potential use of CWR in breeding programmes at the national and SADC regional level</p>		<p>Partially achieved. An exemplar on predictive characterisation of <i>Vigna</i> spp. at SADC region has been conducted and provided as guidance to partner countries to do same.</p>	<p>Malawi, Tanzania, and Zambia will carry out predictive characterisation of their selected priority CWR and priority traits.</p>
<p><b>Activity 4.4</b> Engage and establish links with national and international breeders for specific crops for facilitating the exchange and distribution of CWR accessions and pre-bred material arising from the use of CWR to national programmes and novel varieties provided to farmers.</p>		<p>In progress.</p>	<p>To share brochures of available CWR accessions and their adaptive traits to local breeders and disseminate the information on project's website for further exposure.</p>

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
<b>Activity 4.5</b> Assessment of the distribution to farmers of the seeds of novel cultivars and landraces improved with CWR in the SADC region.		Due in year 3.	
<b>Output 5.</b> Enhanced farmers' benefits from CWR conservation and use	<b>Indicator 5.1:</b> A set of mechanisms for enhancing farmers' benefits from the conservation and use of CWR defined, together with assessment criteria, by end of Month 9 of the project;	Completed.	
	<b>Indicator 5.2:</b> A Tool Kit "How To" manual for informing mechanism design and assessment developed and published by end of Month 30.	Delayed. The "How To" Tool Kit was rescheduled as work related to the field survey could not be carried out on time. Evidence provided in sections 3.1 and 3.2 in this report.	
	<b>Indicator 5.3:</b> Two field surveys conducted involving at least 400 farmers (65%males and 35% females) in Malawi and Tanzania to document and/or model the benefits that farmers derive or could derive from CWR conservation by end of Month 34.	Partially achieved: Field survey conducted in Malawi involving 13 communities and ≈280 farmers (70% women). Tanzania survey to be carried out as of April 2021. Evidence in sections 3.1 and 3.2, Annex 18b.	
<b>Activity 5.1</b> Desk review and expert consultation to identify potential range of mechanisms for enhancing farmer benefits, such as: i) direct farmer support for public good conservation and monitoring service provision, ii) enhanced direct use of CWR, iii) improved access to a) existing and b) future CWR-derived materials, and iv) the establishment of a potential benefit-sharing fund related to any future materials developed from SADC CWR).		Completed.	
<b>Activity 5.2</b> A Tool Kit "How To" manual for informing farmer benefit mechanism design and assessment developed. Assessment criteria to inter alia consider a) magnitude, b) level (national/regional/international) and c) timescale over which potential benefits may be generated for farmers (differentiated by gender), d) implementation costs and e) long-term funding source potential		Delayed. Completed in Malawi.	Focus group discussions are scheduled in April 2021 for Tanzania, which will feed in the development of the toolkit.

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
<b>Activity 5.3</b> Pilot testing and/or modelling of mechanisms for CWR-derived farmers' benefits in 2 sites in partner countries.		Due in year 3.	
<b>Output 6.</b> Enhanced Capacity of SADC CWR stakeholder in conservation and use of CWR.	<b>Indicator 6.1:</b> Needs assessment report on the trainings for capacity of SADC key stakeholders for the implementation of the regional network for in situ conservation of CWR and use finalised by the end of Month 6.	Completed. Evidence provided in Annex 26 of this report.	
	<b>Indicator 6.2:</b> A virtual training workshop on CWR conservation and use for at least 15 SADC CWR network stakeholders, by the end of Month 24.	Partly achieved (Annexes 19a, b, c). Training session is on-going and will extend in year 3.	
	<b>Indicator 6.3:</b> Two research staff per participating country receive one to one mentoring technical support by peers in UoB and Bioversity on the conservation and use of CWR during lifetime of the project.	The research staff have been participating to the preparatory phase of the training workshop. Evidence provided in sections 3.1, 3.2 and Annex19b.	
	<b>Indicator 6.4:</b> Conference on PGR conservation and use held at the end of the project (Month 35).	Due in year 3. Discussions on how to organise the final conference have already started. Evidence provided in section 3.1 and Annex 21.	
<b>Activity 6.1</b> Carry out a needs' assessment at the first kick off meeting of the project to define training needs		Completed.	
<b>Activity 6.2</b> Hold a virtual training workshop to strengthen capacity for the implementation of the regional network		Partially achieved. Preparatory phase has been completed.	Small group sessions will be organised to train participants in carrying out a few diversity analyses with the occurrence data gathered.

Project summary	Measurable Indicators	Progress and Achievements April 2020 - March 2021	Actions required/planned for next period
<b>Activity 6.3</b> Run a mentorship programme for reinforcing capacity building efforts for effective conservation and use of CWR in SADC region, including supervision of research assistants and students working hands-on the project		This has been merged with the training programme and would therefore follow the activity 6.2.	
<b>Activity 6.4</b> Organise and hold end of project conference on conservation and use of PGRFA in year 3		In progress. Discussions are on-going.	Final date and place will be fixed and call for abstracts will be made.

## Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed).

The original logframe was revised and change request was submitted to LTS International and approved. The logframe below is the revised logframe as approved.

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
<b>Impact:</b> (Max 30 words) Increased adaptive capacity and reduced socio-economic vulnerability to enhance food security of 130 million people in southern Africa through improved conservation and use of CWR in breeding.			
<b>Outcome</b> (Max 30 words): Establish SADC CWR network of <i>in situ</i> sites/populations, <i>ex situ</i> genebanks and stakeholders (farmers, environmentalists, breeders and policy makers) resulting in 70% improved CWR conservation and use for crop improvement	0.1 SADC Council of Ministers by 2022 endorse the white paper on the establishment of the SADC Regional CWR network thereby establishing the network in the SADC region. 0.2 Trends in number of CWR genetic reserves established and nominated by countries to be part of the SADC-CWR network, measured annually and reported to the Council of Ministers 0.3 Trends in the number of CWR conserved in National plant genetic resources centres and regional SADC genebank, measured annually and reported to the Council of Ministers 0.4 Trends in the number of CWR distributed to users, measured annually and reported to the Council of Ministers	0.1 Minutes of SADC Council of Ministers meeting endorsement. 0.2 (a) Minutes of the Council of Minister meeting; (b) government gazettes of SADC member states 0.3 (a) Minutes of the Council of Minister meetings; (b) SADC Genebank documentation system (SDIS) 0.4 (a) Minutes of the Council of Minister meetings;(b) Genebank records	Willingness of the SADC member states to commit to establishment of regional CWR network as a contribution to the global efforts in biodiversity conservation and access to genetic materials as called forth by the Convention on Biological Diversity and Nagoya protocol.  No logistical barriers to the smooth operation/ implementation and communications between countries and stakeholders involved in SADC CWR network
<b>OUTPUTS:</b>			
<b>Output 1:</b> SADC CWR in situ network established as part of existing SADC plant genetic resource network	1.1 A Draft document on the governance structure, functions and funding mechanism prepared and circulate to all SADC state members for inputs by end of year 1	1.1 Draft Report on governance structure, function and funding mechanism published on Data repository of the project DATAVERSE.	Full participation of the member states of the SADC region.

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
	<p>1.2 Draft document on harmonisation of the access and benefit sharing of in situ genetic resources within the CWR network prepared by Month 24.</p> <p>1.3 A face to face or virtual workshop on ABS of in situ genetic materials attended by National focal points of ITPGRFA, Nagoya protocol (CDB) of 16 member countries held by Month 33</p> <p>1.4 Draft SADC regional CWR network Policy White paper on governance structure, function and funding mechanism including ABS of in situ genetic materials prepared by Month 30 of the project</p> <p>1.5 Validation of SADC regional CWR network Policy White paper on SADC CWR <i>in situ</i> network governance functionality, structure, management and post-project financing by SADC Technical Committee on PGRFA held by Month 30 of the project.</p> <p>1.6 Finalised SADC regional CWR network Policy White paper submitted to the SADC Council of Ministers by Month 36 of project</p>	<p>1.2 Draft Report on harmonisation of the access and benefit sharing of in situ genetic resources within the CWR network, published on Data repository of the project DATAVERSE</p> <p>1.3 . Workshop reports with participant lists disaggregated by gender and countries, published on Data repository of the project DATAVERSE</p> <p>1.4 Draft SADC regional CWR network Policy White paper, published on Data repository of the project DATAVERSE</p> <p>1.5 Minutes of SADC Technical Committee meetings</p> <p>1.6 Agenda of the SADC Council of Ministers.</p>	<p>Representatives of countries attending the regional workshop have the credentials to discuss and negotiate the draft protocol on the establishment of the SADC CWR network.</p> <p>SADC Council of Ministers willing to support establishment of SADC CWR <i>in situ</i> network.</p> <p>Face to face meetings are possible in light of the Covid-19 pandemic.</p>
<p><b>Output 2:</b> Enhanced <i>in situ</i> CWR conservation in SADC region with emphasis on Malawi, Tanzania, and Zambia</p>	<p>2.1 A National participative multi-stakeholder committee on CWR established to oversee development of national and regional strategies for CWR conservation and use, by project month 4 and holds bi-annual meetings over the project period.</p> <p>2.2 National checklists and inventories of CWR in Malawi and Tanzania published and made available on project website within the first 6 months of the project. (Already</p>	<p>2.1 Minutes of National participative multi-stakeholder committee on CWR, published on Data repository of the project DATAVERSE</p> <p>2.2 National CWR checklist and inventory for uploaded on project web site., published on Data</p>	<p>Different stakeholders especially agriculture, forestry and environment are willing to work in a collaborative way.</p> <p>Community support for <i>in situ</i> conservation management of CWR in their neighbourhoods.</p>

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
	<p>available for Zambia under previous ACP-EU SADC-CWR project).</p> <p>2.3 Conservation planning of CWR <i>in situ</i> sites/population in Malawi and Tanzania completed with distribution maps and priority sites for reserve establishment by Month 24.</p> <p>2.4 Two National CWR Conservation Strategic Action Plans covering <i>in situ</i> sites, <i>ex situ</i> genebanks and stakeholder priorities endorsed by respective governments of Malawi and Tanzania by Month 36.</p> <p>2.5 Scientific peer review paper on assessment of CWR across SADC region submitted for publication by end of January 2021 (Month 22) and a Regional Strategy for the establishment of SADC-CWR network prepared and published on project website by Month 33</p> <p>2.6 Ground-truthing of selected sites to assess CWR presence in GIS predicted sites and site climate viability assessment of initial identified potential CWR <i>in situ</i> sites by Month 30</p> <p>2.7 Nomination of at least existing 9 protected areas and 3 newly established, less formal sites associated with farming communities for network membership (3 protected areas and 1 less formal site in each of Malawi, Tanzania and Zambia, plus additional sites from other SADC countries by Month 30</p> <p>2.8 Revision of management plans for 9 protected areas / genetic reserves and writing of management agreements for 3</p>	<p>repository of the project DATAVERSE</p> <p>2.3 (a) Distribution map(s) showing CWR hotspots areas. (b) project progress reports, published on Data repository of the project DATAVERSE</p> <p>2.4 National Strategic Action Plan; published on Data repository of the project DATAVERSE</p> <p>2.5 Regional Strategic Action Plan, published on Data repository of the project DATAVERSE</p> <p>2.6 (a) Map(s) of potential network CWR <i>in situ</i> genetic reserves and community managed <i>in situ</i> sites / populations in SADC region (c) SADC CWR <i>in situ</i> network conservation planning scientific peer review paper submitted to journals {Peer review publication} published on Data repository of the project DATAVERSE</p> <p>2.7 Letters of nominations from Governments of SADC members states; Publication on project web site of 14 protected areas and 7 newly established sites,</p> <p>2.8 Management Plans amended or written, published on Data</p>	<p>Full support from policy makers are provided.</p>

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
	newly established, less formal sites by Month 36	repository of the project DATAVERSE	
<b>Output 3:</b> Enhanced SADC <i>ex situ</i> CWR conservation	<p>3.1 The Regional SADC genebank for ex situ conservation of CWR will be strengthened with an automated alarm monitoring system for temperature and humidity by end of the Month 24</p> <p>3.2 Representative CWR <i>ex situ</i> gaps filling of 450 populations identified in National CWR Conservation Strategies and Action Plans and Regional Assessment of CWR across SADC region in active collections of national and regional genebanks, in two collecting missions held by Month 24 and 36.</p> <p>3.3 Safety backup of SADC regional CWR network CWR <i>in situ</i> sites/populations 'black box' stored in national and regional genebanks, and appropriate CGIAR centres, by Month 36.</p> <p>3.4 Trends in the number of accessions of CWR conserved in ex situ collection monitored annually in Month 12, 24 and 36</p> <p>3.5 Trends in the number of accessions of CWR distributed to end users annually in Month 12, 24 and 36</p>	<p>3.1 Automated Alarm monitoring system at SPGRC Regional Genebank</p> <p>3.2 (a) Collecting mission reports published on project web site; (b) Genebank documentation system at NPGRCs and SADC Information and Documentation system (SDIS) records additional collections, all published on Data repository of the project DATAVERSE</p> <p>3.3 (a) country report to FAO Monitoring of implementation Global plan of action for PGRFA; (b) National, regional and international genebank information systems</p> <p>3.4 (a) National genebank information systems, (b) SADC Documentation Information System.</p> <p>3.5 (a) National genebank information systems, (b) SADC Documentation Information System.</p>	Genebanks willing to hold safety backup of CWR <i>in situ</i> populations
<b>Output 4:</b> Enhanced SADC CWR use in crop improvement	4.1 SWOT analysis report on the potential use of CWR in breeding programmes at the national and SADC regional level submitted by the Month 12	4.1 SWOT analysis report, published on Data repository of the project DATAVERSE	Users are aware of Nagoya Protocol and ABS policy process and make

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
	<p>4.2 Data on farmer trait priorities for crop improvement of 4 major priority SADC crops produced and published on project website by Month 24.</p> <p>4.3 Maps of SADC region showing populations of CWR with priority traits produced, made available to SADC and CGIAR breeders and published on project website by Month 24</p> <p>4.4 Number of accessions of CWR being used by national and international breeding institutions in pre-breeding programmes reported by Month 24 and 26.</p> <p>4.5 Quantity of seeds of novel cultivar and improved local landrace material improved with CWR made available to SADC farmers by end of Month 36.</p>	<p>4.2 Farmers trait priorities, published on Data repository of the project DATAVERSE</p> <p>4.3 Maps published on Data repository of the project DATAVERSE</p> <p>4.4 Genebank documentation Information system</p> <p>4.5 Genebank documentation Information system</p>	<p>application for germplasm use.</p> <p>CGIAR able to supply pre-bred CWR trait lines to SADC breeders and farmers for crops of interest.</p> <p>SADC breeders and farmers willing to work with pre-bred CWR trait lines to generate climate smart material for SADC farmers.</p>
<p><b>Output 5:</b> Enhanced farmers benefits from CWR conservation and use</p>	<p>5.1 A set of mechanisms for enhancing farmers' benefits from the conservation and use of CWR defined, together with assessment criteria, by end of Month 9 of the project;</p> <p>5.2 A Tool Kit "How To" manual for informing mechanism design and assessment developed and published by end of Month 30;</p> <p>5.3 Two field surveys conducted involving at least 400 farmers (65%males and 35% females) in Malawi and Tanzania to document and/or model the benefits that farmers derive or could derive from CWR conservation by end of Month 34.</p>	<p>5.1 Report on mechanisms for enhancing farmers' benefits from the conservation and use of CWR, published on Data repository of the project DATAVERSE</p> <p>5.2 Methodology publications, published on Data repository of the project DATAVERSE</p> <p>5.3 (a)Travel reports; b) "How To" manual; c) briefs and (d) conference paper or journal articles, published on Data repository of the project DATAVERSE</p>	<p>Farmers willing to participate in CWR conservation and use activities</p> <p>Appropriate existing CWR derived materials can be identified and access provided to farmers</p> <p>Security concerns/civil strife does not impede farmer field visits in project sites</p>

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
<p><b>Output 6:</b> Enhanced Capacity of SADC CWR stakeholder in conservation and use of CWR.</p>	<p>6.1 Needs assessment report on the trainings for capacity of SADC key stakeholders for the implementation of the regional network for in situ conservation of CWR and use finalised by the end of Month 6.</p> <p>6.2 A virtual training workshop on CWR conservation and use for at least 15 SADC CWR network stakeholders. by the end of Month 24.</p> <p>6.3 Two research staff per participating country receive one to one mentoring technical support by peers in UoB and Bioversity on the conservation and use of CWR during lifetime of the project.</p> <p>6.4 Conference on PGR conservation and use held at the end of the project (Month 35)</p>	<p>6.1 Needs Assessment report, published on Data repository of the project DATAVERSE</p> <p>6.2 Training workshop reports with participant lists disaggregated by gender and countries, published on Data repository of the project DATAVERSE</p> <p>6.3 (a) Travel reports (b) Progress project report (c) 3 peered reviewed publications in open access journals.</p> <p>6.4 Conference report, published on Data repository of the project DATAVERSE</p>	<p>Willingness among protected areas managers and local communities to engage in the <i>in situ</i> conservation of CWR species; capacities for wild population management of CWR in partner countries are lacking.</p> <p>There is sufficient interest among young male and female research scientists in the partner countries to embark on research activities within the scope of this of this project.</p>

## ACTIVITIES

### Activity 1- ESTABLISHMENT OF REGIONAL SADC CWR NETWORK

- 1.1 Preparation of documents on the governance structure, functions and funding mechanism. (Led by UOB/ BIOVERSITY/SPGRC)
- 1.2 Preparation of guidelines to harmonise the access and benefit sharing of *in situ* genetic resources within the CWR network. (led by BIOVERSITY/SPGRC)
- 1.3 Hold Access and benefit Sharing (ABS) workshop with representative set of National focal points to Nagoya protocols, ITPGRFA and CBD of the SADC region to discuss harmonisation of Access and benefit sharing of in situ conserved materials. (led by SPGRC/Bioversity)
- 1.4 Preparation of network policy white paper and Ministerial edict for the establishment of regional CWR network in the SADC region for endorsement /ratification by SADC Member states. (led by BIOVERSITY/UOB)
- 1.5 Endorsement of network policy white paper and ministerial edict by SADC secretariat Technical Committee on PGRFA. (led by SPGRC/ BIOVERSITY).
- 1.6 Finalisation of the SADC regional CWR network Policy white paper and draft Edict paper and submission to SADC Council of Ministers for approval

### Activity 2 ENHANCED SADC *IN SITU* CWR CONSERVATION MALAWI, TANZANIA AND ZAMBIA,

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
<p>2.1 Establish a National participative multi-stakeholder committee on CWR to serve as the collaborative stakeholder platform in each country and holding of bi-annual (twice a year) meeting (led by NATIONAL PARTNERS)</p> <p>2.2 Preparation of national checklists and inventories of CWR in Malawi and Tanzania (led by NATIONAL PARTNERS with technical support from UOB/BIOVERSITY)</p> <p>2.3 Undertake conservation planning for CWR Conservation in Malawi and Tanzania (led by NATIONAL PARTNERS with technical support from UOB/BIOVERSITY)</p> <p>2.4 Prepare National Strategic Action Plans for CWR Conservation in Malawi and Tanzania (led by NATIONAL PARTNERS with technical support from UOB/BIOVERSITY)</p> <p>2.5 Preparation of scientific peer review paper for publication in peer review journal and preparation of a Regional Strategic Action Plan for CWR Conservation for the SADC region based on the previous regional CWR assessment made in SADC-CWR project. (Led by UOB/BIOVERSITY)</p> <p>2.6 In depth studies validating priority conservation sites of CWR population for inclusion in the SADC Regional CWR network. (led by NATIONAL PARTNERS with technical support from UOB/BIOVERSITY)</p> <p>2.7 Nominations of protected areas in partner countries and elsewhere in SADC region.</p> <p>2.8 Revision of management plans of selected protected areas sites and writing of management agreements for 7 newly established, less formal sites to be part of the regional SADC in situ. (led by NATIONAL PARTNERS with technical support from UOB/BIOVERSITY)</p>			
<p><b>Activity 3 – Enhanced SADC <i>EX SITU</i> CWR CONSERVATION</b></p>			
<p>3.1 Strengthen the <i>ex situ</i> conservation facilities and personnel at the SPGRC regional genebank in Lusaka to receive CWR samples for conservation. (led by BIOVERSITY/SPGRC)</p> <p>3.2 Gap filling collecting of CWR genetic resources and local knowledge from <i>in situ</i> sites and their conservation in national and regional genebanks. (led by NATIONAL PARTNERS/SPGRC)</p> <p>3.3 Back up of germplasm for safety duplication in regional and international genebanks (led by NATIONAL PARTNERS/SPGRC)</p> <p>3.4 Enrich SADC Documentation Information System (SDIS) to provide information on CWR such as passport data, identified traits and other useful information that facilitates use of CWR genetic resources (led by SPGRC/NATIONAL PARTNERS)</p> <p>3.5 Distribution of CWR accessions to breeders at national regional and international breeding centres (led by NATIONAL PARTNERS/SPGRC)</p>			
<p><b>Activity 4: Enhanced SADC CWR use in crop improvement</b></p>			
<p>4.1 Feasibility study on the potential use of CWR in breeding programmes at the national and SADC regional level (SWOT analysis) (led by UOB/Bioversity/ National partners)</p> <p>4.2 Assessment of farmer’s trait priorities for the potential use of CWR in breeding programmes at the national and SADC regional level. (led by SPGRC/BIOVERSITY)</p> <p>4.3 Predictive characterisation study on the potential use of CWR in breeding programmes at the national and SADC regional level (led by UOB/BIOVERSITY)</p>			

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
<p>4.4 Engage and establish links with national and international breeders for specific crops for facilitating the exchange and distribution of CWR accessions and pre-bred material arising from the use of CWR to national programmes and novel varieties provided to farmers. (led by NATIONAL PARTNERS AND BIODIVERSITY).</p> <p>4.5 Assessment of the distribution to farmers of the seeds of novel cultivars and landraces improved with CWR in the SADC region. ((led by NATIONAL PARTNERS AND SPGRC)</p>			
<p><b>Activity 5 – Enhanced farmers benefits from CWR conservation and use</b></p>			
<p>5.1 Desk review and expert consultation to identify potential range of mechanisms for enhancing farmer benefits, such as: i) direct farmer support for public good conservation and monitoring service provision, ii) enhanced direct use of CWR, iii) improved access to a) existing and b) future CWR-derived materials, and iv) the establishment of a potential benefit-sharing fund related to any future materials developed from SADC CWR).</p> <p>5.2 A Tool Kit “How To” manual for informing farmer benefit mechanism design and assessment developed. Assessment criteria to inter alia consider a) magnitude, b) level (national/regional/international) and c) timescale over which potential benefits may be generated for farmers (differentiated by gender), d) implementation costs and e) long-term funding source potential</p> <p>5.3 Pilot testing and/or modelling of mechanisms for CWR-derived farmers’ benefits in 2 sites in partner countries.</p>			
<p><b>Activity 6 - Capacity building -</b></p>			
<p>6.1 Carry out a needs assessment at the first kick off meeting of the project to define training needs (led by UoB)</p> <p>6.2 Hold a virtual training workshop to strengthen capacity for the implementation of the regional network (led by UOB/BIOVERSITY)</p> <p>6.3 Run a mentorship programme for reinforcing capacity building efforts for effective conservation and use of CWR in SADC region, including supervision of research assistants and students working hands-on the project (led by UOB /BIOVERSITY)</p> <p>6.4 Organise and hold end of project conference on conservation and use of PGRFA in year 3 UOB/Bioversity/SPGRC</p>			
<p><b>Activity 7 - Management and Coordination</b></p>			
<p>1.1 Coordinate and manage all aspects of project implementation (led by Bioversity)</p> <p>1.2 Establish project Steering Committee – composed of representatives of the partners and representatives of SADC secretariat and ITPGRFA, Global Crop Diversity Trust, FAO commission, and CIRAD.</p> <p>1.3 Organise and hold kick-off meeting with partners and hold first steering committee (led by SPGRC/BIOVERSITY)</p> <p>1.4 Prepare a communications plan for dissemination of the project to targeted stakeholders (led by Bioversity and SPGRC)</p> <p>1.5 Prepare a data management strategy for the project at the outset of the project to ensure access and sharing of project outputs under agreed terms. BIOVERSITY</p> <p>1.6 Prepare policy briefs on the conservation and use of CWR (led by SPGRC and Bioversity)</p> <p>1.7 Hold regular on-line meetings with project partners for coordinating the project activities (led by Bioversity)</p>			

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
1.8 Monitor project progress by holding annual partner and steering committee meetings involving all the partners (led by Bioversity) 1.9 Ensure gender integration in all the project activities where feasible (led by Bioversity)			

## Annex 3: Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
4A	Number of undergraduate students to receive training *	2 female, 1 male	All three from UK		3	-	3	3
4B	Number of training weeks to be provided				7	3	7	10
4C	Number of postgraduate students to receive training *	3 males	Nigeria, Saudi Arabia, Sudan		3	-	3	3
4D	Number of training weeks to be provided				7	3	7	10
6A	Number of people to receive other forms of education/training*	13 females, 7 males	Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Madagascar, Mozambique, Seychelles, Zimbabwe		20	-	20	20
7	PowerPoint presentations recorded in three languages (English, French, Portuguese)			-	12	2	12	14
9	Regional Strategic Action Plan					1	Draft	1

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
9	National Strategic Action Plans					2	0	2
9	Management plans (9 revised for existing sites [3 per partner country] and 3 new sites [one per partner country])					12	0	12
11A	Number of papers to be published in peer reviewed journals						1	1
11B	Number of papers to be submitted to peer reviewed journals						4	4
14A	Conference on PGR conservation and use and ABS workshop					2	0	2
14B	Number of conferences/seminars/workshops <b>attended</b> at which findings from Darwin project work will be presented/disseminated. 1- BIOPAMA webinar (8-9 <sup>th</sup> February 2021) 2- Creating a harmonious plant genetic resources conservation and utilization policy environment for enhanced agriculture development in Southern Africa (17 March 2021) 3- FAO online symposium of multi-stakeholders on plant genetic resources (29-30 <sup>th</sup> March 2021)				3	2	3	5
22	Number of permanent field plots and sites to be established during the project and continued after Darwin funding has ceased				9	9	3	9

**Table 2 Publications**

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year) Partners highlighted in Bold	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Plant genetic resources: A review of current research and future needs	Book	<b>Dulloo, M. E.</b> (ed.), (2021).	Male	Mauritian	Burleigh Dodds Science Publishing, Cambridge, UK	(ISBN: 978 1 78676 451 5; <a href="http://www.bdspublishing.com">www.bdspublishing.com</a> )
Monitoring plant genetic diversity for food and agriculture	Book chapter	<b>Dulloo M.E., Bissessur P.</b> and Rana J. (2021).	Male	Mauritian	Burleigh Dodds Science Publishing, Cambridge, UK	Plant genetic resources: A review of current research and future needs, Burleigh Dodds Science Publishing, Cambridge, UK (ISBN: 978 1 78676 451 5; <a href="http://www.bdspublishing.com">www.bdspublishing.com</a> )
Key steps in conservation and use of plant genetic resources: an overview	Book chapter	<b>Maxted N. and Magos Brehm J.</b> (2021)	Male	British	Burleigh Dodds Science Publishing, Cambridge, UK	Plant genetic resources: A review of current research and future needs, Burleigh Dodds Science Publishing, Cambridge, UK (ISBN: 978 1 78676 451 5; <a href="http://www.bdspublishing.com">www.bdspublishing.com</a> )
Setting ambitious goal for biodiversity and sustainability.	Journal article - <i>Science</i> Vol <b>370</b> Issue <b>6515</b> : 411-413	Díaz, S., Zafra-Calvo, N., Purvis, A., Verburg, P.H., Obura, O., Leadley, P., Chaplin-Kramer, R., De Meester, L., <b>Dulloo, E.</b> , et al. (2020).	Female	Argentinian	Science	<a href="https://science.sciencemag.org/content/370/6515/411.summary">https://science.sciencemag.org/content/370/6515/411.summary</a> DOI: 10.1126/science.abe1530
Modelling of crop wild relative species identifies areas globally for in situ conservation.	<i>Communication Biology</i> <b>2</b> : 1-8.	Vincent H., Amri, A., Castañeda-Álvarez N.P., Dempewolf H., <b>Dulloo E.</b> , Guarino L., Hole D., Mba M.,	Female	British	Nature Research	<a href="https://doi.org/10.1038/s42003-019-0372-z">https://doi.org/10.1038/s42003-019-0372-z</a>

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year) Partners highlighted in Bold	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
		Toledo A., & <b>Maxted N.</b> (2019).				
<i>In situ</i> and <i>ex situ</i> conservation gap analyses of crop wild relatives from Malawi.	<i>Genetic Resources and Crop Evolution</i> , 68 (2), 759-771.	<b>Mponya, N. K.</b> , Chanyenga, T., <b>Brehm, J. M., &amp; Maxted, N.</b> (2021).	Female	Malawi	Springer	<a href="https://doi.org/10.1007/s10722-020-01021-3">https://doi.org/10.1007/s10722-020-01021-3</a>

## Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	X
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	
<b>Have you included means of verification?</b> You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	X
<b>Do you have hard copies of material you need to submit with the report?</b> 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.	
Have you involved your partners in preparation of the report and named the main contributors	X
Have you completed the Project Expenditure table fully?	X
Do not include claim forms or other communications with this report.	