

Darwin Initiative Main: Annual Report

To be completed with reference to the “Project Reporting Information Note”:

(<https://www.darwininitiative.org.uk/resources/information-notes/>)

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

Submission Deadline: 30th April 2024

Submit to: BCF-Reports@niras.com including your project ref in the subject line

Darwin Initiative Project Information

Project reference	30-014
Project title	Community-based agro-biodiversity systems for improved livelihoods and climate resilience
Country/ies	Guatemala, Honduras, Nicaragua, Costa Rica
Lead Partner	The Development Fund, Norway
Project partner(s)	Association of Cuchumatanes Organizations (ASOCUCH); Foundation for Participatory Research with Farmers of Honduras (FIPAH); Federation of Cooperatives for Development, R.L., Nicaragua (FECODESA R.L) and University of Costa Rica (UCR), Fabio Baudrit Moreno Agricultural Experimental Station.
Darwin Initiative grant value	£ 600 000
Start/end dates of project	July 1, 2023, to December 31, 2025
Reporting period (e.g. Apr 2023 – Mar 2024) and number (e.g. Annual Report 1, 2, 3)	July 1, 2023, to March 31, 2024, Annual Report 1
Project Leader name	Elin Cecilie Ranum, The Development Fund
Project website/blog/social media	
Report author(s) and date	Elin Cecilie Ranum, Audun Husby, Sergio Alonzo, 30.04.2024

1. Project summary

This project will improve rural households' livelihoods and resilience to climate change by increasing smallholder farmers' access to locally adapted seeds. The project is located to the four countries Guatemala, Honduras, Nicaragua, and Costa Rica. The project will contribute to improved food security in Central America by involving farmers and indigenous people in the development of new varieties of maize and beans and the conservation of the rich and native diversity in the region and facilitate access to seeds through community seed banks.

Mesoamerica is one of the regions with richest agro-biodiversity in the world. It is the origin of beans (*Phaseolus vulgaris*) and maize (*Zea mays*) and holds a rich diversity of crop varieties and wild relatives. Smallholder farmers in the region depend on these native varieties and are also guardians of agrobiodiversity. Maize and beans are the main staple crops in the region, with smallholder farmers as the main producers. Smallholder farmers face several constraints

which are, among others, caused by scarce land resources with poor soil quality and their plots are often in steep areas which are prone to soil erosion and landslides.

The region is highly vulnerable to the effects of climate change expressed through droughts, high temperatures and uncontrolled rains in short periods, most recently experienced with the hurricanes ETA and IOTA in 2020. Climate change causes crop failure and losses and weakens the means of agriculture production. It has therefore a huge impact on food security. At the same time, there is a loss of agrobiodiversity caused by change in land use, deforestation, growing human activity, and consequences of climate change which alters species natural habitat. This affects the region's capacity to adapt to climate change in the future, and hence food security.

To halt the loss of agrobiodiversity it will be crucial to reduce climate vulnerability and increase resilience in the agriculture production systems to be able to meet the future scenario of climate shocks as developed by the IPCC (2022). The effects of climate change do not respect borders, in the same way, the adaptation of agricultural production systems based on the richness of plant genetic resources, must cross borders and promote joint initiatives among the countries of the region, to achieve rapid, effective, and efficient adaptation (PAEM, 2013).

Increased access to locally adapted varieties and the development of new varieties are crucial to ensure food and nutrition security in the future. In-situ and on-farm conservation are crucial in a region with weak national gene banks. Existing community seed banks play an important role for this purpose, however many community seed banks lack adequate storage facilities and technologies to conserve the genetic resources and the risk of genetic erosion is high. Breeding depends on a wide pool of genetic resources, which can be obtained through collaboration across the region.

To counter the risk of continued loss of biodiversity, it is crucial to rescue and conserve wild relatives as well as to safeguard already identified plant genetic resources. Ex-situ, in-situ and on-farm conservation approaches are complementary for ensuring that valuable resources are not lost, at the same time as they can be continuously used and further developed to withstand and adapt to the changing climate conditions.

2. Project stakeholders/ partners

The partners have experience in processes related to agrobiodiversity conservation and climate resilience and have been part of the growth and strengthening of indigenous peasant groups dedicated to participatory plant breeding and native material conservation strategies. The actual project builds on the Participatory Plant Breeding in Meso-America programme (<http://www.programafpma.com/>), a joint programme of the involved local partners and the Development Fund, which was implemented in the period of 2001 and 2016. As a result of this project, more than 70 varieties of maize and beans were developed through participatory plant breeding.

All partners have been involved in project planning, monitoring and decision making during the first year of implementation. A start-up seminar was held in Antigua, Guatemala, on August 22 and 23, 2023, where 16 persons from DF and partner organizations participated. In this meeting the consortium, among other things, reviewed the project's logical framework, studied administrative processes that must be considered in relation to the contract; preparation of annual operative plan; requirements and anticorruption.

The project has been able to give, among other issues, continuity to the process of access and dissemination of seeds, local research, strengthening of community seed reserves, collection of wild relatives. This work has both included the main partners and organizations involved in the development and strengthening of small-farmers such as: ministries of agriculture, local grassroots organizations, cooperatives, local agricultural research committees (CIAL), El Zamorano Bean Research Program (PIF-Zamorano) and Agricultural Research Institutes in the region.

On August 31, the Fabio Baudrit Moreno Agricultural Experimental Station in Costa Rica received visit from the the British Ambassador, Mr. Benjamin Edward Noel Lyster-Binns, the Second Secretary of the Embassy in Costa Rica, Mr. Bryn Alexander Orton, and the Minister for Environmental Quality and Resilience (United Kingdom), Mrs. Rebecca Pow. The delegation included the Deputy Minister of Agriculture of Costa Rica, Mr. Julián Arias Varela.

During the first year, Asocuch, with its coordinating role, has maintained a close contact with the other actors of the consortium, both digitally and face to face. Throughout the first year, there have been practical challenges with transfers to FECODESA in Nicaragua and the University of Costa Rica. More about this under the chapter 10 about risk management.

3. Project progress

3.1 Progress in carrying out project Activities

Activity 1.1: Participatory selection of bean varieties for the development of new germplasm tolerant to terminal drought and high temperature, and activity 1.2: Introgression in bean materials in collaboration with the Bean Research Program (PIF) of Zamorano, for the development of new varieties with drought tolerance and low fertility, using local germplasm.

Participatory selection processes for bean varieties have begun at the field level for small producers in Honduras, Nicaragua, and Costa Rica.

Through collaboration with the El Zamorano Bean Research Program (PIF-Zamorano) in Honduras, new germplasm of both maize and beans have been accessed to be evaluated in the field with smallholders. This year, 10 *ENAR Bean 2023*, 3 *ECAR Bean 2023* and 6 *ENAR Maize 2023* trials were delivered by the program. Seeds of the varieties *Amadeus 77*, *Tolupán Rojo*, *Rojo Chortí*, *SEF 70*, *Chepe ML*, *Honduras Nutritivo*, *Don Rey*, *Pueblo Viejo 16* and *Seda* was also received to be increased with the smallholders.

In the case of Nicaragua, six bean lines from the *ERTEA* trial, introduced by the El Zamorano Bean Research Program (PIF-Zamorano), and two lines of *Wonder beans* have been evaluated for the characteristics of high temperature tolerance, yield, grain quality and drought resistance.

In Costa Rica during the first year, four types of beans were planted (*VIDAC Red*, *SEF Validation*, *Native Varieties* and *ECAR Red*), in eight trials distributed on five locations (Veracruz de Pérez Zeledón; Santa Cecilia de La Cruz; Chánguena of Buenos Aires; Caño Negro de Los Chiles; and Sardinal de Carrillo). Trial seeding was also supported in conjunction with the KoLFACI and CACCIA projects, for a total of twenty trials in ten locations.

Please, see attached project documentation, with annex reference number 1A and 1B.

1.3. Introgression in maize germplasm, for the development of new varieties with tolerance against drought, and the diseases ear rot and “Asphalt Patch Complex”, focused on tropical and high sub-tropical areas, using local materials.

In Guatemala, six evaluation trials have been established of two maize materials (improved *Bucho* and *Don Claro*) from FIPAH-Honduras, one participatory plant breeding material (*Santos López*) and one local material, with the purpose of finding promising materials for the control of the asphalt spot complex. In the early stages, only the adaptability of materials and the appearance of the disease in question will be evaluated. Please see the attachment 1C from Asocuch about “Protocol for evaluation of materials with tolerance to asphalt stain in the highlands of Guatemala”.

In Honduras, yield trials (*ENAR Maize 2023*) were established in eight localities with the aim of validating drought tolerance and disease resistance (emphasis on asphalt spot) and adaptation of improved maize populations under conditions of climatic variability. The trials were established in three communities in the municipality of Yorito, department of Yoro, two localities in the municipality of Jesús de Otoro, department of Intibucá, one locality in San José de Comayagua and one in Atlántida. The maize varieties *Bucho Mejorada* and *DICTA Maya* were also increased at the FIPAH experimental station in Yorito. A total of 74 farmers (32 women) participated in these activities. Please, see annex 1D from Fipah, “Report on the establishment and monitoring of maize trials”.

In Nicaragua, 20 maize lines from FIPAH-Honduras have been introduced for evaluation of resistance to complex asphalt spot, drought, adaptability and yield. For the seed renewal of the maize lines, plots have been established with the use of drip irrigation and through crossing of half-siblings as to control pollination and maintaining the genetic purity of each line.

1.4. Local production and distribution of good quality seed of locally adapted maize and bean varieties.

At the regional level, a total of 789 seed packets have been distributed from participatory plant breeding and conventional breeding processes, benefiting the same number of families, of the following varieties for maize: *DICTA Maya*, *Bucho Mejorado*, *Santos López*, *Juan Matías*, *Pueblo Nuevo*, *Diamante* and *EJN 2*); and of the following varieties for beans: *Campechano*, *Cedrón*, *Pueblo Viejo*, *Icta Hunapú*, *Icta Super Chiva*, *INTA Sequia*, *Cabécar*, *Nambí*, *Surú*, *Victoria*, *Urán*, *Chileno*, *Chimbolo*, *Chonete*, *Cuarenteno*, *Generalito*, *Guapileño*, *Higuerilla*, *Mantequilla*, *Madrileño*, *Nils*, *Panameño*, *Sesenteno*, *Ingrato*, the latter *Phaseolus acutifolius*).

In Nicaragua, due to the effects of climate change, it was not possible to establish 3 *manzanas* (2,11 hectares) of beans and 2 *manzanas* (1,4 hectares) of maize until the first quarter of 2024. To ensure enough seeds as to be able to provide seeds to families that had not yet received sufficient seeds, irrigation was applied to seed production.

In Costa Rica, in order to support the local production of bean seed, a total of 582kg of varieties generated by participatory plant breeding were delivered to the Associations of Producers (ASOPROS) of Guagaral and Chánguena de Buenos Aires, and Veracruz de Pérez Zeledón. For every kg of seed delivered to ASOPROS, on average 25kg of high-quality seed is produced, which will be made available to the organizations' partners for commercial planting in the next cycle.

For this activity, see annex with reference number 1E (Seed dissemination report, Guatemala.), and the annexes 1F and 1G (seed dissemination, list of participants, for Costa Rica and Nicaragua).

1.5. Training on participatory plant breeding, seed production and in-situ conservation of wild relatives for leading farmers and technicians of organizations.

At the regional level, ten training events were held on participatory plant breeding, seed production and conservation, wild relatives of beans, farm diversification, among other topics, with an average duration of eight hours each, involving a total of 252 people (166 men and 86 women) from 35 communities in the project's area of action.

Please, see the attached reports on training workshop on participatory plant breeding methods and agrobiodiversity: 1H (Asocuch, Guatemala); 1I (Fecodesa, Nicaragua); and 1J (Fipah, Honduras).

1.6. Field days and dissemination of results with farmers for the dissemination of technologies and practices of adaptation to climate change in maize and bean production systems.

At the regional level, eleven field days were developed involving a total of 265 farmers (166 men and 99 women) from 85 communities in the project's area of action, addressing issues related to local seed production, use of varieties generated under the participatory plant breeding approach, integrated management of diversified farms, implementation of climate change adaptation measures, among others. Attaches are the fields report from Asocuch, Guatemala (reference number 1K), and Fipah, Honduras (1L).

1.7. Regional exchanges to learn about experiences in the development and dissemination of maize and bean varieties.

During the period, a regional exchange with the purpose of learn about experiences in the development and dissemination of maize and bean varieties was carried out in Antigua Guatemala on August 22 and 23, with the participation of 16 people from the project's partner organizations, DF and representatives of farmers' organizations (1 farmer representative per country). During the event, the following topics were discussed: a) progress that has been made at the regional level in the last four years b) contextualization of the management carried out before the Darwin Initiative c) the Development Fund's strategy in Central-America d) review of the logical framework of the project financed by the Darwin Initiative e) regional

activities linked to the collection of wild relatives f) anti-corruption and administrative processes that must be considered in relation to the contract g) preparation of an annual operative plan (h) analysis of how the issue of farmers' rights has progressed under ITPGRFAA at the international level and inputs from participants to the upcoming Symposium on Farmers' Rights (New Delhi, India, September 2023). A summary of the event is attached (reference number 1M).

1.8. Elaboration of catalogues of varieties product of participatory and / or native plant breeding of beans

In Honduras, Nicaragua and Costa Rica, with the support from consultants, the process of phenotypic characterization of common bean germplasm has begun, serving as a basic input for the preparation of variety catalogues. The descriptors used include morphological, agronomic and phenological traits of interest to farmers and to identify genotype differences. To date, progress has been made in the recording of information, especially in the collection of field data and photographs at different stages of the crop.

In the case of Guatemala, the process of characterization of seven materials of maize has begun; with the aim of knowing their genetic differences and generating a characterization document.

2.1. Strengthening of the network of existing seed banks at the regional level.

A total of 23 community seed banks were strengthened with the provision of basic materials and equipment to improve seed conditioning (15 in Guatemala, 5 in Honduras, 2 in Nicaragua and 1 in Costa Rica), in order to strengthen the management of germplasm under adequate conditions in the communities and to have seed available in case of emergency resulting effects of climate change. Two reports on this topic are attached: one from Guatemala on Asocuch's plan on remodelling and equipping of eleven community seed banks in the department of Huehuetenango (annex 2A) and an example from Fecodesa, Nicaragua, about the strengthening of community seed banks in Pueblo Nuevo, department of Estelí (annex 2B).

2.2. Organization and development of Agrobiodiversity Fairs.

Nine seed and agrobiodiversity fairs were organized and developed during the first year of implementation, with the participation of more than 2200 farmers, who exchanged knowledge and carried out exchanges of crop accessions linked to food security. During the events several topics were addressed and discussed: Farmers' Rights, Community Seed Reserves, Economic Drivers of Rural Development; among other topics that favour the cultural heritage of farmers. It is important to highlight that coordination has been achieved with government agencies, projects and donors of the different partners of the organizations that make up the network at the regional level, including OXFAM, DF, IICA, MEFCCA, KoLFACI, CACCIA SeedChange.

A report about a diversity fair in the municipality of Pueblo Nuevo, department of Estelí, Nicaragua, is attached (annex reference 2C), also a report from Asocuch about the II and V Agrobiodiversity and Seed Exchange Fair in Santa Eulalia and Todos Santos Cuchumatán (annex 2D).

2.3. Training on farmers' rights within the framework of the ITPGRFA.

At the regional level, nine trainings on farmers' rights were developed with an average duration of five hours each, involving 232 farmers (120 men and 112 women). This action strengthens knowledge about the rights of farmers, mainly from indigenous communities where the project is being implemented.

Three reports are attached about training workshop on farmers' rights under the ITPGRFA, Guatemala (annex 2E), Nicaragua (2F) and Honduras (2G).

2.4. Collections, characterization and increase of native accessions of maize and beans.

In Guatemala, the process of identifying accessions that have low germination from the different deliveries that have been made to the Institute of Agricultural Science and Technology (ICTA) germplasm bank has begun, which will be carried out directly in the farmers' production fields from year two of the project.

In Honduras, in the Yoro area, 33 native accessions of maize and 24 of beans were collected, which are protected in the community seed banks of the area

In Nicaragua, the morphological characterization of 56 native bean varieties was carried out, using the bean descriptors guide prepared by the Collaborative Program on Participatory Plant Breeding in Mesoamerica (FPMA) in previous years, as well as the photographic documentation of each one in the different stages of development.

In Costa Rica, the Fabio Baudrit Moreno Agricultural Experimental Station began with the cleaning, refreshing and increasing of 35 native varieties of beans, collected in the districts of Paquera, Lepanto and Cóbano in the Nicoya Peninsula. At the beginning of January 2024, an increase in the field of native bean varieties from Nicoya and the Nicoya Peninsula was carried out. This increase will refresh the seed of the community banks in the Nicoya area and build the collection for the future seed bank of the Nicoya Peninsula.

Attached are a summary of a coordination meeting between Fipah and PIF Zamorano (annex 2H), and an example of a bean collection analysis from Fecodesa, Nicaragua (annex 2I).

2.5. Delivery of copies of accessions collected from corn and beans to national germplasm banks.

Coordination with the authorities of the national seed bank has been close during the first year, with commitments to collect and safeguard maize and bean materials in order to have backups of valuable and promising accessions in the field of genetic improvement.

3.1. Training for personnel involved in the collection processes of wild relatives of common beans in 3 countries (Costa Rica, Honduras, Nicaragua).

During the month of January 2024, a training course in Costa Rica on the collection of wild relatives of common bean was held, with the participation of 13 technicians and researchers from ASOCUCH, FIPAH, FECODESA, The National Institute of Innovation in Agricultural Technology INTA, University of Costa Rica and the International Center for Tropical Agriculture (CIAT). Also present was experts such as Dr. Daniel Debouck, professor emeritus of CIAT, who for 3 days transferred technical knowledge related to the process of collecting wild relatives, as inputs to start the collections in the countries involved in the project. A summary of this event can be found in annex 3A.

3.2. Collection and regeneration of wild relatives of common bean in three countries (Costa Rica, Honduras, Nicaragua).

After the training process, collections began at the regional level, with the following advances:

In Guatemala, five bio-prospections were carried out in twelve communities of the Sierra de los Cuchumatanes, resulting in the identification of three populations of wild beans, which are in the process of identification. The populations will be delivered in due course to the national herbariums of the University of San Carlos and the University of Valle. Asocuch has developed the report "Collection and protection of wild bean materials *Phaseolus* sp. Northwest of Guatemala)", annex 3B.

In Nicaragua, six bio-prospections have been carried out in the municipalities of Pueblo Nuevo and San Juan de Limay in the department of Estelí; San Fernando, Murra, Quilalí, Wiwilí, in the department of Nueva Segovia; Telpaneca, San Lucas, San Juan de Río Coco, in the department of Madriz; San José de Bocay, Wiwilí and Jinotega, in the department of Jinotega and the municipality of Tuma-La Dalia, in the department of Matagalpa. With this work, 62 populations were collected (their identity is still pending), three copies of herbariums have been brought from each one; But most of them have yet to collect seeds since they were in the process of flowering, and there was no mature seed. For the Nicaraguan experience, please, see the annex 3C.

In Honduras, three bio-prospections were carried out in the communities of Himeritos, La Patastera and Capiro in the municipality of Yorito, department of Yoro, where two populations of *Phaseolus* (*Phaseolus vulgaris* subv. *aborigineus* and *Phaseolus lunatus*) were found. Annex 3D summarizes Fipah's coordination's meeting in order to collect and regenerate wild relatives of common bean, and the annexes 3E, 3F, 3G and 3H shows four pictures from the collection process.

In Costa Rica, five bio-prospections were carried out where nine new populations of wild species of *Phaseolus* were found: two of *P. leptostachyus*; two of *P. vulgaris*; three from *P. hygrophilus*; one from *P. tuerckheimii* and one from *P. angucianae*.

3.3. Increase of seed of wild relatives of common beans and shipment to national gene banks.

In Costa Rica, in conjunction with a project with the Wild Relative Crop Trust, seed was regenerated from 65 accessions of wild *Phaseolus*, as follows: *P. microcarpus*: 18 accessions. *P. leptostachyus*: 12 accessions. *P. lunatus*: 21 accessions. *P. vulgaris*: 11 accessions. *P. xantotrichus*: 2 accessions. *P. oligospermus*: 1 accession.

3.4. Delivery of herbarium specimens from wild bean relatives to national and international museums

In Guatemala, letters of consent and responsibility have been obtained from the authorities of the national herbariums of the University of San Carlos of Guatemala and the University of Valle; with the purpose of establishing co-responsibilities in the protection of live specimens of wild relatives. Lobbying processes were also carried out for the delivery of seeds to ICTA's (Institute of Agricultural Science and Technology) germplasm bank.

In Honduras, two herbarium specimens of *P. vulgaris* subv. *aborigineus* and *P. lunatus* will be delivered to the herbariums of the Zamorano University and the National Autonomous University of Honduras (UNAH) in April 2024.

In Nicaragua, efforts continue to be made before Institute of Agricultural Protection and Health (IPSA) and Ministry of the Environment and Natural Resources (MARENA), to evaluate the in situ or ex situ conservation mechanisms of each of them.

In Costa Rica, the National Herbarium was visited twice and the Fournier Herbarium of the University of Costa Rica once, but it was not possible to find the person in charge of receiving the herbariums to coordinate the corresponding delivery. Work was done on typing and ordering the information, and on the preparation of the labels of each herbarium specimen

3.5. Identify wild bean areas for designation as ecologically important areas and with recognition by local governments.

In Honduras, the intersection between the Pico Pijol mountain and the Yoro Mountain, particularly in the upper part of the Tascalapa micro-basin and the upper part of the Tepemecin micro-basin, has been identified as an area of ecological importance due to the presence of the genera *P. vulgaris* subv. *Aborigineus*, *P. lunatus* and *P. coccineus* in their wild forms. In the next year of the project, the respective prospections will continue to study this area.

Have the Activities been carried out in the manner and time planned?

Unfortunately, some activities were postponed during the first year due to a slightly later start-up than expected. It took somewhat longer time than originally planned to start the implementation of the project. The project initiated on July 1st, 2023, and during the first week a cooperation agreement was signed between the Development Fund and Asocuch, the Guatemalan leading partner in the Central American consortium. This was followed by the conclusion of contracts between Asocuch and the local partners in Honduras, Costa Rica and Nicaragua. These processes took somewhat longer than planned, as did the first transfer of funds. Holidays in Norway in July also delayed the start a little bit. It was with the kick-off seminar in Guatemala, where DF and all the partner organizations met in the city of Antigua on 22-23 August, that the project really started to move. The later start-up led to DF applying in December 2023 for a budget adjustment, where some non-executed activities from year 1 were moved to year 2. This application was approved in early January 2024.

3.2 Progress towards project Outputs

Output 1

Developed varieties through Participatory Plant Breeding approaches adapted to the effects of climate change.

The first steps in participatory plant breeding approach have been completed during the first year. The participatory plant breeding combines the scientific knowledge of plant breeders within the collaborating organizations with the local knowledge of the farmers to obtain varieties and materials with ideotypes desired by the farmers. Field-level trials have been established where the different varieties of maize and beans are evaluated with the participation of farmers, for which germplasm generated by the El Zamorano Bean Research Program (PIF Zamorano), CIAT and FIPAH Honduras is being used.

In Nicaragua, 20 maize lines from FIPAH-Honduras have been introduced for evaluation of resistance to complex asphalt spot, drought, adaptability and yield. For the seed renewal of the maize lines, plots have been established with the use of drip irrigation and through the making of crosses of half-siblings to control pollination and maintain the genetic purity of each line. In Guatemala, six evaluation trials have been established, including maize materials from FIPAH-Honduras. In the early stages, only the adaptability of materials and the appearance of the disease the asphalt spot complex will be evaluated. In Honduras, yield trials (ENAR Maize 2023) were established in eight localities with the aim of validating drought tolerance and disease resistance.

Knowledge of plant breeding is essential to develop varieties, and a total of 517 farmers (185 women) have been involved in training on issues related to quality seed production, participatory plant breeding, variety evaluation, adaptation technologies, and integrated farm management.

Output 2.

Strengthen collaboration between local seed banks and national gene banks in the region.

As a first step, assessment of the existing CSBs was conducted to identify gaps. As a second step, technical assistance was provided to 23 seed banks in the region, where investments have been made in improving infrastructure and equipment in 19, directly involving 1829 families who conserve 2258 accessions of maize, beans, sorghum and underutilized species.

The strengthening of existing CSBs is a prerequisite for being able to cooperate with the national seed banks. The CSBs have to ensure the protection of quality seed; to conserve local germplasm which can be used for the development of new varieties with better climate adaptation. Initial coordination meetings have been held with national seed banks, and this coordination will be strengthened in the second and third year of the project, with the aim to seek agreements for the delivery of accessions of farmer varieties.

Seed fairs are important platforms for the promotion of farmers rights, the promotion of native varieties and their specific characteristics, and promotion of local culinary culture linked to the native varieties. Nine seed and agrobiodiversity fairs were organized and developed during the first year, with the participation of more than 2200 farmers, that exchanged knowledge and carried out exchanges of crop accessions linked to food security. This contributes to strengthen farmers' rights within the framework of the ITPGRFA and promote the exchange of knowledge and plant genetic resources.

Output 3.

Collection and regeneration of accessions of wild relatives of Phaseolus, to make them available to pre-breeding programs at the regional level.

18 bio-prospects have been carried out at the regional level (GUA 5, HOND 3, CIN 6, CR 5), in 32 communities in the project's area of action, where 976 populations of wild beans have been identified, however, some no longer had seed available due to the collection period.

Steps have been taken with the national authorities to coordinate the delivery of accessions of wild relatives to national germplasm banks, however, due to the seasonality of the date of the first bioprospects, it did not coincide with the time of seed generation.

Each country makes the necessary arrangements to deliver to the herbariums the collections made at the regional level, for which work is done on the identification documents and on the curing processes of the collections.

In Costa Rica, seed regeneration was achieved from 65 accessions of wild Phaseolus, as follows: P. microcarpus 18 accessions; P. leptostachyus 12 accessions; P. lunatus 21 accessions; P. vulgaris 11 accessions; P. xantotrichus 2 accessions; P. oligospermus: 1 accession.

3.3 Progress towards the project Outcome

Outcome

Local agricultural production systems strengthened through participatory plant breeding, community seed bank networks and collection of wild relatives.

After one year of execution of the project we can identify that we have made significant progress in the achievement of the indicators. However, it is important to consider that the project began in a period not in accordance with the rainy seasons, which somewhat limited the scope of the targets set in the activities that move the indicators.

Below is a list of the progress we have made to date and we believe that we are on track to meet the expected targets and indicators.

- 789 families (200 headed by women) have accessed varieties from participatory plant breeding and conventional breeding processes, adapted to the specific conditions of small producers in 50 communities in the project's area of action.
- Technical assistance was provided to 23 seed banks in the region, where investments have been made in improving infrastructure and equipment in 19, directly involving 1829 families who conserve 2258 accessions of corn, beans, sorghum and underutilized species.
- 18 bio-prospections have been carried out at the regional level (GUA 5, HOND 3, NIC 6, CR 5), in 32 communities in the project's area of action, where 76 populations of wild beans have been identified, however, some no longer had seed available due to the collection period.
- 32 communities where there are wild relatives of beans have been involved in sensitization processes for identification processes.
- Women are involved in the evaluation processes of varieties at the field level. They are the ones who define the use of some varieties due mainly to conditions of flavor and cooking time.
- 17 technicians (4 women) and researchers from ASOCUCH, FIPHA, FECODESA, INTA, UCR and CIAT, have received training processes on the collection of wild relatives of beans and Participatory Plant Breeding processes, during the development of 2 training events with an average duration of 24 hours each.
- A total of 517 farmers (185 women) have been involved in training on issues related to quality seed production, participatory plant breeding, variety evaluation, adaptation technologies, and integrated farm management, thereby strengthening the capacities of smallholder farmers.

After year one, we believe that the indicators are adequate for measuring the intended Outcome, and that it is likely to achieve the Outcome by end of funding.

3.4 Monitoring of assumptions

Assumption: Suitable climatic conditions for the process of generating varieties.

Comments: At the regional level, there have been serious problems with the planting of trials, which were affected by the presence of prolonged drought and later by intense rains in short periods. In addition, the lack of rain has caused delays in planting dates and may impact the project and smallholder farmers in 2024, since the crops linked to food security that are planted in the area depend on residual moisture.

Assumption: Interest exists among farmers in validating and adopting new varieties of maize and beans.

Comments: Up until now, we have experienced that there is strong interest among smallholder farmers to validate and adopt new varieties of maize and beans.

Assumption: Adequate conditions exist in countries for the delivery and conservation of germplasm from wild relatives to gene banks.

Comments: At the regional level, the registration processes for wild relative collections are quite bureaucratic, so within the framework of the project, the necessary steps have been taken, overcoming them in Guatemala and Costa Rica. In the case of Nicaragua and Honduras, the procedures are still being taken to obtain approvals from the corresponding entities, however, we have not limited the collection process.

Assumption: In the countries, there are adequate conditions for the delivery of germplasm from wild relatives to banks.

Comments: In the case of Honduras and Nicaragua, collections have been made, however, the procedures are still being carried out before the government agencies that must approve the processes.

Assumption: Techniques for the regeneration of wild accessions are effective.

Comments: Several accessions collected had no longer seed available in situ, so we need to return in 2024 in a timely manner and comply with the process. In the case of Costa Rica with complementary funds, the collections are regenerating under controlled conditions at the UCR experimental station.

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

From DF's original application form:

The project will benefit more than 3,000 smallholders (1500 Guatemala, 500 Honduras, 500 Nicaragua and 500 Costa Rica) and their families, including indigenous people. The farmers are linked with 58 local farmers' organisations from communities that are dependent on small scale and subsistence agriculture, with limited access to agricultural inputs and formal credit systems. At least 30% of the direct beneficiaries will be women. The project will also benefit an additional more than 2,500 families through improved access to quality seeds and new varieties.

Contributions that the project is making to the higher-level impact on biodiversity conservation and poverty reduction:

In Honduras, two specimens of Phaseolus (*P. vulgaris* subv aborigineus and *P. lunatus*) were collected in the municipality of Yorito, department of Yoro. These species have been reported for Honduras in herbarium records, but there are no reports of these specimens collected in this region of the country. This collection confirms the range of adaptation of these species to the north of the country. Similarly, in the area of Yoro, in the municipalities of Yorito, Sulaco and

Victoria, the collection of 33 native varieties of maize and 22 of beans was carried out and will contribute to increasing the collections of the germplasm banks of the Zamorano University and the UNAH-CURLA.

At the regional level, through Participatory Variety Selection, bean materials with tolerance to high temperatures and high commercial value have been identified. In the case of maize, the process has made it possible to identify promising early populations of early maturity and resistance to the complex asphalt stain. These materials promote access to new germplasm for farmers, who will be able to increase their yields and food availability.

Strengthening the network of seed banks contributes to conserving agrobiodiversity and increasing the availability of seeds in farmers' local systems, so that they can increase their yields by making use of seeds from participatory plant breeding processes and participatory variety selection.

The project aims to make improvement of farmers' lives through adaptation to climate change; through activities and good practices implemented by local farmers' organizations, encouraging indigenous farmers to make new changes focused on the sustainable use of agrobiodiversity, management of new production alternatives, adoption of varieties, seed dissemination, local fairs, rescue of wild relatives, etc. These actions contribute to strengthening access to new seeds, food diversity and improvements in the nutritional conditions of the population, enabling families to improve their levels of Food and Nutrition Security, the sustainable management of agroecosystems and income generation.

Supported by the project's initiatives, farmers have increased their productive capacity, which has allowed them to increase family income, through the exchange and sale of their seeds. The actions implemented have managed to raise awareness among farmers about the ecological, nutritional, cultural, and economic value of agrobiodiversity, as well as for the conservation of traditional cultures and knowledge associated with the protection of the megadiverse resources.

4. Project support to the Conventions, Treaties or Agreements

Collection activities for native accessions of maize and beans and their wild relatives contribute to the implementation of Article 5 (subparagraphs b, c, d, and f) of the ITPGRFA.

The participatory plant breeding initiative in maize and beans contributes to the implementation of Article 6 on sustainable use, particularly in paragraphs c, d, and f. Farmers' rights training and agrobiodiversity fairs contribute to the implementation of Article 9 on farmers' rights.

In Costa Rica on August 31, 2023, the Ambassador, Mr. Benjamin Edward Noel Lyster-Binns, the Second Secretary of the Embassy in Costa Rica, Mr. Bryn Alexander Orton, and the Minister for Environmental Quality and Resilience (Parliamentary Under Secretary of State (Minister for Environmental Quality and Resilience) United Kingdom, Ms. Rebecca Pow, were received. These persons were introduced to actions linked to the implementation of the project with funds from the Darwin Initiative and the tasks that Fabio Baudrit Moreno Agricultural Experimental Station realizes. They visited us with a delegation that included the Deputy Minister of Agriculture of Costa Rica, Mr. Julián Arias Varela.

All the project partners maintain a direct relationship and coordination with the ITPGRFA focal points, since our organizations are a reference in the framework of the treaty, and we are currently starting the implementation of a continuity project framed in the fifth cycle of the benefit-sharing fund.

At international level, two major events within the framework of the ITPGRFA took place during the first year of the project. A Symposium on Farmers' Rights was organized in New Delhi, India in September. DF's project leader and ASOCUCH's technical director attended the symposium, providing recommendations on how Farmers' Rights could be strengthened. DF's project leader gave a presentation on legal experiences supporting Farmers' Rights based on the experience of Norway. In November, the 10th Governing Body of the ITPGRFA took place in Rome. The

above-mentioned persons attended the GB10, DF's project leader was part of Norway's delegation while ASOCUCH' representative participated actively in civil society coordination networks and collaborating with delegates from Latin America and the Caribbean. The decision to reconvene the Ad Hoc Committee on Conservation and Sustainable Use and to establish an Ad Hoc Expert Group on Farmers' Rights were two major outcomes of the GB10. ASOCUCH was nominated member of the Expert Group on Farmers' Rights for the next biennium, while DF was nominated CSO representative for the Ad Hoc Committee on Conservation and Sustainable Use.

5. Project support for multidimensional poverty reduction

The direct beneficiaries are the farmers who participate in the project initiative and face constraints in obtaining and using quality seeds of the crop varieties they sow in a timely manner; In other words, seed security is still not guaranteed for them and their families, who are affected by climatic conditions and problems related to the loss of agrobiodiversity in their communities. This project aims to reach these farmers and their families in order to boost their seed systems and make them sustainable through actions that allow the conservation of agrobiodiversity that is closely related to the food security of the peoples, thereby focusing on the improvement of life and climate resilience of the peoples.

Farmers can be key actors in achieving food security, reducing poverty and preserving the environment; if they have the support of organizations or projects that allow them to be strengthened in issues of interest to them and that contribute to eradicating the problems in which they live. The project works to promote and enhance the agricultural and climate sustainability of the villages and thereby improve the quality of life of farmers. By improving their production systems, we are contributing directly to the reduction of hunger and the generation of economic income for the most vulnerable families.

6. Gender Equality and Social Inclusion (GESI)

Rural women are essential to the success of family farming and families in rural areas, as they contribute to agriculture through their work, knowledge of agricultural practices and conservation of biodiversity. Within the project, women participate in agricultural activities, seed storage, training processes and conservation of underutilized species in order to guarantee the food security of their families and diversify sources of income. They represent, on average, 45% of the participants in the project.

Please quantify the proportion of women on the Project Board ¹ .	In the case of ASOCUCH's board of directors, 50% of the members are women.
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women ² .	45% of the staff involved in the project are women.

GESI Scale	Description	Put X where you think your project is on the scale
-------------------	--------------------	---

¹ A Project Board has overall authority for the project, is accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

² Partners that have formal governance role in the project, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

Not yet sensitive	The GESI context may have been considered but the project isn't quite meeting the requirements of a 'sensitive' approach	
Sensitive	The GESI context has been considered and project activities take this into account in their design and implementation. The project addresses basic needs and vulnerabilities of women and marginalised groups and the project will not contribute to or create further inequalities.	
Empowering	The project has all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women and marginalised groups	X
Transformative	The project has all the characteristics of an 'empowering' approach whilst also addressing unequal power relationships and seeking institutional and societal change	

Through the project, we strive towards the ambitions of transformation, but we believe that we have not reached this level yet. The project contributes to the strengthening and improvement of agricultural production of women farmers, as women's preferences will be taken into account. It will also strengthen women's representation and influence in decision-making, which in turn will contribute to women's economic, social, political, and cultural empowerment.

Indigenous peoples occupy only 15% of the world's territory but protect 80% of the planet's remaining biodiversity (according to World Bank data). Despite their organization and resistance, indigenous peoples have historically been displaced by the colonization of other cultures, this has also been the case in Central America. The main target group for this project is Indigenous People and Local Communities, with the aim to increase access to locally adapted varieties and the development of new varieties, that are crucial to ensure food and nutrition security in the future.

7. Monitoring and evaluation

In connection with the half-yearly reporting on 31 October 2023, the log frame was revised in line with the Darwin Expert Committee's recommendations. A change request with a revised log frame was submitted and was subsequently approved. The revision included five Project Standard Indicators, and several of the indicators were identified with milestones spread over the three-year period.

During the period covered by the report, the Monitoring and Evaluation Plan of the Project was prepared, which defines the different indicators, the corresponding unit of measurement, source of the data, data collection methodology, and responsible parties.

The data collection methodology in each of the indicators is shared according to the areas and managers, who can later store and access the information through shared folders on the Microsoft Teams platform.

Through the structure of the project's logical framework, the most important aspects of the project are summarized, in the logic that local agricultural production systems are strengthened through participatory plant breeding, networks of community seed banks and collection of wild relatives, which constitute the products that are achieved through the execution of the different activities that contribute to the fulfilment of indicators, with their respective electronic means of

verification, which must be stored in Teams organized by folders according to the result and activity.

The indicator that at least 3,000 rural families (500 led by women) have accessed new improved varieties with adaptation to agroecological niches, generated under the participatory plant breeding approach in 100 communities, is measured by counting all the families that are benefited or supported with seeds produced through participatory plant breeding.

The second indicator, at least 5000 families benefit through 36 community seed banks (BCS), which conserve 2500 accessions of food crops and underutilized species; To this end, the families that use the community seed banks must be registered, as well as the proper registration of the different species that are stored in them.

The third indicator establishes that there are at least 3 bioprospects of wild relatives of beans with the support of herbarium and seed specimens in germplasm banks; In this case, it is necessary that wild bean species have supporting documentation from herbariums and germplasm banks.

The fourth states that at least 20 communities contribute to the rescue of wild relatives of crops of importance for Food and Nutrition Security; here the relevant documentation is the documentation of the places where the species are collected.

The indicators we have chosen are quantitative. Nevertheless, at the end of the three-year period, we want to use qualitative methods (such as focus group discussions) to better measure the effect at outcome and impact level.

8. Lessons learnt

One important experience from the first year is that it takes time to start up the activities of a consortium in which five countries are involved (Norway, Guatemala, Honduras, Nicaragua, and Costa Rica). Holidays in Norway in July delayed the start a little bit, as did the first transfer of funds. The process of finalizing contracts between DF and Asocuch, and between Asocuch and the Central American partners took longer than anticipated. We were aware of the challenges of the political context in Nicaragua, but we did underestimate the bureaucratic challenge with University of Costa Rica. In retrospect, we see that we should have started the process of entering into an agreement with University of Costa Rica at an earlier phase.

It is important to mention that on a technical level, the work involving local communities in the processes of participatory research, and the rescue of wild relatives, has been met with great interest by smallholders. We have succeeded in identifying leaders who are willing to cooperate, and the rural communities have been receptive to exercise the right to seed conservation.

Work on agrobiodiversity conservation, poverty eradication and climate adaptation are an effort that is reflected over the years. Therefore, projects must be formulated to follow up on the work already done; to influence national policies that help farmers address the root causes of rural poverty, food insecurity, migration, and environmental degradation. This requires a multidimensional and integrated approach in coordination with governmental and non-governmental entities and partners who want to work towards a coherent strategy to support family farming.

Seed banks play an important role at the community level, facilitating access, conservation and replenishment for producers and their communities in emergency situations. The conservation of germplasm of creole varieties is of utmost importance, as there is a potential genetic basis for continuing participatory plant breeding processes, combined with the experience and resources of farmers.

The climatic conditions were not appropriate for the good development of maize and bean crops in the late rainy season of 2023, as heavy rains caused losses of research trials, as a result of flooding of the plots in some cases and also due to the high incidence of diseases. We could probably get better planting conditions if we had started the sowing process earlier in the

rainy season (May/June would have been optimal). The collection processes of wild relatives of beans are also linked to a certain seasonality of the crop, which did not coincide with the beginning of the project, so it must be considered at the time of the start of a certain project.

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

N/A

10. Risk Management

An updated version of the risk register will be submitted with this Annual Report.

The political situation in Nicaragua has limited the implementation of actions. The process of implementing the project began with a contract with FECODESA. However, in the last quarter of the year it was no longer possible to transfer funds directly to FECODESA since the country's regulations require a registration with the Government, which was initiated by the partner and is still awaiting approval. Therefore, reimbursement of expenses were made to personnel linked to the organization so as not to leave records in FECODESA's accounts. We see that we must proceed very carefully in Nicaragua, as the authoritarian government lately has taken away the legal license of many civil society actors in the country.

The situation in Guatemala has also been demanding in the first year of implementation. The attempt by the economic and political elite of the country to prevent the newly elected president Bernardo Arévalo of the Semilla party from assuming the presidency led to large protest markings throughout the country. Roadblocks preventing transit on the country's main roads led to challenges in getting to the relevant areas of activity, and the Development Fund suspended travel activities to Guatemala during this tense period (October - January).

The attached updated version of the risk register contains a new risk: Bureaucratic challenges. The coordinating organization of the consortium in Central America, Asocuch, has not managed to sign an agreement with the University of Costa Rica due to cumbersome bureaucratic processes. When writing this report, the conclusion of the agreement is still an ongoing process. We did not anticipate that this would become a problem for the project. Since Asocuch has not been able to transfer money directly to the University of Costa Rica, accrued costs have been reimbursed to the main researcher in Costa Rica upon documentation of the accrued costs. Documentation of the costs have been verified by ASOCUCH, which has reconciled the balance.

For both Nicaragua and Costa Rica, we have chosen a temporary pragmatic solution so as not to slow down the work to much in these two countries. This must be regarded as temporary solutions until an agreement is made with the University of Costa Rica, and until FECODESA's registration with the Government is completed. We would like to enter into a dialogue with DEFRA about how we should deal with these challenges (perhaps you have encountered similar challenges in the past and can share some experiences with us).

We can also mention that DF has carried out an independent audit report for the project until 31 December 2024, and that the auditor approves the accounts.

11. Sustainability and legacy

The experiences with the projects in the partner countries have been successful and have had varying degrees of impact; overcoming diverse challenges and contributing to the processes of agrobiodiversity conservation, climate resilience, and seed conservation; increasing the interest of not only the collaborating partners within the project but also the farmers and community leaders who participate in each process. The willingness of farmers to participate has been an important result in guiding the participatory and training processes carried out so that they can form new capacities and develop strategies to improve their production systems and therefore their quality of life.

The strengthening of local organizations of farmers and organized farmers is key to achieving sustainable benefits to family farming through collective action, encouraging families to form their own work strategies within their production and seed systems; in order to make a profit and take advantage of opportunities that they would not have individually and thus make them more and more sustainable.

The sustainability of the processes is complex and requires long-term commitments to ensure the adoption of initiatives for the conservation of agrobiodiversity and poverty alleviation, and for this it is necessary to expand project initiatives.

12. Darwin Initiative identity

Throughout the project, work has been done to raise the visibility and promotion of the Darwin initiative, raising awareness of the United Kingdom's contribution to protecting biodiversity in workshops, meetings and field days.

The Darwin initiative has strengthened the processes of participatory plant breeding, agrobiodiversity conservation, local seed systems already underway with other donors, among which we can mention: Project for the Sustainable Use of Agrobiodiversity in Indigenous Communities in Central America, financed by the ITPGRFA/FAO Benefit-sharing Fund; Project Strengthening the Resilience of Indigenous Communities executed in Guatemala, financed by the Norwegian Development Fund / NORAD

In the consortium, we have agreed that each individual organization makes use of their respective websites, such as here for DF:

<https://www.utviklingsfondet.no/aktuelt/nyheter/darwinprogrammet-i-guatemala-biologisk-mangfold-i-jordbruket>

Through ASOCUCH's Facebook and You Tube, the work of the Darwin initiative has been made visible; publishing the most important events related to the benefits obtained by farmers and their families; the rights of Farmers and Local Fairs have also been promoted.

13. Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?	Yes
Have any concerns been reported in the past 12 months	No
Does your project have a Safeguarding focal point?	No, but we have our own notification channel online and a group of three people assesses these notifications and possibly other notifications they receive from other channels.
Has the focal point attended any formal training in the last 12 months?	Yes/No [<i>If yes, please provide date and details of training</i>]
What proportion (and number) of project staff have received formal training on Safeguarding? All project staff from DF (5) have received training on Code of Ethics and Anticorruption. Under the workshop in Antigua August 2023 the staff of the project received a review of anti-corruption and notification routines. A more comprehensive and thorough training on Safeguarding will take place in 2024.	Past: 22% [5] Planned: 78 % [17]
Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses. In reference to the issue of providing accessions to gene banks, the consent of farmers must be obtained to proceed.	
Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify. For the project staff, it will be held a training on anticorruption and Protection from Sexual Exploitation and Abuse (PSEA).	
Please describe any community sensitisation that has taken place over the past 12 months; include topics covered and number of participants. N/A	
Have there been any concerns around Health, Safety and Security of your project over the past year? If yes, please outline how this was resolved. Due to the politically tense situation in Guatemala with road blockades and protests, DF chose not to travel to the country in the period October 2023 - January 2024.	

14. Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2023 – 31 March 2024)

Project spend (indicative) since last Annual Report	2023/24 Grant (£)	2023/24 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				See comment on under-consumption

Overhead Costs				See comment below
Travel and subsistence				See comment on under-consumption
Operating Costs				
Capital items (see below)				See comment on under-consumption
Others (see below)				
TOTAL	180 821	163 648	-9,50%	

During November 2023 we became aware that there would be a fairly significant under-spending in year one of the project. A change request was therefore sent late December 2023, where we applied for unused funds from year one () to be used in year two. This change request was approved fifth of January 2024.

Comment about under-consumption.

The budget items *Consultancy costs*, *Travel and subsistence* and *Capital items* had an underspend of more than ten percent.

Unfortunately, some activities were postponed during the first year due to a slightly later start-up than expected. Activities such as sowing are seasonal, and when the activities started late in the rainy season, some of these sowing-activities were postponed until the next season. Holidays in Norway in July delayed the start a little bit, as did the first transfer of funds. The process of finalizing contracts between DF and Asocuch, and between Asocuch and the Central American partners took longer than anticipated. It was with the kick-off seminar in Guatemala, where DF and all the partner organizations met in the city of Antigua on 22-23 August, that the project really got started. Bureaucratic obstacles in both Costa Rica and Nicaragua have made transfers to these two countries difficult (see explanation in the risk chapter), which has meant that the level of activity has been kept somewhat lower than initially planned, this applies especially to Costa Rica.

Climatic conditions did delay the sowing of the trials in the northern area of Costa Rica (activity 1.1), and in the same country, it was planned to collect wild bean relatives (activity 3.2) in the border area on the Panamanian side in October/November, but the uncertain situation in Panama due to political unrest did not allow the plan to be carried out. There have also been a couple of challenges with the timing of the availability of experts who should hold workshops (act 2.3) and carry out consultancy (act. 1.8).

Comment on overhead costs.

The budget item overhead costs had an overconsumption of 16,79%. This is due to higher petrol prices in Central America than initially assumed, and the costs of repairs and maintenance of the vehicles have been unpredictable.

Table 2: Project mobilised or matched funding during the reporting period (1 April 2023 – 31 March 2024)

	Secured to date	Expected by end of project	Sources
Matched funding leveraged by the partners to deliver the project (£)			Norwegian Agency for Dev. Cooperation, NORAD National Institute of Innovation and Transfer of Agricultural Technology (INTA), Costa Rica The Association of Organizations of Cuchumatanes (ASOCUCH), Guatemala

			UCR /Experimental Station, Costa Rica Ministry of Agriculture and Livestock (MAG), Costa Rica Foundation for Participatory Research with Farmers of Honduras (FIPAH) Federation of Cooperatives for Development (FECODESA), Nicaragua University ZAMORANO, Honduras
Total additional finance mobilised for new activities occurring outside of the project, building on evidence, best practices and the project (£)			

15. Other comments on progress not covered elsewhere

16. OPTIONAL: Outstanding achievements or progress of your project so far (300-400 words maximum). This section may be used for publicity purposes.

I agree for the Biodiversity Challenge Funds to edit and use the following for various promotional purposes (please leave this line in to indicate your agreement to use any material you provide here).

Strengthening synergies between biodiversity guardians and genebank collections in Honduras for the conservation of common beans and their wild relatives and maize.

In collaboration with farmers from local and indigenous Tolupan communities, organized in Local Agricultural Research Committees (CIAL) and Community Seed Banks (BCS), FIPAH led the collection of 33 accessions of maize, 22 accessions of common beans, two wild collections of *P. vulgaris* and *P. lunatus* in the municipalities of Yorito, Sulaco and Victoria in the department of Yoro. Maize and common bean collections come from tropical and subtropical conditions with altitudes between 457 and 1600 meters above sea level and include white, yellow, red, purple, and blue grain materials for maize and red and black grain for beans.

The two wild accessions of beans (*P. vulgaris* subv. *Aborigineus*) were collected from populations located between 1200-1600 meters above sea level, while the collection of *P. lunatus* comes from a wild population located between 1200-1400 meters above sea level, all in their natural habitat.

The maize and bean collections include 5 pounds of seed that will be integrated into the collection housed by the Zamorano Germplasm Bank (BGZ) and the Seed Bank of the Regional University Center of the Atlantic Coast (CURLA), of the National Autonomous University of Honduras (UNAH).

The wild collections are made up of a balanced compound of 20 plants from each population. This collection is the beginning of the strengthening of synergies between in situ conservation strategies, on farms and ex situ conservation, with the purpose of rescuing the diversity of the gene pools of cultivated species and wild relatives that are found in various regions of Honduras, in the wild or on farmers' fields and of which there is no duplicate in the ex-situ collections.

This initiative is new because it is the first time in Honduras that a collection has been carried out to deliver seed to two germplasm banks, integrating farmers' organizations, NGOs and academic institutions.

File Type (Image / Video / Graphic)	File Name or File Location	Caption including description, country and credit	Social media accounts and websites to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)
Image	Wild population of P. lunatus in communities of Yorito, Yoro. Teams Activity 3.2	Marvin Gómez, Honduras.		Yes
Image	Sheath sample of P. vulgaris subv. aborigineus collected in the municipality of Yorito, Yoro. Teams Activity 3.2	Marvin Gómez, Honduras.		Yes
Image	Phaseolus wild collection in communities of the municipality of Yorito. Teams Activity 3.2	Marvin Gómez, Honduras.		Yes
Image	Amalia Nuñez Gonzales from the community of Santa Cruz, Yorito, Yoro, selecting maize seed for the collection. Teams Activity 3.2	José Ubaldo Herrera, Honduras.		Yes

Annex 1: Report of progress and achievements against logframe for Financial Year 2023-2024

Project summary	Progress and Achievements April 2023 - March 2024	Actions required/planned for next period
<p>Impact</p> <p>To improve the living conditions and climate adaptation of indigenous and peasant families in Central America through the sustainable use of native agro-biodiversity.</p>	<p>Through the Darwin Initiative project, greater awareness has been generated about the importance of the preservation of agrobiodiversity, which is essential to meet all the basic food needs of farmers. Now farmers have more knowledge about the main issues to improve biological diversity processes such as: the preservation of native species, the tolerance of varieties to diseases, participatory plant breeding processes, among others. In addition, they have been informed about their rights as farmers by emphasizing the planting of species to improve productivity, the exchange of seeds, and the use of seeds to maximize low yield levels and limited resources.</p>	
<p>Outcome</p> <p>Local agricultural production systems strengthened through participatory plant breeding, community seed bank networks and collection of wild relatives.</p>		
<p>Outcome indicator 0.1</p> <p>At least 3000 rural families (500 led by women) have accessed (mean have possession of) the new improved varieties with adaptation to agroecological niches, generated under the participatory plant breeding approach in 100 communities.</p>	<p>789 families (200 led by women) have accessed varieties from participatory plant breeding and conventional breeding processes, adapted to the specific conditions of small producers in 50 communities in the project's area of action.</p>	<p>Seed packages will continue to be distributed and the farmers who benefit from the basic seed delivered to the Associations will be counted so that it can be reproduced and redistributed.</p>
<p>Outcome indicator 0.2</p> <p>At least 5000 families benefit through 36 community seed banks (CSB), which conserve 2500 accessions of food crops and under-utilized species.</p>	<p>Technical assistance is provided to 23 seed banks throughout the region, where investments have been made in improving infrastructure and equipment in 19, directly involving 1,829 families that conserve 2,258 accessions of maize, beans, sorghum, and underutilized species.</p>	<p>Technical assistance and infrastructure improvements will continue to be provided.</p>
<p>Outcome indicator 0.3</p> <p>There are at least 3 bio-prospections of wild bean relatives supported by herbarium and seed specimens in gene banks.</p>	<p>18 bioprospecting has been carried out at the regional level (GUA 5, HOND 3, NIC 6, CR 5), in 32 communities in the project's action area, where 76 populations of wild beans have been identified.</p>	<p>The efforts continue with the government bodies for collecting permits and new bioprospecting is expected to be carried out next year.</p>
<p>Outcome indicator 0.4</p> <p>At least 20 communities contribute to the rescue of wild relatives from crops important to Food and Nutrition Security.</p>	<p>It has been possible to involve 32 communities where there are wild relatives of beans in sensitization processes for identification processes.</p>	<p>The actions will be consolidated in the next period</p>

<p>Outcome indicator 0.5</p> <p>Women have increased influence with access and use of varieties which respond to their preferences.</p>	<p>Women are involved in the evaluation processes of varieties at the field level, since they are the ones who define the use of some varieties due mainly to conditions of flavour and cooking time.</p>	<p>Participatory evaluation processes will continue to be carried out.</p>
<p>Outcome indicator 0.6</p> <p>(DI-A01) 20 persons from key national and local stakeholders completing structured and relevant training.</p>	<p>17 technicians (4 women) and researchers from ASOCUCH, FIPAH, FECODESA, INTA, UCR and CIAT, have received training processes on the collection of wild relatives of beans and Participatory Plant Breeding processes, during the development of 2 training events.</p>	<p>The plan for next period will strengthen further the experiences and knowledge on these topics.</p>
<p>Outcome indicator 0.7</p> <p>(DI-A04) 300 persons reporting that they are applying new capabilities (skills and knowledge) 6 (or more) months after training.</p>	<p>A total of 517 smallholder farmers (185 women) have been involved in training on issues related to quality seed production, participatory plant breeding, variety evaluation, adaptation technologies, and integrated farm management, thereby strengthening the capacities of smallholder farmers.</p>	<p>The focus on the training activities will continue in the next period.</p>
<p>Outcome indicator 0.8</p> <p>(DI-B06) 40 Indigenous and Local Communities involved in the programme, with strengthened rights to plant genetic resources for food and agriculture</p>	<p>During the period, actions have been carried out in 82 communities in the 4 countries, on the topics of seed dissemination, participatory plant breeding, identification of wild bean relatives and farmers' rights.</p>	<p>The activities on seed dissemination, participatory plant breeding, identification of wild bean relatives and farmers' rights will continue in the next period.</p>
<p>Output 1</p> <p>Developed varieties through Participatory Plant Breeding approaches adapted to the effects of climate change</p>		
<p>Output indicator 1.1</p> <p>At least 6 varieties of beans and corn with tolerance to abiotic stresses have been generated, under the participatory plant breeding approach</p>	<p>Field trials have been established where the different varieties of maize and beans are evaluated with the participation of farmers, for which germplasm generated by the El Zamorano Bean Research Program (PIF Zamorano), CIAT and FIPAH Honduras is being used.</p>	<p>The evaluation process will continue at the field level with the involvement of farmers, in order to have germplasm with tolerance to asphalt stain.</p>
<p>Output indicator 1.2</p> <p>At the end of the project, quality seed has been distributed as a result of Participatory Plant Breeding processes in at least 2,000 households (750 year 1, 750 year 2, and 500 year 3).</p>	<p>At the regional level, a total of 789 seed packets from participatory plant breeding and conventional breeding processes have been distributed, benefiting the same number of families, 7 varieties of maize and 24 varieties of beans in 50 communities in the project's area of action.</p>	<p>The processes of delivery and distribution of seed packages from participatory breeding and conventional breeding will continue, as an alternative for small producers in the region.</p>
<p>Output indicator 1.3</p>	<p>A total of 517 farmers (185 women) have been involved in training on issues related to quality seed production, participatory plant breeding, variety evaluation, adaptation</p>	<p>Training processes will continue at the field level with the involvement of small producers.</p>

At least 500 farmers (200 women) have been trained in Participatory Plant Breeding, quality seed production and in-situ conservation (250 year 1 and 250 year 2).	technologies, and integrated farm management, thereby strengthening the capacities of smallholder farmers.	
Output indicator 1.4 Regional exchange activities have been conducted (year 1 and year 3) to learn about experiences in the development and dissemination of participatory plant breeding varieties.	During the period, a regional exchange was held to learn about experiences in the development and dissemination of maize and bean varieties, which was carried out in Antigua Guatemala in August 2023, with the participation of 16 people from the project's partner organizations, DF, and representatives of producer organizations (1 per country).	Next regional exchange activity will be held in year 3, 2025.
Output 2. Strengthen collaboration between local seed banks and national gene banks in the region.		
Output indicator 2.1. After the first year, 36 Community Seed Banks have been strengthened in the region.	Technical assistance was provided to 23 seed banks in the region, where investments have been made in improving infrastructure and equipment in 19, directly involving 1829 families who conserve 2258 accessions of corn, beans, sorghum and underutilized species.	The processes of strengthening seed banks at the regional level will be completed.
Output indicator 2.2. At least 8 agrobiodiversity fairs have been organized and developed. (3 in year 1, 3 in year 2, and 2 in year 3).	9 seed and agrobiodiversity fairs were organized and developed, with the participation of more than 2200 farmers; that exchanged knowledge and crop accessions linked to food security, food tasting, thereby strengthening farmers' rights within the framework of the ITPGRFA and promoting the exchange of knowledge and plant genetic resources.	The organization and development of seed fairs will continue, involving participants in agrobiodiversity exchange processes; asserting farmers' rights.
Output indicator 2.3. At least 8 trainings (4 per year) on farmers' rights have been developed within the framework of the ITPGRFA.	9 trainings on farmers' rights were developed with an average duration of 5 hours each, involving 232 farmers (120 men and 112 women). This action strengthens knowledge about the rights of farmers, mainly from indigenous communities where the project is being implemented.	New training events on farmers' rights will be held at the community level, involving more participants.
Output indicator 2.4. At least 4 deliveries of new accessions have been made for conservation in national gene-banks by the end of the project.	Work has been done in coordination with the national seed banks to follow the conservation processes already established, and it is expected that in the second year accessions will be delivered at the regional level	Work will be done on the regeneration of maize materials that have had quality problems when entering national banks; assuming the commitment to protect them with a germination percentage greater than 90% It is expected that accessions will be delivered at the regional level in the second year.
Output indicator 2.5.	The technical capacities of local organizations linked to the project at the regional level are strengthened on issues	Training on technical capacities on plant genetic resources,

(DI-A03) 104* local/national organizations with capacity and capabilities improved as a result of the project.	related to plant genetic resources, access to diversity and quality seed production.	access to diversity and quality seed production will continue.
Output 3.		
Collection and regeneration of accessions of wild relatives of Phaseolus, to make them available to pre-breeding programs at the regional level		
Output indicator 3.1. (DI-C09) At least 3 species reference collections made (of wild bean relatives in Costa Rica, Honduras, and Nicaragua).	18 bioprospections have been carried out at the regional level (GUA 5, HOND 3, NIC 6, CR 5), in 32 communities in the project's area of action, where 76 populations of wild beans have been identified, however, some no longer had seed available due to the collection period.	Contact will be maintained with Dr. Daniel Debouck to conclude the processes of identification of the collections.
Output indicator 3.2. At least 3 deliveries of wild relative accessions to gene banks have been made.	Steps have been taken with the national authorities to coordinate the delivery of accessions of wild relatives to national germplasm banks, however, due to the seasonality of the date of the first bioprospects, it did not coincide with the time of seed generation.	New collection areas will be prioritized, in order to obtain large number of live specimens in terms of diversity. Further coordination will be carried out to reach seed protection agreements with the authorities of the germplasm bank in the countries where it is available.
Output indicator 3.3. Herbarium specimens have been delivered to national and international museums.	Each country makes the necessary arrangements to deliver to the herbariums the collections made at the regional level, for which work is done on the identification documents and on the curing processes of the collections.	When having the complete collection of living specimens of Wild Bean relatives, it will be intended to make a formal delivery to the national herbariums in order to safeguard and register these samples within their archives of research and exploration of agrobiodiversity.
Output indicator 3.4. The regeneration of at least 50% of the wild accessions of Phaseolus currently conserved in gene banks has begun.	In Costa Rica, seed regeneration was achieved from 65 accessions of wild Phaseolus, as follows: P. microcarpus: 18 accessions. P. leptostachyus: 12 accessions. P. lunatus: 21 accessions. P. vulgaris: 11 accessions. P. xantotrichus: 2 accessions. P. oligospermus: 1 accession.	The regeneration processes will continue in Costa Rica.

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

Project summary	SMART Indicators	Means of verification	Important Assumptions
<p>Impact: To improve the living conditions and climate adaptation of indigenous and peasant families in Central America through the sustainable use of native agrobiodiversity.</p>			
<p>Outcome: Local agricultural production systems strengthened through participatory plant breeding, community seed bank networks and collection of wild relatives.</p>	<p>At the end of the project:</p> <p>0.1 At least 3000 rural families (500 led by women) have accessed (mean have possession of) the new improved varieties with adaptation to agroecological niches, generated under the participatory plant breeding approach in 100 communities.</p> <p>0.2 At least 5000 families benefit through 36 community seed banks (CSB), which conserve 2500 accessions of food crops and under-utilized species.</p> <p>0.3 There are at least 3 bio-prospections of wild bean relatives supported by herbarium and seed specimens in gene banks.</p> <p>0.4 At least 20 communities contribute to the rescue of wild relatives from crops important to Food and Nutrition Security.</p> <p>0.5 Women have increased influence with access and use of varieties which respond to their preferences.</p> <p>0.6 (DI-A01) 20 persons from key national and local stakeholders completing structured and relevant training.</p> <p>0.7 (DI-A04) 300 persons reporting that they are applying new capabilities (skills</p>	<p>0.1 Technical sheets of generated varieties.</p> <p>0.2 Registration of producers benefiting from quality seed.</p> <p>0.3 Variety characterization documents.</p> <p>0.4 Updated register of agrobiodiversity of community seed banks.</p> <p>0.5 Collections of wild bean relatives characterized and conserved in gene banks.</p> <p>0.6 Focus Group Discussions on women's preferences and decision-making power on PGRFA.</p>	<p>Suitable climatic conditions for the process of generating varieties.</p> <p>Interest exists among farmers in validating and adopting new varieties of maize and beans.</p> <p>Adequate conditions exist in countries for the delivery and conservation of germplasm from wild relatives to genebanks.</p>

	<p>and knowledge) 6 (or more) months after training.</p> <p>0.8 (DI-B06) 40 Indigenous and Local Communities involved in the programme, with strengthened rights to plant genetic resources for food and agriculture</p>		
<p>Output 1</p> <p>Developed varieties through Participatory Plant Breeding approaches adapted to the effects of climate change</p>	<p>At the end of the project:</p> <p>1.1 At least 6 varieties of beans and corn with tolerance to abiotic stresses have been generated, under the participatory plant breeding approach.</p> <p>1.2 At the end of the project, quality seed has been distributed as a result of Participatory Plant Breeding processes in at least 2,000 households (750 year 1, 750 year 2, and 500 year 3).</p> <p>1.3 At least 500 farmers (200 women) have been trained in Participatory Plant Breeding, quality seed production and in-situ conservation (250 year 1 and 250 year 2).</p> <p>1.4. Regional exchange activities have been conducted (year 1 and year 3) to learn about experiences in the development and dissemination of participatory plant breeding varieties.</p>	<p>1.1 Technical sheets with the descriptors of generated varieties.</p> <p>1.2 Registration of producers benefiting from quality seed.</p> <p>1.3 Registration of trained producers.</p> <p>1.4. Registration of producers participating in field days.</p>	<p>Suitable climatic conditions for the process of generating improved varieties.</p> <p>There is interest from farmers in validating and adopting new varieties of maize and beans.</p> <p>There is interest on the part of small producers to participate actively in training processes.</p>
<p>Output 2</p> <p>Strengthen collaboration between local seed banks and national genebanks in the region.</p>	<p>At the end of the project:</p> <p>2.1 After the first year, 36 Community Seed Banks have been strengthened in the region.</p> <p>2.2 At least 8 agrobiodiversity fairs have been organized and developed. (3 in year 1, 3 in year 2, and 2 in year 3).</p> <p>2.3 At least 8 trainings (4 per year) on farmers' rights have been developed within the framework of the ITPGRFA.</p>	<p>2.1 Characterization and generation of local diversity catalogs.</p> <p>2.2 Updated register of agrobiodiversity of community seed banks.</p> <p>2.3. Report of investments made in community seed banks (CSB).</p> <p>2.4 Reports of agrobiodiversity fairs held.</p> <p>2.5 Reports of training events conducted.</p>	<p>Suitable climatic conditions for the process of generating improved varieties.</p>

	<p>2.4 At least 4 deliveries of new accessions have been made for conservation in national genebanks by the end of the project.</p> <p>2.5 (DI-A03) 104* local/national organizations with capacity and capabilities improved as a result of the project.</p>	<p>2.6 Register of agrobiodiversity entered into national gene banks.</p>	
<p>Output 3</p> <p>Collection and regeneration of accessions of wild relatives of Phaseolus, to make them available to pre-breeding programs at the regional level</p>	<p>At the end of the project:</p> <p>3.1 (DI-C09) At least 3 species reference collections made (of wild bean relatives in Costa Rica, Honduras, and Nicaragua).</p> <p>3.2. At least 3 deliveries of wild relative accessions to gene banks have been made.</p> <p>3.3. Herbarium specimens have been delivered to national and international museums.</p> <p>3.4 The regeneration of at least 50% of the wild accessions of Phaseolus currently conserved in gene banks has begun.</p>	<p>3.1 Collections of wild bean relatives backed by gene banks.</p> <p>3.2 Number of populations found.</p> <p>3.3 Number of bio-surveys carried out.</p> <p>3.4 Number of herbarium specimens delivered.</p> <p>3.5 Register of agrobiodiversity entered into national germplasm banks.</p> <p>3.6 Relationship of the regeneration of wild accessions of gene banks.</p>	<p>In the countries, there are adequate conditions for the delivery of germplasm from wild relatives to banks.</p> <p>Appropriate policy and regulatory conditions for the collection of wild relatives.</p> <p>Techniques for the regeneration of wild accessions are effective.</p>
<p>Activities (each activity is numbered according to the output that it will contribute towards, for examples 1.1, 1.2 and 1.3 are contributing to Output 1)</p> <p>1.1. Participatory selection of bean varieties for the development of new germplasm tolerant to terminal drought and high temperature</p> <p>1.2. Introgression in bean materials in collaboration with the Bean Research Program (PIF) of Zamorano, for the development of new varieties with drought tolerance and low fertility, using local germplasm.</p> <p>1.3. Introgression in maize germplasm, for the development of new varieties with tolerance against drought, and the diseases ear rot and “Asphalt Patch Complex”, focused on tropical and high sub-tropical areas, using local materials.</p> <p>1.4. Local production and distribution of good quality seed of locally adapted maize and bean varieties.</p> <p>1.5. Training on participatory plant breeding, seed production and in-situ conservation of wild relatives for leading farmers and technicians of organizations.</p> <p>1.6. Field days and dissemination of results with farmers for the dissemination of technologies and practices of adaptation to climate change in maize and bean production systems.</p> <p>1.7. Regional exchanges to learn about experiences in the development and dissemination of maize and bean varieties.</p> <p>1.8. Elaboration of catalogues of varieties product of participatory and / or native plant breeding of beans</p>			

- 2.1. Strengthening of the network of existing seed banks at the regional level.
 - 2.2. Organization and development of Agrobiodiversity Fairs.
 - 2.3. Training on farmers' rights within the framework of the ITPGRFA.
 - 2.4. Collections, characterization and increase of native accessions of corn and beans.
 - 2.5. Delivery of copies of accessions collected from corn and beans to national germplasm banks.
-
- 3.1. Training for personnel involved in the collection processes of wild relatives of common beans in 3 countries (Costa Rica, Honduras, Nicaragua)
 - 3.2. Collection and regeneration of wild relatives of common bean in 3 countries (Costa Rica, Honduras, Nicaragua)
 - 3.3. Increase of seed of wild relatives of common beans and shipment to national gene banks.
 - 3.4. Delivery of herbarium specimens from wild bean relatives to national and international museums
 - 3.5. Identify wild bean areas for designation as ecologically important areas and with recognition by local governments

* 2.5 (DI-A03) 104 local/national organizations, consisting of 58 local associations and cooperatives, 36 community seed banks, 4 local partner organizations and 6 government organizations.

Annex 3: Standard Indicators

Table 1 Project Standard Indicators

DI Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DI-A01	20 persons from key national and local stakeholders completing structured and relevant training.	Persons from key national and local stakeholders	completing structured and relevant training.	20			20	20
DI-A04	300 persons reporting that they are applying new capabilities (skills and knowledge) 6 (or more) months after training.	People	New capabilities	207			207	300
DI-B06	40 Indigenous and Local Communities involved in the programme, with strengthened rights to plant genetic resources for food and agriculture	Communities	Strengthened tenure and/or rights.	82			82	40
DI-A03	104 local/national organizations with capacity and capabilities improved as a result of the project.	Organizations	Capacity improved	60			60	104
DI-C09	At least 3 species reference collections made (of wild bean relatives in Costa Rica, Honduras, and Nicaragua).	Species	Collections of wild bean relatives	0			0	3

Table 2 Publications

After year one, there is still little to report here, but various publications are something we expect to be able to carry out more actively the further into the project period we get.

Title	Type (e.g. journals, best practice manual, blog post, online videos, podcasts, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)

Checklist for submission

	Check
Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the correct template (checking fund, type of report (i.e. Annual or Final), and year) and deleted the blue guidance text before submission?	V
Is the report less than 10MB? If so, please email to BCF-Reports@niras.com putting the project number in the Subject line.	
Is your report more than 10MB? If so, please discuss with BCF-Reports@niras.com about the best way to deliver the report, putting the project number in the Subject line.	V
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	V
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see Section 16)?	V
Have you involved your partners in preparation of the report and named the main contributors	V
Have you completed the Project Expenditure table fully?	V
Do not include claim forms or other communications with this report.	