Darwin Initiative Main: Final 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: no later than 3 months after agreed end date.

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Darwin Initiative Project Information

Project reference	28-024
Project title	Diverse agroforestry protects natural capital around Betampona and Vohibe, Madagascar
Country(ies)	Madagascar
Lead Organisation	Madagascar Fauna and Flora Group
Project partner(s)	Association Lovasoa, Missouri Botanical Gardens-Madagascar, Kew Madagascar Conservation Centre, Prof Christof den Biggelaar, The Fruits, Vegetables, and Environmental Education (FVEE) Program of the Church of Jesus Christ in Madagascar (FJKM), Organe de Développement de Diocèse de Toamasina (ODDIT), MC Ingredients
Darwin Initiative grant value	£314,523
Start/end dates of project	1 Oct 2021 to 30 Sep 2024
Project Leader name	Karen Freeman
Project website/blog/social media	Madagascar - MFG - Home Page (madagascarfaunaflora.org); MFG (@MadaFaunaFlora) / Twitter Madagascar Fauna & Flora Group | Facebook
Report author(s) and date	Karen Freeman, Christian Rambeloson, Alice Heliarisoa, Fortunat Rakotoarivony, Christof den Biggelaar, Dan Turk, Marilou Roy, Elie Ramiarana, Herve Razafiarison. 24 February 2025

1 Project Summary

This project was designed to address the rapid loss of forest in Madagascar due to widely practised slash and burn agriculture, which has resulted in the loss of over 44% of Madagascar's forests over the past six decades (Vielledent et al. 2018).Through our own remote sensing research with partners from Saint Louis University's Geospatial Institute, significant loss of forest has been recorded in the immediate vicinity of Betampona Strict Nature Reserve (RNI) over the past two decades with almost all of it being converted into agricultural land (Ghulam 2014, Cota et al. 2021). Given that Madagascar is considered one of the top ten biodiversity hotspots of the world (Myers et al. 2000), the reduction of remaining forest is deeply relevant in terms of biodiversity conversation, provision of ecosystem services for local communities, as well as far wider implications for global climate change mitigation.

This project sought to work with local farmers in 5 target villages around the protected areas of Betampona Strict Natural Reserve, the Vohibe Forest (part of the Ankeniheny-Zahamena forest corridor) and the Ampasina Forest (all in eastern Madagascar), to promote agroforestry as a more sustainable farming approach. It also concurrently promoted community management of remaining forest fragments in the target areas. Madagascar is currently listed by Poorest Countries in the World 2024 (worldpopulationreview.com) as the tenth poorest country in the world with many people living on less than a dollar a day. This project provided the basic tools, start-up trees and crop seeds necessary for the project but also built capacity in fruit-tree propagation and care, establishment of farmer cooperatives and business planning. Over the course of the project, we sought to establish "model" villages that will quickly become renowned for their increased standard of living and better management of remaining forest fragments (some of which contain critically endangered plant species not known from the protected areas), producing a long-term cascade effect. Many fruit trees take 5-7 years to mature and start producing fruit for sale. In the meantime, we worked with our partners to increase household income through the production of yams, vegetables and maize and through promotion of farmer cooperatives and facilitating direct links with exporters for already-grown commodities such as spices. In this way we sought to reduce poverty for the 100 target families and families of local staff we hired for the project duration in the short term, and in the longer term, the wider community as the techniques become more widely practised.

In return for the project's support in developing agroforestry on their own land, participants contributed to collective community monitoring and management of specified target forest remnants, in partnership with the project partners. Management plans were developed by the community groups with support from project stakeholders for target forest fragments detailing the agreed sustainable-use criteria and a 5-year restoration plan. Quarterly patrols were carried out jointly by project partners at each site and members of the community associations to monitor slash and burn agriculture, illegal activities such as poaching and illegal logging, restoration efforts and vertebrate diversity. Maps are included of the three target sites in Annex 5.1, references in Annex 5.2.

2 Project Partnerships

The partnership of the 3 main actors in this project (MFG, Missouri Botanical Garden (MBG) and Association LOVASOA remained strong until project end. Each partner worked to deliver results for the project at the respective sites of Betampona, Vohibe and Ampasina. The work was coordinated across the sites by the Project Leader and Project Coordinator and the accounting from the 3 sites was all submitted to MFG on at least a quarterly basis and compiled by MFG's accountant, Jacques Razafimpeheno and, in the final year of the project, checked by MFG's newly appointed Financial Manager, Harilantonirina Kinga. Each of these three partners submitted semestrial and a final report (example in Annex 5.3) that were compiled by the Project Leader to form the basis of the half year, annual and final report. The combined reports were all written with frequent consultation via email of the Site Coordinators to clarify points and gain extra detail.

Each of the three partners was responsible for project planning, monitoring and evaluation, and decision making at their respective sites within the agreed parameters set out in the MoUs (Annex 5.4) and the project logframe (Annex 2). For any larger decisions or requests to do additional activities, the respective Site Coordinators would contact the Project Leader directly by email or in person. Propositions were discussed openly, and decisions made finally by the Project Leader in consultation with the Project Coordinator, MFG In-Country Director and Site Coordinators as to whether the proposals were a) feasible within the approved Darwin Initiative budget and b) responded to the agreed project goals. Each of the three major partners have delivered on agreed targets for the project and many of the project goals were met or exceeded (see Section 3.1).

The further partnerships with the Fruits, Vegetables and Environmental Education (FVEE) team of the FJKM church and Prof Christof den Biggelaar remain strong with each providing important agroforestry training, insights and evaluation of efforts by both participants and project staff. Prof den Biggelaar spent just over a month in Madagascar from 13th October 2023 to 19th November 2023 visiting participants plots at Betampona and Ampasina and providing individual follow up. The final project evaluations were carried out by FVEE between March and May 2024 and provided many valuable insights into participants' individual efforts, overall project achievements

and suitability of certain fruit tree species and varieties for our eastern Madagascar climate and soil conditions. Once again FVEE provided excellent quality agroforestry trees to reinforce those already distributed in the past 3 years for participants' trial plots and the project-managed "mother tree" orchards (Section 3.1, Annex 5.5).

MC Ingredients kept to our agreed collaboration and carried out a follow up visit to Ambodiriana in early November 2023 where they met with representatives of the newly formed cooperatives around Betampona and Ampasina to develop contracts. Despite offering a more than fair price, the cooperatives did not accept it, and purchases of cloves were finally not done through the cooperatives. It is a great shame that this potentially great arrangement for the cooperatives was not able to be negotiated successfully (Section 6).

Our discussions with Catholic Relief Services with regard to their SPICES programme (Securing and Protecting Investments & Capacities for Environmental Sustainability) led to us developing an MoU with their formal partner in eastern Madagascar for developing community-based action: the *Organe de Développement de Diocèse de Toamasina* (ODDIT). ODDIT contributed to training carried out and reported on in YR2 and a further training session on 3rd November 2023 at Ambodiriana for all prospective cooperative members from Betampona and Ampasina (Annex 5.6).

The field component of the formal collaboration with the Kew Madagascar Conservation Centre (KMCC) was completed in YR 2 but the yam production introduced by Dr Mamy Tiana Rajaonah has proven to be one of the most successful aspects of the project with a 100% uptake across all project participants across all three sites.

Our biggest challenge between the three main partners (MFG, MBG and LOVASOA) has been for the submission of data and reports as per the agreed timelines and the standardisation of data collection and monitoring/evaluation methods (Section 6).

That said, we have maintained good relations between all project partners, and we are already applying for joint grants with both MBG and Association LOVASOA and are planning to collaborate on a palm project at Parc Ivoloina with KMCC. Prof Christof den Biggelaar continues to advise us on agroforestry as MFG's Eco-agriculture Advisor and is helping advise us on our new CEPF agroforestry development project.

3 Project Achievements

3.1 Outputs

All of our intended Outputs were achieved within the duration of the project:

Output 1: **A diversity of plant species attractive to local farmers are easily available for use in agroforestry trials.**

Thanks to the expertise of the Fruits, Vegetables and Environmental Education (FVEE) team of the FJKM church, we had ample agroforestry trees of a diverse array of species and varieties to begin our agroforestry project orchards and to supply project participants. In total over the project duration, FVEE provided 4,237 high quality fruit trees of 25 species and 50 varieties, 12 species (comprising 18 varieties) of which were completely new to our 5 intervention sites as well as 33 new varieties of species already present (Annex 5.7). 177 of these trees (25 species and 50 varieties), were planted across the 5 communal orchards (1 orchard per site) to provide communities with ongoing access to seed and living plant material for propagation techniques such as grafting. By project end most of these trees were surviving well with mean growth scores of between 2.6 and 2.8 as assessed by the FVEE evaluation team (3= growing very well, 2 = growing OK, 1 = alive but not growing well). One site, Antaranarina, had a slightly lower mean growth score of 2.3, which the FVEE team put down to to poorer soils and lower levels of maintenance. This is a great living genetic resource. By project end a few of these orchard trees had started to fruit and flower and some had already been propagated by project participants using grafting, air-layering or cuttings, boding extremely well for future years. Of the trees planted in the orchards, the species that seemed particularly well suited to our east-coast sites as per the evaluated growth scores were litchi, mangosteen, mango, macadamia, carambola, starapple, longan, breadfruit, jaboticaba, and canistel (Annex 5.5). Part of the aim of this project was to learn which species and varieties do well under our local climate and soil conditions, so the work done by FVEE has greatly advanced our knowledge.

The remaining 4,060 high quality FVEE fruit trees were distributed to the project participants across the 5 sites. Earlier trials to transport trees bare-rooted from the main FVEE tree

propagation nursery in Antananarivo were not continued due to high mortality rates. On average, 37.0 of the FVEE trees were distributed per participant household and by project end, of the 75 households personally evaluated by the FVEE team, the average number of surviving FVEE trees was 13.9 with 6.0 per household growing very well. For the participants interviewed, 68 out of 101 participants (67%) reported adding some form of fertilizer to their trees, 40 out of 101 (40%) had watered their trees when weather was dry, 73 out of 101 (72%) had added mulch, and 44 of 101 (44%) had removed shoots from rootstocks. In general, it seems that there is not a tradition of adding fertilizer to fruit trees in our target areas, so this was something new for most participants. More people added mulch, which may reflect that mulch was readily available in most people's orchards. In terms of pests and diseases, several different kinds of insect pests were mentioned but none were mentioned as being a particular problem (Annex 5.5). These results show a good level of participant commitment to maintaining their newly established agroforestry orchards as per the training provided.

In addition to this, a further 8,527 agroforestry trees were purchased for distribution at the 3 MFG Betampona sites and 6,055 Ampasina and 249 vanilla plants for participants at Vohibe (14,831 total agroforestry trees/plants purchased) (Annex 5.8 and 5.9).

The goal of 12,000 trees to be produced in our own project nurseries by July 2023 was easily surpassed with 9,111 diverse agroforestry trees (including coffee, clove cocoa, cinnamon, breadfruit, banana, orange, litchis (requiring air-layering technique) and soursop) being produced in Year 1 alone by MBG for distribution amongst the Vohibe participants. This was supplemented in Year 1 by the production of 2,023 agroforestry trees at Ampasina, where they had had no prior experience in tree propagation. By project end, 32,594 agroforestry trees (9,713 for Betampona, 6,748 for Ampasina and 16,133 for Vohibe) had been produced in total across the 5 project site nurseries (Annex 5.9).

Although we neglected to write a specific Output for it, we produced 47,066 native trees (32,409 for Betampona, 3,500 for Ampasina and 11,157 for Vohibe) and distributed a total of 31,133 (17,506 for Betampona, 2,470 for Ampasina and 11,157 for Vohibe) native trees across our 5 nurseries throughout the project duration for inclusion in mixed agroforestry plantations and/or for native forest restoration efforts (Annex 5.9).

We narrowly missed our goal of 12,000 agroforestry trees being distributed to participants by November 2023 across the 5 target sites as the trees at Betampona were not quite large enough at that point to distribute but 10,401 agroforestry trees had been distributed to participants by the target date across Vohibe and Ampasina. By project end 42,212 agroforestry trees had been distributed across the 5 sites (including bought trees) (Annex 5.9). Across all the 5 sites the average survival rate of planted trees per household was 85.33% (Annex 5.10).

Output 1: **Farmers living in the landscape surrounding the two protected areas are aware of the opportunities presented by agroforestry to meet their tree product and food production needs and some are skilled, effective and convinced practitioners (target 50% female participation).**

Initial training and orientation sessions were held for all project staff in July 2022 by the Project Coordinator, Christian Rambeloson, around Betampona and Ampasina and Fortunat Rakotoarivony, Missouri Botanical Garden's on-site Coordinator, for Vohibe. Both had good prior experience of agroforestry and nursery management. This initial training was further reinforced by Prof Christof den Biggelaar, Dr Mamy Tiana Rajaonah and by the FVEE teams throughout the course of the project (Section 3.1, Output 2.1).

In initial awareness-raising and consultation sessions for potential project participants across the 5 sites (surrounding the two target protected areas of Vohibe and Betampona), 105 households learned about agroforestry principles (Section 3.1, Output 2.2) and expressed an interest to set up agroforestry plots. Of these original 105 households, 85 signed MoUs in Year 2 to make a firm commitment to install agroforestry plots on their land (Annex 5.11). The level of female participation at this point was 48.9%, which was a significant achievement given that the status quo is that most agriculture and decision-making is traditionally very male dominated in rural Madagascar. As interest in the project was very widespread and there was capacity in the budget to accommodate 100 farming families, further interested households were recruited in Betampona. By project end we had 95 main households (thus achieving Output 2.3) actively practising agroforestry with a further 11 spin-off family members also setting up their own plots at Ampasina (Annex 5.12). This totalled 178 famers, of which 88 (49.4% were women) that had established 107 agroforestry plots between them across the 5 sites for a total surface area of 93.25ha (Annex 5.13). All sites bar one achieved or exceeded the hoped for goal of 1ha per

household (with Antaranarina achieving the highest average plot size of 1.44ha per household). The average plot size at Vohibe was lower with an average of 0.48ha. Our overall goal of setting up 75ha of agroforestry parcels across the 5 sites was nonetheless easily exceeded.

Multiple workshops were offered at each of the 5 target sites throughout the course of the project to inform local communities about the benefits of agroforestry and to help participants establish their own plots. FVEE carried out the preliminary agroforestry tree propagation and care workshops by March 2022 (150 participants attended, of which 50% were female) with further reinforcement during their follow up visits in 2023 (133 people, 48.9% female) and 2024 (88 people, 40.9% female). 31 (min 6 per site) of the most promising staff and participants in advanced tree propagation techniques (35.5% of whom were female) were invited for follow up training at FVEE's main propagation tree nursery site at Mahatsinjo in December 2022 to complete 5 days of intensive training in grafting and air layering (Annex 5.6).

Evidence of real capacity having been built has been evident as several project participants have been able to carry on practicing grafting and air-layering to produce further trees for their own use (Annex 5.5). All of the Ampasina participants have tried grafting mango, lemon, orange and avocado trees on site in their own field under supervision from the project team and producing a resultant 54 successful grafts from the 207 attempted. Overall, the Site Coordinator rates that 12 participants are very competent propagators using the new techniques, of which 5 (41.7%) are women. For Betampona, the Project Coordinator judges that 23 participants are very competent of which 8 (34.8%) are women. At Ampitabe, 17 participants (of which 5 (29.4%) are women) have successfully carried out grafting and air-layering using mother-trees in the project-established orchard. Between them they were successful in producing 28 new trees through grafting and 73 by air-layering. To recap, 52 participants (28.6%) are deemed competent in grafting and air-layering techniques, of which 34.6% are women (Annex 5.14). At Ampasina, by project end, 34 of 34 (100% of households had successfully done tree plantations, 16 of 34 households (47%) had carried out successful propagation by grafting, 20 of 34 (59%) had done successful air-layering and 33 of 34 (99%) had successfully grown from cuttings (Annex 5.15). For the three Betampona sites, 10 of 42 (23.8%) women participants and 16 of 51 (31.4%) men had managed to propagate trees through the advanced techniques (cuttings, grafting or air layering). For Ampitabe (the village just outside the Vohibe protected area), 11 of 18 women (61.1%) and 17 of 21 (81.0%) men had propagated trees by the advanced skills learn through the course of this project. This shows a good level of uptake and mastery of the new techniques across all the sites, particularly for Ampitabe and Ampasina (Annex 5.15). Following the various project trainings at Ampitabe, 8 participants have proven a particular skill for tree production and have set up their own nurseries, producing 2,970 agroforestry trees between them (coffee and clove trees). This is exactly the kind of development we have been working towards for long-term sustainability of the project post project end, and we feel this is a great indicator that the desired "cascade" effect is achievable.

To add to the FVEE tree propagation and care training, workshops on basic agroforestry were organised by Prof Christof den Biggelaar and Christian Rambeloson for all project participants at Ampasina and Betampona (75 attended in Year 2, 49.3% of which were women, and 103 in Year 3, 51.5% female) (Annex 5.6). Training on yam propagation and cultivation was provided at each of the 5 sites by Dr Mamy Tiana Rajaonah of Kew Madagascar Conservation Centre. The training was attended by 145 project participants in total (of which 50.3% were female) and there was a 100% uptake of this method with all project participants (Annex 5.15). Follow up training and advice was offered again by Dr Rajoanah the following year at all 5 intervention sites in Year 3 (132 participants, 49.2% female). For Betampona and Ampasina participants a specific training was carried out to make them aware of the MFG Safeguarding policy (120 participants, 53.3% female) (Annex 5.6).

Finally, a series of 3 training courses were carried out by our project partner, ODDIT- a branch of the Catholic Church in the final year in the creation of farmer cooperatives (94 participants, 45.7% female), the role of the Board in cooperatives (58 participants, 46.6% female) and strategic planning and business management (48 participants, 54.2% female) (Annex 5.6).

By project end, 95 main households plus 11 spin-off related family households had set up trial agroforestry plots totalling 93.25ha (Annex 5.12 & 5.13) incorporating a diverse selection of trees (for firewood, fruit and spice production), all had incorporated annual yam production, and many included market gardening crops (Annex 5.15) thus achieving Output 2.4. Some of the trees were starting to flower and fruit by project end but many will require a further year or two to mature and start producing crops.

During the course of the DI project, we were able to support members of 4 of the target sites to create their own farmer cooperatives at Ampasina, Ampitabe, Analamangahazo and Antaranarina. The small community at Ambanitohaka did not have enough interested farmers to meet the minimum numbers required. The costs to create and register farmer cooperatives are substantial, particularly for subsistence farmers in rural Madagascar. Without the logistical and financial support afforded through the DI project, the cooperative registration fees would probably have been a block to advancement. The agreement was that the initial start-up costs would be covered by project funds but that all ongoing maintenance costs would need to be covered by the cooperative members themselves via annual membership fees, an arrangement that was agreeable to all who signed up. In the final evaluations 64 out of 164 (39.0%) people that replied to this question in the final evaluation replied positively about their intention to join a cooperative (39.5% of women and 38.6% of men questioned). By project end across the 4 eligible sites (all but Ambanitohaka, which did not have enough numbers for registration), 81 people of 160 (50.6%) joined cooperatives, of which 33 (40.7%) were women and 48 (59.3%) were men (Annex 5.16). For Ambanitohaka, despite them not having sufficient numbers to create their own viable, cooperative, there are plans to join a new cooperative being set up post DI project end (through the MFG's CEPF project) at a new target site of Ambodirafia. 11 of 17 (64.7%) project members at Ambanitohaka expressed their intention to join a cooperative during the final project evaluation (Annex 5.17).

Disappointingly, despite large efforts on the part of the DI management team to introduce cooperative members to the field technicians and buyers of MC Ingredients (MCI, a spice export specialist company based in Toamasina), and despite a fair (better than average) market price for the season being offered by MCI to purchase cloves directly from the cooperatives (thereby cutting out profit losses to middlemen), the offer was not accepted by the cooperative members so the opportunity to gain over the odds prices for the Year 3 clove harvest was not realised This was perhaps due to mistrust of the export company, unrealistic expectations of potential sale price increases or simple negotiating inexperience. A further training workshop was offered by a business consultant from project partner ODDIT to three cooperatives (2 from Betampona and the 1 from Ampasina) in February 2024 to help increase capacity for successful cooperative business management and durability (building on foundations laid in the initial cooperative training workshops).

Although the set-up of the cooperatives had not borne any measurable financial benefit by the project end, we are confident that the extra training and support provided during the February 2024 workshop will continue to build confidence and ability to successfully manage the cooperatives to enable greater bargaining power with buyers. Ongoing support and capacity building of the cooperatives will be a critical element of the new CEPF project at Betampona to continue building on the important foundations laid during this DI project. Although baseline income had not been increased through the sale of one specific crop (cloves had been our goal as many local farmers were already producing cloves at project start), the vast majority of the new agroforestry trees distributed through the DI project were not yet mature and were hence not yet producing crops by project end. Nonetheless participant farmers saw a marked increase in household income over baseline production for many new crops established through the course of the DI project (e.g. yams, leafy greens etc.) (Section 4.2).

It has proven exceedingly difficult to measure our success against Output 2.5. It is highly invasive to ask personal information about household income anywhere in the world and particularly in households that are mainly living on a subsistence basis from their own rice production. It was quickly very evident that it was not appropriate to ask detailed information on household income per se and so instead we substituted this for asking questions about the income generated by the specific actions carried out as a result of the DI project. Hence, we can show revenue generated but can only give that as a percentage of median household income for Madagascar as a whole as per published figures (Section 4.2).

Output 3: Community in host landscapes agree to conserve certain unprotected forest fragments.

Initial community consultations across all sites went extremely well and the project was very well received with a lot of interest. Each target community association expressed their commitment to work together to protect the remaining forest fragments (see example minutes of meetings and translations in (Annex 5.18). Agreements were made to conserve the whole 1,940 ha of target forest to protect across the 5 sites thus fulfilling Output 3.1. Each of the target communities had developed management contracts with the Ministry of the Environment and Sustainable

Development (MEDD) in conjunction with Madagascar National Parks for the target forest fragments at Betampona and Ampasina, and with MBG for Vohibe. On review of the agreements there was no former commitment to patrol and monitor the forest fragments so after a series of consultation meetings, community associations (VOIs) agreed to join with DI staff to help patrol and monitor the forest fragments on a quarterly basis. In addition to the agreements with DREDD, all Betampona VOIs have now also signed MoUs with MFG to reinforce their commitment to manage and monitor these forest fragments in return for agroforestry development support (Annex 5.19).And in some instances, e.g. Ampasina, significant commitments were made to restore degraded areas in between forest fragments through native-tree forest restoration (Outcome 3.2).

During the mid-term evaluation the limit of each forest fragment was mapped and once again at project end (Annex 5.20). Pre project start there was a cleared area within one of the target conservation patches of forest that had been cleared for banana cultivation just outside the main Vohibe Forest. According to MBG's final report, the area of the cultivation patch had not changed though the composition of plants had varied, showing that it was still under active cultivation. At Analamangahazo (Betampona) in the forest patch of Vohidrofito, a *tavy* plot was cleared at the edge of the forest fragment but the fire accidentally encroached the forest fragment for a stretch of 2m x 70m (0.014 ha) (Annex 5.21) Several others fires were discovered on land close to or immediately surrounding the forest islands so ongoing vigilance is required to ensure ongoing protection of these small forest remnants in the long term (Annex 5.22). This is why the promotion of agroforestry in the region, particularly on land bordering the forest fragments, is so important as people will be far less likely to do slash and burn agriculture on any given area of land if they have invested in planting valuable trees. Taking the detailed example of Betampona, only one lemur trap was discovered in the target forest fragments around Betampona for the duration of the project. In terms of numbers of infractions (illegal activities) discovered, the results were very mixed around Betampona. In Antaranarina we saw a marked decrease (33.3%) in the number of infractions from the start of monitoring in September 2022 to the end in September 2024. At Analamangahazo and Ambanitohaka we saw an increase. In Analamangahazo and Antaranarina the number of infractions peaked in the middle year (2023/2024) (Annex 5.23). Times have been harder than ever in our target areas in recent years with several consecutive years of high rates of inflation (around 10% per annum) pushing the costs of local goods up. Crime rates seem to be on the rise across Toamasina as a consequence. To really get a handle on the efficacity of local village association patrols, further years of effort and patrolling are required to see if the trend is towards less infractions.

The vast majority of the infractions encountered were trees that has been cut for timber or other house-building materials (161 of 223 infractions or 72.2%), highlighting the importance of projects such as this to provide more sustainable local sources of wood for timber, house repairs and for fuel for cooking. The second most common infraction encountered (31 of 223 or 13.9%) was the harvest of the local Traveller's palm heart (*Ravinala madagascariensis*), which is reported to be a poor tasting food source compared to other palm hearts but it is a species that is found very abundantly locally. This is a traditional food source in the "*saison de soudure*" or "hard season" between rice crops when many subsistence farmers are struggling to find sufficient nutrition. Again, this highlights the critical need for projects such as this to help people diversify crop production and increase food security. On-site training in ecological monitoring and patrol methods was provided to all of the village associations in the first 6 months of the project (barring for Ambanitohaka and fauna transect methods for Vohibe, which were completed in the following semester) and monitoring transects were established with the support of project staff in each target fragment. Quarterly patrols and ecological monitoring were then carried out from August/ September 2022 for Antaranarina and Ampasina, December 2022 for Ambanitohaka and Analamangahazo and later in August 2023 for Vohibe ecological monitoring (patrols were carried out in the target forest for Vohibe from project start) (Output 3.3, Annex 5.22). In total across the 5 sites, 52 village association/participant members (25% of which were women) assisted the patrols and monitoring across the duration of the project. This represents 29.4% of the overall project participants. When asked during the final evaluation why the other participants did not participate, the three most common reasons given were that a) they felt it was hard to participate as they were women (20.2%), b) it wasn't their allocated role within the VOI (15.5%) or c) that they were too busy with their own activities (14.0%). 7.0% said they didn't feel able to participate due to ill health or because they were too old and 5.4% said they weren't aware of the request to participate in patrols. Two people (1.6%) said they couldn't see any benefit to participating (Annex

5.24). As the agreements were with the village associations as opposed to with individual project participants, we have still met Output 3.3 but for any similar future projects, more effort needs to be made to try to work out how to implicate a higher percentage of participants in the community forest conservation activities, particularly women, many of whom evidently do not currently feel it is either safe or an appropriate role for them. However, we are very encouraged by the commitment shown by the village associations to this extra surveillance and monitoring task and feel that 20.2% female participation is a very good starting place for ongoing future efforts in this regard (this aspect like so much of this DI project has been built on and developed further for the CEPF project at Betampona). The feedback received in the DI final evaluation gives us great insights to address the perceived blocks to more active forest conservation activities for some participants.

Output 4: Community engages in participatory baseline and quarterly surveys of destructive forest harvesting and natural capital (including biodiversity) in target forest fragments surrounding the main protected areas.

Quarterly patrols were carried out across all 3 target areas from December 2022 (see Output 3 above). In terms of ecological monitoring, this proved more challenging than at first anticipated. We had assumed that there was a high level of local knowledge of wildlife, even if species were referred to by vernacular names. It was quickly apparent that it would not be possible for the villagers to carry out the ecological monitoring transects alone and required to be accompanied by MFG staff for Betampona. For Ampasina we ensured that the onsite field extension officer hired for the project had a good competency to identify native vertebrate species and carried out an on-site training for the whole team in July 2023 with MFG Betampona Head Conservation Agent, Jean Noel. Ecological monitoring was more challenging for the MBG team to facilitate as their background and knowledge is predominantly plant-based, so in their case we organised for Jean Noel to carry out a 4-day on-site training to help train staff and VOI participants in ecological monitoring techniques and vertebrate species identification. Jean Noel helped the MBG and VOI teams to install 3 monitoring transects. We underestimated how many years it takes to accumulate enough knowledge to carry out good quality ecological monitoring for non-biologists. A large part of the motivation to implicate VOI members into the process of patrols and ecological monitoring was to try to build familiarity and love of the forest fragments under their care and the species for which it's their home. This is still possible to do without being able to identify every species (particularly the very challenging amphibians, many of which are cryptic coloured and very similar in appearance to all but the most expert eye). Although not possible to quantify on paper, the Project Leader was particularly inspired by the level of motivation and love of the forest shown by the LOVASOA village association members at Ampasina. Their motivation to learn to identify and record new species for the forests under their care was truly inspiring. To help them in their ongoing mission, we have since been trying to source fauna identification guides for their VOI reference library (non-DI funds).

3.2 Outcome

Outcome: A critical mass of farmers living in landscapes surrounding the two protected areas are committed to nurturing natural capital through sustainable use of remaining forest and agroforestry.

Overall, across the project we have had an excellent response and uptake of agroforestry has been high.

O.1 By end YR3 rates of destructive timber exploitation within target 1,940 ha forest fragments have reduced by 70% from baseline.

We did not achieve this Outcome Indicator at Betampona and data was not available in an analysable format for Ampasina and Vohibe. Across the 3 Betampona sites a relative increase in destructive timber exploitation was measured from baseline to YR3 (Annex 5.23). Destructive timber exploitation was relatively low (maximum rate of 3 trees per month recorded across all the Analamangahazo forest fragments) so relatively small changes affect the percentage change considerably. From YR3 to YR4 we noted a 55.6% increase at Ambanitohaka (0.75 to 1.17 trees cut per month) and 22.2% and a 31.3% decrease at Analamangahazo and Antaranarina respectively (Annex 5.23). Although far too early to indicate a positive trend, the latter two results are encouraging but, in hindsight, it was an unrealistic goal to achieve within the project duration. Earlier studies by MFG research partners have shown that 96% of people use wood collected locally for firewood and timber (the vast majority of local houses are made from locally available

timber and forest products) (Golden et al. 2014). Although we promoted the inclusion of trees for timber and fuelwood in agroforestry plots through the course of the project and provided 11,056 (10,539 for Betampona, 517 for Ampasina) young native trees for this purpose to project participants (Annex 5.9), which were incorporated into their agroforestry parcels, the project duration was not sufficient for these trees to mature to the point of harvest. We strongly believe that promotion of sustainable wood production is the key to the long-term protection of the target protected areas of Betampona and Vohibe and feel that we have made a significant step in the right direction through this project even though the project duration is not long enough to see the full impacts on the ground.

O.2. During YR3, when project is well established, no part of the target 1,940 ha forest fragments converted to agriculture.

With the exception of a small strip (2m x 70m or 0.014 ha) of the edge of one of our target forest conservation parcels near Analamangahazo that was accidentally burnt when adjoining land was cleared for farming in January 2024 (Annex 5.21), our target forest patches remained stable, and no new areas were converted for agriculture (Annex 5.25). Overall, across our three sites, the area given over to native trees increased substantially with an area of 2.26 ha being planted with native trees in between the target forest conservation patches at Ampasina (Annex 5.26) and 11.2 ha of degraded land being restored with a total of 11,157 native trees being planted around the Vohibe target conservation sites. For Betampona, 10,539 native trees were distributed to participants to plant in amongst agroforestry trees in their agroforestry parcels (so surface area not calculated for this element) and 6,967 for native forest restoration parcels planted by the village associations near the target forest patches totalling 2.79 ha of pure native forest restoration areas (Annex 5.27). So, in total 16.25 ha of degraded land was planted with native trees across the 3 areas (5 sites) and our net result is a 16.24 ha increase in native tree cover (though obviously it will be several years before the newly planted areas have matured to provide a closed canopy).

O.3. By end of YR2 at least 75% of participating farming households at each site have developed and submitted plans to Project Coordinator to indicate how they intend to expand agroforestry on their land.

At end of Year 2, 105 households had worked with project staff to develop and submit agroforestry plans across the 3 target areas (5 intervention sites) (example given in Annex 5.28). As the target was 75 households this represents 140% of the target.

O.4 By end of YR3 at least 75% of participating farmers at each site have installed a trial plot on their land.

By project end, 95 main farming households were still actively maintaining trial agroforestry plots on their land (Annex 5.12) with a diverse mix of fruit and spice trees (100% uptake) with yam production (100% uptake) and seasonal crops (32.8% of participants) (Annex 5.15). As the target was 75 households, this represented 132% of the target. In addition, a further 11-spin off family members of the main target households had established their own plots at Ampasina, though these tended to be smaller than the target 1ha for the main project household participants. If including these extra plots, that represents a 146.7% of our target as per the log frame.

O.5 By project end, a further 100% landowners (from non-target households) compared to the original target numbers at each site will be inspired to pursue agroforestry.

By project end, we had 11 extra households already having installed agroforestry plots at Ampasina, plus 3 main households over our target number for the site (target=20 households). In addition to these a further 8 non-related families had requested and received agroforestry trees from the project nursery, which represents 210% of the original target. For Vohibe, 43 new households (64 completely new people) have signed up to new agroforestry projects immediately following the end of the DI project, which combined with the 25 DI participant households that have committed to continuing agroforestry, equates to 226.5% of the original target. For Betampona, 77 new households have signed up to a new agroforestry project with MFG and 22 with a new NGO in the area, MATEZA, combined with the 51 Darwin Initiative participants, this equates to 300% of the original target for Betampona (Annex 5.29).

3.3 Monitoring of assumptions

One of the biggest and most difficult assumptions to assess in this project is whether a sufficient number of farmers are included in the project to constitute a “critical mass” with respect to influencing non-participants. Given our results for Outcome 5 (see Sections 3.1 and 3.2), and the

fact that we have more than doubled (or in the case of Betampona, tripled), the number of interested households that have committed to actively developing agroforestry on their land compared to our initial targets just within the lifetime of the project (Annex 5.29), even before the vast majority of the agroforestry trees planted during the project have started producing, we feel comfortable that this assumption holds true. We anticipate that once the trees have matured and are producing long-term food and cash crops, that the knock-on impacts of the project will snowball. It is encouraging that the mother tree orchards are already being used to produce new trees via air-layering, grafting and cuttings (Section 3.1). This inbuilt sustainability will allow the local communities to continue producing their own agroforestry trees as needed in the long-term.
During the project duration there was just one small artisanal mine prospective digging found in our target intervention areas (Annex 5.29). The MFG staff reported the mine to MNP staff, who in turn followed up with the regional team of the Ministry of the Environment and Sustainable Development (DREDD-Atsinanana). To date the diggings have not been further developed but given the artisanal gold panning that has developed recently downstream from Betampona, this remains a large risk. For the duration of the project the assumption that land use remains in the farmers' hands and they are not disenfranchised by outsiders remained true.
We had serious delays in Year 1 due to severe flooding following tropical storm Dumako (the largest we had seen around Betampona since 2002). As a result, we sustained severe damage to the Ambanitohaka village association nursery to service the project needs. The nursery was relocated to a better site, and we had no further issues at any of the sites for the rest of the project.
The assumption that farmers have areas of land under their management that are suitable for agroforestry held true as agroforestry parcels were successfully set up at all 5 target sites but soil testing carried out through the project (Annex 5.30), site inspections by Christof den Biggelaar and the final project evaluations carried out by the FVEE team (Annex 5.5), all highlighted that soil quality is very low in some of the target sites, particularly at Ampasina and Antaranarina.
Our assumption that participants will be able to learn to identify different vertebrate species and learn their vernacular names held true for most of the vertebrate groups monitored (mammals, reptiles and birds) but was more problematic for amphibians. There are a lot of cryptic species in our target areas, some of which even herpetology experts struggle to identify by eye and require genetic confirmation to distinguish with confidence. We were overconfident in our assumption that local community members would quickly be able to identify the large amphibian diversity that can occur in the target areas (83 species just for Betampona). Amphibian diversity tends to be a lot lower in the target forest fragments outside the main reserve, so the most common species were identified. It is possible that any cryptic or rarer frog species were not identified correctly.
All of the other Outcome and Output assumptions held true throughout the project duration.

3.4 Impact

Our intended impact as stated in the original application form is "Natural capital in the landscape surrounding the Betampona and Vohibe protected areas restored thereby reducing pressure on the natural goods within these reserves". Through the promotion, adherence to, and fast-growing adoption of agroforestry across our 3 target areas, the set-up of mother-tree orchards and the increased local community capacity to propagate trees, carry out forest restoration and patrol/monitor forest fragments under their care (see Sections 3.1, 3.2 and 4.2), we have made large advances towards achieving our intended impact.

All of these activities are leading to conservation and increase of present forest and general tree cover (in the case of agroforestry) in areas that are presently mostly devoid of trees (Annex 5.26). These activities are being carried out around the periphery of the target conservation areas (Betampona Strict Nature Reserve and the Vohibe Forest), thereby creating a buffer zone for the protected areas against fire, cyclone damage, conversion to agriculture etc. Alternative sources for essential daily needs for local communities are being established (for firewood, construction timber and food- see Section 3.1). Betampona is considered a mega diverse biodiversity hotspot for Madagascar and globally with designation as a Key Biodiversity Area (KBA) and many listed single-site endemic species. Vohibe is also extremely biodiversity-rich and part of the Ankeniheny-Zahamena Forest Corridor. As such the project activities ultimately contribute to global biodiversity conservation. Many of these activities that help biodiversity also directly contribute to making a higher-level impact on human development and wellbeing by producing

food for the household (improving food security) and increasing household income. Successional crops are already being produced by every participant (Annex 5.15), 4 farming cooperatives have been set up to strengthen the farmers' capacity to access new markets for their crops and bargain for higher prices (see Section 6). Once the distributed agroforestry trees have reached maturity, the full positive benefits of the project on poverty-reduction will really start to be felt (Section 3.1).

We have systematically built long-term capacity in the target local communities to enable the independent continuation of multiple conservation and sustainable development approaches beyond the project end. This DI project has now led to 4 newly funded projects (Section 12.2) along similar lines across 4 out of 5 of our target sites that are using the DI project results to springboard towards a greater and more widely-dispersed impact (see Section 8). The long-term nature of the relationships between each of the three main project partners and the local communities in their respective sites (35 years in the case of MFG at Betampona), means that we can continue to promote and build on the objectives of the Darwin Initiative project long past its active funded duration.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Project support to the Conventions, Treaties or Agreements

Madagascar's National Biodiversity Strategy and Action Plan (2016) is still in force until 2025. Our project has addressed its goals as follows:
Strategic Goal B: "Reduce the direct pressures on biodiversity and promote sustainable use of natural resources.": By encouraging active conservation and quarterly monitoring of remnant forest fragments, native restoration efforts around them and promotion of agroforestry to produce alternative sources of many forest products (Section 3.1, Annex 5.22, 5.23).
Objective 5: "By 2025, the rate of degradation, fragmentation and loss of habitats or ecosystems is reduced." As above, the establishment of agroforestry plots (Section 3.1, Annex 5.13) deters the traditional slash and burn agriculture and prolongs the productive life of any given piece of agricultural land, thereby reducing the need to clear new areas and reducing the risk of uncontrolled wildfires. As of project end, our participants had 95 main established agroforestry plots totalling a surface area of 93.25ha (Annex 5.13). Plots include trees for timber and firewood as well as agroforestry trees and are already productive for successional crops and will become more so as agroforestry trees come to productive maturity (Annex 5.15). 16.25 ha of degraded land was restored with native trees. Agroforestry and restoration plots were purposely chosen in between remaining forest fragments to increase forest connectivity (Annex 5.25 and 5.26).
Objective 7: "In 2025, all zones allocated to agriculture, aquaculture and forestry are managed according to sustainable production plans, ensuring an integrated approach to biodiversity conservation. The quarterly patrols and ecological monitoring introduced through the DI project (Annex 5.22 & 5.23), helped uphold and reinforce agreements between MEDD and the village associations for forest fragment management.
Strategic Goal C: "Improve the biodiversity status by safeguarding ecosystems, species and genetic diversity." Betampona is classified as a KBA due to the high levels of biodiversity and single-site endemic species and Vohibe is part of a significant biodiversity forest corridor. All of our combined project approaches (Section 3.1) contribute to reduce pressures on these two target protected areas.
Objective 11: "In 2025, 10% of terrestrial ecosystems . . . especially areas of particular importance for biodiversity and ecosystem services, are conserved adequately in ecologically representative systems and in protected areas and are managed effectively by different strategic approaches.". As above.
Objective 12: "By 2025, the extinction of endangered species is reduced and their conservation status improved.". Due to multiple single-site endemic species at Betampona, any actions to help protect the Reserve and prevent encroachment through agriculture, illegal logging or bushmeat collection will in the long-term contribute to reducing global species extinctions. Betampona and Vohibe are home to a number of critically endangered species. By project end we had lost just 0.014ha of our 1940 ha of target conservation areas to an accidental encroachment of a *tavy* fire from a bordering field. With the native forest restoration carried out the net gain of native tree cover over the project duration was 12.84 ha (Section 3.1).
The project addresses Target 6 of the CBD-linked Global Strategy for Plant Conservation (2011-

2020), which concerns the sustainable management of production lands; and Article 6.2 of the ITPGRFA:
Article 6.2.a. “Pursuing . . . the development and maintenance of diverse farming systems that enhance the sustainable use of agricultural biological diversity and other natural resources;”
Article 6.2.e. “Promoting, as appropriate, the expanded use of local and locally adapted crops, varieties and underutilized species;”
Article 6.2.f. “Supporting, as appropriate, the wider use of a diversity of varieties and species in on-farm management, conservation and sustainable use of crops.”
We surpassed our target of signing up 75 farming households across our target areas to agree to trial sustainable agroforestry methods by securing commitment from 95 households across all our target villages by project end (Annex 5.12). All of these 95 households established agroforestry plots with the inclusion of fruit trees and yams and many of them also incorporating annual market gardening crops. 99 households participated in the initial training offered by FVEE for fruit tree propagation and care techniques in Year 1 of the project and 133 people from 86 households received follow-up training during Year 2 (48.9% women) (Annex 5.6). In addition, 103 participants (51.5% female) from 67 households attended agroforestry workshops led by Prof Christof den Biggelaar on agroforestry techniques across Betampona and Ampasina (Annex 5.6). The mid-term and end of project evaluations of the plots carried out in YR3 and YR4 respectively demonstrated that a good diversity of crops were being grown, a good number and diversity of forestry trees have already been planted and more were being requested (Annex 5.28). The final evaluations reinforced this with 12 new species (comprising 18 new varieties) and 33 new varieties having been introduced to the target local areas thanks to FVEE’s expertise and provision of start-up trees (Annex 5.5, 5.7). Community orchards were also established at each of the 5 intervention sites to provide a long-term sustainable supply of seed and plant material for cuttings, air layering and grafting to enable long term production of diverse agroforestry trees in each local area. Capacity was also built in the local communities to use advanced fruit tree propagation methods (Section 3.1, Annex 5.6, 5.14).

4.2 Project support for multidimensional poverty reduction

This project is **directly** leading to poverty reduction for the communities living around the two protected areas of Betampona and Vohibe through the following means

- Providing an alternative livelihood strategy to at least 75 farming households through the provision of start-up materials, training, plants and technical support. By project end 95 main households had established agroforestry plots on their land, which would otherwise have been most likely used for slash and burn (tavy) agriculture (Section 3.1, Annex 5.12, 5.25).
- Increased household income through the creation of farming cooperatives to directly supply buyers: 4 cooperatives completely registered by project end (Section 3.1, Annex 5.16).
- Improving food security for participating households within the lifetime of the project: all 95 main household already producing successional crops (yams and most also market gardening crops) in their plots (Section 3.1, Annex 5.15, 5.31a & 5.31b).
- The results for yam production vary across the 5 sites. Prior to the project many people were harvesting wild yams in the forest fragments and, in some cases, in the target protected areas themselves. Some people were planting yams in the forest and later harvesting them. Digging up the tubers can be extremely destructive to the forest, disturbing soil structure and damaging young regenerating trees. Through this project with the help of our partner, Dr Mamy Tiana Rajaonah from the Kew Madagascar Conservation Centre, we were able to introduce local people to the concept of cultivating yams in a non-destructive way as part of their agroforestry practices (Annex 5.15). For some sites, wild harvest had been high prior to project start (e.g. Antaranarina and Ambanitohaka). When we completed the final evaluation, we only asked about yam cultivation from the new agroforestry plots so do not know if the level of wild harvest changed (this would have been very valuable to know, and we will carry out follow-up research post project end at Betampona to find out). At two sites, Ampitabe (near Vohibe) and Analamangahazo we achieved 7122.2% and 35.7% respective minimum increases in average income for yam production alone from the baseline. For the other three sites, we cannot calculate an accurate change due to the issue stated above (Annex 5.32). In terms of new domestically-cultivated yam production, however, the income generated was on average £30.63 per annum (using peak production over the project duration for each site) (Annex 5.32), which represents a significant increase just from this one crop given that the

median household income annum was for Madagascar $398 in 2020 (just prior to the project start) (Median Income by Country 2024). This equates to around £311 per person per annum (using average exchange rates 2021-2024 from ofx.com). The domestic yam income represents a 9.8% increase (100* £30.63/£311) (at peak productivity for the project duration) in median household income. Note that these calculations do not take into account the wild yam collection or yams cultivated in forest settings, for which we do not have data. These calculations were based on an average local sale price of 1,000 MGA/kg but if the cooperative could organise themselves to get the yams to the central market in the nearby city of Toamasina (for Betampona and Ampasina), they could fetch up to 6,120 MGA/kg (https://www.selinawamucii.com/fr/connaissances/prix/madagascar/ignames/). Many of our target participants who are subsistence farmers are likely to be receiving far less than the median income rate for the whole of Madagascar. Obviously, this is a proxy calculation, and it would have been far better to have accurate pre and post household incomes for each of our participants, but this was not deemed feasible by our project staff (see Section 6).

- For the example of Betampona, overall income from seasonal crops produced in the new agroforestry plots in 2023 (many crops were not ready to harvest by project end in September 2024) was £17.38 for Ambanitohaka, £233.73 for Analamangahazo and £325.75 for Antaranarina (including yam income) (Annex 5.31). For Antaranarina that represents 104.7% of the median household income for Madagascar (100* £325.75/£311). Average income per household across all sites for Betampona was £236.47, which is 76.0% (100*£236.47/£311) of the median household income for Madagascar.
- MFG's safeguarding policy, which all project partners have also been obliged to adopt for the purposes of this project, helped ensure that all project members were treated fairly and with respect.
- By striving for a 50:50 ratio of men to women in all target interventions, MFG and partners are seeking to reduce gender inequality. 49.1% of project participants are women. This is a very notable achievement as this is not generally the status quo for farming training interventions in rural Madagascar when often it is almost exclusively men that respond to offers of training and to get involved in new farming initiatives. Several women have been trained to be very competent agroforestry tree producers (by new techniques taught through the course of this project) provide real income generation potential (Section 6).

This project has **indirectly** led to poverty reduction through the following means:

- Increased ecosystem services through the protection of 1940 ha of forest fragments around the two target protected areas that would otherwise likely have disappeared within a decade (based on remote sensing data analysis for Betampona: Ghulam 2014, Cota et al. 2022 (Annex 5.2)). 16.25 ha of degraded land was restored with 11,157 native trees over the project lifetime as well as the inclusion of 11,056 native trees in agroforestry plot mixed planting (Betampona and Ampasina) (Annex 5.8) totalling a further 93.25ha of tree cover (mixed native and agroforestry trees).
- Improved community governance of remaining forest fragments under their management. Facilitation and capacity building to support local communities at all 5 target sites to patrol and monitor the forest fragments under their care as a result of the project (Section 3.1, Annex 5.33).
- Increased awareness of local fauna in the forest fragments through the set up and regular execution of transects for ecological monitoring (Section 3.1, Annex 5.34).

4.3 Gender Equality and Social Inclusion (GESI)

Please quantify the proportion of women on the Project Board[1].	3 women (Association LOVASOA, MFG Project Leader and MFG Financial Manager), 2 males (MFG Project Coordinator, MBG Site Coordinator) = 60% 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].	MFG, Association LOVASOA, KMCC all run by women = 3 women leaders of 7 in project partners = 42.9% women leaders

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

Throughout the project design, we have aimed to take into account the GESI context, particularly as regards the inclusion of women in project staff hiring, participant selection and in project activities. In all aspects we have aimed for a 50:50 male to female ratio. In order to achieve this for the animator posts (responsible for project awareness-raising/promotion/training), we hired a male and a female animator for each village of intervention to try to maximise participation of women participants in the project and to help understand differing perspectives/needs that might be felt by the different sexes. We strove for 50% female participants in the project and have achieved 49.1% across the three sites (Annex 5.12). At one site, Ampasina, which is led by a female Site Coordinator, there is 58.7% female participation.

Across all 5 sites and all training sessions we achieved a 48.0% average of female attendance (with much proactive encouragement to have women attend) (Annex 5.6). We pro-actively selected women to attend the intensive FVEE agroforestry tree production training at FVEE's main training site in Mahatsinjo in YR2. Here all participants gained intensive training in fruit tree production skills (grafting, air layering etc) so this can be considered practical vocational training that could lead to future income-generation potential. When analysing data from across the sites as to which of the project participants are competent fruit-tree producers (through grafting and

[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.

air-layering techniques), the percentage that are women is 34.6% (Annex 5.14). Again, at Ampasina that percentage increases to 41.7%. In terms of percentage women joining cooperatives, the percentage for Ampitabe at project end was 38.1% (8 women) and for Betampona was 32.4 % (11 women), whereas for Ampasina it was 53.8% (14 women). The overall percentage across all sites was 40.7% women in the cooperatives (33 of 81 total members) (Annex 4.15). These examples from Ampasina suggest that it can make a very big difference to have a strong female site coordinator to actively push that agenda and to set an inspiring example. The Project Leader strongly feels that Alice Heliarisoa, the Ampasina DI project Site Coordinator, is such an inspirational example (see Section 14).

Even at Ampasina there remain some very traditional gender assignations when it comes to roles. For example, across both Ampasina and Betampona, not a single female non-staff participant took part in the community-based patrols or ecological monitoring in YR3 (though one woman participant had taken part in a patrols in YR 2 at Ampasina). After this issue was flagged through our evaluation efforts, a concerted effort was made in Year 4 to recruit more women to take part in this activity. In YR 4, 8 of 22 (36.4%) VOI members participating in the patrols for Ampasina were women. For Betampona, however, the percentage female participation remained zero, which indicates that not enough effort was made at this site to find ways to make women feel comfortable to take part. Over the project duration and all sites 13 women and 39 men participated (25.0% women) in the patrols.

Overall, we feel that this project has empowered women in the target sites to take more active part in agroforestry, gain capacity in the necessary techniques, join cooperatives and become very competent horticulturalists in some cases, creating real income-generation potential. There are still points that need significant work such as the encouragement of more women to assist in the community patrols and ecological monitoring, and we have also noted a tendance for women's attendance to drop after the first day of training on specific workshops, perhaps due to higher childcare and cooking responsibilities in the home. One clear bit of feedback has been that for many households, the cost of the annual membership fee is prohibitive for two family members to join and often it is the male of the household that registers rather than the female. For Ampitabe, National Identity Card details were collected for participants, and it was very apparent that a much higher proportion of the men have identity cards (84.2%) than women (47.1%) which gives an indication of the gender challenges we are facing in this rural Malagasy context. We tried hard to achieve a 50:50 split across our project activities through active canvassing for equal female participation, but further work is required in any future projects to try to work out how to make it more feasible for more women to access the opportunities offered and for them to stay the duration of training workshops when they sign up for them.

Our GESI context results are not uniform across all our sites, but we feel the project has made an overall very positive difference for many women living in our target areas. There is an argument for the GESI context to be described as "Transformative" at our Ampasina intervention site, but we don't feel that we have achieved that same level at the other two intervention sites so have opted to classify our project as "Empowering" overall.

As well as pro-actively encouraging women to participate in agroforestry, patrolling and restoration activities, the project has also sought to include young people in our activities with children being invited to participate in community tree planting activities (Annex 5.27).

4.4 Transfer of knowledge

Throughout the project we have consulted regularly, informed and included the regional branch of the Ministry of the Environment and Sustainable Development (DREDD-Atsinanana) and of the Ministry of Industry and Commerce, the locals Mayors and Village Presidents for each site, and Madagascar National Parks as far as possible in our organisation and planning. These meeting have all been held in person either in Toamasina or at the project intervention sites.

4.5 Capacity building

During the course of the project lifetime, Association LOVASOA won a renewal of their short-term contract with DREDD-Atsinanana for the management of the Ampasina forest parcels to a far longer 10-year contract. They also received a glowing review of their conservation efforts during the prior shorter contract, some of which had been greatly enhanced via the extra funding

and support provided through the DI project. The DI project support for further conservation activities was a large factor in this wonderful result.
There were many different capacity-building training sessions built into this project from basic introductions to agroforestry, tree propagation, advanced vegetative propagation techniques, setting up and management of cooperatives and yam cultivation methods (Annex 5.6). For details on the training carried out, the gender-split of participants and evidence of real capacity being built see Section 3.1 Output 1).

5 Monitoring and evaluation

Monitoring and evaluation were a challenge throughout this DI project. Despite repeated efforts by the Project Leader to standardise across all 5 sites, different methods for data presentation were adopted each year by the three main partners in the three main areas of intervention. This has led to significant delays in us being able to submit our final report. Hervé Razafiarison, MFG database manager, helped with GIS for forest and plot mapping (Annex 5.25 & 5.26). We engaged the MFG Research Coordinator, Dr Elie Ramiarana, an MFG long term volunteer, Marilou Roy, and project partner Prof Christof den Biggelaar, all of whom have extensive experience and training in data manipulation and analysis, to help us collate and analyse the data across the 5 sites. Often data for a specific indicator would be present for 3 or 4 of the sites but not for the last sites. This has warranted a huge effort on the part of these three and the Project Leader to correspond back and forth over a number of months with the relevant Site Coordinators to try to complete all the data to facilitate thorough analyses (eg for gender participation differentiation, attendance, survival of planted trees etc.). Their help has been invaluable and should stand us in good stead for potentially publishing some of the project results.
In hindsight, it would have been better to hire a data collection coordinator with a high level of data manipulation capacity and experience from project outset to spend significant time with field staff at each intervention site to ensure that the developed standardised data sheets were properly understood and used (See Section 6).
All partners shared responsibility for M&E but the final collation and analysis of data between sites was MFG's responsibility. Information, reports and feedback were shared mainly by email and also during scheduled Zoom calls (particularly earlier in the project) to facilitate communication between the geographically remote sites.
In addition to project evaluation by the three main partners (MFG, MBG and LOVASOA), Prof den Biggelaar, Dr Mamy Tiana Rajaonah and the FVEE team all carried out evaluations of the uptake of their training provision (e.g. Annex 5.5). Both Prof den Biggelaar's (on adoption and local challenges to adoption of general agroforestry approaches) and Dr Rajaonah's (on yam cultivation uptake, challenges and successes) observations and feedback was extremely helpful in guiding the latter stages of the project. Likewise, the FVEE team's ongoing annual evaluations and reports were extremely helpful to tweak our approaches, providing both project staff and participants with constructive tree propagation and care advice. FVEE's final evaluation report was only received after project end but if we were to do the project again, we would adopt their approach for assessing the survival and growth of all trees planted through the project (agroforestry and native). It was a very simple but extremely effective system that gave us further insights into species that are particularly well adapted for our local soil and climate conditions and challenges at each respective site (see Section 3.1).
We carried out comprehensive mid-term and final project evaluation (Annex 5.31), which highlighted the parts of the project that were most and least appreciated, challenges participants had faced, production and revenues generated through the project and much other very useful information to guide our project staff to better help each individual participant. Prof den Biggelaar did a very comprehensive job of analysing many aspects of the data collected in the final project evaluations, which have given us good insights into tree survival, final parcel size for agroforestry plots, training session attendance etc. (see Section 4.2). Marilou Roy spent a considerable amount of time analysing patrol data, agroforestry production data, cooperative participation and other aspects from the combined project data, particularly focussing on analysis of gender participation in different aspects of the work.
Our biggest challenge was in evaluating overall project impacts on general household income (see Section 6). We should have better formulated our Output Indicator 2.5 to deal more sensitively with this issue.

6 Lessons learnt

We made a conscious decision to hire locally for this project to help create employment and build capacity in our target communities. This approach has many advantages such as the staff members being known and trusted, having excellent local knowledge, less frictions than if hiring people from other cultural groups (in Madagascar there are 18 main ethnic groups and frictions can be quite high between certain combinations of groups). The flipside is that levels of education can be quite low, particularly in rural Madagascar such as the target areas we were working in. Even staff with Master's level training in Madagascar have very limited experience of data collection and handling. Throughout the project we had serious challenges trying to standardise data collection and presentation across our 3 main areas of intervention (e.g. some collecting data per participant, some per household), which made report writing and project evaluation extremely challenging when data needed to be combined from all project sites. Standardised data tables were developed by the Project Leader but were rarely followed. For future projects, it would be worthwhile to consider hiring a specialist data manager who could work closely with the site coordinators to ensure that standardised protocols were followed and to analyse results as the project progressed. This has been one of the largest ongoing challenges of the project.

Further hindrance of report compilation was due to the consistent late submission of reports and accompanying data from project partners. Despite terms for reporting date submissions being clearly outlined in our MoUs (Annex 5.4), reports were submitted late by many project partners across the duration of the project. This was again the case for the final report, leading to the necessity of requesting a reporting deadline extension from LTS. It is probably not ethical or perhaps even allowable under the DI regulations to write in penalty clauses into partner MoUs for late submission of data and reports, but we will need to carefully consider how to persuade partners to submit reports and data according to the agreed schedule for future projects.

The main DI project Coordinator, Christian Rambeloson, had his computer and back-up drives all stolen from his home in November 2024 (just after he had been working on his DI end of project data compilation). Although we have a central back up system at MFG to which all our project managers are meant to do a back-up on at least a monthly basis, and we have been able to recover much of the lost data from archives, it has become apparent that he did not systematically back up all project documents such as photos and scans of questionnaires etc. In future we will be far stricter about backing up the full range of data and supporting evidence relating to projects.

Despite successfully supporting the set-up of 4 farmer cooperatives and arranging direct meetings between the Ampasina and Betampona cooperative members and the spice exporter, MC Ingredients, negotiations failed to agree a price for clove purchases in YR 3 of the project. MC Ingredients offered a fair price, over the going rate for the season, but this offer was not accepted. Facilitating the setup of cooperatives is not enough in itself and further support is required. A set of three capacity building workshops for cooperative management were arranged in YR4 but the project ended before the clove harvest was ripe so ongoing support will be offered by MFG post project end via the new CEPF and SOS Lemurs projects (Section 12.2) to keep building capacity and confidence in negotiation skills.

Although it is understandable that Darwin Initiative require poverty alleviation indicators as this is one of the main aims of the BCF funds, this is an incredibly sensitive issue to tackle with project participants, particularly in lower-income countries. Asking questions about household income would be extremely invasive anywhere in the world, but is particularly sensitive in impoverished communities of predominantly subsistence farmers with very little monetary income. Due to the need to set SMART indicators, we set a specific goal of raising household income by 10% in one of our Output indicators. It quickly became apparent that it was very insensitive and inappropriate to ask direct household income questions, and, in hindsight, we should have better formulated the Output to centre on income raised for a specific product or from produce grown generally compared to the baseline production rather than building the objective around total household income.

7 Actions taken in response to Annual Report reviews

All annual reviews were shared and discussed with project partners and means of required improvements agreed. As a result of reviewers' requests, we have made a number of improvements through the project lifetime, particularly to make the project logframe SMARTer. All of these issues have been reported on in earlier annual reports and the changes accepted.

One outstanding required change was regarding the request in our last annual review to add an Outcome to our logframe to capture our hoped-for cascade effect for the project, whereby any new interest shown locally in starting agroforestry would be logged. We sent our suggested text but were further requested to SMARTen the goal and suggest a specific percentage that we were aiming to inspire. As such we have suggested that a 100% increase in participants interested in and demonstrating a commitment to start agroforestry around each of our 3 main target areas (Betampona, Ampasina and Vohibe) compared to our aims for the DI project per area as per the logframe.

8 Sustainability and Legacy

The profile of the project in the local area has been very high due to our ongoing and open dialogue throughout the project with local authorities such as the regional Director of the Ministry of the Environment and Sustainable Development (DREDD-Atsinanana) and the Betampona Reserve Director of Madagascar National Parks and local leaders such as the mayors of the various communes concerned, village leaders (President Fokontanys) and local village associations. In some instances, the requests for help to conserve forest fragments under their jurisdiction originated from the village leaders and the village associations themselves and through the DI project we have now been able to work alongside all the local target village associations to build capacity to conserve, restore, survey and ecologically monitor the fragments under their care. This DI project has allowed us to provide the requested support to establish community plant nurseries and the technical knowhow to run them and to continue producing trees (native and agroforestry). Through the project partnership with the FJKM Church Fruits, Vegetables and Environmental Education (FVEE) programme, we have been able to train a minimum of 150 local people (50% female) in introductory fruit tree production techniques such as grafting and air layering. 31 of the most promising participants (35.5% female) were then invited to FVEE's own site to carry out a 5-day intensive agroforestry tree production training course (Annex 5.6). Importantly for ongoing sustainability and legacy, we have established community mother tree orchards at each intervention site to provide ongoing biological material (seeds and grafting cuttings) for implementing these techniques (Annex 5.5 & 5.35). These orchards are managed by the village-based nursery workers in each site (who will continue to be employed by MFG at Betampona and MBG at Vohibe post project end. In the case of Ampasina, the village association LOVASOA have undertaken to continue maintaining the orchard. The orchards contain many improved varieties (better crops, better disease resistance etc.) compared to species that were already in cultivation in our target areas before the DI project (Annex 5.7).
The project has generated the hoped-for interest in agroforestry in each of the three intervention areas. At Vohibe, 18 non-participant households (comprising 25 people, 28% of whom are women) expressed a strong interest in starting their own agroforestry plots during the course of the DI project. Since the DI project end and thanks to interest generated through this project, MBG have now managed to secure funds from Critical Ecosystem Partnership Fund (CEPF) for 40 people, of which 22 are ex DI project participants and 18 are new participants to continue and expand agroforestry in the DI target village of Ampitabe. In addition, a further 25 households (comprising 46 completely new participants, 45.7% of whom are women) in neighbouring villages to Ampitabe are starting new agroforestry initiatives through funding secured in partnership with ex-DI project partners from the FJKM Church's Fruits, Vegetable and Environmental Education Programme (FVEE). This shows a very firm commitment to continue maintaining plots that are already established for 88% of the Vohibe Darwin Initiative participants and 43 new households (64 completely new people) taking up agroforestry, which, when combined with the 25 households that continued with their agroforestry plots to the end of the DI project, equates to a 226.7% of the original target 30 households for the Vohibe area (Annex 5.29).
A similar situation has occurred in Betampona where both the MFG team and a new NGO, MATEZA, have been able to secure CEPF funding for ongoing agroforestry and community forest conservation on the back of the work set up in this Darwin Initiative project and the interest generated in the local communities as a result. 33 ex-Darwin Initiative participant households have now signed up with MFG to continue to develop and increase (double in most cases) the land that they dedicate to agroforestry (Annex 5.29). In addition, a further 77 new households have now signed up to set up agroforestry plots with MFG (Annex 5.29) and 22 new households via MATEZA (pers. comms. MATEZA) in villages around Betampona that were not target sites in the DI project, so this combined with the 51 original DI adherents equates to 150 households,

300% of the original objective. The target number of households for Ampasina for the DI project was just 20 but the interest in the project was so high that we agreed to accommodate 23 households (Annex 5.3), which then finally resulted in a further 11 spin-off family member groups also setting up their own plots. A further 8 non-related participants also applied for and received agroforestry trees from the LOVASOA village association nursery. This equates to a 210% of the target participation at Ampasina in terms of number of households receiving agroforestry trees just within the project lifetime.

Of the 18 extra households that requested to set up agroforestry trials at Vohibe during the DI project, only three have been able to be included in the new spin-off projects as the remainder have land that is too distant for MBG's agents to travel to facilitate it. If all these households that had expressed an interest were able to be incorporated in the new agroforestry initiatives, that would represent 293% of the original 30 household target (Annex 5.29). The fact that households that are not in easy walking distance of the MBG headquarters at Vohibe are now requesting to be included in the agroforestry schemes proves that word is spreading beyond our initial target locations of the advantages of the system. Given that the majority of the agroforestry trees planted during the DI project have not yet matured to the point of fruiting, we are extremely encouraged by these results across our three target sites and anticipate a larger cascade uptake of agroforestry methods once the first tree harvests are realised.

Through the DI project, 16.25ha of land has been planted with native trees (11,157 native trees in total planted and 93.25ha given over to agroforestry (42,212 agroforestry trees planted) (Annex 5.8), which was formerly predominantly used for slash and burn (tavy) agriculture. The agroforestry parcels provide sustainable sources of firewood, timber, diversified crops (increasing food security and household income (Annex 5.31 & 5.32), the native trees provide further sustainable firewood and timber, expand local tree cover (with all the wildlife and ecosystem service benefits that brings. All of these planted stands and the personal and household investment in planting and caring for trees, actively discourages slash and burn fires that would previously have been normal practice on the majority of these plots. This hence reduces the risk of out-of-control wildfires that could continue into the protected forest areas at each site.

To further build on this climate-change resilience, as a result of the good training and foundations established during this DI project, the village association nursery at Ambanitohaka has now been expanded and 5 further community-run nurseries set up (3 by local village associations and 2 by the communes of Ambodiriana and Sahambala) using other grant funds (CEPF) post DI project end. The tree-propagation training provided to participants throughout the course of the DI project and the active dialogues with commune leaders (mayors), village (Fokontany) presidents and village association members were essential to enable this further positive development (Annex 5.18 & 5.35). These nurseries are now entirely community run and are producing both native and agroforestry trees for local restoration and development purposes. This has given the target communities far greater capacity to mitigate forest and ecosystem service loss locally as well as greater economic resilience due to the diversification of crops and investment in planting trees that will likely produce crops for many years to come. Again, this would not have been possible without the strong foundations laid during the DI project.

A further important aspect of the sustainability of this project stems from the creation of farmer cooperatives at each of the target sites to help local producers gain better prices and terms for the sale of their products. Although the full potential of these cooperatives was not able to be realised during the period of the project itself due to certain setbacks (see Lessons Learnt section) and the fact that most of the planted trees were not yet mature by project end, the creation of these 4 cooperatives across the five project sites (Annex 5.16) will stand the communities in good stead over the coming years. The DI project facilitated important capacity building training from the Ministry of Industry and Commerce (DRICC), financial and administrative support to go through the complicated and costly process of creating the cooperatives. Without this impetus and funding from the DI project, it would likely have been many years before the local communities were able to set the cooperatives up under their own steam. The final evaluation results indicate that cooperative membership is extremely popular amongst our project participants (81 of 178 (45.5%) participants having already joined a cooperative and a further ?? indicating that they will when they are able to join with a neighbouring village to formalise a cooperative to make the minimum membership numbers). Further participants indicated that they would join a cooperative if it wasn't for financial constraints to pay

the annual membership fee. This has been a much-appreciated long term impact of the DI project as far as many participants are concerned.
All project equipment and materials have been transferred to the village association, LOVASOA, in the case of Ampasina, to MBG for Vohibe, and to MFG for Betampona as per the MoUs (Annex 5.4, Annex 5.36). This is an important factor to build capacity within the association to enable them to continue their conservation, surveillance and ecological monitoring commitments.
Sustainability was built into every aspect of our project methodology and given the very positive reviews that the project was given from the vast majority of participants in the DI project final evaluations the commitment to maintain established agroforestry plots (85.5% participants) (Annex 5.37) and the strong uptake of new agroforestry initiatives around Betampona and Vohibe (Annex 5.29), we feel that this DI project had laid extremely strong foundations, which will be built upon for many years to come. The £709,044 raised in new agroforestry-related grants (Section 12.2) in the target areas since DI project end are a testament to the ongoing efforts to build on this excellent foundational start.

9 Darwin Initiative identity

Throughout the project we have included the Darwin Initiative logo on the majority of questionnaires, attendance sheets, plot signs, internal reports, on MFG's website and on our social media posts (Annexes 5.18, 5.31b, 5.37). At Ampasina, the LOVASOA team designed and sported T-shirts and uniforms for their forest conservation team sporting the DI logo. The project has been treated as a distinct project and is always referred to by our MFG and partner staff as the "Darwin Initiative Project" when discussing it internally, with project participants, village communities and associations and with local and regional authorities.
Understanding of the Darwin Initiative is growing locally in our target areas around Toamasina as this is now our second completed Darwin Initiative project since 2017. We always refer to the Darwin Initiative projects when discussing plans and gaining authorisation for activities from local (at the village and commune level) and regional authorities (for the whole Atsinanana region). At a national level knowledge is growing about Darwin Initiative due to the large number of DI-funded projects across Madagascar in recent years. This would mean that the Initiative is known at the nation Ministry of the Environment and Sustainable Development (MEDD). We mention the project by name in our annual reports to the Malagasy government (MEDD) and also every two years to the Ministry of Foreign Affairs during the process to renew MFG's *Accord de Siège*, that allows us to have an official base and to operate in Madagascar.
Several posts have been made on MFG's social media platforms (MFG (@MadaFaunaFlora) / Twitter and Madagascar Fauna & Flora Group | Facebook) to promote the project, all mentioning funding from DI/Biodiversity Challenge Funds. Social media posts included tags back to Darwin Initiative wherever possible. The project is featured prominently in MFG's annual report 2020-2022 (Annual Reports - Madagascar - MFG (madagascarfaunaflora.org) and a summary of the project and progress to date has been added to the MFG website's Darwin Initiative page (Darwin Initiative - Madagascar - MFG (madagascarfaunaflora.org). The project was explained to Mr David Ashley, His Majesty's Ambassador to the Republic of Madagascar during his visit to Parc Ivoloina (one of MFG's sites of interventions) on 9th March 2024. Unfortunately, the time available for his visit did not permit a site visit to either Betampona or Ampasina but updates were given by the MFG In-Country Director on the present DI project and the Ambassador was taken to visit the still very active plant nursery and restoration plots set up in our earlier DI grant (23-004). The Ambassador was kind enough to make a post about his visit to Ivoloina on his social media site (Annex 5.38).

10 Risk Management

No new risks have arisen in the last 12 months. Over the course of the project, some changes needed to be made, particularly to the planned schedule, due to early severe disruption caused by a large fire in one of our original target villages (causing us to have to change one of our target sites for Betampona). Shortly after the fire, a serious of 5 large storms/cyclones caused a lot of damage across many of our sites. Ambanitohaka nursery sustained serious damage and had to be relocated but no further serious issues were encountered from storms for the rest of the project. In Year 2, one of our MFG staff, the Betampona Head Conservation Agent, suffered a very serious armed robbery at our field research station of Rendrirendry. As a result, we had to review and change our security measures (installing security lights, and an extra guardian) and

our staff payment methods. We already had been paying our full-time staff by bank transfer for a number of years to reduce the amount of cash needing to be carried to and kept at our research station each month, but following the attack, we sought other means to pay all our non-permanent workers (porters, research assistants etc.) by cashless means (using mobile money schemes and payments via OTIV (a micro-finance company that operates around Betampona), who accepted to make the necessary payments with a commission charge per payment. The latter changes did not seriously affect the running of the project but did add to staff payment costs.

11 Safeguarding

12 Finance and administration

12.1 Project expenditure

Project spend (indicative) since last Annual Report **DRAFT**	**2023/24 Grant (£)**	**2023/24 Total actual Darwin Initiative Costs (£)**	**Variance %**	**Comments (please explain significant variances)**
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
TOTAL	42,839			

Staff employed (Name and position)	**Cost (£)**
AVIZARA	
FANJA Anita Claudette Alberthine	
FLORIEN Zafiroa	
FREEMAN Karen	
HELIARISOA Alice Timothée	
LARISON Gil	
LEZARA Christophe	
LINE Sophie Nicole	
LOUIS Alfred	
RABENATOANDRO René	
RAKOTOARIVONY Fortunat	
RAKOTONANDRASANA Hanitra	
RAMBELOSON Jean Christian	

RANDANONDRAIBE Honoré Alex	
RANDRIA Niraina	
RAPETINE	
RASOAVIETY Lucien Georges	
RATOTOSOA Germain	
RAVELO Jean Claude	
RAVELONATOANDRO	
RAZAFIMPIHENO Sonina Jacques	
SENA Berthin	
VELONTSIRY Samuel	
VELOSONINA	
TOTAL	

Capital items – description	Capital items – cost (£)
n/a	0
TOTAL	0

Other items – description	Other items – cost (£)
Seeds for annual crops Nursery supplies (sand, pots, watering cans, wood etc.) Office supplies (paper, pens etc.) Batteries	
TOTAL	

12.2 Additional funds or in-kind contributions secured

Matched funding leveraged by the partners to deliver the project	Total (£)
Christof den Biggelaar salary agroforestry training consultancy 2021-2024 (including end of project analysis) paid by Christof	
Dan Turk salary for agroforestry propagation training consultancy (2021-2024) paid by FVEE	
Jean Jacques Jaozandry (MFG Country Director) at 5% FTE 2021-2024 paid by MFG	
Michella Vonimala (MFG HR Manager) at 5% FTE 2021-2024 (paid by MFG)	
Jean Noel, MFG Head Agent Betampona at 5% FTE 2021-2024 (paid by MFG)	
Armand Randrianasolo, MBG Project Leader (paid by MBG)	

Elie Ramiarana, MFG Research Coordinator, data analysis (20 days) (paid by MFG)	
Marilou Roy, end of project data analysis (30 days) (paid by Marilou)	
MC Ingredients staff time (2022-2024) (paid by MCI)	
ODDIT staff time (paid by ODDIT)	
MFG Project leader travel costs and laptop, radio emissions, (paid by MFG)	
DI audit excess charges (paid by MFG)	
TOTAL	

Total additional finance mobilised for new activities occurring outside of the project, building on evidence, best practices and the project	**Total (£)**
Critical Ecosystem Partnership Fund grant to MFG for agroforestry, forest restoration and forest fragment conservation around Betampona	
Critical Ecosystem Partnership Fund grant to MATEZA for agroforestry and forest restoration around Betampona	
Critical Ecosystem Partnership Fund grant to MBG for agroforestry project around Vohibe	
FVEE grant to MBG for agroforestry project around Vohibe	
SOS Lemur Grant to promote forest restoration and protection around Betampona	
TOTAL	

12.3 Value for Money

This project provided good value for money as all costs were carefully evaluated (for MFG for any purchases over 500,000 MGA (approx. £84 GBP) require securing 3 proforma quotes. We know the limited suppliers well from around Toamasina and over the 35+ years of working in this same site have learnt which items from which shops tend to be better quality. We also, where possible, buy in bulk (e.g. for plant pots) to secure the best unit price possible. We have stringent financial purchasing procedures that protect against project fund wastage. We were able to greatly exceed our project aims for many of our deliverables (See Section 3.1 & Annex 1), while still respecting the agreed original budget (and coming in under budget in some years) thanks to using counterpart funding and in-kind donations wherever possible (see Section 12.2).

13 Other comments on progress not covered elsewhere

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14 OPTIONAL: Outstanding achievements of your project (300-400 words maximum). This section may be used for publicity purposes.

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

One of the most important achievements of our Darwin Initiative (DI) project has been the support of the LOVASOA Village Association. LOVASOA had already been very active in conserving the remaining forest fragments in Ampasina but for several years Alice Heliarisoa, the association coordinator, had approached Madagascar Fauna and Flora Group (MFG) to request financial assistance to further develop their conservation and local development activities. LOVASOA is a small grass-roots association and although they had managed to independently access a few

small grants, had not been able to access more significant sums. As a result, when the opportunity arose to apply for the DI funds the association were keen to be included as project partners.

It is inspirational the extent to which LOVASOA have made the most of the opportunity to build their own capacity, both in terms of technical knowhow (in nursery management, tree propagation, restoration, agroforestry, ecological monitoring, financial/administrative management procedures etc.) and also in terms of infrastructure (through the project they were able to build a nursery, a water collection/irrigation system, buy necessary equipment such as GPS units, a digital camera, a laptop, a mobile solar panel charging system and a uniform to identify them as forest conservation agents). The association was already doing amazing work independently before the DI project but through the project were able to learn many new skills to better help them protect and monitor the forest parcels under their care, help village association members gain better food security/income and to generally increase the association's visibility and level of professionality within the local community. Several people joined the association to enable participation in the DI project and a good number proceeded to help in community patrols of the target conservation forest fragments.

LOVASOA had a short-term contract to manage the forest fragments in their area from the regional branch of the Malagasy Ministry of the Environment and Sustainable Development (DREDD-Atsinanana) but through the DI project were able to increase their levels of forest restoration, patrols and conservation to the extent that DREDD-Atsinanana awarded them a ten-year renewed contract and recognition for their intensive and effective conservation efforts. Through Alice's inspirational leadership, LOVASOA attained the best results across our 5 sites for promotion of gender equality. A truly inspiring team, leader and community, who are leading the way forwards for people and wildlife to thrive together. Surely what the Darwin Initiative is all about!

Image, Video or Graphic Information:

File Type (Image / Video / Graphic)	**File Name or File Location**	**Caption, country and credit**	**Online accounts to be tagged (leave blank if none)**	**Consent of subjects received (delete as necessary)**
Image	*(sent with report as a separate file)*	The inspirational LOVASOA village association team of forest conservation agents who protect the forest fragments of Ampasina. Madagascar. Credit: Madagascar Fauna and Flora Group	MFG (@MadaFaunaFlora) / Twitter Madagascar Fauna & Flora Group | Facebook	Yes
Image	Annex 5.26: Map to show Association LOVASOA's restoration area in between existing forest patches	Map showing the area of forest restored by Association LOVASOA through the DI project helping to increase connectivity of forest fragments.	MFG (@MadaFaunaFlora) / Twitter Madagascar Fauna & Flora Group | Facebook	Yes
Image	28_024_Annex 7_LOVASOAs inspirational leader	Village Association LOVASOA's	MFG (@MadaFaunaFlora) / Twitter	Yes

	(sent with report as a separate file)	inspirational leader, Alice Heliarisoa.	Madagascar Fauna & Flora Group | Facebook	
Video	Darwin Initiative - Madagascar - MFG	Village Association LOVASOA's activities for Darwin Initiative.	MFG (@MadaFaunaFlora) / Twitter Madagascar Fauna & Flora Group | Facebook	Yes

Annex 1 Report of progress and achievements against logframe for the life of the project

Project summary	Progress and achievements
Impact **Natural capital in the landscape surrounding the Betampona and Vohibe protected areas restored thereby reducing pressure on the natural goods within these reserves.**	Through the promotion, adherence to, and fast-growing adoption of agroforestry across our 3 target areas, the set-up of mother-tree orchards and the increased local community capacity to propagate trees, carry out forest restoration and patrol/monitor forest fragments under their care (see Sections 3.1, 3.2 and 4.2), we have made large advances towards achieving our intended impact.
Outcome **A critical mass of farmers living in landscapes surrounding the two protected areas are committed to nurturing natural capital through sustainable use of remaining forest and agroforestry.**	Overall, across the project we have had an excellent response and uptake of agroforestry has been high (see Section 3.2).
Outcome indicator 0.1 By end YR3 rates of destructive timber exploitation within target 1,940 ha forest fragments have reduced by 70% from baseline.	We did not achieve this Outcome indicator during the project duration (Section 3.2). We feel we were premature in our timeline given that the 11,056 newly planted timber trees (in agroforestry plots) through this project will not be ready for harvest for a number of years post project end.
Outcome indicator 0.2 During YR3, when project is well established, no part of the target 1,940 ha forest fragments converted to agriculture.	This outcome has been achieved with none of the target forest fragments having been converted to agriculture during the project duration. One small strip was accidentally burned (0.014 ha) but a further 16.25 ha of native trees were planted near the target conservation forest fragments in the project lifetime leading to a net gain of 16.24 ha (Section 3.2, Annex 5.25).
Outcome indicator 0.3 By end of YR2 at least 75% of participating farming households at each site have developed and submitted plans to Project Coordinator to indicate how they intend to expand agroforestry on their land.	This indicator was easily met as all 95 main participating households (by project end) had worked with our on-site animators and agents during the mid-project evaluation to develop personalised plans showing their plot to be developed, already existing trees and their plans to develop their plots. These plans were all updated at project end during the final evaluation survey to show the plantations that had occurred through the course of the DI project (Section 3.2, Annex 5.28 & 5.40).
Outcome indicator 0.4 By end of YR3 at least 75% of participating farmers at each site have installed a trial plot on their land.	We far exceeded our goal on this outcome as by project end we had 95 main households participating actively in agroforestry with a further 11 related spin off family groups setting up their own extra plots at Ampasina (178 famers in total, of which 88 (49.4% were women) that had established 107 agroforestry plots between them across the 5 sites totalling 93.25ha. This is a great result as our target had been for just 75 households establishing plots, but the scheme was so popular that further households requested to be included. All of these had diverse

	plots by project end incorporating agroforestry trees (not yet mature), yams and seasonal crops (Section 3.2, Annex 5.28 & 5.40).
Outcome indicator 0.5 By project end, a further 100% landowners (from non-target households) compared to the original target numbers at each site will be inspired to pursue agroforestry.	This goal was amply achieved at each site with 3 extra households asking to be included in the main participant intake and a further 11 spin-off family plots by other family members being set up at Ampasina and a further 8 unrelated families having requested and received agroforestry trees through the course of this project (42 households total), that equates to 210% of the original target 20 households for Ampasina. Similarly, we have seen 226% (73 households now signed up compared to 30 target) of our target at Vohibe and 300% for Betampona for households that have now signed up to establish agroforestry plots compared to our target number of households for each site (See Section 8, Annex 5.29).
Output 1. A diversity of plant species attractive to local farmers are easily available for use in agroforestry trials.	
Output indicator 1.1. Capacity built through the provision of one training workshop per target site for all personnel in local existing nurseries or ones newly established for the project in nursery management, grafting/marcottage, care protocols for newly introduced species and business planning by June 2022.	Workshops carried out at each site by FVEE team and MFG/MBG teams in Year 1 and a series of 3 cooperative/business planning workshops by ODDIT in 2023/2024 (Section 3.1, Annex 5.5, 5.6).
Output indicator 1.2. At least 12,000 good quality young plants (including at least two new fruit cultivars) with height > 25cm (ideal planting height) of pre-selected species available in total between all the project nurseries by July 2023.	32,594 agroforestry trees produced in total across our 5 project nurseries, including a minimum of 6 new species being produced. 12 new species (comprising 18 new varieties) and 33 new varieties of already-existing species introduced to the project orchards (not formerly in cultivation in our target areas) to allow for future production (Section 3.1, Annexes 5.5 and 5.7). A further 47,066 native trees also produced in our nurseries (Section 3.1, Annex 5.9).
Output indicator 1.3. At least 12,000 trees produced by nurseries distributed to local landowners for planting in agroforestry plots by Nov 2023 to reinforce trees distributed by FVEE.	42,212 agroforestry trees and 11,056 native trees distributed to participants through the course of the project to include in their agroforestry plots (Section 3.1, Annex 5.9).
Output 2. Farmers living in the landscape surrounding the two protected areas are aware of the opportunities presented by agroforestry to meet their tree product and food production needs and some are skilled, effective and convinced practitioners (target 50% female participation).	
Output indicator 2.1. By the end of July 2022, all extension workers and community animators will have been given formal training through workshops to facilitate and inform their role.	This was carried out by MFG (for Betampona and Ampasina) and MBG (for Vohibe) in Year 1 (Section 3.1, Annex 5.6).
Output indicator 2.2. By the end of 2022, at least 100 farming households of diverse demographics across the target sites understand the principles of agroforestry and best practice for design, installation and management.	By end of 2022, 150 people (50% female) representing 99 households across the 5 sites of intervention had attended introductory training by the FVEE team in agroforestry, tree propagation and post-planting care. This was further reinforced with Christof den Biggelaar's introduction to basic agroforestry field techniques also in 2022 (60 households attending from Betampona and Ampasina, 6 of which had not attended the FVEE training so **105** farming households were trained in total in 2022). Further training was carried out in 2023 for the FVEE follow up

	workshops (86 total households attending) and MFG (67 households attending across Betampona and Ampasina) (Section 3.1, Annex 5.6).
Output indicator 2.3. At least 75 farming households across the target sites have installed and are correctly maintaining agroforestry plots by end April 2024.	By project end 95 main participating households plus a further 11-spin off family households at Ampasina (106 total) had established working agroforestry plots (Section 3.1, Annexes 5.12, 5.15, 5.31a, 5.31b). Prof den Biggelaar and the FVEE team visited the majority of the plots between them to make sure that best practices were being followed and giving follow-up advice where needed. Project staff also carried out periodic visits and evaluations (mid-term and final), confirming that the plots were progressing well (Section 3.1, Annex)
Output indicator 2.4. By YR 2 at least 75 households have planted early successional crops within their trial plot and by YR3 these are enriched with a diverse selection of woody plants including trees that will contribute to the household's own fuelwood and timber needs by end April 2024.	By end of YR2, 85 households had established working agroforestry plots incorporating woody plants (fruit, spice and timber trees) and successional yam cultivation. Many also included market gardening cultivation (Section 3.1, Annex ???). By project end, 95 main participating households plus a further 11-spin off family households at Ampasina (106 total) had established and maintained mixed agroforestry plots (see Section 3.1, Annex 5.5, 5.40).
Output indicator 2.5. By end Dec 2023 collaboration between participating farmers at each site enables them to access regional markets for at least one product produced from their plots with 10% improved income per unit area compared to baseline median annual income.	The average household income generated through the project across the three Betampona sites during 2023 (most harvests for 2024 had not been collected by project end in September) was £236.47 per household, which is around 76.0% of the median household income for Madagascar (see Section 4.2, Annex 5.31a).
Output 3. Community in host landscapes agree to conserve certain unprotected forest fragments.	
Output indicator 3.1. By Dec 2021 community in host landscapes have reflected on the value of the 1,940 ha of unprotected forest fragments, the important ecosystem services they provide and have suggested ways to protect them (i.e. What they can do to protect forests).	All 5 communities in the target sites committed to protecting the forest fragments under their jurisdiction. The village associations (VOIs) managing the target sites committed to starting quarterly patrols and ecological monitoring in the target forest fragments (Section 3.1, Annex 5.11, 5.33, 5.34).
Output indicator 3.2. By Dec. 2021 host communities stop further clearing of the agreed 1,940 ha target conservation forest fragments for agriculture and develop rules for sustainable, non-destructive forest uses within these defined areas in return for support for agroforestry trials. Review and amendment (if needed) of any existing community association agreements for forest protection and establishment of new agreements where none exist.	Throughout the project duration only one small strip of 2m x 70m (0.014 ha) was accidentally burned as a slash and burn fire in a neighbouring field encroached a forest fragment edge at Analamangahazo. Over the project duration 12.85ha were planted with native trees in degraded areas around the forest fragments across the 5 target sites so the overall net gain of forest is 12.84ha over the project lifetime (Section 3.1, Annex 5.21).
Output indicator 3.3. From July 2022 the communities will increase their protection of the target forest fragments they manage through the organisation of their own quarterly patrols, following up on infractions using locally agreed procedures or local and/or regional authorities as required.	Quarterly patrols carried out from project start at Vohibe, from August/September 2022 for Antaranarina and Ampasina, and December 2022 for Ambanitohaka and Analamangahazo. Across the 5 sites, 52 village association/participant members (25% of which were women) assisted the patrols and ecological monitoring across the duration of the project. These were accompanied by either MFG, MBG or LOVASOA project staff depending on the site and any infractions were reported either to Madagascar National Parks or direct to the Ministry of the Environment

	and Sustainable Development's regional office as well as to the relevant local mayor for follow up (Section 3.1, Annex 5.33).
Output 4. Community engages in participatory baseline and quarterly surveys of destructive forest harvesting and natural capital (including biodiversity) in target forest fragments surrounding the main protected areas.	
4.1 Participative community monitoring within the target 1,940 ha forest fragments to assess natural capital, forest conversion and forest harvesting practices using measures such as i) number of destructively cut stems (i.e., not including sustainable coppicing/pollarding practices), ii) number of illegal animal traps, iii) biodiversity (in terms of key animal groups), iv) area converted to slash-and-burn farming.	Target forest fragments were mapped at the mid-term and final project evaluations (Annex 5.25). Quarterly patrols and ecological-monitoring transects were carried out (Section 3.1, Annex 5.33, 5.34). Across the 5 sites, 52 village association/participant members (25% of which were women) assisted the patrols and ecological monitoring across the duration of the project (Section 3.1, Annex 5.33).

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

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
Impact: Natural capital in the landscape surrounding the Betampona and Vohibe protected areas restored thereby reducing pressure on the natural goods within these reserves. (Max 30 words)			
Outcome: (Max 30 words) **A critical mass of farmers living in landscapes surrounding the two protected areas are committed to nurturing natural capital through sustainable use of remaining forest and agroforestry.**	O.1 By end YR3 rates of destructive timber exploitation within target 1,940 ha forest fragments have reduced by 70% from baseline. O.2. During YR3, when project is well established, no part of the target 1,940 ha forest fragments converted to agriculture. O.3. By end of YR2 at least 75% of participating farming households at each site have developed and submitted plans to Project Coordinator to indicate how they intend to expand agroforestry on their land. O.4 By end of YR3 at least 75% of participating farmers at each site have installed a trial plot on their land. O.5 By project end, a further 100% landowners (from non-target households) compared to the original target numbers at each site	O.1 Counts of new destructively-cut stems (ie. not including agreed coppicing or invasive species) along replicated transects within target forests compared to baseline counts, which will be carried out once household participants have been selected by end of YR1. O.2. Geo-referencing and mapping of all fragment boundaries and new areas of shifting cultivation. O.3 Sketch maps produced by participating farmers illustrating their future land-use plans with an annexed list of preferred species for planting. O.4 Surveys completed of plots of participating households by end of YR3. O.5 Records will be kept of all enquiries to participate in agroforestry schemes at each site. The final evaluation will include surveys in non-target sites bordering	- A sufficient number of farmers are included in the project to constitute a “critical mass” with respect to influencing non-participants. To increase our impact in any given area we have chosen to target specific sites to set up “model villages” with a high proportion of households participating in the programme. Villager associations in all our proposed sites have been consulted already and have given written commitment to participate in the proposed programme. - Land use remains in the farmers’ hands and they are not disenfranchised by outsiders (such as artisanal miners, commercial mining companies, powerful people wishing to obtain land, new immigrants to area). MFG will work with local Mayors to investigate possibilities for formalising individual land rights. Individuals in non-target households will be willing to respond to survey questions.

	will be inspired to pursue agroforestry.	target sites and will include questions to record new agroforestry efforts and gauge interest in development of agroforestry.	
Outputs: **1**. A diversity of plant species attractive to local farmers are easily available for use in agroforestry trials.	1.1. Capacity built through the provision of one training workshop per target site for all personnel in local existing nurseries or ones newly established for the project in nursery management, grafting/marcottage, care protocols for newly introduced species and business planning by June 2022. 1.2 At least 12,000 good quality young plants (including at least two new fruit cultivars) with height > 25cm (ideal planting height) of pre-selected species available in total between all the project nurseries by July 2023. 1.3 At least 12,000 trees produced by nurseries distributed to local landowners for planting in agroforestry plots by Nov 2023 to reinforce trees distributed by FVEE.	1.1. Records of training workshops held, participants attending and subjects covered 1.2 Annual nursery inventories at each site, seed germination %, successful grafted seedlings %, successful air-layers %, survival to 25cm height %. 1.3 annual inventories of trees distributed, and number of landowners supplied.	- Nurseries not seriously impacted by cyclones. MFG and MBG each have over two decades' experience in tree nursery design and cyclone proofing measures in the Eastern cyclone belt of Madagascar so will implement this knowledge in the design of any new nurseries and improvements on existing nurseries. Easily replaceable local materials will be used for construction to allow easy repair and replacement of damaged materials. - Nursery workers are able to carry out successful grafting/marcottage. The training and planned follow-up by FVEE staff will ensure success in this respect. - Permits can be secured for seed collection in forest fragments. MFG has a 14-year record of gaining permits to collect seed in forest fragments around Betampona from the regional branch of the Ministry of the Environment and Sustainable Development and we do not foresee any issues in this respect. Likewise MBG has similar agreements for the Vohibe Forest. - The COVID-19 pandemic and any resulting work and travel restrictions

			will not interrupt the project's progress overly. Although local or national restrictions could certainly interfere with plans for specialised training from Dr den Biggelaar and FVEE, our project managers at each site have sufficient personal experience in agronomy and grafting techniques to carry out basic training themselves if needs be. By targeting in-country expertise, we are not reliant on international borders being open to ensure the completion of this project. Dr den Biggelaar has worked remotely providing advice and coaching to MFG's proposed project coordinator for Betampona for many years in addition to his in-person site visits. MFG has a formal COVID-19 sanitary protocol that all staff are obliged to respect to reduce the risks of inadvertent spread of the disease.
2. Farmers living in the landscape surrounding the two protected areas are aware of the opportunities presented by agroforestry to meet their tree product and food production needs and some are skilled, effective and convinced practitioners (target 50% female participation).	2.1 By the end of July 2022, all extension workers and community animators will have been given formal training through workshops to facilitate and inform their role. 2.2 By the end of 2022, at least 100 farming households of diverse demographics across the target sites understand the principles of agroforestry and best practice for design, installation and management.	2.1 Records of training workshops held, participants attending and subjects covered (sex-disaggregated data to be collected). 2.2. Oral and/or hands-on test of understanding at the end of each training event (most farmers will be illiterate). Evaluation of both sexes' reactions and uptake to be recorded separately.	- Farmers are sufficiently trusting and open-minded to trial new approaches. Our past reforestation and extension activities in these areas have proven that at least some individuals are open to trialling new methods and varieties. By having already first consulted with the farmers about their planting preferences we are confident that the chosen species for inclusion in the project are of interest to farmers in these specific target areas. - Farmers have areas of land under their management that are suitable

	2.3. At least 75 farming households across the target sites have installed and are correctly maintaining agroforestry plots by end April 2024. 2.4 By YR 2 at least 75 households have planted early successional crops within their trial plot and by YR3 these are enriched with a diverse selection of woody plants including trees that will contribute to the household's own fuelwood and timber needs by end April 2024. 2.5 By end Dec 2023 collaboration between participating farmers at each site enables them to access regional markets for at least one product produced from their plots with 10% improved income per unit area compared to baseline median annual income.	2.3. Site visits and interviews with participants at each site including those that installed and maintained projects until end of April 2024, as well as trained participants that did not set up or continue with their plots (sex-disaggregated data to be collected). 2.4. Survey of planted and nurtured trees and crops that will contribute towards food and/or household income needs in each active agroforestry plot by end of YR3 (sex-disaggregated data to be collected). 2.5 Surveys to describe value chains for first harvests including quantification of proxy values of all produce (using average market prices in the area over the year), whether sold or consumed at home (sex-disaggregated data to be collected).	for agroforestry. Preliminary studies by MFG and MBG have already established this to be the case in both target areas. -The COVID-19 pandemic and any resulting work and travel restrictions will not adversely affect the project. If necessary we can adapt the training approach to avoid the need for large workshops and instead focus on one to one and small group training respecting all locally-imposed restrictions on travel and group size. By targeting the hire of local staff for the most part we avoid the need for much long-distance travel. MFG has a formal COVID-19 sanitary protocol that all staff are obliged to respect to reduce the risks of inadvertent spread of the disease.
3. Community in host landscapes agree to conserve certain unprotected forest fragments.	3.1. By Dec 2021 community in host landscapes have reflected on the value of the 1,940 ha of unprotected forest fragments, the important ecosystem services they provide and have suggested ways to protect them (ie. What **they** can do to protect forests).	3.1. Register of those present at village meetings to discuss value of unprotected forest + video made by the community articulating consensus conclusions concerning the importance of the remaining forest fragments, post meeting oral quizzes to assess understanding of ecosystems services provided (sex-disaggregated records to be	- On reflection, the community will decide that the forest fragments that remain in their landscape are valuable and worth conserving and that it is possible for them to do so. The target areas have been chosen because active interest has already been shown there to protect the target forest fragments through the creation of local village associations (VOI). MFG and MBG will work with

		collected) and minutes of brain-storming sessions.	these existing structures to facilitate their goals to protect remaining forest fragments.
	3.2 By Dec. 2021 host communities stop further clearing of the agreed 1,940 ha target conservation forest fragments for agriculture and develop rules for sustainable, non-destructive forest uses within these defined areas in return for support for agroforestry trials. Review and amendment (if needed) of any existing community association agreements for forest protection and establishment of new agreements where none exist.	3.2. Signed minutes of community meeting to document commitment and agreement on permitted non-destructive uses (eg. mushroom, medicine and firewood collection). Copies of community agreed forest use policies.	- Community is cohesive and inclusive without powerful factions who act contrary to majority consensus. MFG works closely with the local Mayors, the regional branch of the Ministry of the Environment and Sustainable Development and Madagascar National Parks, who will support MFG and local communities to take legal action against any persons breaking locally-agreed resource-management rules or national laws protecting the environment.
	3.3 From July 2022 the communities will increase their protection of the target forest fragments they manage through the organisation of their own quarterly patrols, following up on infractions using locally agreed procedures or local and/or regional authorities as required.	3.3 Written records of each patrol kept with date, duration, participants and findings and written record of follow up from the village association in the case of infractions.	
4. Community engages in participatory baseline and quarterly surveys of destructive forest harvesting and natural capital (including biodiversity) in target forest fragments surrounding the main protected areas.	4.1 Participative community monitoring within the target 1,940 ha forest fragments to assess natural capital, forest conversion and forest harvesting practices using measures such as i) number of destructively cut stems (i.e., not including sustainable coppicing/pollarding practices), ii) number of illegal animal traps, iii) biodiversity (in terms of key animal groups), iv) area converted to slash-and-burn farming.	4.1.1 Surveys of each entire target forest fragment for evidence of conversion of areas to farmland at the beginning of the project (by end July 2022) and annually for the duration of the project. 4.1.2 Quarterly participative transects (starting by July 2022) in each target forest fragment to assess forest harvesting levels (destructively-cut trees, evidence of animal traps), and vertebrate species diversity carried out by	- Participants will be able to learn to identify different vertebrate species and learn their vernacular names. Our experience working in these areas has demonstrated that the majority of local people are familiar with locally-occurring species and know their local vernacular names. Plasticised photo ID sheets of commonly-occurring species will be made available to survey participants.

		trained observers and project participants and thereafter for the duration of the project.	

Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

1.1.1 3-day Fruit Tree Cultivation training by FVEE team at each of the 4 target training locations (Antaranarina [to include Ambanitohaka participants], Analamangahazo and Ampasina at Betampona and Ampitabe by Vohibe) to introduce fruit-tree cultivation/care and nursery techniques, distribute initial fruit trees to participants, identify potential sites for fruit tree permanent orchards and nurseries and select two proactive participants for further intensive training at a later stage. To be carried out by June 2022.

1.1.2 Production of Fruit Tree Cultivation training workshop report for each site including pre and post workshop quiz results produced within 2 months of the training workshop end.

1.2.1 Identification and establishment of nursery staff by end December 2021.

1.2.2 Construction of new nurseries or renovations/improvements to existing nurseries and establishment of fruit tree orchard to provide scions for grafting long-term at each of the 5 target sites by end of YR1.

1.2.3 Provision of nurseries with supplies, commercial seeds and materials needed to begin tree production (mixtures of fruit, spice, timber, fuelwood and N-fixing species) by end of YR1.

1.2.4 Securing seed collection permits for the target forest fragments from the Ministry of the Environment and Sustainable Development by end of YR1.

1.2.5 Collection of seeds from forest fragments throughout YR2 (seasonally-dependent)

1.2.6 Production of at least 12,000 trees (in total between the 5 nurseries) and associated record-keeping by July 2023

1.2.7 Quarterly visits to each nursery Project Coordinators to follow progress, offer ongoing technical support and collect nursery records (e.g. numbers of plants, % germination rates, % survival rates etc.)

1.3.1 Distribution of at least 12,000 produced trees to project participants by November 2023 with records kept of specific trees supplied to each participant.

2.1.1 Extension workers and animators identified for each site by MFG and MBG Project Coordinators by December 2021.

2.1.2 Extension workers and animators trained by MFG and MBG Project Coordinators and Dr den Biggelaar by end of YR2.

2.1.3 Reports written of each training session including list of participants, trainer, duration and subjects covered within 2 months of the end of the training session

2.2.1 Initial community meetings held in each of the 5 target villages by Project Coordinators, Extension Agents and local animators by end December 2021 to explain the benefits of agroforestry, project goals and methods, commitments required of participants to pro-actively protect the target forest fragments. Terms of project participation contract collaboratively developed.

2.2.2 Pre/post meeting oral quizzes at each participating village to gauge understanding of the need for participative and communal protection of the target forest fragments and understanding of the ecosystem services they provide (Project Coordinators, Extension Agents and local animators will assist and record the results).

2.2.3 Participating households identified and contracts signed by end of YR1.

2.2.4 Introductory training workshop held in each of the target villages for all participants to train participants to assess land availability, quality of existing agroforestry trees, techniques for rejuvenation and maintenance of trees, plot planting planning and the value of forming co-operatives and distribution of annual crop seeds by Project Coordinators, Extension Agents, local animators and Dr den Biggelaar by end of 2022.

2.2.5 Reports of each introductory training session produced including pre and post workshop quiz evaluation results to gauge efficacy of the training produced within 2 months of the training workshop end.

2.2.6 Collection of preliminary questionnaire (baseline) data for each participating household on specific species planting choices, land availability for agroforestry, existing agroforestry trees, and household income by Extension Agents and local animators by end of 2022.

2.3.1 Quarterly follow-up visits of each participating household by Extension Agents and/or local animators from end of initial training workshop throughout the duration of the project (unless participants decide to withdraw from the programme)

2.3.2 Yam cultivation training workshops by Dr Mamy-Tiana Rajaonah, Kew to collective participants at each of the 4 target training locations (Antaranarina [to include Ambanitohaka participants], Analamangahazo and Ampasina at Betampona and Ampitabe by Vohibe) and distribution of 30kg of start-up yam bulbuls by end of 2022. Training session reports for each site submitted within 2 months of the end of the session.

2.3.3 Value-chain, financial management, crop preservation and storage, and co-operative farming benefits training by CRS at all 4 target locations (Antaranarina [to include Ambanitohaka participants], Analamangahazo and Ampasina at Betampona and Ampitabe by Vohibe) and MC Ingredients at the 3 Betampona sites by end 2022. Training session reports for each site submitted within 2 months of the end of the session.

2.3.4 Completion of mid-term survey for all original participants attending the introductory workshop to gauge activities undertaken as a result of the programme, trees and crops planted, crops harvested, household income changes, reasons for programme abandonment (where relevant), feedback on programme and ways to improve it by Extension Agents and local animators by end April 2023.

2.4.1 Completion of final survey by project end (Sept 2024) for all ongoing programme participants to gauge activities undertaken as a result of the programme, trees and crops planted, crops harvested, household income changes, reasons for programme abandonment (where relevant), feedback on programme and ways to improve it by Extension Agents and local animators.

2.5.1 As part of final survey, ask specific questions about membership in farmer co-operatives and subsequent impacts on income from produce sales.

3.1.1 Record proceedings of initial community meetings at the 4 target villages (Activity 2.2.1) by end Dec 2021.

3.1.2 Community meeting participants will complete oral quizzes to assess understanding of ecosystem services with results to be recorded by Project Coordinators, Extension Agents and local animators at the end of the initial community consultation (Activity 2.2.1).

3.2.1 During the initial community meetings review current village association (VOI) agreements for protection of remnant forest fragments outside of the official protected areas, facilitate discussion of acceptable use/activities in the fragments, and document VOI decisions and commitments.

3.3.1 Quarterly follow up of community-based patrols of the forest fragments by Project Coordinator, Extension Agents and local animators from July 2022, including collection of patrol data and provision of support as needed to approach local/regional authorities.

4.1.1 Training workshops at each site on biodiversity and forest use monitoring (Jul 2022)

4.1.2 Project Coordinators, Extension Agents, local animators and a selection of nominated programme participants from each target village will set up permanent transects for surveys of forest use and biodiversity in each target fragment forest by July 2022.

4.1.3.1 Extension agents, local animators and alternating programme participants (organised on a rota-basis by the Extension Agents and local animators) will complete baseline transect surveys by end July 2022 to assess forest use (destructive and non-destructive) and quarterly thereafter.

4.1.3.2 Extension agents, local animators and alternating programme participants (organised on a rota-basis by the Extension Agents and local animators) will complete baseline transect surveys by end July 2022 to assess vertebrate biodiversity and annual surveys thereafter for the duration of the project.

4.1.4 Project Coordinators, Extension Agents, local animators and a selection of nominated programme participants from each target village will map the present forest fragment perimeter by GPS (using the tracking function) and survey the whole fragment for clearings/signs of cultivation. The survey will be repeated annually thereafter for the duration of the project noting any news areas cleared for logging or cultivation.

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?	√
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. All supporting material should be submitted in a way that can be accessed and downloaded as one complete package.	√
If you are submitting photos for publicity purposes, **do these meet the outlined requirements (see section 14)?**	√
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.	√
Have you involved your partners in preparation of the report and named the main contributors	√
Have you completed the Project Expenditure table fully?	√
Do not include claim forms or other communications with this report.	