



Darwin Initiative: Final Report

To be completed with reference to the “Writing a Darwin/IWT Report” Information Note:
(<https://www.darwininitiative.org.uk/resources-for-projects/reporting-forms-change-request-forms-and-terms-and-conditions/>).

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

Darwin Project Information

Project reference	24-009
Project title	Landscape approach to enhance biodiversity and livelihoods in the Comoros
Country(ies)	Comoro Islands
Lead organisation	Bangor University
Partner institution(s)	Comorian government, Dahari, ICRAF, IUCN
Darwin grant value	£410,842
Start/end dates of project	01/04/17 to 31/03/21
Project leader’s name	Dr Fergus Sinclair
Project website/blog/social media	Via Dahari accounts www.daharicomores.org , www.facebook.com/Daharicomores , https://twitter.com/DahariComores with reposts and blogs by Bangor and ICRAF
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1 Project Summary

The island of Anjouan in the Comoros archipelago lost 80% of its forests between 1995 and 2014, one of the highest deforestation rates in the world. Deforestation continues to threaten at least 30 known forest-dependent endemic species, including the flagship Critically Endangered Livingstone's fruit bat, but also coastal biodiversity due to accelerated erosion and siltation of reefs. Deforestation also puts at risk present and future livelihoods: 40 of 50 rivers that flowed permanently on Anjouan 40 years ago have disappeared or now flow only intermittently, and agricultural yields are in sharp decline due to erosion.

The primary threats to the remaining natural forest are agricultural expansion and the extraction of timber for construction. The underlying drivers include extremely high population pressure (over 550 people/km² in Anjouan), high poverty levels (over 50% of the population lives below the international poverty line), and over 80% dependency on agriculture for livelihoods. These factors are compounded by agricultural practices in need of innovation and intensification, and weak governance. The rural population is forced to expand cropland into fertile forest areas and cut remaining old growth trees for money to maintain livelihoods.

This project builds on the work of the Comorian NGO Dahari since 2008, and a developing partnership with Bangor University (Bangor), World Agroforestry (ICRAF), and the International Union for the Conservation of Nature (IUCN) that was initiated through a Darwin Scoping Award in 2016. The project sought to upscale and outscale a transdisciplinary landscape approach integrating agriculture, agroforestry, forest management, and PES biodiversity interventions to restore the Moya forest in the south of Anjouan and improve Comorian livelihoods.

The project worked in ten villages surrounding the Moya forest block (see Image 1). Anjouan is one of the four main islands of the Comoros, located between Madagascar and Mozambique in the southwest Indian Ocean.



Image 1: Location of the Comoro Islands, the Moya forest on Anjouan, and the ten villages in which the project is working

2 Project Partnerships

This project is the result of a collaboration between a team of researchers working between Bangor and ICRAF, and the Comorian NGO Dahari. The relationship began in 2016 with preliminary visits and studies, supported by a Darwin scoping project (DARSC170) proposed and developed by Dahari, which also engaged the IUCN. The IUCN were a project partner focusing

on advocacy work for the landscape approach and forest landscape restoration with the Comorian government – the final project partner.

Project management was shared between Bangor/ ICRAF and Dahari. To address the inherent complications of managing the inputs of multiple institutions and individuals based in different countries, a project management team was set up, comprised at the end of project of Hugh Doulton, Misbahou Mohamed (Dahari), Emilie Smith Dumont (Bangor/ICRAF) and Tim Pagella (Bangor). This team led project management and project reporting. A Dropbox folder was set up to share project documents, literature and data. All partners regularly communicated throughout the project via emails, online calls and Whatsapp messages.

In total Dr Emilie Smith Dumont (ESD - Bangor) made seven trips to the Comoros during the course of the project, Dr Tim Pagella (Bangor) made two trips, Prof Gill Shepherd (working as a consultant but linked to the IUCN) made one trip, and the IUCN advocacy team made one trip. Covid-19 prevented a number of planned missions during Year 4, although project lead Dr Fergus Sinclair (Bangor/ ICRAF) and local project lead Hugh Doulton (Dahari) were able to meet in Nairobi in Q3. Regular audiovisual calls between ESD, Tim Pagella and the local team therefore replaced missions during the last year of the project in terms of project management and coordination of field activities.

The project engaged a wide range of national actors in advocacy work in Y3 around the landscape approach led by the IUCN, including key individuals from the Ministry (see report in Annex E1 for attendees). A workshop in Anjouan in Y3 trained 27 government and NGO technicians on implementation of the agroforestry manual (see report in Annex B1 for attendees). At the local level, regular meetings were held with the mayors' offices to keep them up-to-date with activities, and the mayors took part in communication events.

The project also developed a strong partnership with the University of the Comoros via collaboration on biodiversity-focused research projects, and through hosting students on internships.

The previous UK Ambassador Dr Phil Boyle made one trip to review the project activities in-field and supported the initiative through advocacy work. The current UK Ambassador David Ashely visited the project activities in July 2021 just before submission of this report. The UK embassy also provided funding to Dahari for Covid-19 action during Y4 (see part 8).

A key outcome of the project is the strengthened relationships between the core partners, with Bangor and ICRAF planning to maintain their support to Dahari post-project. Funding is being sought to support forest restoration mechanisms and expand the work to the island of Grande Comores.

3 Project Achievements

3.1 Outputs

Output 1: Community groups are supported to restore and manage water catchment areas

646 hectares of priority water catchments were restored compared to the 400 hectares targeted (see map in Annex A1) through the planting by farmers of 55,294 trees (nearly double the 30,000 trees planned under Outputs 1 and 2 combined – see database in Annex A2). A successful system to support reforestation of the zone in the long-term was developed through building the production capacity of five community tree nursery management groups who increased their average annual seedling production from 1750 to 5000 over the course of the project, and improved the average seedling survival rate in nurseries from 69% to 91% - two clear indicators of substantially improved functioning (see data in Annex A3). The impact of this work on hydrological functioning and water availability will only be possible to assess in the medium- to long-term, and monitoring of the level of four springs in the catchments has been implemented to this end (see database in Annex A4). The restoration element of Output 1 was therefore a strong success with clear impact on degraded water catchments within the project lifetime.

Through the facilitation of several internal workshops from Y1 to Y3 (see Annex E3) and by building Dahari's technical and facilitation capacity, the project helped design an integrated watershed and

landscape restoration strategy that could support scalable actions and synergies, placing a greater emphasis on meaningful community mobilisation. The production of evidence-based decision-making tools that combine actionable participatory approaches with state-of-the-art land cover maps are fundamental elements that will enable extending the post-project impact in terms of biodiversity conservation and water regulation.

A participatory watershed management approach was piloted in two water catchments covering 82 hectares of biodiversity hotspots, with community groups supported to lead collective actions for reforestation and water catchment restoration including attempting to develop rules and sanctions on tree cutting (Annex D1). As per the assumption in the original logframe, the complexity of this work was magnified by deep-rooted social issues such as a lack of trust and cohesiveness in Anjouanese society which stymied efforts to build formalised watershed management bodies (See Annex A6). As a consequence, Dahari's strategic planning process for 2021 to 2026 has concluded that the way forwards for forest restoration and conservation in Anjouan has to focus on the individual conservation agreements trialled under Output 4, which have proved more successful. Dahari's new strategic direction represents a key outcome of the learning approach taken to this project and demonstrates the importance of trialling different approaches to tackling the complex factors leading to deforestation. Targeting of key restoration areas for water and biodiversity will be facilitated by the state-of-the-art land cover maps based on satellite images completed under this output (see Annex A5).

Output 2: Customised agroforestry technical packages are developed for upland areas and adopted by farmers

This output drew on the collective experience of ICRAF and Bangor, the expertise of the individual researchers engaged in the project, and the local knowledge and online data management expertise of Dahari staff members to develop an innovative and comprehensive approach to agroforestry development on Anjouan.

A practical training in native tree domestication for Dahari technicians was facilitated by ICRAF in Y2 (see report in Annex B2) to address immediate knowledge and capacity needs identified by Dahari in Y1. Participatory research helped collect farmers' knowledge underpinning tree management practices, dynamics and preferences in Y2 (Annex B3). This was combined with technical and scientific knowledge to create a database of 77 trees used on Anjouan and the different products and services they each provide. A technical manual to support suitable agroforestry options with detailed information on tree management and propagation was produced (see Annex B4), with Dahari staff intensively trained in its use and 27 extension agents from Dahari, government and other NGOs taking part in an initial workshop (see Annex B1). A key agroforestry practice that was promoted widely in the project was live-fencing and hedges managed along contours for slope stabilisation and erosion control. In the last two years of the project, almost 60,000 tree cuttings were distributed and planted by the 183 farmers (31% of which were women) see Annex A2.

Subsequently a participatory tree selection tool was developed with extension staff and technicians; this is an innovation that combines social mobilisation and the use of digital technology - data collection with smartphones using Kobo and data analysis via PowerBi - to support community groups in target watersheds to choose the trees they want to plant based on their needs and conditions (Annex B5). In the last year of the project 222 farmers were engaged in tree selection using the tool (Annex B6). Covid-19 prevented further outreach during the final year of the project, but this is ongoing post-project. The process of collecting local and technical knowledge was instrumental in engaging stakeholders in reflections on tree diversity and their benefits which was immediately fed into the reforestation strategy and nursery production.

The goal of this intensive investment towards agroforestry development was to ensure strong engagement from farmers, best-fit species and high survival rates of trees planted. A total of 1181 farmers engaged in planting 55,294 trees from 43 different species (including four endemic species) on their land in key watersheds during the course of the project. A monitoring system to assess tree survival rates was also developed that included both qualitative and quantitative components and integrated farmers observations and feedback. Initial results suggest high survival rates one year after planting (71% - see Annex A2).

This output was a major success for the project and will be built on post-project thanks to the strong capacity development of the Dahari team both in the technical elements of applying the tools, and in participatory facilitation skills with farmers.

Output 3: A socially inclusive package of lowland climate-smart agriculture is streamlined, its impact proven, and rolled out to a further 2000 farmers

3058 farmers (of which 42% were women) were provided with agricultural training and support over the course of the project, surpassing the targets of 2000 (of which 30% women) in the logframe (see database in Annex C1). This was made possible thanks to the research and community engagement undertaken in the first two years of the project (Annex C2) which led to the application of a revised agricultural mobilisation strategy from Y3 that focused on group trainings and women's mobilisation by female mobilisation agents to ensure impact at scale through a gender transformative approach (Annex C3). Farmer groups, and notably women's groups, were supported to autonomously produce and share planting material of key staple crops such as banana plantain, cassava and sweet potato. Both improved plant material and management techniques promoted by the project aimed to secure higher yields and therefore to improve food security and income of the households.

A RHoMIS household analysis was undertaken at halfway and end of project. Results from this and associated qualitative assessments showed that half to two-thirds of respondents took up each of the various Dahari interventions (including new crop varieties and improved agricultural practices), and respondents generally reported that, as a result of these interventions, crop production, soil fertility, incomes, and food security had improved during the past two years. However, when comparing the 2019 and 2021 quantitative indicators on incomes, agricultural production, and food insecurity, the situation had generally deteriorated between 2019 to 2021 (Annex C4).

Whilst the uptake of the interventions is impressive, it is important to put the quantitative indicators in a broader context. During the course of the project the farmers of Anjouan were exposed to a major tropical cyclone, ongoing political instability and the Covid-19 pandemic, all of which created significant livelihood instability for many of the smallholder farmers. The RHoMIS results suggest that Dahari's interventions improved farmer resilience during this difficult period.

This work led in 2020 to Dahari receiving its largest ever grant of 890,000 euros from the EU to expand the agricultural program, meeting the assumption in the logframe.

Output 4: Status of at least one critically endangered species is secured and 50 hectares of biodiversity hotspots are conserved

Conservation agreements were signed to protect seven roost sites of the Livingstone's fruit bat, surpassing the five planned and securing 23% of the global population of this Critically Endangered species, one of the most endangered fruit bats in the world (see Annex D2 for an example contract and supporting mayor's letter, and Annex D3 showing the roost sites protected). The bat population continues to be monitored biannually at all roost sites on Anjouan, with current data in Annex D4. A further database monitors the benefits received by farmers participating in the scheme (Annex D5).

Efforts to conserve other species were guided by the publication of biodiversity hotspot maps (work funded by other donors). 82 hectares of two water catchments forming part of biodiversity hotspots were put under informal conservation measures (see map in Annex D1). This pilot work involved facilitating participatory diagnosis and collective engagement through social mobilisation, the creation of farmer groups to protect remaining forest species, ensuring agro-ecological practices around springs, and tree planting (Annex A6). However, the lack of social cohesiveness, the complex land tenure situation, and a general lack of political will from local to higher levels prevented formalisation of these collective conservation management rules.

These results nonetheless together represent the first ever successful terrestrial conservation actions in the Comoros. The PES scheme has proved to be more adapted to the individual social and land tenure setting, and will now be used as a basis for expanding forest conservation and restoration actions to other biodiversity hotspots and key areas for water management on Anjouan. The identification of a locally-adapted model for the restoration and conservation of Anjouan's forests is a vitally important step towards improving the resilience of peoples' livelihoods and the Comoros' biodiversity.

As a key plank of its 2021 to 2026 strategic plan built on the back of the learning from this project, Dahari plans in particular to increase the protection of the Livingstone's fruit bat to over 50% of its population within 18 months of the end of the project. Expansion of the PES scheme to conserve the Livingstone bats will also integrate key feeding areas identified through GPS tracking, with a pilot study funded by other donors published in Oryx (Annex D6).

Output 5: The landscape approach and forest landscape restoration (FLR) are promoted locally and nationally through communications, advocacy and engagement with the authorities and other key actors, and internationally through social media and publications

The combined communications and advocacy work during the project led to the signature of a partnership agreement in July 2021 between the Comoros National Parks Authority and Dahari, delegating management of the Moya forest KBA as well as conservation of the Livingstone's fruit bat on Anjouan to Dahari (Annex E4). This secures the landscape approach implemented by the project as a key plank of the Comoros' conservation strategy, as well as the project legacy in the Moya forest KBA as Dahari takes the works forwards with the international partners post-project. This is a huge result for the project, particularly given the complex institutional landscape in the Comoros, and is the first time that an NGO has been given responsibilities for conservation management.

This important result built on regular meetings held throughout the project with key figures in the Environment Ministry in Moroni and the Environment Commissariat on Anjouan. Regular advocacy meetings were also held with local authorities, media outputs in the Comoros delivered (Annex E2), and local communications events organised throughout the project.

A key advocacy element was delivered in partnership with the IUCN in the form of an initial country FLR analysis and workshop involving stakeholders from the government, the UNDP and research institutions (see Annex E1). Whilst this generated important engagement during the IUCN presence in-country, weak follow-up from both the Comorian authorities (as anticipated in the assumptions) and IUCN themselves, meant this had limited impact in the medium-term.

Dahari communicated frequently on project activities through its Facebook page which now has close to 10,000 followers. More occasional targeted tweets were sent by the project partners, and retweeted by the Darwin comms team. Two blogs were published by ICRAF and an article published in the Darwin newsletter (see Annex E2). The final product, a peer-reviewed paper on the agroforestry innovations for scaling landscape restoration is being drafted for submission end 2021.

3.2 Outcome

Outcome: Catchment restoration and management ensures water security of 5000 villagers in the Moya forest and enhances biodiversity management, whilst agroforestry and agricultural development improve livelihoods for 10,000 villagers

The project achieved its outcome, hitting all its process indicators within the outcome statement and within the measurable indicators as detailed below – with all the planned means of verification from the logframe provided in the Annexes. Impact indicators regarding livelihoods, biodiversity populations, and water security can only realistically be assessed in the medium- to long-term, however systems have been put in place to monitor all of these.

Indicator 1. 50 hectares of biodiversity hotspots are under conservation measures, maintaining population of the Livingstone's fruit bat and other forest-dependent endemics

23% of the global population of the Livingstone's fruit bat is protected through roost-site conservation agreements that have been signed with local farmers supported by local mayors' offices (see example contract in Annex D2). The population is monitored biannually (see database in Annex D4) and a participatory monitoring scheme of other biodiversity indicators was trialled with two villages (see Annex D7). More broadly, 82 hectares of biodiversity hotspots in two pilot water catchments were restored and put under informal conservation measures (see map in Annex D1 and A5).

Indicator 2. 400 hectares of headwater catchment reforested – which buffer biodiversity hotspots and restore the supply of water in six catchments (5000 villagers affected)

646 hectares of six water catchments were restored through tree planting (see Annex A1), over 50% over the target. As per the map in Annex D1 and A5 these areas are overlap with priority zones for biodiversity conservation. The six water catchments supply water for drinking and agriculture to around 5250 villagers (see calculation in Annex A1). Restoration of water supplies will occur in the medium-term and to that end participatory monitoring of impact on water flows was set up with four community groups (see Annex A4).

Indicator 3. 2500 households have 15% increase in combined cash and non-cash benefits from agriculture and agroforestry

3058 farmers (42% of women) were supported to improve revenues from agriculture and agroforestry, over 50% over the target (see database in Annex C1). An analysis of the impact on livelihoods was undertaken using RHoMIS methodology at the halfway and end points of the project (Annex C4). Half to two-thirds of respondents took up each of the various Dahari interventions (new crop variety and improved agro-ecological practices) and respondents generally reported that crop production, soil fertility, incomes, and food security had improved during the past two years (see report in Annex C4). This is a relatively high level of uptake compared to development activities in other contexts, particularly in the short term. We would expect these numbers to increase over time (*P.K. Thornton, P. Kristjanson, W. Förch, C. Barahona, L. Cramer, S. Pradhan- Is agricultural adaptation to global change in low-income countries on track to meet the future food production challenge? Glob. Environ. Chang., 52 (2018), pp. 37-48*). However, poverty and food insecurity were pervasive and pretty severe according to the 2021 data and when comparing the 2019 and 2021 quantitative indicators on incomes, agricultural production, and food insecurity, the situation had generally deteriorated between 2019 to 2021. This is not surprising given that the country has suffered from repeated political crises, a cyclone in 2019 which devastated agricultural fields (anticipated in the assumptions), and the Covid-19 pandemic causing both economic retraction and increasing food prices. These results suggest that a focus on poverty alleviation in this context will remain challenging whilst these meta events persist. The more significant benefits were non-cash benefits, particularly associated with increased resilience, although the indicators do not capture this at a high level of detail. Resilience is likely to be a more realistic measure for livelihood impact moving forwards.

3.3 Monitoring of assumptions

Set of assumptions on Government collaboration: Government continues to support landscape approach for the Moya forest Key Biodiversity Area (KBA)

Prior to the beginning of the project the government had engaged to leave the Moya forest KBA outside of the new UNDP-led protected areas programme and instead partner with Dahari to develop a landscape approach under this Darwin programme as per the Ministry support letter. However, during Year 2 the Moya zone was subsequently included within the protected areas

programme. Given the critical nature of these assumptions to the security of the intervention, Dahari invested heavily in regular meetings with the Protected Areas team and with the Ministry to ensure alignment. A partnership proposal that was solicited and elaborated by Dahari in Year 2, was finally signed in July 2021 as a result of this lobbying work (see Annex E4). This is a key result that delegates the management of the Moya KBA to Dahari and ensures that these assumptions have been met and Dahari can take the landscape approach forwards with the support of the international partners and national and local stakeholders.

Assumption: Other donor-funded projects working in the same domains and looking to work in Moya forest area engage constructively with Dahari

This was an ongoing difficulty throughout the project, with various donor-led interventions starting similar work in the same area. Dahari proactively engaged with all projects, eventually signing an agreement with the UNDP-Protected Areas Programme as per above and signing a partnership agreement to manage interventions for an IFAD-led agricultural programme. Direct collaboration with a UNEP-led water catchment project was not possible but several meetings were held with the project leader. In the absence of coordination of donor interventions, this is likely to remain an ongoing problem even if Dahari's increasing political standing mitigates risks to some extent.

Assumption: Climate change and natural disasters do not outweigh positive impacts of livelihood field programmes; nor impact on forest areas and Livingstone's fruit bat roost sites targeted for protection

Cyclone Kenneth hit the Comoros in April 2019. Many fields on Anjouan were devastated, with banana plants and clove trees particularly hard hit. Dahari mounted a crisis response with funding from the EU that supported 2000 of the most vulnerable and most affected farmers to replant their fields. As feared, this natural disaster, as well as wider economic shocks caused by political crises and Covid-19, impacted heavily on the livelihood results reported in the final RhoMIS assessment: quantitative indicators showed increased food insecurity and poverty as compared to the mid-project assessment (see Annex C4). In addition, the population count of the Livingstone's fruit bat reduced by a third immediately after the cyclone but subsequently recovered. This is going to be an ongoing risk regarding the impact of Dahari's work moving forwards and suggests a potential need to focus more on resilience as discussed in Section 3.2.

Assumption: Funding obtained for expansion of lowland agricultural package

Comments: Dahari won its largest ever grant from the EU to expand its agricultural development programme to all three islands of the Comoros. This completed co-funding for the Darwin project during its last year.

Set of Assumptions around farmer engagement

Several outputs were predicated on the assumption of the engagement of new farmers with the various actions. As described in the outcome section, this assumption broke down around collective water catchment initiatives contributing to the failure to formalise management regimes. However, the assumptions regarding individual farmer engagement all held – social mobilisation and the interventions proposed were strong enough to surpass most of the logframe targets. This conclusion forms part of the reason for Dahari's new strategic orientation to expand the conservation agreements protecting the Livingstone's fruit bat to restore wider forest areas for biodiversity and water.

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

Original impact: Anjouan's endemic biodiversity and remaining water resources are conserved, and the food security of the rural population is ensured

A model for conserving the terrestrial biodiversity of Anjouan through individual conservation agreements has been developed and tested around seven roost sites of the Critically Endangered *Pteropus livingstonii*, protecting 23% of the global population of the species (see Annex D4). Strategic planning has been undertaken towards scaling this work post-project to ensure the restoration of Anjouan's forests to secure both water and biodiversity. The planning was facilitated by detailed habitat and land-use maps produced directly by this project, as well as biodiversity and water analyses. This work represents the first ever successful terrestrial conservation initiative in the Comoros.

An innovative participatory mechanism to reforest the Moya forest area in the long-term has been established and its efficacy proven with over 23,000 trees now being planted annually by farmers in the area, and a 71% survival rate after one year of planting (Annex A2). Reforestation was focused in four water catchments covering 646 hectares of the targeted 400 hectares (Annex A1), and monitoring of springs and rainfall implemented. The restoration work has taken place in headwater areas supplying water to 5250 villagers (see Annex A1).

3058 farmers (>40% female and 50% over the target in the logframe) have been supported across the landscape to improve agricultural yields and revenues since the beginning of the project (Annex C1) thanks to an updated agricultural outreach strategy building on farmers' group and with a strong gender sensitive approach for engagement (Annex C3). A livelihood analysis using RHoMIS methodology showed that about half to two-thirds of respondents took up each of the various Dahari interventions (e.g. new staple crop variety, soil erosion control, agroforestry) and respondents generally reported that crop production, soil fertility, incomes, and food security had improved during the past two years and an updated agricultural development strategy implemented. An agroforestry manual for Anjouan has been completed (Annex B4) and 27 extension agents trained in its implementation (Annex B1). An innovative toolkit was produced to support advisory staff and farmers in selecting tree species that match needs and conditions (Annex B5) and rolled out with 222 farmers in Yr4 (Annex B6).

4 Contribution to Darwin Initiative Programme Objectives

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

Four of the project outputs were directly designed to address sustainable development goals and the fifth project output sought to underpin these by providing the institutional support required to achieve sustainable impact both during and beyond the project lifespan. The project contributed directly to SDGs 1 (no poverty – through agricultural and agroforestry development), 2 (no hunger – through agricultural and agroforestry development), 5 (gender equality – through developing gender-sensitive agricultural outreach packages), 6 (clean water and sanitation – through protecting watersheds) 13 (climate action – through reforestation and adoption of climate-smart agricultural methods), 15 (life on land – through biodiversity conservation measures). The contribution of the first four project outputs is briefly described below:

Output One was primarily focused on SDG's 6, 13 and 15. By exceeding the stated targets the project has begun the process of restoring critically important woodland systems in the headwater areas. As with all restoration activity these are long term processes, and the final outcomes and impact will take time to emerge. By strategically targeting where restoration occurred, the project activity will have a direct benefit on ecosystem service delivery as the trees mature, including improvement to critically important climate and water regulation ecosystem services.

Outputs Two and Three focused on farmer livelihoods, working with farmers to improve their livelihood contexts through improved and more sustainable agricultural function (SDGs 1, 2, 5, 13 and 15). Trees are a central component to agriculture in the Comoros and agroforestry (the integration of trees on agricultural land) provides an important mechanism to both diversify and increase the sustainability and resilience of agroecological systems on the island. In addition, integrating more trees on agricultural land reduced pressure on the Moya forest system.

Output Four was focused activity concentrating on SDG 15. The project developed the first model for terrestrial biodiversity conservation in the Comoros and secured 23% of the population of one

of the most endangered fruit bats in the world, whilst also restoring 82 hectares of biodiversity hotspots.

SDG 5 was a central focus across all outputs and the project was successful in integrating more women than initially outlined into all aspects of project work.

4.2 Project support to the Conventions or Treaties (e.g. CBD, Nagoya Protocol, ITPGRFA, CITES, Ramsar, CMS, UNFCCC)

The project worked to support the Comoros' commitments to the Convention on Biological Diversity. By looking to protect forest habitat and improve the sustainability of local agricultural practices through context-appropriate agricultural intensification and agroforestry interventions, thus reducing anthropogenic pressure on natural resources, the project contributed to all five of the overarching targets of the updated national biodiversity strategy and action plan.

The project focused on one of the three main objectives of the CBD, the conservation of biological diversity. As a whole, it developed the first ever successful model for terrestrial biodiversity conservation in the Comoros based on a participatory approach that ensures multiple benefits to adjacent communities. This integrated landscape approach has now been secured as a key plank of the country's conservation strategy moving forwards.

4.3 Project support to poverty alleviation

The project worked to alleviate poverty directly through supporting farmers to improve yields and revenues, and indirectly by securing water resources through reforestation and improved water catchment management. The project aimed to improve agricultural yields for 2500 rural households, and secure water resources for 5000 beneficiaries.

The revised agricultural strategy (see Annex C3) finalised during Year 3 aimed to ensure effective impact at scale and targeted staple food crops such as cassava, banana plantain and sweet potato, critical for food security, as well as certain key cash crops (potato, vegetables) based on feedback from farmers and internal discussions. One of the key foci was improving farmers' groups capacity to produce and share planting material. Both improved plant material and management techniques promoted by the project aimed to secure higher yields and therefore to improve food security and income of the households.

A total of 3058 farmers were supported in the adoption of climate smart agricultural practices, 42% of which were women. Analysis of the household RHoMIS dataset showed that 79% of people lived below the poverty line. Respondents were generally cash-poor, living on an average of \$0.39 per person per day (Annex C4).

All improved practices promoted by Dahari were reasonably well adopted. Improved sourcing of planting material and seeds, improved crop varieties, soil management, and crop management were applied by about 70% of respondents. Live fencing and new species of crops were used by around 50% of respondents. Novel pest management strategies and tree planting were used by around 40% of respondents (Annex C4).

The quantitative indicators on incomes, agricultural production, and food insecurity had generally deteriorated between 2019 to 2021 which reflects the general economic crisis in the Comoros resulting from several political shocks, the cyclone Kenneth and Covid-19. In spite of these shocks, the general perception of respondents was more positive as more than half of households reported increased agricultural income, increased food supply, increased crop yields, and improved soil fertility. These were generally small increases (i.e. less than doubling over two years). This would suggest that the agricultural support output of the project had a positive impact on building resilience and preventing further deterioration of cash and non-cash income. The survey also revealed that Dahari had been the sole source of support to these farmers during the project lifetime.

Reforestation was undertaken in six water catchments with 55294 trees planted by 1181 beneficiaries (Annex A1 and A2) In addition, 59883 tree cuttings were produced (*Gliricida sepium* and *Pterocarpus indica*) and distributed for the live-fencing agroforestry practice to 183 farmers (31% of which were women) (Annex A2). 222 farmers (44% of which were women) were supported in Y4 to optimise tree selection using more sophisticated customised decision-support tools (Annex B6). Although most of the benefits from trees will be achieved after the end of the project, improved land use and tree cover around springs is expected to help protect and enhance water resources on which neighbouring and downstream communities rely in the short-term.

4.4 Gender equality

Gender equality and gender equity were a key focus since the beginning of the project and a gender transformative strategy for the project and Dahari evolved through discussions, workshops and training. This quickly revealed the critical gender dimensions of agriculture in the Comoros, not least the matrilinearity of land access (inheritance passed down the female lineage) and matrilocality (husband moves into the wife's family). There were also gendered crop preferences and specialisation that required attention when scaling. Major changes to outreach mechanisms were made in Year 2 including the recruitment of women outreach agents, targeting existing women's associations in the villages, and supporting women's leadership and knowledge exchange between women. As shown in our database records (Annex C1), women made up 42% of the beneficiaries of the climate smart agriculture package with a progressive increase each year – surpassing the 30% target in the logframe.

Another area of progress was innovations in sustainable seed/plant material systems developed in the villages with women's associations and leadership. Twenty women's groups produced vegetative propagules for key food crops (Annex C1). The aim was to create self-reliant mechanisms that were sustainable and effective in delivering quality material. Three women's associations in Adda put in place saving mechanisms for the collective bulk purchase of vegetable crop seeds. They then developed an income generating activity for the group by marketing the seeds in the villages. Six women farmers established demonstration plots on their land and were active champions in exchanging knowledge and seeds with members in their groups.

Dahari continues working towards improving representation of women in community groups to support watershed management as the current committees are still male-dominated for a number of cultural reasons. Although this was not one of our indicators, it is worth mentioning that this has created some negative biases in the social mobilisation of farmers for reforestation campaigns which still reflects on the weak proportion of women involved overall in the reforestation program (23% - see annex A2). Active steps have been taken to remedy this situation, by working through women's associations and engaging more women outreach agents. This showed positive results as the number of women involved in the last year increased two-fold compared to the previous and made up 45% of farmers reached with participatory workshops in Yr4 (Annex A2 and B6).

4.5 Programme indicators

- **Did the project lead to greater representation of local poor people in management structures of biodiversity?**

The project implemented a two-pronged approach to biodiversity conservation, both initiatives managed directly by local poor people. A conservation agreements mechanism engaged an initial seven farmers to protect the Livingstone's fruit bat in and around roost sites. Based on the new forest cover map and ecological research conducted during the project, this scheme can now be effectively scaled out to protect and restore natural resources or achieving simultaneously biodiversity and water conservation targets. The project also supported the participation of rural communities in the diagnosis and design of landscape restoration interventions as well as participatory ecological monitoring targeted in five sub-catchments. This was undertaken through five water management committees (44 members) and through existing farmer groups or

associations as well as through the creation of new farmer groups to foster collective action around water management.

- **Were any management plans for biodiversity developed and were these formally accepted?**

N/A

- **Were they participatory in nature or were they 'top-down'? How well represented are the local poor including women, in any proposed management structures?**

N/A

- **How did the project positively influence household (HH) income and how many HHs saw an increase?**

3082 farmers were engaged in training and/ or access to seed and improved crop material. As a result of the widespread adoption of climate smart agricultural practices, notably access to improved staple food crop varieties, the RHoMIS livelihood assessment demonstrated that for a random sub-sample of farmers, the general perception was that they had experienced a positive change with more than half of households self-reporting increased agricultural income, increased food supply, increased crop yields, and improved soil fertility.

As noted above, these were generally small increases (i.e. less than doubling over two years) but important in such a precarious and volatile context.

- **How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?**

There are large knowledge gaps and a lack of reliable data in the Comoros which make comparison with national averages difficult. We used the RHoMIS analysis to assess changes in livelihood indicators. When looking at the 2019 and 2021 quantitative indicators on incomes, agricultural production, and food insecurity, the situation had generally deteriorated between 2019 to 2021 which reflects the economic crisis in the Comoros resulting from political unrest, the cyclone Kenneth and Covid-19. In spite of these shocks, the general perception of respondents was more positive as more than half of households reported increased agricultural income, increased food supply, increased crop yields, and improved soil fertility. This would suggest that the agricultural support output of the project had a positive impact on building resilience and preventing further deterioration of cash and non-cash income.

4.6 Transfer of knowledge

The ethos of this project was the need to have a participatory focus and encourage knowledge co-creation and sharing mechanisms between scientists, technicians and farmers. The evidence and learnings generated from this project are not only already embedded in the strategic planning and long-term vision for Dahari, but also support future knowledge transfer going forward. This is though the systems put in place (baselines established for natural resources and social engagement, data management and M&E) and practical resources and tools.

Participatory knowledge-building and implementation enhanced Dahari's capacity on all outputs, with ongoing exchanges and informal training from the international advisors, particularly Emilie Smith-Dumont. More formal training involving additional practitioners from government and other NGOs was delivered by Alain Tsobeng of ICRAF on tree propagation techniques, and by ESD on the application of the agroforestry manual and on facilitation techniques. To support Dahari's long-term engagement and advocacy work, the project made an effective contribution by facilitating a workshop including 20 policy makers and technicians to enable institutional support for aligning the Comoros to the Forest Landscape Restoration agenda led by the IUCN globally (Annex E1).

No formal qualifications were obtained as a direct result of this project, though Amelaid Houmadi (male) received his PhD from the University of Antananarivo during the course of the project thanks to work on biodiversity hotspot analyses under concurrent CEPF funding.

4.7 Capacity building

Dahari restructured in Years 3 and 4 of the project with notable promotions for Misbahou Mohamed (ex-Darwin fellow) who became Co-Director, Amelaid Houmadi who became Head of Monitoring and Evaluation (both male), and Siti Mohamed (female) who became Director of Mobilisation.

5 Sustainability and Legacy

The exit strategy was based on developing the capacity of Dahari and community agents to pursue the work into the future. The capacity of the Dahari team has continuously evolved through trainings delivered by the partners on mission and at distance, as well as the development of management tools and databases (see previous sections and Annexes).

The Comoros is ranked very low in the DAC nations for good reason. A number of the systemic development challenges faced by smallholder farmers on Anjouan were beyond the scope of the project to address, further compounded by political insecurity and natural disasters including the Covid-19 pandemic. Despite these challenges there were a number of features of the project design that should ensure that the Darwin project continues to provide impact beyond the funding period. These were:

- The project took a strong participatory approach throughout. Technologies and interventions were all developed in direct partnership with local stakeholders, drawing on their local ecological knowledge in designing interventions and responding directly to livelihood needs. Even in areas where the project encountered difficulties the research teams worked hard focusing on both direct and indirect outcomes to successfully raise awareness of socio-ecological issues including the critical importance of maintaining woodland cover in head water areas for regulating ecosystem services.
- The project teams provided both training and associated tools that will scaffold future development activity; and given Dahari's ongoing activity on the Comoros will certainly continue to be operational beyond the project lifespan.
- The project put in place a procedure for future monitoring and evaluation including the development of robust databases and the first detailed forest cover map for Anjouan. This will ensure that future impact can be assessed robustly.
- The project was designed and implemented to function effectively across the different components with a focus on landscape scale interactions and synergies. By carefully designing interventions that addressed both *in situ* and *ex situ* needs the project has increased the impact of the work. The work associated with Output Five was critical in securing these benefits into the future (although significant challenges still remain given the complicated political context).

At the end of the project Dahari now has the capability and tools to deliver a revised agricultural outreach, a complete reforestation programme, an innovative agroforestry development approach, and an expanding PES programme. All of this is encompassed within a new strategic plan for 2022 to 2026 currently undergoing finalisation and secured by an agreement with the National Parks authority that delegates management of the Moya KBA to Dahari – and also represents security for the FLR approach at the national level. Bat Conservation International have engaged as a key new funder, joining the EU with new CEPF investment awaited. Dahari will this take forwards the project staff and resources, with Bangor/ICRAF continuing to provide technical partnership alongside BCI and the University of Oxford – further funding to support provision of this technical expertise is being sought. There is thus very strong reason to believe that the project achievements will endure and form the basis for a flourishing future for Dahari and the partnerships established.

6 Lessons learned

- The key aim of this project, and the most important added value that the Darwin funding brought, was delivering international expertise to the improvement and implementation of Dahari's intervention strategy and activities. In this, way the flexibility that has been provided through the agreed change to use the salary of the planned in-country social scientist – a profile that proved simply too hard to recruit with the budget available – for consultancy inputs and increasing the support of the expatriate staff, proved critical to the successful development of the project.
- The learning for this project and potentially other Darwin projects concentrated on delivering international expertise to local NGOs is that this flexibility has been invaluable in allowing a quick response to needs arising during the course of the project – where otherwise adaptive management would have been hindered and important constraints would have arisen to project delivery and potential impact.
- Having four years to deliver the project rather than the standard three was also of major benefit, and key to the level of results achieved. Adapting to the numerous crises during the course of the project would not have been possible within a shorter timeframe.
- The participatory approach which collected and enhanced local and scientific knowledge to support farmers' collective action was central to what was achieved. It was important to first allocate time and resources on building a common vision (structured engagement tools, bringing evidence in the dialogue) which enabled a better cross-sectoral integration within the NGO and a shift from a focus on technology to one of contextualising interventions based on farmers' needs and conditions. This created a behaviour change within the growing Dahari team that is a critical long-term foundation to underpin future restoration. The return of ecosystem services takes time and needs human investment (soft skills) which is more complex to track and measure over a short time frame but these types of indicators would have been useful given the time and resources which the international team allocated in supporting a local NGO.
- One area where the Dahari team required more significant support than anticipated related to data management. This included designing not only field collection tool and processes but also basic analytical skills using Excel. Bangor has continued to provide regular assistance to improve data collection, storage and analysis.
- The complexity of the governance and political context created some major unanticipated barriers to implementation. For example, the formalisation of watershed committees and rules and sanctions for tree cutting, proven in other contexts, did not work in Anjouan. The learning approach taken by the project and the testing of different approaches to conservation action ensured that this did not become an overall blockage to progress.
- The major shocks that were experienced across Anjouan in the project timeframe required significant adaptive management from the team. The approach taken was to try to maintain the original logframe despite these. Instead we realise now that we should have adjusted the logframe as we progressed. In particular, achieving 15% increase in income in such a challenging context (the Comoros rank 158 out of 188 in the UN Human Development Indicator in 2016) was an unrealistic aspiration due to both external factors and the difficulty in effectively quantitatively tracking change. In the future indicators focused more on resilience of livelihood systems such as those reported on the qualitative perceptions by farmers would be more appropriate.

6.1 Monitoring and evaluation

The project management team tracked progress and indicators on a quarterly basis and regular communication was ensured during key periods to follow up on seasonal activities such as

agricultural and tree planting campaigns. As evidenced in this report and the annexes, the means of verification were mostly consistent with the project proposal, and data collection and analysis took place as planned.

The M&E system evolved as the matrix and tools that were used expanded. Significant effort was invested to improve Dahari's data management. Training and support were provided on the agricultural and natural resource management components by Bangor University. Data sets were cleaned and verified, and updated figures have been provided in the evidence to this report.

One change related to how tree planting was monitored. Outputs 1 and 2 both involved tree planting in the highlands of water catchment areas (20.000 and 10.000 trees targeted respectively), and it turned out irrelevant to disaggregate the data since the distribution of material came from the same five nurseries mostly located near headwaters and tree planting took place mostly on farmland. These targets have thus been merged. Similarly, there was no clear target on tree planting beneficiary numbers under Output 1 which focused solely on tree numbers. Since all reforestation works occurs on agricultural land in Anjouan, it is all essentially agroforestry and mobilising and tracking beneficiaries became a critical indicator of impact for this project. The original plan was to engage 500 farmers in agroforestry training through the farmer field school approach deployed by Dahari. However, the final result shows 1181 farmers were engaged in tree planting interventions over the course of the project.

The hours of agricultural training proved difficult to track due to the switch from individual to group support mid-project, and difficulties with managing databases. In future, indicators of behaviour changes would have been more useful.

As noted in the project learnings (see section 6), the indicator that was the most difficult to track was the expected changes in cash and non-cash income (15%). It is very difficult to measure changes in cash and non-cash income in a robust manner amongst poor rural communities, particularly when looking to disaggregate the positive project effects from major shocks (cyclone, economic crisis etc). The data is based on recalled information, and units of measurements that are used to convert into cash values are unreliable (especially for staple food crops like banana and cassava which are harvested all year round and sold in bunches). The farmers' perceptions of change were positive, and we can assume that a small increase in income (i.e. less than double) would correspond to the targeted 15% increase, but it is challenging to assess this precisely. RHoMIS was nonetheless valuable in providing a basis for monitoring impact on livelihoods through panel surveys going forward.

The RHoMIS evaluation represented the only external evaluation of impact during the course of the project. A in-field evaluation was planned for end of Y4 but had to be cancelled due to Covid-19.

6.2 Actions taken in response to annual report reviews

The review was discussed between Bangor/ ICRAF and Dahari and the following recommendations taken into account:

- In Annex 1, all numbers are filled in correctly (rather than just X or X% - an oversight in the Y3 report) ;
- A selection of photos to provide evidence of activities in the field is provided in Annex E3;
- Direct webpage / social media addresses are provided on the cover page and in Annex E2 ;
- ILRI's role in the project was to provide consultancy in support of applying and analysing the RHoMIS livelihoods assessment ; This was secured as a result of cross CGIAR collaboration between ILRI and ICRAF
- Brief English summaries of key Annexes in French have been provided at the top of the documents ; the photo report supports the information included in the evidence
- The tree survival rate after one year of planting in fields has been provided (71% - see Annex A2) ;

- A sample PES letter and accompanying letter has been provided in Annex D2 ;
- The explanation of the 50 hectares under conservation has been explained notably in questions 3.1 and 3.2, and a map is provided in Annex D1 ;
- Reporting against the communication outputs in Output 6 is provided in section 3.1 and Annex E2.

7 Darwin identity

The Darwin Initiative support formed part of Dahari's overall terrestrial intervention that encompassed major additional funding from the European Union and the Critical Ecosystem Partnership Fund, as well as other smaller contributions. The Darwin logo therefore features prominently as one of Dahari's main three funders in all communications - website, annual report, t-shirts, signs, posters etc.

The Darwin Initiative name featured in media articles covering the project activities and Dahari, and the logo and name have been promoted at key communications events such as the annual launches of the reforestation campaign which were attended by the authorities, partners and the media. Understanding of the Darwin Initiative within the Ministry of the Environment was promoted through regular meetings with key individuals, and through the advocacy workshop with the IUCN that brought together 20 stakeholders.

Internationally, Dahari has published regular social media updates and blogs throughout the project covering the project activities and citing the support of the Darwin Initiative. Dahari and the project partners have also published key tweets and Facebook posts (Dahari has nearly 10,000 followers on Facebook) in English copying Darwin, and these have been reposted by the Darwin communications team. Dahari will dedicate a week on social media to reporting the key results of this project once this report has been submitted. Two blogs were also published on the ICRAF website and an overall project impact will be published in the next months.

8 Impact of COVID-19 on project delivery

Dahari took a proactive approach to the Covid-19 pandemic, putting the health of all stakeholders first and implementing protective measures more stringent than those required by the government in the Comoros. Field activities were first heavily reduced in March 2020, with expatriates who wished to return to their home countries supported to do so before international travel to and from the Comoros was restricted. The Comoros turned out to be one of the least affected countries in the world during the first wave, and restrictions on field activities were gradually reduced and finally removed at the start of September. A more impactful second wave in January 2020 was managed in the same way as regards field activities, with fieldwork returning to normal by March. Missions to the Comoros by partners and advisors were not possible throughout the last year of the project.

Progress in the field was inevitably slowed during the two Covid-19 waves but - given the strong results in the first three years of the project - did not end up impacting heavily on most of the deliverables. Output 2 on agroforestry was the only one affected: given that the fieldwork depended on research and tool development in the first three years of the project, the restrictions to fieldwork in Year 4 meant that the number of beneficiaries reached was less than planned.

A system of distance working was developed for the local team during the two waves, and a system of distance support organised with expatriates back in their home countries and with project partners. The support system proved effective and Dahari will now continue to operate with a number of expatriate posts based abroad. However, it does not replace the importance of in-person missions, which will be planned for both advisors and expatriates based away from the Comoros when conditions allow.

The outcomes and activities linked to this project are not related to the Covid-19 response, however Dahari received a grant from the UK Embassy in Madagascar to support the Covid response team in Anjouan with priority expenditure and the development of a data collection and management system for the pandemic. This built on Dahari's experiences using Kobo and PowerBi under this Darwin project, particularly for the reforestation work, and so can be seen as a by-product of the project. The data management system has proved to be highly effective in monitoring Covid-19 cases and test results in Anjouan. The UK Ambassador visited the Comoros and reviewed this work just before report submission.

9 Finance and administration

9.1 Project expenditure

Project spend (indicative) since last annual report	2020/21 Grant (£)	2020/21 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy Costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				
Others				
TOTAL				

Staff employed (Name and position)	Cost (£)
Dr T Pagella (Research Support)	
Dr E Smith (Lead Researcher)	
H Doulton (Project lead locally)	
M Mohamed (Field Coordination)	
Social Research Agents x 4	
Social research and M+E Technical Assistant*	
NRM/Agroforestry agents x 3	
GIS/ecol technicians x 2	
S Mohamed (M+E Manager)	
Communications Agent x 2	
D Ali Charif (Admin Manager)	
TOTAL	

Capital items – description	Capital items – cost (£)
N/A	
TOTAL	

Other items – description	Other items – cost (£)
Charges for International transfers to Dahari (quarterly payments) and E.Smith (salary)	
TOTAL	

9.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
Bangor University (as planned)	
CEPF (as planned)	
EU (as planned plus extra for office and Y4)	
University of Oxford – additional mapping support	
TOTAL	

Source of funding for additional work after project lifetime	Total (£)
EU for agricultural expansion (est.)	
Bat Conservation International 1 st annual funds – PES + research	
Initiative Développement (via AFD/FFEM) – reforestation 1 year	
TOTAL (for 2021-2022)	

9.3 Value for Money

Investment external to Dahari was focused exclusively on financing UK and international-based expertise to support the development of Dahari’s programmes, as well as travel costs for missions (see budget and financial reports). This focus on funding the core aims of the Darwin Initiative was made possible thanks to the integration of this project with significant investments from Dahari’s other key donors (see table above). Additional in-kind co-funding was provided by Bangor to ensure that as much of the grant as possible went to supporting Dahari’s financial stability. With co-funding during the project surpassing the cost to Darwin and secured post-project funding already meeting the initial Darwin investment (see tables above), the project therefore represented very strong value for money. The project partners remain committed to building on this investment into the future and funding is being sought to finance their continued engagement.

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

Led by Bangor University in partnership with World Agroforestry, this project in support of the local NGO Dahari profited from UK and international expertise to develop the first ever successful terrestrial conservation and restoration initiative in the Comoro Islands. 23% of the population of one of the most endangered fruit bats in the world, the Livingstone’s fruit bat, was put under protection via individual conservation agreements. In addition, a mechanism to restore the headwater forests of the island of Anjouan – which has suffered one of the highest rates of deforestation in the world - was developed based on innovative participatory tree selection tools. Over 100,000 trees were planted by farmers during the course of the project; and the resilience

of over 3000 farmers (42% of whom were women) improved thanks to strong adoption of climate-smart agricultural techniques and improved seed varieties.

The approach had a strong participatory focus and encouraged knowledge co-creation and sharing mechanisms between scientists, technicians and farmers in order to ensure local ownership of tools and processes. This co-investment in the project design embedded sets of practices that will continue beyond the duration of the project. This was best illustrated in the agroforestry component of the work, which pushed the boundaries of applied agroforestry through the creation of an innovative 'Agroforestry toolkit for Anjouan' to improve farmer engagement and tree selection to improve survival rates. The tree selection tool, based on participatory research and co-design with farmers, was designed to support field teams to engage in meaningful group interactions around rebuilding ecological complexity, and restoring ecosystem services through sustainable tree planting both on farm and within the degraded forest areas. The process created links between beneficiaries both upstream and downstream of tree nurseries, feeding into the landscape scale planning which underpinned the project. As the approach enabled these interactions it was also a powerful awareness-raising tool for local people around shared environmental problems and enabled ownership of the solutions.

Work on this and other aspects of the forest restoration and conservation work were underpinned by an advocacy and communications initiative which resulted in the signature of a partnership agreement between the National Parks Authority and Dahari, securing the landscape approach adopted for the Moya forest KBA. The partners intend to build on this initial success by adopting the individual conservation agreements scheme to pursue wider restoration of the Comoros forests for water and biodiversity.

Annex 1 Project's original (or most recently approved) logframe, including indicators, means of verification and assumptions.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Anjouan's endemic biodiversity and remaining water resources are conserved, and the food security of the rural population is ensured			
<p>Outcome:</p> <p>Catchment restoration and management ensures water security of 5000 villagers in the Moya forest and enhances biodiversity management, whilst agroforestry and agricultural development improve livelihoods for 10,000 villagers</p>	<p>1. 50 hectares of biodiversity hotspots are under conservation measures, maintaining population of the Livingstone's fruit bat and other forest-dependent endemics</p> <p>2. 400 hectares of headwater catchment reforested – which buffer biodiversity hotspots and restore the supply of water in six catchments (5000 villagers affected)</p> <p>3. 2500 households have 15% increase in combined cash and non-cash benefits from agriculture and agroforestry</p>	<p>1. Participatory population monitoring of Livingstone's fruit bat roost sites, and other key biodiversity indicators</p> <p>2. GIS maps of biodiversity hotspots and water catchment areas under management</p> <p>3. Baseline livelihood survey of 250 households using IUCN's forest poverty toolkit, repeated end of years 2 and 4</p> <p>4. Database of flow and quality monitoring of water sources</p>	<p>Government continues to support landscape approach for the Moya forest KBA</p> <p>Other donor-funded projects working in the same domains and looking to work in Moya forest area engage constructively with Dahari</p> <p>Climate change and natural disasters do not outweigh positive impacts of livelihood field programmes; nor impact on forest areas and Livingstone's fruit bat roost sites targeted for protection</p>
<p>Outputs:</p> <p>1. Community groups are supported to restore and manage water catchment areas</p>	<p>1a. GIS maps of Moya forest zone published delimiting target water catchments, priority remaining tracts of natural forest for biodiversity management, as well as zones suitable for agroforestry and agricultural intensification</p> <p>1b. 20,000 trees are produced from community tree nurseries, planted and monitored in priority water catchments</p> <p>1c. Management rules and sanctions on tree-cutting are applied over 400 hectares of water catchments conserving six water sources</p> <p>1d. Five community groups with improved functioning</p>	<p>1.1 GIS maps published locally and online</p> <p>1.2 Database of trees planted (nursery records and annual monitoring records of in-situ seedling survival monitoring)</p> <p>1.3 Maps of management zones and agreed rules and regulations developed with local people, and published locally and online</p> <p>1.4 Reports of community group meetings and activities, evaluation of management decisions taken and implemented</p>	<p>Effective community groups for catchment management and restoration can be developed in all villages (currently developing well in 3)</p> <p>Farmers in new targeted catchment areas engage in restoration and management</p>

<p>2. Customised agroforestry technical packages are developed for upland areas and adopted by farmers</p>	<p>2a. Drivers of land degradation and tree cover change in upland areas identified, local knowledge about agroforestry practices, social analysis of tree preferences and opportunities for developing socially-inclusive agroforestry development assessed</p> <p>2b. Customised decision-support tools for agroforestry development are produced and disseminated to promote tree diversity including native and endemic forest species</p> <p>2c. 500 farmers (at least 30% women) receive at least 20 hours of training in agroforestry development optimising the choice of trees to plant for different purposes and conditions</p> <p>2d. 10,000 trees of mixed species matched to the needs of farmers, adjusted to gender, are planted in strategic location on farms to improve food security and maintain ecosystem services</p>	<p>2.1 Report published locally and online</p> <p>2.2 Technical guides and decision-support tools published locally and online</p> <p>2.3 Database of farmers supported, training evaluation reports with record participants, and farmers records of uptake of agroforestry options</p> <p>2.4 Database of trees planted (nursery records and annual monitoring records of in-situ seedling survival monitoring)</p>	<p>Farmers in upland areas motivated to adopt improved agroforestry regimes</p>
<p>3. A socially inclusive package of lowland climate-smart agriculture is streamlined, its impact proven, and rolled out to a further 2000 farmers</p>	<p>3a. Assessment of which agricultural techniques are appropriate for different zones and men and women farmers, feeding into plan for wider rollout</p> <p>3b. 2000 farmers (at least 30% women) receive at least 40 hours of training in implementing lowland agricultural package, and adopt at least two best-fit practices</p>	<p>3.1 Technical report published locally and online</p> <p>3.2 Plan for enlargement of lowland climate-smart agriculture package published, including priority geographical targets</p> <p>3.3 Database of farmers receiving support and seed varieties distributed, lists of presence at trainings and participatory evaluation reports, field monitoring records of uptake of practices</p>	<p>Funding obtained for expansion of lowland agricultural package</p>

<p>4. Status of at least one critically endangered species is secured and 50 hectares of biodiversity hotspots are conserved</p>	<p>4a. PES agreements maintain the population of the Livingstone's fruit bat at five roost sites</p> <p>4b. At least 50 hectares of forest areas of high-value for biodiversity conservation are under management by end of project</p> <p>4c. Landowners around biodiversity hotspots improve livelihoods through conservation schemes</p>	<p>4.1 Signed agreements with landowners around roost-sites</p> <p>4.2 Participatory population monitoring of Livingstone fruit bat roost sites and other key biodiversity indicators</p> <p>4.3 GIS map of forest areas of high value for biodiversity are published</p> <p>4.4 Map of areas under management published accompanied by rules and regulations</p> <p>4.5 Database of cash and in-kind benefits received by participating farmers.</p>	<p>Newly-engaged landholders attracted to PES scheme for conserving Livingstone fruit bat roosts (currently 2)</p> <p>Upland farmers in areas with remaining old-growth natural forest engage in conservation management actions</p>
<p>5. The landscape approach and forest landscape restoration (FLR) are promoted locally and nationally through communications, advocacy and engagement with the authorities and other key actors, and internationally through social media and publications</p>	<p>5a. Two multi-stakeholder workshops led by IUCN promoting the landscape approach and working towards FLR commitments engage key decision makers at a national level</p> <p>5b. Meetings and engagement with local, regional and national environmental authorities</p> <p>5c. 10 articles/ films promoting landscape approach published in local media</p> <p>5d. At last one peer-reviewed paper is published about the landscape approach</p> <p>5e. 5 blogs published by international partners highlighting progress and results in the Comoros</p> <p>5f. Attendance at regular community communications events (music, football, traditional dances)</p>	<p>5.1 Workshop and meetings reports and attendance lists</p> <p>5.2 Database of meetings and participatory evaluation reports</p> <p>5.3 Database of media publications and blogs</p> <p>5.4 Journal acceptance of paper</p> <p>5.5 Database of local communication events held, including estimates of attendance</p>	<p>New national authorities show continued interest in engaging with IUCN</p> <p>New national and regional authorities continue to support Dahari's long-term landscape management approach for the Moya zone</p> <p>Local authorities in Moya forest area continue to engage constructively with Dahari</p>

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 GIS mapping of Moya landscape, prioritising areas for different activities
 - 1.2 Participatory discussions on reforestation with farmers in targeted water catchment areas
 - 1.3 Installation and management of community tree nurseries
 - 1.4 Reforestation campaigns
 - 1.5 Participatory work with community groups to develop, implement and monitor rules and regulations and seedling survival
 - 1.6 Participatory monitoring of water quality and flow of sources targeted for protection, and areas reforested
-
- 2.1 Participatory research and knowledge acquisition with farmers surrounding agroforestry practices, land and forest degradation, agroforestry opportunities
 - 2.2 Development of customised decision-support tools to drive agroforestry adoption
 - 2.3 Training of farmers with the decision support-tools and in agroforestry practices towards increased tree-planting
 - 2.4 Participatory monitoring of trees planted and seedling survival
 - 2.5 Assessment of impact on livelihoods for a subset of agroforestry adopters using the forest poverty toolkit
-
- 3.1 Participatory research into contextual variation in the uptake of Dahari's agricultural practices
 - 3.2 Improvement of Dahari's agricultural outreach programme based on research results, and plan for expansion
 - 3.3 Training of additional farmers in climate-smart agricultural methods
 - 3.4 Assessment of impact on livelihoods for a subset of agricultural adopters using the forest poverty toolkit
-
- 4.1 Discussions with landholders around targeted Livingstone's roost-sites surrounding protection schemes
 - 4.2 Development and signature of conservation agreement contracts with targeted landholders
 - 4.3 Regular agricultural support and ecotourism contributions to targeted farmers, and reforestation using endemic species as per contracts
 - 4.4 Publication of GIS maps highlighting other priority zones for conservation (finances through other funding)
 - 4.5 Adaptation of scheme to highland areas critical for other endemic biodiversity, and application with farmers
 - 4.6 Participatory monitoring of roost site populations, other key biodiversity indicators, and benefits to farmers
-
- 5.1 National workshops led by IUCN to advocate for the landscape approach and Forest Landscape Restoration
 - 5.2 Regular meetings with authorities and other key actors between all partners
 - 5.3 Regular media outputs in Comoros, and on partner social media accounts and blogs
 - 5.4 Regular communications events in the villages
 - 5.5 Peer-reviewed paper on the landscape approach published

Annex 2 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and achievements
<p>Impact</p> <p>Anjouan's endemic biodiversity and remaining water resources are conserved, and the food security of the rural population is ensured</p>		<p>23% of the population of the Critically Endangered and flagship Livingstone's fruit bat has been put under protection through a PES scheme and 82 hectares of wider biodiversity hotspots restored, providing a new model for forest conservation and restoration in the Comoros, with strategic planning to support expansion being finalised. Over 5000 villagers will benefit from improved water security due to the reforestation of 646 hectares of water catchments. 3058 farmers were supported to adopt climate-smart agricultural practices with livelihood assessment showing 56% improved their crop yields and income, despite major shocks from a cyclone and Covid-19.</p>
<p>Outcome</p> <p>Catchment restoration and management ensures water security of 5000 villagers in the Moya forest and enhances biodiversity management, whilst agroforestry and agricultural development improve livelihoods for 10,000 villagers</p>	<p>1. 50 hectares of biodiversity hotspots are under conservation measures, maintaining population of the Livingstone's fruit bat and other forest-dependent endemics</p> <p>2. 400 hectares of headwater catchment reforested – which buffer biodiversity hotspots and restore the supply of water in six catchments (5000 villagers affected)</p> <p>3. 2500 households have 15% increase in combined cash and non-cash benefits from agriculture and agroforestry</p>	<p>Seven roost-site conservation agreements were signed conserving 23% of the Livingstone's fruit bat population. 82 hectares of wider biodiversity hotspots in two pilot water catchments were reforested and put under informal conservation measures.</p> <p>646 hectares of six water catchments were reforested with 55,294 trees, improving water supply to an estimated 5250 villagers, with monitoring of the impact of water provision implemented around four springs. This was facilitated by the adoption of an innovative tree selection tool developed based on participatory research.</p> <p>3058 households (and thus at least 12,000 individuals given average family size) were supported to improve their livelihoods via agriculture and agroforestry development – driven by an evidence-based improved and gender-sensitive agricultural outreach approach. The livelihoods monitoring established using RHoMIS showed that more than half of respondents reported having increased agricultural income, food supply, crop yields, improved soil fertility. These were generally small increases (i.e. less than doubling over two years). (see Annex C4 for details)</p>
<p>Output 1.</p> <p>Community groups are supported to restore and manage water catchment areas</p>	<p>1a. GIS maps of Moya forest zone published delimiting target water catchments, priority remaining</p>	<p>State of the art GIS maps produced (Annex A5). 55294 trees planted in total in 646 hectares of water catchments, meeting the combined target from Outputs 1 and 2 (see Annex A1 and A2). Five reforestation</p>

	<p>tracts of natural forest for biodiversity management, as well as zones suitable for agroforestry and agricultural intensification</p> <p>1b. 20,000 trees are produced from community tree nurseries, planted and monitored in priority water catchments</p> <p>1c. Management rules and sanctions on tree-cutting are applied over 400 hectares of water catchments conserving six water sources</p>	<p>community groups improved their functioning over the course of the project, increasing average seedling survival rate from 68% to 91%, and average production from 1750 to 5000 seedlings per nursery (Annex A3). Tree survival rates were 71% one year after planting (Annex A2).</p> <p>Despite efforts to engage in stakeholder dialogue and advocacy, it proved not possible to develop formal management rules within water catchments. This was largely due to weak local governance structures and a fragmented social fabric. The other indicators were appropriate.</p>
	1d. Five community groups with improved functioning	
Activity 1.1 GIS mapping of Moya landscape, prioritising areas for different activities		Two iterations of forest mapping led to final publication of most detailed forest and landcover map of Anjouan ever produced
Activity 1.2 Participatory discussions on reforestation with farmers in targeted water catchment areas		A total of 1181 farmers (42% women) were engaged in reforestation in the six targeted water catchments.
Activity 1.3 Installation and management of community tree nurseries		Five tree nurseries were installed during the course of the project, with annual output increasing from 7538 to a total of 23100 seedlings by project end
Activity 1.4 Reforestation campaigns		A total of 55294 trees were planted over the course of the project from seedlings and 59883 cuttings were planted to produce live fences
Activity 1.5 Participatory work with community groups to develop, implement and monitor rules and regulations		Support was provided to two community groups in priority sub-catchments which led to development of informal regulations
Activity 1.6 Participatory monitoring of water quality and flow of sources targeted for protection, and areas reforested		Monitoring of four water sources implemented
<p>Output 2.</p> <p>Customised agroforestry technical packages are developed for upland areas and adopted by farmers</p>	2a. Drivers of land degradation and tree cover change in upland areas identified, local knowledge about agroforestry practices, social analysis of tree preferences and	Agroforestry manual, tree database, and decision-support tool to assist with tree selection produced and validated (Annex B4 and B5). 55294 trees planted over the course of the project (Annex A2) by 1181 farmers. 222 farmers (45% of which were women) were supported in Y4 to optimise tree selection using more sophisticated customised decision-

	<p>opportunities for developing socially-inclusive agroforestry development assessed</p> <p>2b. Customised decision-support tools for agroforestry development are produced and disseminated to promote tree diversity including native and endemic forest species</p> <p>2c. 500 farmers (at least 30% women) receive at least 20 hours of training in agroforestry development optimising the choice of trees to plant for different purposes and conditions</p> <p>2d. 10,000 trees of mixed species matched to the needs of farmers, adjusted to gender, are planted in strategic location on farms to improve food security and maintain ecosystem services</p>	<p>support tools. A further 59883 tree cuttings were produced and distributed for the live-fencing agroforestry practice to 183 farmers (31% of which were women) Annex A2.</p> <p>The division of trees planted between Outputs 1 and 2 proved to be artificial so this indicator has been merged for reporting purposes. Interactions with farmers on tree selection involved participatory dialogues with farmer groups rather than formal training as originally anticipated so the amount of hours was not recorded as it was no longer relevant.</p>
<p>Activity 2.1 Participatory research and knowledge acquisition with farmers surrounding agroforestry practices, land and forest degradation, agroforestry opportunities</p>		<p>Research and stakeholder engagement undertaken in Y1 and Y2 led to development of an agroforestry manual for Anjouan</p>
<p>Activity 2.2 Development of customised decision-support tools to drive agroforestry adoption</p>		<p>An agroforestry manual, a tree database, and an innovative participatory tree selection tool were all produced and applied, with training given to 27 extension agents from Dahari and other organisations on Anjouan</p>
<p>Activity 2.3 Training of farmers with the decision support-tools and in agroforestry practices towards increased tree-planting</p>		<p>222 farmers took part in focus groups using decision support tools in Y4 (45% were women)</p>
<p>Activity 2.4 Participatory monitoring of trees planted and seedling survival</p>		<p>Monitoring showed seedling survival in the nurseries rose from an average of 69% to 91% over the course of the project, and tree survival averaged 71% after one year planted in fields.</p>
<p>Activity 2.5 Assessment of impact on livelihoods for a subset of agroforestry adopters using the forest poverty toolkit</p>		<p>RHoMIS livelihood analysis undertaken at midway point and end of project with 276 farmers randomly selected from six intervention villages.</p>
<p>Output 3.</p>	<p>3a. Assessment of which agricultural techniques are</p>	<p>Initial research and workshops led to the development of an enhanced agricultural outreach strategy which was applied from Y3 (Annex C3). This</p>

<p>A socially inclusive package of lowland climate-smart agriculture is streamlined, its impact proven, and rolled out to a further 2000 farmers</p>	<p>appropriate for different zones and men and women farmers, feeding into plan for wider rollout</p> <p>3b. 2000 farmers (at least 30% women) receive at least 40 hours of training in implementing lowland agricultural package</p>	<p>enabled expansion of the programme to reach 3058 farmers in total over the course of the project, 42% of whom were women (Annex C1).</p> <p>Indicators were appropriate, though hours varied across trainings and the new group strategy prevented recording hours received by individuals.</p>
<p>Activity 3.1 Participatory research into contextual variation in the uptake of Dahari's agricultural practices</p>		<p>Initial research completed and integrated into planning, focus groups also undertaken in Y4 around uptake and appreciation of different techniques</p>
<p>Activity 3.2 Improvement of Dahari's agricultural outreach programme based on research results, and plan for expansion</p>		<p>Workshop held in Y2 to assimilate learning into a new agricultural outreach strategy, funded from 2020 to 2022 by the EU</p>
<p>Activity 3.3 Training of additional farmers in climate-smart agricultural methods</p>		<p>3058 farmers trained in total through the project, 42% of whom were women</p>
<p>Activity 3.4 Assessment of impact on livelihoods for a subset of agricultural adopters using the forest poverty toolkit</p>		<p>RHoMIS livelihood analysis undertaken at midway point and end of project with 276 farmers</p>
<p>Output 4.</p> <p>Status of at least one critically endangered species is secured and 50 hectares of biodiversity hotspots are conserved</p>	<p>4a. PES agreements maintain the population of the Livingstone's fruit bat at five roost sites</p> <p>4b. At least 50 hectares of forest areas of high-value for biodiversity conservation are under management by end of project</p> <p>4c. Landowners around biodiversity hotspots improve livelihoods through conservation schemes</p>	<p>Conservation agreements (see example in Annex D2) signed to protect seven roost sites of the Livingstone's fruit bat (23% of the global population – see Annex D4) with monitoring of roost populations (Annex D3) and benefits to landowners in place (Annex D5).</p> <p>82 hectares of wider biodiversity hotspots in two pilot water catchments reforested and under informal management measures (see map in Annex D1)</p> <p>Indicators were appropriate, though not possible to show livelihood improvement within project timeframe. Social factors prevented formalisation of management rules.</p>
<p>Activity 4.1 Discussions with landholders around targeted Livingstone's roost-sites surrounding protection schemes</p>		<p>Seven farmers owning fields where roost sites are located engaged towards contracts, 12 further farmers engaged towards expansion of scheme to form a buffer in two roost sites</p>
<p>Activity 4.2 Development and signature of conservation agreement contracts with targeted landholders</p>		<p>Conservation agreements to protect roost-sites of the Critically Endangered Livingstone's fruit bat signed with seven farmers</p>
<p>Activity 4.3 Regular agricultural support and ecotourism contributions to targeted farmers, and reforestation using endemic species as per contracts</p>		<p>Regular support from the agricultural team has been provided to the farmers (seeds, tools, training) and monitored. Annual monitoring of tree numbers in fields undertaken.</p>

<p>Activity 4.4 Publication of GIS maps highlighting other priority zones for conservation (finances through other funding)</p>	<p>Maps produced and integrated into conservation planning under activity 4.5. Presentation of research to key stakeholders planned in the capital in 2021.</p>
<p>Activity 4.5 Adaptation of scheme to highland areas critical for other endemic biodiversity, and application with farmers</p>	<p>Collective water catchment management within biodiversity hotspots piloted in two areas leading to reforestation and informal management measures across 82 hectares. Dahari's new strategic plan for 2021-2026 to be finalised shortly will adopt the PES model for the wider forest landscape. Support ensured from international partners including ICRAF, Bangor, Oxford University, Bat Conservation International.</p>
<p>Activity 4.6 Participatory monitoring of roost site populations, other key biodiversity indicators, and benefits to farmers</p>	<p>Biannual monitoring of the bat population, tree cover around roosts, and benefits to farmers undertaken.</p> <p>Participatory monitoring scheme of other biodiversity and pressure indicators implemented in two villages.</p>
<p>Output 5.</p> <p>The landscape approach and forest landscape restoration (FLR) are promoted locally and nationally through communications, advocacy and engagement with the authorities and other key actors, and internationally through social media and publications</p>	<p>5a. Two multi-stakeholder workshops led by IUCN promoting the landscape approach and working towards FLR commitments engage key decision makers at a national level</p> <p>5b. Meetings and engagement with local, regional and national environmental authorities</p> <p>5c. 10 articles/ films promoting landscape approach published in local media</p> <p>5d. At least one peer-reviewed paper is published about the landscape approach</p> <p>5e. 5 blogs published by international partners highlighting progress and results in the Comoros</p> <p>5f. Attendance at regular community communications events (music, football, traditional dances)</p> <p>The national advocacy workshop in Y3 attracted key representatives from the Ministry, the UNDP and the University (Annex E1). Subsequently, regular meetings between Dahari and key figures in the Environment Ministry, the UNDP and the Environment Commissariat on Anjouan led to the signature of a partnership agreement between Dahari and the National Parks Authority post-project (Annex E4). This was a critical advocacy result for the project, securing Dahari's intervention and the FLR approach for the Moya forest KBA. Regular advocacy meetings were also held with local authorities throughout the project. All media outputs were achieved (Annex E2) and local communications events undertaken as planned. The peer-reviewed paper on scaling agroforestry for landscape restoration will be submitted end 2021, and 2 blogs were published by ICRAF during the course of the project.</p> <p>These indicators were appropriate in relation to the Output.</p>

Activity 5.1 National workshops led by IUCN to advocate for the landscape approach and Forest Landscape Restoration	National workshop held in Y3 in conjunction with IUCN, including meetings with key actors, technical workshops and a final presentation with 20 government, donor and civil society representatives
Activity 5.2 Regular meetings with authorities and other key actors between all partners	Regular meetings were held throughout the project between Dahari and key figures in the Environment Ministry, the Environment Commissariat on Anjouan, and the UNDP Protected Areas team
Activity 5.3 Regular media outputs in Comoros, and on partner social media accounts and blogs	12 articles were published in the national press in the Comoros, 3 articles were published on partner blogs, along with regular social media outputs
Activity 5.4 Regular communications events in the villages	Recruitment of further dedicated outreach agents allowed increased engagement via agricultural and reforestation campaign events
Activity 5.5 Peer-reviewed paper on the landscape approach published	Article on scaling agroforestry for landscape restoration drafted to be submitted end 2021

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis						
1b	Number of PhD qualifications obtained						
2	Number of Masters qualifications obtained						
3	Number of other qualifications obtained						
4a	Number of undergraduate students receiving training	6	Comorian	4 m 2 f	Biodiversity monitoring	French/Comorian	
4b	Number of training weeks provided to undergraduate students	10	Comorian	4 m 2 f	Biodiversity monitoring	French/Comorian	
4c	Number of postgraduate students receiving training (not 1-3 above)						
4d	Number of training weeks for postgraduate students						
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification (e.g., not categories 1-4 above)						
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	24	Comorian	17 m 7 f	Facilitation, agriculture, research	French/Comorian	Dahari staff
6b	Number of training weeks not leading to formal qualification	12	Comorian	17 m 7 f	Facilitation, agriculture, research	French/Comorian	Dahari staff
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	3058 farmers	Comorian	1774 m 1284 m	Agroforestry techniques and tree selection	Comorian	

6b	Number of training weeks not leading to formal qualification	Est. 2 weeks	Comorian	1774 m 1284 m	Agroforestry techniques and tree selection	Comorian	
7	Number of types of training materials produced for use by host country(s) (describe training materials)	3	Training guides for agricultural and agroforestry outreach				
Research Measures		Total	Nationality	Gender	Title	Language	Comments/ Weblink if available
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (ies)						Participatory process?
10	Number of formal documents produced to assist work related to species identification, classification and recording.	1			Guide technique d'agroforesterie pour la sélection et la gestion des arbres sur Anjouan	French	ICRAF website
11a	Number of papers published or accepted for publication in peer reviewed journals	0 (1 to come)					Submission end 2021
11b	Number of papers published or accepted for publication elsewhere						
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	4			Tree species data base, tree monitoring database, agricultural beneficiaries database, spring monitoring	French	As per annexes

12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country						
13a	Number of species reference collections established and handed over to host country(s)						
13b	Number of species reference collections enhanced and handed over to host country(s)						

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	2					One on advocacy towards the landscape approach led by the IUCN One on the results of the ecology and conservation work, delayed by Covid-19, to be held in 2021
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.						

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)		
21	Number of permanent educational, training, research facilities or organisation established		
22	Number of permanent field plots established		

Financial Measures		Total	Nationality	Gender	Theme	Language	Comments
23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work (please note that the figure provided here should align with financial information provided in section 9.2)						

Annex 4 Aichi Targets

	Aichi Target	Tick if applicable to your project
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	
2	Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	
3	Incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	√
4	Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	
5	The rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	
6	All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	
7	Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	√
8	Pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	
9	Invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	
10	The multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	
11	At least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	
12	The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	√
13	The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	

14	Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	√
15	Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	
16	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	
17	Each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	
18	The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	
19	Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	
20	The mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	

Annex 5 Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. web link, contact address etc)
Manual*	Guide technique d'agroforesterie pour la sélection et la gestion des arbres aux Comores Emilie Smith-Dumont, Subira Bonhomme, Misbahou Mohamed 2020	French	UK (Bangor)	Female	Bangor	ICRAF website (pending approval)
Toolkit	Outil de sélection participative des arbres Emilie Smith Dumont, Juliette Frossard, Amelaid Houmadi, Misbahou Mohamed, Sven Ten Napel 2021	French	UK (Bangor)	Female	Bangor	ICRAF website (pending approval)

Annex 6 Darwin Contacts

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Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@itsi.co.uk putting the project number in the Subject line.	No
Is your report more than 10MB? If so, please discuss with Darwin-Projects@itsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	Yes
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 10)?	Yes
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
Do you have hard copies of material you need to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	No
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	