Darwin Initiative: Final Report

*To be completed with reference to the "Writing a Darwin Report" guidance: (http://www.darwininitiative.org.uk/resources-for-projects/reporting-forms). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)*

Darwin Project Information

Project reference	24-010
Project title	Mobilising useful plant conservation to enhance Atlas mountain community livelihoods
Country(ies)	Morocco
Lead organisation	Global Diversity Foundation (GDF)
Partner institution(s)	Moroccan Biodiversity and Livelihoods Association (MBLA); High Commissariat for Water and Forests and Desertification (HCWFD); Faculté des Sciences Semlalia Marrakech, Université Cadi Ayyad (FSSM-UCA); Institut Agronomique et Vétérinaire Hassan II, Rabat (IAV); Ressources Ingénierie (RESING); International Center for Agricultural Research in the Dry Areas (ICARDA) and Agropolis Resource Center for Crop Conservation, Adaptation and Diversity (ARCAD); Association des Amis du Centre Hospitalier Universitaire (CHU), Radiant Design and DEAFAL.
Darwin grant value	£ 312,660
Start/end dates of project	1st April 2017 - 31st March 2020
Project leader's name	Gary Martin
Project website/blog/social media	www.global-diversity.org A general description of the project is available on GDF's UK website and regular updates are posted on the GDF news page.

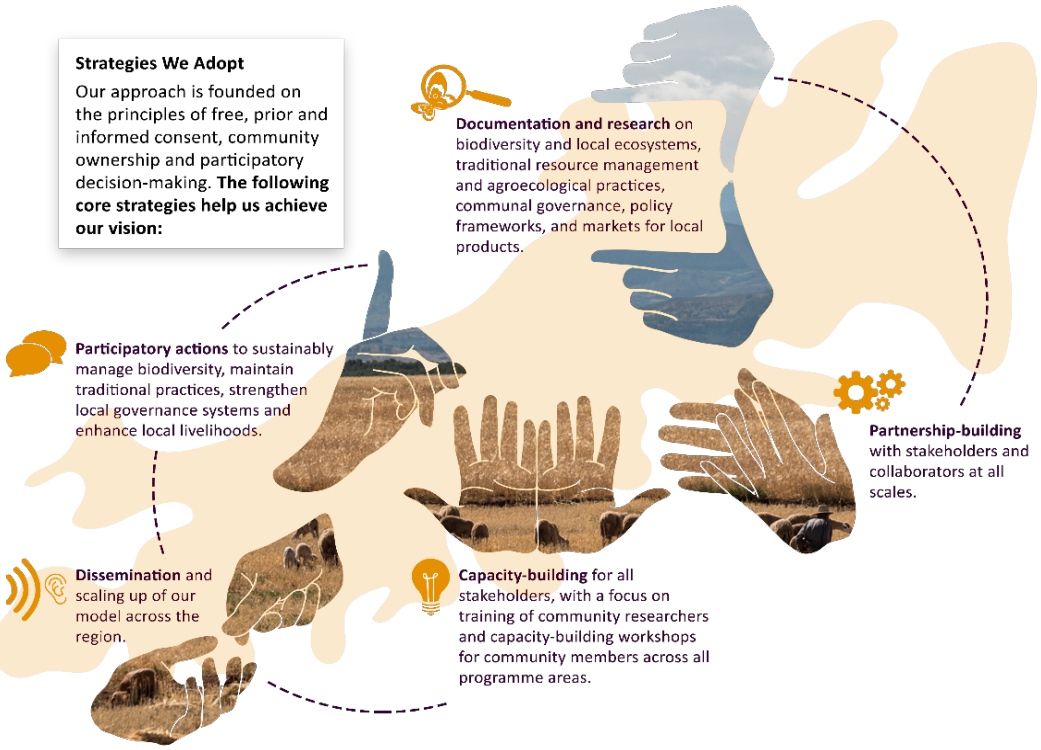
1 Project Summary

With this project, GDF addresses interconnected issues of plant conservation and poverty in the High Atlas biodiversity hotspot of Morocco. We seek to answer the question: how can Amazigh people remain the custodians of Important Plant Areas and useful plant species while improving their livelihoods in a changing socio-economic context and under new national biodiversity laws? In our previous Darwin Initiative project (2013-2016), we documented how smallholder farming and grazing traditionally contributed to livelihoods and biodiversity conservation, while the collection of wild species provided additional sources of food, fodder, fuelwood and medicines that enhance local wellbeing. We gathered evidence of contemporary changes in practice including decreased cultivation of local crop varieties, overgrazing and unsustainable harvest of wild plants. Accentuated by climate change, these drivers threaten High Atlas biocultural landscapes, local livelihoods and unique biodiversity. Socio-economic transitions bring affluence to some families, but provide limited benefits to most households, putting the most vulnerable at a disadvantage. This is exacerbated by limited access to education, diminishing agricultural production, and health problems related to poor hygiene and nutrition, resulting in high levels of out migration which local informants affirm is a primary obstacle to community wellbeing.

To counter this trend, Amazigh communities seek to enhance their livelihoods by increasing access to rapidly expanding national retail, wholesale and export markets for plant products; adding value to traded products; and strengthening cooperatives to increase competitiveness. They strive to maintain the ecological integrity of Important Plant Areas where they harvest wild edible, medicinal and other useful plants that provide non-monetary benefits. Our project strengthens these positive conservation and livelihood trends through participatory research and practical action, including conservation assessment and monitoring of flagship species, agroecological cultivation and enrichment planting of threatened plants, capacity building on adding value and marketing plant products, and improving access to irrigation, schooling, adequate nutrition and healthcare, with a special focus on marginalized and vulnerable households.

As part of our wider High Atlas Cultural Landscapes Programme, GDF works in the communities of Aït M'hamed, Imegdal, and Ourika. In early 2019, we launched our integrated programme of work in the commune of Oukaïmeden.

Our approach is founded on the principles of free, prior and informed consent, community ownership and participatory decision-making. The following core strategies help us achieve our vision:



To implement these strategies, we organise our activities into six sub-programmes: Biodiversity Conservation, Cultural Practices, Governance and Policy, Agroecology, Biocultural Education and Youth, and Local Product Commercialisation.

2 Project Partnerships

This project allowed GDF to continue building our strong partnership with lead project partner Moroccan Biodiversity and Livelihoods Association (MBLA), which was created with sponsorship from GDF during our previous Darwin project. Over the past three years, GDF and MBLA have collaborated closely to deliver the activities reported on below. We ensured effective internal communications through weekly online meetings and regular face-to-face meetings and workshops at the MBLA office in Marrakech. In 2019-2020 GDF funded an intensive six-month coaching process for the MBLA team with the aim of strengthening the institution and team member capacities and to ensure the long-term sustainability of our HACL programme. The full MBLA coaching programme is provided in Annex 1.

We continued to successfully collaborate with RESING to secure efficient water infrastructure in all project sites and design irrigation interventions, including the restoration of 1,16km of *seguias* (traditional water canals) in Aït M'hamed (see Output 3 for details). We also strengthened our long term partnership with Cadi Ayyad University Marrakech, in particular the MARK Regional Herbarium where the regional seed bank was created with the support of Darwin funds and through collaborations with Prof. Ahmed Ouhammou and his students for ecological monitoring. A recently-built partnership with the Association des Amis du CHU allowed us to provide medical care and medicine during three annual Health Caravans in Aït M'hamed and Imegdal (see Output 2 for details). Given the success of these events, we plan to continue with this collaboration in the future. We collaborated closely with permaculture design and capacity-building consultancy Radiant Design and the Dar Taliba management team to successfully establish weekly garden training sessions at the Dar Taliba boarding house, launched in 2017. The weekly training sessions delivered by our colleagues Cécile Michiardi and Laila Khabouz from Radiant Design have been extremely well received by the Dar Taliba students and teaching team, and our institutional partner ABDBO (Association de Bienfaisance et de Développement du Bassin) which runs the Dar Taliba boarding house. Furthermore, our initial collaborations with Nicola Bradbear, from Bees for Development, anthropologist Deena Freeman, from the London School of Economics and Political Science and Gonzalo Oviedo, from the MAVA foundation helped in the establishment of our local product commercialisation programme.

Through this project, we also established two new partnerships with 1) DEAFAL, an Italian NGO that supports the social and economic empowerment of small-scale farmers and producers in the Global South through sustainable agriculture projects and 2) Cooperative Maroc Solidaire (CoMaSol), a multidisciplinary team of Moroccan agronomists, biologists, sociologists, lawyers and economists. GDF established MoUs and Partnership Agreements with all relevant local partner organisations in Year 1 of this project (including the Imegdal Znaga Cooperative and ASKA Women's Association in Ait M'hamed) to support effective collaboration and the successful delivery of our programme. GDF also signed a MoU (Annex 2) with local associations, cooperatives and local authorities in the Commune of Oukaïmeden in January 2019, allowing us to officially launch and expand our project activities to this fourth site. We continue to strengthen these partnerships through the development of Community Action Plans to ensure our project activities respond to the communities' needs.

Finally, we established an informal network of diverse stakeholders for our local product commercialisation and other sub-programmes, including representatives of producer cooperatives, farmers, market gardeners, herbalists and other retailers and wholesalers, exporters and consumers. We have links with initiatives such as the Réseau des Initiatives pour l'Agroécologie au Maroc (RIAM) and the Carrefour des Initiatives et des Pratiques Agroécologiques (CIPA). In addition, we have incorporated consultants such Nicola Bradbear from Bees for Development, anthropologist Deena Freeman from LSE and Gonzalo Oviedo of MAVA Foundation. Informal collaboration with a diverse group of people committed to equitable trade and sustainable harvesting has turned out to be as important as formal institutional partnerships in developing our programme.

3 Project Achievements

3.1 Outputs

Output 1. Conservation action plans for threatened useful plants implemented

Output 1 focuses on developing conservation action plans for 12 regionally threatened and culturally important species (see Annex 3 for the species list). We have achieved this through the development of IUCN conservation assessments for all 12 species which have been published online on the IUCN Red List of Threatened Species, detailing threats to species and habitats, including climate change, water mismanagement, plant overharvesting and overgrazing, amongst others (Indicator 1.1). This research provides a baseline dataset of High Atlas flora including taxonomy, species distributions, ecological requirements and conservation recommendations to ensure the development of targeted and effective conservation measures in the future.

Having secured permits for seed collection and the High Atlas seed protocol produced in Year 1 of this project (Annex 4), we collected seeds of the 12 target species for storage in the MARK regional seed bank in Marrakech and both community seeds banks in Aït M'hamed and Imegdal. In addition to the 12 selected species, we collected, identified, tested and stored almost 200 additional seed collections to conserve important local agrobiodiversity in the community and regional seed banks to ensure the quality and future availability of these local varieties (Activity 1.2). Over the course of the project, we cultivated 53,911 plants of 32 target species in our community plant nursery in Imegdal, and 30,183 individuals of 22 target species in Aït M'hamed, including the cultivation of 2,000 plants of all 12 target species (Activity 1.4). Please see Annexes 5 and 6 for plant nursery records, and a blog on the establishment of the plant nursery in Aït M'hamed, which was created with support obtained through this Darwin project. Additionally, 2000 roots of *Anacyclus pyrethrum* were planted in protected parcels outside the nursery in Aït M'hamed; given their high commercial value and current degree of over-harvesting, they would have been at risk from theft in the community nursery. These plant cultivation activities enhance *in situ* conservation and reduce harvesting pressure on wild plant populations. We ensured enrichment planting through our annual plant distributions (see Output 2 below) and through plantation of nursery-grown saplings of *Lavandula maroccana* and *Thymus saturejoides* in Boumagour, in the commune of Imegdal, a 5ha parcel of forest land that had been significantly overharvested for these two species (Activity 1.6). The parcel was entrusted to us for this purpose by the High Commissariat for Water and Forests and Desertification (HCWFD) through an MoU

(Annex 7). Our monitoring programme demonstrates that the Boumagour ecosystem has benefited substantially from the enrichment planting programme. This enrichment planting process both contributes to local livelihoods and to enhancing ecosystem health.

To measure the success of conservation actions, we completed three annual cycles of participatory ecological monitoring and remote sensing of species habitat and enrichment planting areas, as described in our project implementation plan (Activity 1.7). We calculated the biodiversity indices (to determine the floristic composition and richness), the frequency of the species distribution, the structure of plant populations and how individuals are distributed among various species. We compared non-grazed and grazed pastures, and community-managed and artificial enclosures. Our results and assessment provide strong evidence that the traditional pasture management system of the *agdal* generates greater floristic diversity and ensures the stability of the floristic richness, allowing species to complete a development cycle before the grazing season starts. Please refer to Annex 8 for the results and analysis of the 3 years of ecological monitoring. Our conservation research on the floristic richness and biogeography of High Atlas Key Biodiversity Areas (KBAs) was published in the article “KBAs for plants by country – Morocco" in the 2018 IUCN publication “Conserving wild plants in the south and east Mediterranean region” (pp. 45-52). The full publication is provided in Annex 9. We also produced a journal article entitled ‘Towards a conservation action plan for the High Atlas flora’, which is provided in Annex 10 (Activity 1.8).

Abdellah Aghraz implemented laboratory-based plant quality testing to support our sustainable plant commercialisation project activities. He conducted two comparative analyses of the composition of essential oils for all 12 species to better understand 1) the difference between wild and plant nursery cultivated plants and 2) the difference in quality between plants grown in the two community nurseries (Activity 1.5). The results of his research show only small differences between the quality of wild and nursery cultivated plants, thus confirming the nursery cultivated plants are of suitable commercial quality and securing their central role in improving Amazigh household incomes. Please see Annex 11 for the report and a short video featuring Abdellah and his work on plant quality testing in the laboratory. Michael Heinrich of the University College London School of Pharmacy succeeded in obtaining a Darwin Initiative Fellowship that will allow Dr Aghraz to pursue postdoctoral research in 2021 (delayed from the original start date of September 2020, due to the COVID-19 pandemic), expanding his knowledge of ethnopharmacological concepts and techniques, applied specifically to a vulnerable endemic medicinal plant (*Anacyclus pyrethrum*), and more broadly building his capacity to support the conservation and sustainable commercialisation of Moroccan useful plants.

To support High Atlas communities in the commercialisation of local products, we provided targeted capacity building to 52 cooperative members (including 30 women) in Imegdal and Aït M’hamed to improve their skills in cooperative management in December 2019. In collaboration with our partner Cooperative Maroc Solidaire (CoMaSol), participants received training on how to promote local products, such as couscous and aromatic and medicinal plants, and learned best practices about the administrative and financial management of cooperatives in Morocco (see Annex 12 for a report on the event). In November 2018, we organised a well-received community exchange on plant commercialisation with 15 Amazigh community members (10 men and 5 women) from partner communities Imegdal, Aït M’hamed and Oukaïmeden. Participants were divided in different groups based on the focus of their economic activities (medicinal and aromatic plants, animal products and agricultural products), to identify the potential of commercialising different products. This activity was an excellent opportunity for community and cooperative members to share experiences and discuss processes for adding value and marketing their produce. Please refer to Annex 13 for a detailed report.

In Year 3 of this project, we recruited Mohamed Ouknin as our new Local Product Commercialisation Coordinator. He carried out extensive field research and resource assessments in local markets, with a focus on the following 12 products/species: saffron (*Crocus sativus*), carob tree (*Ceratonia siliqua*), almonds (*Prunus dulcis*), walnuts (*Juglans regia*), bee hive products (honey, propolis, royal jelly and beeswax) and aromatic and medicinal plants (*Thymus satureioides, Lavandula dentata, Anacyclus pyrethrum* and *Mentha suaveolens* subsp.

timija). As a result of this research and as part of Activity 1.3 we produced detailed feasibility studies and initial market analysis for each of the above plant products (Annex 14). In addition, we developed plant monographs for 12 plant species that have the greatest commercial potential to further enhance the process of commercialisation. These compile all the information we have on these target species and additional plant genetic resources, including sections on the botanical description, distribution, ecology, conservation status, cultivation status, local names and uses, phytochemical profile, plant product profile, market analysis and other relevant data (see Annex 15 for the example of *Thymus saturejoides*). The plant monographs contain information essential for creating full business plans once communities select a specific plant product for expanded commercialisation. To expand on these efforts in support of High Atlas cooperatives and the commercialisation of local plant products, GDF participated in the creation of EthnoBotanica, a Marrakech-based social enterprise that supports community cooperatives and small-scale producers to sell their cultural products at a profit in high-end urban niche markets.

Our participation in the MAVA Foundation Mediterranean-wide project on "Supporting the socio-economic sustainability of cultural practices in selected Mediterranean cultural landscapes" enhanced our local product commercialisation initiative. We established a protocol that focused on documenting the actors involved and the market value chains for the products and species noted above, allowing us to expand the plant monographs and feasibility plans. These provide the essential elements for the participatory business plans, which consolidate information on products, pricing, target customers, potential market size, key partnerships and competition. They set the stage for full business plans, including financial projections and operations and management plans, for cooperatives and entrepreneurs that wish to pursue a specific expanded commercial opportunity that could be guided by Cooperative Maroc Solidaire and other partners. We presented these results in a project Lessons Learnt Meeting in Lisbon, Portugal from 11-13 March 2020, organised by IUCN with the support of WWF Portugal and the Instituto Superior Técnico of the University of Lisbon. The meeting agenda is provided in Annex 16, and the full report is available on request.

Our progress on the sale of plant-based products by community cooperatives has been interrupted by the COVID-19. We were in the process of exploring novel added-value products, shortened market chains, business plans and new partnerships for the Aska Cooperative for Women and Children and the Wabzaza beekeeping cooperative in Ait M'hamed, as well as the Imdoukal Znaga Cooperative and Timgharine women's cooperative in Imegdal. This continues to be a central focus of our ongoing work in the High Atlas. After this Darwin Initiative project had ended, MAVA Foundation awarded us a new 3-year grant that includes funds to develop and test business plans for 4 selected products, build the capacity of youth as 'sustainable entrepreneurs' and, in Ait M'hamed, contribute to equipping a medicinal and aromatic plant valorisation unit. In September 2020, we applied for a grant from the Critical Ecosystems Partnership Fund (CEPF) to further elaborate local product business plans, assist community members to certify and label selected local products, organize regional agrobiodiversity fairs in both rural and urbans settings that showcase High Atlas local products commercialised by associations, and promote the marketing of agricultural products from High Atlas cooperatives through print and social media advertising.

Output 2. Livelihood improvements for Amazigh villages, households and residents achieved

We distributed a total of 55,924 plants in Imegdal (45,724) and Aït M'hamed (10,200) over the past three years (Activity 2.1). These plant distributions benefited around 500 households in Imegdal spread across 21 villages and 113 households of 12 different *douars* in Aït M'hamed. See Annexes 17 and 18 for plant distribution records in 2020, in addition to a blog on the distributions. These species, of high commercial value, are cultivated in agricultural terraces where they can be gathered to improve community livelihoods while reducing the harvesting pressure on populations of wild species. The species distributed to community members include, amongst others, domesticated species such as common sage (*Salvia officinalis*) and almond (*Prunis dulcis*), as well as wild species including lavender (*Lavandula dentata*).

After a successful first annual health caravan in Aït M'hamed in Year 1, we organised a follow-up caravan (Annex 19). The principal goal of this event was to carry out follow up consultations and test almost 100 patients with chronic conditions (e.g. diabetes) identified during the first caravan as requiring further support. The community took the opportunity to form a local committee for awareness-raising about chronic diseases (principally diabetes and hypertension). In January 2019 and February 2020, we carried out a second and third annual health caravan in the commune of Imegdal in partnership with MBLA and l'Association des Amis du CHU Mohammed VI (a Moroccan organisation providing improved access to health services in mountainous areas). We established a temporary medical centre and pharmacy at the Imegdal community centre where a medical team of 40-50 people (including paediatricians, gynaecologists and general practitioners, amongst others). Throughout this project, we provided free medical consultations and medicine to 1912 adults and children (1200 in Aït M'hamed and 712 in Imegdal) (Activity 2.5). Please see Annex 20 for the report of our 2020 annual health caravan in Imegdal, in addition to a blog on the event. These medical interventions have cemented trust with community members in both partner communes, lending our programme greater legitimacy and visibility amongst our local beneficiaries.

As part of our commitment to support local livelihoods, in addition to the health caravans we delivered two annual food packages to 145 highly vulnerable households (far exceeding our yearly target of 25 households, Indicator 2.7) in Aït M'hamed and Imegal during the cold 'famine period' in February 2018 and 2019. Please see Annexes 21 and 21a for the full recipient list, which was prepared in full consultation with Imegdal and Aït M'hamed village authorities to ensure its legitimacy. The food packages included necessities such as flour, cooking oil, tea, sugar, lentils, laundry powder, washing soap and milk as detailed below. As with the medical interventions, distribution of food to marginalised families is a direct form of showing solidarity and support for local communities, which are increasingly receptive to participation in conservation and livelihood activities that have less immediate benefits.

Food package distribution in Ait M'hamed (February 2018)

Item	**Quantity**
Flour sack (25kg)	70
Cooking oil (5L)	70
Tea (200 g)	140
Sugar (2Kg)	140
Laundry powder (0.5 Kg)	210
Soap package	140
Lentils (1 kg)	70

Food package distribution in Imegdal (February 2019)

Item	**Quantity**
Flour sack (25kg)	75
Cooking oil (5L)	75
Tea (200 g)	150
Sugar (2Kg)	150
Laundry powder (0.5 Kg)	225
Soap package	150
Lentils (1 kg)	75
Milk (3L)	75

With co-funding from a Replenish Africa Initiative (RAIN) project secured by our local partner MBLA, we have been collaborating with RESING, a Marrakech-based engineering firm, to enhance water management infrastructure in the High Atlas communes of Imegdal, Aït M'hamed and Ourika (Activity 2.3). In Imegdal, we repaired 160 metres of *seguias* (traditional water canals), providing irrigation to 10ha of land and directly benefiting 40 smallholders and 232 inhabitants (see Annex 22). In Year 2 of this project, we built a water reservoir in Imegdal, which serves and provides drinking and irrigation water to 5ha of land in four main douars: Warti, Annamer, Taourirte et Wasntote (Annex 23). We repaired 1,16km of *seguias* in Souk N'Ouzdir, Aabada and Ouchkoul (Aït M'hamed), providing irrigation to 11,7ha of agricultural land and benefiting a total of 47 local small holders. Similarly, we built three water basins and installed drip irrigation systems in all three community plant nurseries: Imegdal (2ha), Aït M'hamed (0,5ha) and Oukaïmeden (0,4ha). We also provided drip irrigation to 0,6ha of land in the Dar Taliba school garden in Ourika. The above-mentioned irrigation infrastructure accounts for a total of 30,2ha

which represents 60,4 % of our original indicator of 50ha. However, given the baseline of no maintained irrigation systems in these communities and the difficulties of obtaining authorisations from local authorities for (re)construction works, we consider this number a success. This new infrastructure will improve local agricultural production, increase water flows to ecologically sensitive areas and provide clean drinking water for domestic use.

Finally, GDF has continued its support to Dar Taliba, an all girls' boarding house that provides Amazigh girls (ages 13 – 18) from remote villages of surrounding High Atlas communes an opportunity to continue their education beyond primary school. Through Darwin co-funding, GDF has been able to support staff salaries, the maintenance of the 6,000 m^2 of ethnobotanical, vegetable and demonstration gardens as well as a community nursery, the installation of a new drip irrigation system, and delivering training and capacity building sessions for the students (as detailed below in Output 3). This support has ensured the continued operation of the boarding house and allowed us to grant access to secondary education to a total of 177 girls (65 in Year 1, 52 girls in Year 2 and 60 in Year 3), far exceeding our annul target of 25 students (Indicator 2.6). Please see Annex 24 for the Dar Taliba residency records.

Output 3. Capacity-building for Amazigh associations, community members, community researchers and institutional representatives delivered

Since the start of the project in 2017, we organised targeted capacity building on sustainable land use practices for 422 community members (incl. 177 Dar Taliba students) in our partner communes Imegdal, Aït M'hamed and Ourika, far exceeding our three-year target of 212 community members (Indicators 3.1 and 3.2). In October and December 2018, we held a series of workshops over three days in the rural communes of Imegdal and Aït M'hamed during which we were joined by our long standing local partners RESING, Radiant Design, and MBLA who delivered interactive workshops and field visits to local community members on the following topics:

1) Sustainable water management and water harvesting techniques
2) Value-adding and marketing of aromatic and medicinal plants
3) Sustainable harvesting practices and seed collection
4) Permaculture, agroecology and sustainable agricultural practices
5) Beekeeping and bee products

In total, 57 men and 55 women received training (see Annexes 25 and 26 for reports, in addition to the full participant list). In December 2019, we organised a two-day Farmer Field School (FFS) in Imegdal and Aït M'hamed focused on soil health and fertility, in collaboration with our partner DEAFAL with a total of 106 participants, including 47 women (see Annex 27 for the full report).

At the Dar Taliba boarding school for girls, we delivered 108 garden trainings to the students in residence (126 in 2017, 143 in 2018, 153 in 2019) on traditional plant knowledge, permaculture practices, seed saving, composting, and more, far exceeding our three-year target of 75 students (Indicator 3.4). In addition, we provided targeted capacity building to 52 cooperative members (30 women) in Imegdal and Aït M'hamed in December 2019 to improve their skills in cooperative management and plant commercialisation. In collaboration with our partner Cooperative Maroc Solidaire (CoMaSol), participants received training on how to promote local products, such as couscous and aromatic and medicinal plants, and learned best practices about the administrative and financial management of cooperatives in Morocco (see Annex 12 for a report on the event). We also and organised a community exchange on seeds and agricultural policies in Morocco in February 2020 with 33 community representatives from Imegdal, Aït M'hamed and Oukaïmeden (Annex 28).

Since the beginning of this project, we trained 11 community researchers including 4 women, in nursery management, participatory research and monitoring approaches (Hamid Ait Baskad, Mohamed Ait Boujemaa, Fadma Ait Illigh, Touda Atyha, Hassan Ouchaha, Hammou Malih, Hafida Mouhdach, Saïd Oughzif, Rachid Ait Elhadj, Youssef Rochdi and Fatema Wahmane), thus achieving Indicator 3.3. See Annex 29 for our 2020 organigramme, in addition to a blog on

two of GDF's female community researchers in Aït M'hamed and Imegdal. We continue on-the-job training for our community researchers as they are key actors in our projects and contribute substantially to research design and implement a significant proportion of our data collection in the field. Our comprehensive training programme has resulted in significantly enhanced capacities amongst community and team members, ensuring the sustainability and legacy of the HACL programme into the future.

In November 2017, we organised a capacity-building workshop for 19 young Moroccan researchers on *Making Research Matter: how to transform new knowledge on biodiversity into conservation action and benefits for local communities.* The workshop sought to exchange ideas and lessons learned around plant commercialisation for community benefit. Participants at the workshop were keen to continue the relationships developed during this event and further similar small workshops will be organised in the future.

The final element of this Output 2 involves the delivery of a Community Exchange on wild plant species conservation, community seed banks and nurseries (Activity 3.5). Given the fact that GDF hosted a European Community Exchange on Seed Diversity and Sovereignty in Barcelona in September 2017 with funding from other sources, in our half-year reports in years 1 and 2 requested that these funds be directed to another Global Environments Network event: the Mediterranean Environments Regional Academy (MERA 2018), which took place from 2-11 November 2018 in the Moroccan High Atlas (the request was granted). Under the theme of "Community-based management in the Mediterranean: innovations in socio-environmental research and action", MERA gathered around 30 participants and experts in cultural landscape management from different Mediterranean countries including Turkey, Algeria, Greece, Tunisia, Spain and Morocco. A full narrative report of the academy can be found in Annex 30, in addition to an online blog post and a video on the event. Topics of focus included local product commercialisation, agrobiodiversity, gender and agricultural research, communal territorial governance and environmental policy-making in the Mediterranean region.

Output 4. Case study on implementation of new national law #29-05 and its relationship to law #22-07 submitted

In November 2018, we recruited Ahmed Bendella as GDF's Legal and Policy advisor. He produced a detailed case study on law #29-05 (Annex 31) which includes research on the protection of fauna and flora and their trade (Indicator 4.4). Ahmed formally presented this case study at a regional meeting in Marrakech on 2nd January 2020 organised by the Haut Atlas-Marrakech Regional Directorate of the High Commissariat for Water, Forests and Desertification (HCWFD). It provides an important tool to expand our national policy network and partnerships.

The implementation of law #29-05 by Moroccan authorities has been relatively slow due to the complexity of developing implementation regulations, and the early focus has been on animals. However, under the aegis of this law, we established a seed protocol (Annex 4) and obtained all the necessary permits for collection, multiplication and distribution of seeds from local authorities at various levels, from the *moqadems* (officials appointed by the Ministry of the Interior who serve as a link between the population and the government) to the Provincial governors and representatives of national agencies such as HCWFD, activities that correspond to Indicator 4.3. For the sale permits, we are currently basing our actions on our existing partnerships and MoUs with local community cooperatives and associations, whilst we wait for the implementation regulations for law #29-05 to be published. This partially met our assumption that government authorities would grant permission in a timely manner, as envisioned by law #29-05, for these activities.

During this project, we established a Memorandum of Understanding with the national office of HCWFD (Annex 7). With this in place, Gary Martin – who became GDF Mediterranean Programme Lead Consultant after stepping down as GDF Director in January 2018 – and Mohamed El Haouzi, Morocco Field Officer, led the revision and repatriation of the database of fauna and flora commercialised in the markets (souks) of Marrakech and its rural hinterland (Indicator 4.1). To complement each database entry, they have developed a short summary of

the conservation status, public health concern and commercial viability of the species recorded in the inventory, with additional information on its local names, use and marketing in Morocco, an annotated bibliography and photographs. As noted in the Guidelines for the market ethnobiological survey repatriation – which provide an example of one species, *Vitex agnus-castus* (Annex 31a), we use a 'traffic light' system of categorizing species as green if they do not raise any conservation, public health or commercial viability concerns, yellow if some level of caution is warranted, and red if there are serious issues with the sustainability, safety or market potential of the product. Our goal is to develop a collaborative approach – with conservation professionals, consumer advocates, herbalists, public health officials, scientific colleagues and other stakeholders – to reassessing and vetting the natural products on the market. Over time, we would like to expand the project beyond the borders of Morocco to encompass the entire Middle East and North Africa and adjacent areas of the Mediterranean Basin.

Because of the slow implementation of law #29-05 by Moroccan authorities, we have not been able to produce the journal article on protection and marketing of wild flora (Indicator 4.5) we had envisioned for year 3. We had stated as an assumption that sufficient data would be available for this publication by end of project, but this has not been the case. With animals as a priority – and little progress reported by colleagues who have extensively studied wildlife trade in Morocco – there has not been a concerted effort by government authorities to address the protection and marketing of wild plants. We have shifted our attention to producing an article that provides summary statistics and an analysis of the commercialised fauna and flora database, which we expect to submit in early 2021.

Finally, regarding the participatory action plan on natural resource management around Toubkal National Park (Activity 4.2), we extended the action plan to a wider community-based focus based on requests and recommendations of local community members. We elaborated two detailed Community Action Plans with our partner communes Imegdal (located in Toubkal National Park) and Aït M'hamed to address key socioeconomic, management and biodiversity issues. Between October and December 2019, we carried out five focus groups to elaborate these participatory Community Action Plans with a focus on four key pillars that have a direct impact on natural resource management: pastoralism, agriculture, commercialisation and youth which respond directly to community aspirations and needs. In Imegdal, one of the suggested actions relates to supporting the commercialisation and value chain research of dried lavender (*Lavandula dentata*) and thyme (*Thymus saturejoides*). Please see Annexes 32 and 33 for the Community Action Plans.

Output 5. Identification and characterization of additional plant genetic resources completed

We completed ethnobotanical surveys of 200 species which are stored in GDF's ethnobotanical database, far exceeding our three-year target of 50 species (Indicator 5.1). The High Atlas Biocultural Database (HABD) contains over 300 interviews, more than 200 species and 4,972 use reports and was recently officially published as an online public database on GDF's website. We also produced a detailed review entitled '*Traditional land use practices, biodiversity and community wellbeing in a Mediterranean cultural landscape'* which consolidates the extensive research carried out on traditional plant use and traditional practices since 2016 and explores their relationships with biodiversity conservation (see Annex 34). Based on this research, we produced a peer-reviewed article entitled "*Assessing plant conservation status: linking local ecological knowledge and biodiversity conservation in the High Atlas, Morocco*" which has been submitted for publication to the Journal of Ecology & Society (Indicator 5.6). Please see Annex 35 for the article.

We also produced conservation assessments for an additional 48 species, bringing our current total to 60 assessments (Indicator 5.2). These assessments, which detail threats to species and habitats, including climate change, water mismanagement, plant overharvesting and overgrazing, have been published online on the IUCN Red List of Threatened Species (see Annex 36 for the list of the 60 species). Based on these assessments, we developed a High Atlas Red Book (Annex 37), summarizing the plant conservation status of these key plant species of the Moroccan High Atlas. Our study showed that the strict endemic High Atlas flora is facing an exceptional level of extinction risk. This research provides a baseline dataset of High Atlas

flora including taxonomy, species distributions, ecological requirements and conservation recommendations to ensure the development of targeted and effective conservation measures in the future.

We stored 205 seed accessions in the Imegdal and Aït M'hamed community seed banks and in the regional MARK seedbank, hosted by Cadi Ayyad University Marrakech, thus exceeding our three-year target of 10 additional species (Indicator 5.4). Plant and seed identification were carried out at the regional Herbarium MARK of Cadi Ayyad University where all species have been added to the BRAHMS database and published online. Please see Annex 38 for our seed bank accession records, in addition to a blog on seed collection and community seed banks in the High Atlas. We also cultivated a part of these species in our community plant nurseries and organised annual plant distribution events (see Activities 1.4 and 2.1).

Regarding Activity 5.3 *Initial market analyses of 20 species achieved,* we produced commercialisation feasibility studies and initial market analyses of 12 products/species instead of 20. Given the time consuming nature of producing market analyses, we opted for 12 to ensure the quality of our research and selected the species in consultation with local cooperatives. The plant products/species include: saffron (*Crocus sativus*), carob tree (*Ceratonia siliqua*), almonds (*Prunus dulcis*), walnuts (*Juglans regia*), bee hive products (honey, propolis, royal jelly and other wax) and aromatic and medicinal plants (*Thymus satureioides, Lavandula dentata, Anacyclus pyrethrum* and *Mentha suaveolens* subsp. *timija*). See Annex 14 for the full report. We have funding from MAVA Foundation to expand commercialisation feasibility studies and initial market analyses of local products over the next three years.

As part of our dissemination programme, we carried out eight workshops with primary and high school students in Aït M'hamed (5), Imegdal (2) and Ourika (1) of which four had the main objective to identify useful plants to develop a popular manual (Activity 5.5). Please see Annex 39 for the list of identified plant products and a blog on one of the workshops in Imegdal. As a result of these activities, we produced a popular manual entitled "Le Panier Amazigh" which features 50 local and useful plant products illustrated by the students in Imegdal, Aït M'hamed and Ourika who participated in the development of the booklet. We produced 1000 hard copies for distribution to local schools and partners. The booklet is written in French and Arabic and is available for download here.

3.2 Outcome

Project outcome: ***Integrated conservation of regionally threatened culturally-important plant species and management of Important Plant Areas in the Atlas Mountains is achieved through Amazigh community action and capacity building, accompanied by improved livelihoods.***

We completed conservation assessments for all 12 regionally threatened plant species, cultivated 93,145 plants of 32 endemic, threatened and valuable species, assessed the plant quality of a selection of harvested species, distributed 55,924 plants to community members and deepened the ecological monitoring process for these species. We have therefore met the first indicator under our project outcome: '*twelve regionally threatened plant species and varieties are assessed, cultivated, distributed, sustainably harvested and monitored over three years'* (Indicator 0.1).

Through our annual distributions of 55,924 commercially valuable plants to 613 households, annual food packages to 145 highly vulnerable households, delivery of free health care to 1912 adults and children, improved irrigation systems through the construction of water basins and restoration of water canals and improved access to secondary education for 177 girls, we responded well to indicator 0.2 '*In three rural municipalities of the High Atlas, 2500 people, including from the 50 most vulnerable households, benefit from modest income increases and improved wellbeing through useful plant cultivation and marketing, irrigation, access to secondary school for girls, health improvements and adequate nutrition'*.

Since the beginning of this project, we delivered capacity building to 422 community members (50% women including 177 Dar Taliba students) on a broad range of conservation topics

including sustainable water and plant harvesting, seed collection, permaculture, nursery management, amongst other topics (see activity update above for full details). In addition, we provided on the job training for 11 community researchers, organised a workshop for 52 cooperative members (30 women) to improve their skills in cooperative management and promotion of local products and capacity building for Moroccan students and young researchers. We have therefore successfully delivered on our commitment to benefit '*three hundred and twenty-five people benefit from capacity building delivered in training courses, workshops, a community exchange, and on-the-job experience by project end'* (Indicator 0.3).

We also made progress towards repatriation of a database on commercialised plants and animals, through the compilation of 12 ethnobotanical monographs as described in section 3 above. We completed a case study on the implementation of law #29-05 and developed two Community Action Plans (CAPs) to address participatory natural resource management strategies and key socioeconomic, management and biodiversity issues. These activities contributed to the implementation of Indicator 0.4 '*One detailed case study of implementation of the new national law #29-05 on the protection and commercialization of wild flora and fauna and its relationship to law #22-07 on protected areas developed and disseminated within Morocco, by year 3'.*

Finally, as described in further detail above, we have conducted conservation assessments for a further 48 species, bringing our total to 60 assessments. We also completed ethnobotanical surveys for almost 200 additional species and characterised 50 local and useful plant products of the High Atlas through a community-based participatory in a popular manual 'Le Panier Amazigh'. As a result of these activities, we have surpassed indicator 0.5 *'A participatory process of characterizing 50 additional species for the household basket of useful plant resources that bring monetary and non-monetary benefits, launched by year 2'*.

3.3 Monitoring of assumptions

Our assumptions were monitored and held true to ensure smooth project implementation over the 3 years, with the notable exception that sufficient data was not available for publication of a journal article on protection and marketing of wild flora.

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

Impact: achievement of positive impact on biodiversity and poverty alleviation

Impact statement: '*Atlas Mountains Amazigh people are empowered to expand their role as stewards of Important Plant Areas and plant genetic resources while improving their livelihoods in a changing socio-economic context'.*

The project contributes to the higher goal of biodiversity conservation and poverty alleviation through the development of:

1) *Locally appropriate sustainable management plans and the empowerment of local communities to deliver them*. Working in close collaboration with local communities and using a participatory approach we identified 12 regionally threatened plant species and varieties (Annex 3). We developed the conservation assessments of the selected 12 species while cultivating and distributing these species in partnership with local communities, ensuring a sense of project ownership. We also delivered a series of capacity building sessions to equip and empower our partner communities to expand their role as environmental stewards. We worked with local community researchers, cooperatives, students and other community members to deliver training across a wide variety of topics and skills, supporting the empowerment of all community members (Annexes 12, 25, 26, 27 and 28). We support local communities in their role as stewards of IPAs with the development of Community Action Plans (CAPs) to address key socioeconomic, management and biodiversity issues in partner communes Imegdal and Aït M'hamed (Annexes 32 and 33).
2) *Support for local livelihoods and establishment of sustainable, reliable sources of plant material in rural communities*. This is being implemented through the management and establishment of community plant nurseries, enrichment planting and distribution of

valuable plant species to vulnerable communities (Annexes 17 and 18). These activities are supported by (1) capacity-building on sustainable plant harvesting and transformation of valuable plants to support improved annual incomes from the sale of plant based products (see section 3.1) and (2) local product commercialisation activities through the development of feasibility studies and initial market analyses (Annex 14) and the creation of EthnoBotanica, a Marrakech-based social enterprise that supports community cooperatives and small-scale producers to sell their cultural products at a profit.

3) *Improved community wellbeing* is a core element of our project. We have achieved this through the following: 1) empowerment of community members and community researchers through training and sharing decision-making and responsibilities in project implementation, 2) delivery of annual medical caravans (Annexes 19 and 20) and food distribution to support health improvements and adequate nutrition (Activities 2.5 and 2.7) (Annexes 21 and 21a) and 3) improved access to secondary education for girls (Activity 2.6) (Annex 24).

4) *New knowledge regarding conservation status of key plant species in Important Plant Areas of Morocco*. Expanding our knowledge of plant conservation status is essential for developing targeted conservation measures and establishing a baseline upon which to assess the impact of these measures. This has been achieved through the creation of conservation assessments for sixty regionally threatened plant species and varieties, which have all been published on the IUCN Red List of Threatened Species and the development of a High Atlas Red Book (Annex 37).

4 Contribution to Darwin Initiative Programme Objectives

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

This project contributed to Sustainable Development Goal (SDG) #2 on food security (zero hunger) by (1) supporting community livelihoods through the production, propagation and distribution of plant species that are used for daily consumption by Amazigh communities, (2) the use of permaculture design principles, improved water management, organic agricultural methods and capacity-building around sustainable agriculture to enhance food yields and reduce external inputs, and (3) the distribution of food packages during the February 'famine month' to the most vulnerable households in our partner communities. Through our conservation actions (in particular enrichment planting in community territories of threatened plant species, community seed banks and improved territorial resource management) the project contributed to halting biodiversity loss and protecting, restoring and promoting sustainable use of ecosystems in partner communities' territories (SDG #15 – life on land). Given the project's focus on developing measures for sustainable plant harvesting, implementing sustainable plant commercialisation and building associated capacities locally and regionally, the project also contributed to SDG #12 on responsible consumption and production.

Additionally, in collaboration with MBLA and their donor RAIN, the project implemented improved water management of all community nurseries agricultural plots throughout Imegdal and Ait M'hamed (30,2ha), contributing to SDG #6 on sustainable water management. The project also addressed SDG #3 on good health and wellbeing through the implementation of the highly successful medical health caravans and the distribution of medicines. Finally, it contributed to both SDG #4 on quality education and SDG#5 on gender equality through our support for the Dar Taliba girls boarding house and the associated training and education programme, and our active support for the Aska women's cooperative in Aït M'hamed.

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

One of the explicit project objectives was to support the Moroccan government in implementing the Convention on Biological Diversity (CBD), specifically a series of targets under the Global Strategy of Plant Conservation (GSPC) as detailed below:

Target 1: An online flora of all known plants – Since the beginning of 2016, we collected and identified 2000 new herbarium specimens which have been mounted, labelled and uploaded to the BRAHMS database and published online.

Target 2: An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action - GDF has completed 60 conservation assessment which have been published on the IUCN Red List of Threatened Species and developed a High Atlas Red Book to support effective prioritisation of our conservation actions.

Target 3: Information, research and associated outputs, and methods necessary to implement the Strategy developed and shared - GDF has, over the past few years, developed and refined our integrated, community-based approach to plant conservation that provides communities with livelihoods benefits whilst ensuring plant conservation, more efficient water management and protection of cultural landscape management practices, and is supported by deep capacity-building and engagement with actors across scales. We developed a Theory of Change to describe this approach, and produced out an in-depth review *Traditional land use practices, biodiversity and community wellbeing in a Mediterranean cultural landscape* to share this approach and model.

Target 4: At least 15% of each ecological region or vegetation type secured through effective management and/or restoration - GDF contributes towards this target through restoration measures that include integrated *ex situ* and *in situ* conservation actions: seeds are collected and conserved in community seed banks, propagated and cultivated in community nurseries, and translocated to the wild through enrichment planting where they enrich existing populations helping to buffer these against environmental change, enhancing connectivity and improving species richness.

Target 7: At least 75% of known threatened plant species conserved in situ - GDF activities work towards conservation of threatened taxa *in situ* via a range of methods and practices such as research to assess the ecological requirements of the species, management protocols, monitoring and survey of existing populations, application of management protocols and further monitoring to assess population response to management.

Target 13: Indigenous and local knowledge innovations and practices associated with plant resources maintained or increased, as appropriate, to support customary use, sustainable livelihoods, local food security and health care – GDF works with indigenous community members to promote and document their indigenous knowledge and practices, and to support them as they seek to adapt and modify these to ensure sustainable use and the continuation of their culture.

Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes – Throughout this project, we focused our efforts on training of community members, students, and local researchers in botany and plant identification, seed collection and conservation, and permaculture design for resilient and diverse agroecosystems.

Target 16: Institutions, networks and partnerships for plant conservation established or strengthened at national, regional and international levels to achieve the targets of this Strategy - GDF continues to maintain a strong and wide-reaching network of partners and associates as described in section 2 above and to actively support and mentor our main partner Moroccan Biodiversity and Livelihoods Association, a young and upcoming Moroccan NGO. It also continues to support the IUCN Moroccan Plant and Livelihoods Specialist Group, composed of Moroccan and foreign practitioners, scientists and professionals with an interest in Moroccan plants and livelihoods – particularly through the *Making Research Matter* workshop carried out in 2017.

GDF is also a key actor in a Mediterranean Cultural Landscapes partnership, funded by the MAVA Foundation, aimed at sustaining the region's cultural landscapes. The High Atlas is a pilot site for this partnership, and we are either leaders or active participants in the various

'overarching initiatives' of the partnership that seek to further strengthen regional connections. Active participation in this network has allowed us to significantly enhance our reach and mutual learning with other Mediterranean experiences. GDF also attended a CBD event in Marrakech in October 2018, an African Regional Training Workshop related to national arrangements on traditional knowledge for achieving Aichi Biodiversity Target 18 and contributing to Aichi Biodiversity Target 16 of the Strategic Plan for Biodiversity 2011-2020. We presented our joint GDF-MBLA projects and how these contribute to achieving CBD goals and Aichi Biodiversity targets.

In addition, under this project GDF contributes to the implementation of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) in the following ways:
Article #5 on Conservation, Exploration, Collection, Characterization, Evaluation and Documentation of Plant Genetic Resources for Food and Agriculture and Article #6 on Sustainable Use of Plant Genetic Resources

We addressed article 5.1a by proposing a participatory approach to surveying and inventorying agrobiodiversity to increase benefits to farmers. We used ethnobotanical and systematic approaches to assess status and threats to this agrobiodiversity, based in part on our experience red-listing wild plant species according to the IUCN categories and criteria. We addressed article 5.1c by supporting farmers' efforts to manage, conserve and benefit from their agrobiodiversity on-farm by working with men and women to enhance their cultivation in different areas of local agroecosystems and in both privately and commonly managed areas in the broader High Atlas cultural landscape. Through our work in the Dar Taliba boarding house for girls, we provided gender and youth appropriate training and extension services to support the use of agroecological (permaculture) design and techniques for the management of agrobiodiversity (article 6.2c). Finally, with this project we are developing an efficient and sustainable system of *ex situ* conservation of High Atlas agrobiodiversity by investing in community and regional seed banks, linked to national and international seed banks (5.1e).

4.3 Project support to poverty alleviation

With the distribution of 55,924 plants for cultivation and sale, over the course of this project we contributed to improve the monetary income of over 2,500 Amazigh people (around 500 households in Imegdal and 113 households in Aït M'hamed) (see Annexes 17 and 18 for plant distribution records). These species, which are all of high commercial value, are planted out in agricultural terraces to reduce harvesting pressure and enhance rural incomes. In January 2020, we carried out our first plant distribution in Aït M'hamed and our third in Imegdal, during which we distributed 24,900 plants to 517 families.

Our annual plant distribution activities are supported by capacity building for local community members on value-adding and transformation of commercially promising plant products, carried out in both partner communes (see section 3.1; Output 3). These trainings were designed to build local knowledge and capacities to add value through the transformation of the most commercially promising plant products, and to strengthen the local cooperatives as they engage more actively with wide markets. To sustain this process of market access, we carried out research and feasibility studies for 12 plant products/species (Annex 14), provided capacity building to local cooperatives members and participated in the creation of EthnoBotanica, a Marrakech-based social enterprise that supports community cooperatives and small-scale producers to sell their cultural products at a profit in high-end urban niche markets.

In order to develop a robust socioeconomic baseline for our programme and to measure the increase in income derived from sale of plant products, we completed socio-economic surveys among 136 Amazigh households using the Rural Households Multi-Indicator Survey (RHoMIS). Through 84 surveys in Imegdal and 52 surveys in Ait M'hamed, we collected data related to agriculture, wild plants, livestock, food security and income sources. We found that the RHoMIS survey presented multiple challenges as they were very time intensive (2-3 hours per survey) which limited our ability to conduct surveys on a larger scale. The full results report, which provides a baseline data and a characterisation of households in Imegdal and Aït M'hamed, is available in Annex 40. As a result of this experience, we are devising a new simpler questionnaire on the socio-economic impact of our projects, specifically the plant nurseries, seed banks,

capacity building and plant commercialisation initiative (Annex 41). We are currently exploring additional approaches to assessing human livelihood outcomes, going beyond household income and expenditure to include housing and material assets, food security and nutrition, health, and cultural and subjective well-being.

We support the economic empowerment of women in the communities where we work. During this project, we provided access for 177 girls to secondary education through residency at Dar Taliba boarding house and provided continuous training in plant conservation and value adding to help enhance their socio-economic opportunities in the future.

Finally, as highlighted in our proposal, we supported the health and wellbeing of the communities where we work through the delivery of three annual medical caravans in Aït M'hamed and Imegdal, during which 1912 adults and children (1200 in Aït M'hamed and 712 in Imegdal) benefited from free medical consultations and medicine (see Annexes 19 and 20 for the reports). In addition to these health caravans, we delivered two annual food packages to 145 highly vulnerable households (far exceeding our yearly target of 25 households) in Aït M'hamed and Imegal during the cold 'famine period' in February 2018 and 2019. Please see Annexes 21 and 21a for the full recipient list. The food packages include necessities such as flour, cooking oil, tea, sugar, lentils, laundry powder, washing soap and milk.

4.4 Gender equality

GDF is committed to ensuring that gender is mainstreamed across all our programmes. We do so by recognising women and men as equal actors and beneficiaries throughout the project cycle; take a gender perspective when evaluating issues arising in project implementation as well as in the assessment of project impact; promote equal male and female participation in all community led workshops and consultations and operate gender-balanced teams at all levels. To ensure and promote equal job opportunities we recruited six female team members during this project (2017-2020), Pommelien da Silva Cosme, Hajar Salamat, Fatima Chaari, Hafida Mouhdach, Sabah Bahij and Fatema Wahmane. We are planning to add two additional female team members in late 2020 and early 2021, as well as two in-house female consultants. We have also been successful in building capacity of two female Community Researchers (Fadma Aït Illigh and Touda Atyha) who hold an integral role in engaging with other women in their communities to ensure that applied research results are gender-balanced. Please see the following online blog to learn more about our female CRs. Additionally, during this project, we encouraged young female researchers by providing research internships to six female international and Moroccan students: Giada Bellia (2017), Hanna Lidh (2017), Elspeth Mathau (2018), Meghan Hensaw (2019), Louisa Aarrass (2019) and Asma Abouali (2019). Internship agreements are available upon request.

As further explained in this report (section 3 above), we place an emphasis on supporting women's empowerment. Since the beginning of this project, we provided access to secondary education for 177 Dar Taliba students (aged 12-16) and delivered weekly garden trainings to all students in residence (126 in 2017, 143 in 2018, 153 in 2019). We have also made progress towards increasing female participation in our capacity building events, by providing separate spaces to accommodate women of more conservative communities such as Imegdal. In December 2019 for example, the 52 cooperative members in Imegdal and Aït M'hamed that received capacity building training in cooperative management included 30 women (Annex 12).

Given the challenges of working directly with women or on gender issues in the conservative society of the Amazigh communities in the High Atlas and in Morocco more generally, we consider these successes significant.

4.5 Programme indicators

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

Local underprivileged people and community members have participated actively in management structures, including the establishment of a Moroccan ICCA consortium, allowing

for a representation of these local High Atlas communities at national and international levels to enhance policy frameworks governing High Atlas landscapes and local biodiversity.

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

Biodiversity management plans, included in Biocultural Community Action Plans, have been designed in a participatory manner for Imegdal and Ait M'hamed, and will be in the near future presented to the local authorities to be discussed and incorporated, with all stakeholder's participation, in municipal and regional management plans.

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

These management plans were developed following a bottom-up approach, starting with local communities and going up the scale, from local to regional and national structures. We are currently expanding to local and regional institutions. All activities have involved the active participation of women (environs 40% proportion versus 60% men), in only-women spaces, where their suggestions and expectations were taken in equal consideration to men's responses.

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

Although we do not have quantitative data, we estimate that the income of hundreds of families has been positively benefited on various aspects from our programme. These include direct benefits such as yearly salaries for local community researchers who collaborate in our projects, to income boosts from improving the organisational and commercialisation potential of High Atlas cooperatives and training and capacity building for families and community members.

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

We hoped to have quantitative measures of household incomes from household surveys that we started conducting in Year 2 but found that the RHoMIS approach presented multiple challenges as they were very time intensive (2-3 hours per survey), limiting our ability to conduct surveys on a larger scale. Following feedback from our partner MBLA about the difficulties concerning this survey, we have developed new impact assessment surveys which aim to better reflect and measure the direct and indirect benefits as well as the impact of our project activities (Annex 41).

4.6 Transfer of knowledge

Throughout this project, we applied a diverse approach of transferring knowledge, with a focus on local practitioners in the region and youth. In January 2020, Zahra Ouhssain, host of the radio show "Le monde de l'environnement" on Radio Amazigh visited project sites Ourika and Imegdal. She developed a series of four broadcasts on our HACL programme and environmental challenges in the High Atlas and approaches to protect the area. The broadcasts include interviews with Dar Taliba students, community researcher Fadma Ait Illigh and Field and Project Coordinators Abdellah Aghraz and Rachid Ait Babahmad, as well as project beneficiaries on site. The series was broadcast between March and May 2020.

Furthermore, the workshop "Making Research Matter: how to transform new knowledge on biodiversity into conservation action and benefits for local communities" and the Mediterranean Environments Regional Academy (MERA 2018), provided the opportunity to transfer knowledge on a deeper level to young practitioners in Morocco and from the wider Mediterranean region. MERA 2018 for example, took place from 2-11 November 2018 under the theme of "Community-based management in the Mediterranean: innovations in socio-environmental research and action". MERA gathered around 30 participants and experts, including 14 women, from different Mediterranean countries including Turkey, Algeria, Greece, Tunisia, Spain and Morocco. Topics of focus included local product commercialisation, agrobiodiversity, gender and agricultural research, communal territorial governance and environmental policy-making in the

Mediterranean region. A full narrative report of the academy can be found in Annex 30, in addition to an online blog post and a video on the event.

Another example of our approach to knowledge transfer is the publication of the High Atlas Biocultural Database, which provides a public and free online resource for researchers and practitioners.

Finally, during this project, four of our Moroccan team members (Abdellah Aghraz, Omar Saadani Hassani, Soufiane M'sou and Rachid Ait Babahmad) obtained their PhDs at Cadi Ayyad University in Marrakech, ensuring their roles in the new generation of conservationists in Morocco.

4.7 Capacity building

Over the past year we have focused significant efforts on developing institutional and team strengths of our lead partner Moroccan Biodiversity and Livelihoods Association (MBLA), which currently includes 7 core members (2 women) and 9 community researchers (3 women). The organisation has received an intensive 6-month coaching and training process which has resulted in a more robust team structure, significant capacity-building on organisation management, planning and fundraising, and a series of fundraising proposals submitted. Please see Annex 42 for a report on MBLA's capacity building programme. Our community researchers and team members have also participated in specific training sessions, along with 15 Master and 22 Undergraduate students from the Faculty of Science at Cadi Ayyad university in Marrakech, on conservation and ethnobiology techniques including: conservation assessment and Red listing of plant species according to IUCN criteria and categories; herbarium techniques; plant and seed collection; floristic monitoring and ethnobotanical research methods.

In April 2019, we organised a High Atlas Cultural Landscapes Programme Monitoring Week in the High Atlas to share knowledge within the GDF-MBLA team regarding the purpose and structure of existing vegetation monitoring practices in our HACL programme, and to learn the monitoring techniques used, as well as to learn together the process of soils assessment and monitoring to support our emergent agroecology programme component. See Annex 56 for the workshop report, including participant list and presentations.

We organised a butterfly monitoring workshop in June 2019, during which we invited PhD Constantí Stefanescu and PhDc Andreu Ubach, two butterfly monitoring experts from the Natural Sciences Museum of Granollers, Catalonia. Throughout the two-day workshop in Oukaïmeden, GDF and MBLA team members received training in techniques to catch, identify and monitor butterflies through theoretical and practical sessions in the field. See Annex 57 for a report on the event, in addition to an online photo blog.

Furthermore, the GDF-MBLA team participated in the first Mediterranean Community Exchange on Biocultural Diversity Monitoring, held in Morocco (6-10 October 2019) during which they had the opportunity to exchange with and receive capacity building from regional experts in the Mediterranean on integrating biocultural diversity in monitoring programmes.

Finally, Abdellah Aghraz, Rachid Ait Babahmad and Soufiane M'sou were promoted from their roles as Field/Lab Scientists to Project and Field Coordinators given their excellent performance and work as Focal Points in our partner communes.

5 Sustainability and Legacy

This project allowed us to build strong local partnerships and network, especially through the institutional strengthening of our lead partner Moroccan Biodiversity and Livelihoods Association (MBLA). We are confident that the dynamic MBLA team will be successful in autonomously securing most of the funds for the HACL programme as time goes on. This strategy also responds to our analysis that donors are increasingly keen to provide direct support to local civil society rather than through international NGOs. Opportunities for funding through MBLA have significantly increased over the years, and we will capitalise on that shift as much as possible over the next three years. GDF is actively invested in supporting the institutional strengthening of MBLA through an intensive team coaching and capacity building programme that is active

since October 2019 and will continue throughout the next three years. This programme has already shown excellent dividends in the form of increasing administrative and decision-making autonomy among MBLA staff and leadership, as well as the development of a series of high-quality project proposals that have been submitted over the past six months.

We also ensured the sustainability of our efforts and the legacy of our High Atlas Cultural Landscapes Programme by securing the following grants during this project: “Cultural Landscape Management in the Moroccan High Atlas”, funded by the MAVA Foundation (€), “Enhancing the resilience of High Atlas agroecosystems in Morocco”, funded by the Open Society Foundation ($) and “Educating individuals for meaningful engagement in the global community”, funded by Semester at Sea Chapman Impact Fund ($). We have also applied for a Critical Ecosystems Partnership Fund large grant of $ for a project on “Maintaining traditional land use practices favouring conservation of threatened species in two key biodiversity areas of the Atlas Mountain corridor“. In 2021, we are planning a collaboration with Mowgli Mentoring and MAVA Foundation to support rural entrepreneurs in Lebanon for promoting sustainable land-use practices.

On June 1st 2020, we launched a new Darwin Initiative funded project “Conserving High Atlas agrobiodiversity to improve Amazigh livelihoods in Morocco” (£) to build on our efforts and partnerships established through this project. Our project cycles through phases of agrobiodiversity assessment and ex-situ conservation; on-farm selection and sustainable cultivation of promising crop varieties; knowledge exchange, seed sharing, product innovation and commercialisation; and national policy support.

6 Lessons learned

One of the main lessons we learned during this project relates to the lengthy process involved in obtaining field work authorisations and in establishing MoUs and partnership agreements with all relevant local authorities, often resulting in delays in implementation. We found ourselves facing challenges in the process of scaling up in the commune of Oukaïmeden due to political issues and conflicts within the commune. Although we obtained the necessary permits and a signed Memorandum of Understanding with the commune at the end of Year 2, there were still unresolved internal issues which slowed down our processes in obtaining land for the community plant nursery and the necessary permits to start construction work. This delayed the establishment of the community nursery and plant cultivation. Although these internal issues are unpredictable and out of our control, we have learned from the lessons in Oukaïmeden and have already established an excellent relationship with the High Atlas commune of Zaouiat Ahansal, a High Atlas community we plan to expand our programme in over the next three years. In addition, we will continue to collaborate with other non-profit organisations – such as the Federation for the Democratic League of Women’s Rights – that have already established relationships with other rural communes, allowing us to extend with geographical reach.

We also learned that there is a growing need expressed by local community members for training in agroecological practices, cooperative management, plant commercialisation, and more. This past project year, we received requests from local cooperatives in Imegdal and Aït M’hamed for targeted training in cooperative management to increase their understanding of national regulations, as well as best practices and tips in product commercialisation. Therefore, we organised trainings on this topic, with the support of national experts from Cooperative Maroc Solidaire (CoMaSol). In addition, the governor of Azilal has specifically reached out to us with a request to support the development of employment opportunities of youth in Ait M’hamed. With this in mind, we addressed youth employment during focus groups for the development of our community action plans (Annexes 32 and 33) and have included the topic in new project proposals.

We also learned the importance of expanding our dissemination efforts through our participation in community events and activities. During our workshops and interactions with local community members at our biocultural diversity fair in Aït M’hamed, people expressed their interest to learn more about our projects and to participate in workshops, trainings and focus groups. Therefore, we organised two short seminars during the annual Moussem festival in Aït M’hamed last year (one for youth and one for adults) to present our HACL programme and project activities in greater detail. We also developed brochures and educational materials in French and Arabic (Annexes 43 and 44) and plan to expand on these efforts in future projects by including regional

and national media in our dissemination activities. We will launch a call for applications for Communications & Programme Officer in October 2020 to assist with this effort.

One of the key recommendations of our annual external evaluation included expanding our network of partners at the national level to increase the impact of our activities and to support upscaling our HACL programme to other areas. We are making progress in this respect through our intensive capacity building programme for our lead partner MBLA, as it supports their networking skills and strengthens their communication capacities to participate in national dialogues around biodiversity conservation actions and cultural landscape management. As we take a more regional approach in the High Atlas, going beyond the three rural communes where we currently focus, we are discovering additional opportunities to form partnerships with other individuals and organisations.

Finally, one of the challenges we encountered over the past three project years has been 'event fatigue' among the communities we work with, given the amount of workshops and focus groups organised under this particular project. We learned to plan upcoming workshops more strategically by merging different topics in singular workshops and addressing different audiences that so far have not received as much attention, specifically youth. This lesson has also been taken into account for future projects to ensure workshops and focus groups integrate diverse themes and are spaced out appropriately in time and space.

6.1 Monitoring and evaluation

Monitoring and evaluation of achievements is built into the structure of the project. To support our M&E process, at the beginning of the project we established a monthly internal reporting process to facilitate regular assessment of progress and to identify adaptive management needs or changes in strategy as required. We implemented a GDF-MBLA internal communications policy (Annex 45) all staff adhere to that ensures regular communication and coordination across the project team, including with daily WhatsApp updates, allowing us to monitor progress in the field very closely. On a day-to-day basis the Management Team is responsible for ensuring the delivery of the project outputs and outcomes. Management Meetings are held on a bi-monthly basis during which project progress is discussed, implementation issues identified and resolved, and forward planning agreed. It is composed of five representatives of GDF and MBLA. All GDF/MBLA teams (including Conservation, Ethnobiology, Communications & Coordination) are represented through the Management Team Membership: Emily Caruso, (GDF-UK Director); Gary Martin (Mediterranean Programme Lead Consultant); Ugo D'Ambrosio (GDF Scientific and Technical Advisor); Rachid Aït Babahmad (Project and Field Coordinator and MBLA Team Coordinator); Pommelien da Silva Cosme (Morocco Programme Director) and Manish Panjabi (Finance and Admin Manager).

To support the M&E process described above, and as a result of our team expansion in Morocco, we launched bi-monthly Field Team meetings in Year 2 of this project, during which all Field Team members gather at the MBLA office in Marrakech. They are joined by the Management Team (via Skype if not in country) and discuss field activities, decision-making and project planning. Please see Annex 29 for an updated organigram and Annexes 46 and 47 for minutes of MT and Field Team meetings).

In addition to the ongoing monitoring through meetings and internal reporting, we organise yearly external evaluations for our High Atlas Cultural Landscapes programme (which this project contributes to). In Years 1 and 2, Najwa Es-siari completed an external evaluation following 10-days of intensive field- and office-based assessments. Her external evaluation report of Year 2 is provided in Annexes 48 and 49. The Year 3 evaluation is currently in process, again under the direction of external evaluator Najwa Es-siari; once it is complete (estimated mid-October 2020) we will directly send it on to Darwin Initiative. These external evaluations provide important opportunities for team members to assess progress and evaluate and present achievements during the year. One of the key recommendations of our annual external evaluation in 2019 included expanding our network of partners at the national level to increase the impact of our activities and to support upscaling our HACL programme to other areas.

The monitoring and evaluation system applied through this project was practical and supported the planning and organisation of project activities with our partners. It also provided practical feedback for our field team, project partners and stakeholders.

6.2 Actions taken in response to annual report reviews

As requested during Darwin's review of the second year of implementation, we attach to this report the following documents:

- External evaluation reports for Years 1 and 2 produced by national expert Najwa Es-siari (Annexes 48 and 49).
- The GDF-MBLA internal communications policy, which all staff adhere to and ensures regular communication and coordination across the project team (Annex 45).
- Minutes of bi-monthly Management Team meetings in the final project year (Annex 46).
- Minutes of bi-monthly Field Team meetings to support the M&E process (Annex 47).
- The Darwin logo has been added to all reports produced under this project – which are available in the Annex Dropbox folder.

Concerning Indicator 2.3 (Improved irrigation of 50hectares of arable land), we were able to provide improved irrigation infrastructure through the (re)construction of water basins and traditional water canals to 30,2ha of agricultural land, instead of 50ha stated in our original indicator. However, given the baseline of no maintained irrigation systems in these communities and the difficulties of obtaining authorisations from local authorities for (re)construction works, we consider this number a success and we would like to assure the Darwin Initiative that we will continue supporting communities who are in need of improved irrigation systems.

All reviews have been shared and discussed internally and with our lead implementing partner Moroccan Biodiversity and Livelihoods Association.

7 Darwin identity

GDF actively and regularly shares progress updates and news from our Darwin funded project as part of our wider High Atlas Cultural Landscape Programme on our website and social media profiles (639 Twitter, 3,597 Facebook and 816 Instagram followers), our annual Newsletter distributed to our 2809 subscribers and in GDF's Annual Reports, including our 2019 Annual Report which was published in May 2020.

The Darwin Initiative logo has been added to GDF's High Atlas Cultural Landscape Programme and Dar Taliba webpages and the support received from the Darwin Initiative is recognised on our dedicated project page and referenced across our blog updates where relevant and appropriate, including GDF videos on YouTube such as the 1st Mediterranean Environments Regional Academy and an introduction to Moroccan plants and essential oils. We have continued distributing brochures in French and Arabic (Annexes 43 and 44) during workshops, meetings and community events, which include the Darwin Initiative logo and present our project activities. The Darwin Initiative has also been acknowledged in our latest resources: The Amazigh Household booklet and the High Atlas Biocultural Database.

In addition to the above, GDF has been actively engaging with the Darwin Initiative on Facebook, Twitter and LinkedIn. Please see Annex 50 for a summary of our online activity during this reporting period and online interaction with Darwin Initiative through social media.

Finally, GDF contributed to Darwin's May 2018 and February 2019 newsletters, which we have shared widely on our social media networks and included in the GDF website stories section.

8 Finance and administration

8.1 Project expenditure

Project spend (indicative) since last annual report	2019/20 Grant (£)	2019/20 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)

Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
TOTAL				

Staff employed (Name and position)	**Cost (£)**
Emily Caruso, Project Director	
Mohamed El Haouzi, Field Director	
Sifeddine Ouahdani, Local Products Commercialisation Officer	
Hassan Rankou, Project coordinator	
Abdellah Aghraz, Community facilitator	
Rachid Babahmad, Project researcher	
Soufiane M'Sou, Project researcher	
TOTAL	

Capital items – description	**Capital items – cost (£)**
TOTAL	

Other items – description	**Other items – cost (£)**
Publication fees Support for Dar Taliba school activity Medical Caravan personnel costs	
TOTAL	

8.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	**Total (£)**
MAVA	
OSF	
CEPF	
SAS	
UDEP-SGP	

SGP/ICCA	
CEPF	
TOTAL	

Source of funding for additional work after project lifetime	Total (£)
OSF	
MAVA Foundation (2020-2022)	
CEPF (requested)	
TOTAL	

8.3 Value for Money

The money provided by this project was excellent value for money, principally because most of the team and expenses are made in Morocco, and international consultants and staff are very modestly paid. The project supported in-country fieldwork related to floristic and seed collections, medical caravans, capacity building for local communities and field visits for other purposes. The dedication to working primarily with Moroccan partners and staff is an important part of the capacity building and host-country support that is a hallmark of all GDF projects. All salaries and consultancies supported by Darwin are allocated to Moroccan nationals or residents except the GDF project director, and short-term consultants. GDF keeps its overheads low (less 12.5%) by spending majority of funds in the host country in particular through local partner organisation Moroccan Biodiversity and Livelihoods Association (MBLA).

Where appropriate necessary quotations were invited before awarding the contract. The staff contracts were limited to project period where possible. The frequency of transfers to host countries were also planned and kept at minimum to mitigate any adverse forex where possible.

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

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

Plant cultivation and distributions

During this project, we fully established two community plant nurseries in Imegdal and Aït M'hamed, where we have cultivated 93,145 plants of 32 endemic, threatened and valuable species. Establishing thriving community nurseries, which enable terrace cultivation and enrichment planting of locally selected tree crops and medicinal roots such as oregano (*Origanum compactum*) and rosemary (*Rosmarinus officinalis*), are an important part of our High Atlas Cultural Landscapes programme. These plant nurseries permit reintroduction of cultivated species to the wild as well as community-wide distribution of fruit and nut trees, and medicinal and aromatic plants, aimed at supporting local livelihoods and plant conservation *in situ*. We distributed a total of 55,924 plants in Imegdal (45,724) and Aït M'hamed (10,200) during the past three years which benefited around 613 houesholds: 500 households in Imegdal spread across 21 villages and 113 households of 12 different *douars* in Aït M'hamed.

Dar Taliba school garden project

Thanks to Darwin funds, we have been able to support Dar Taliba, an all girls' boarding house that provides Amazigh girls (ages 13 – 16) from remote villages in the High Atlas an opportunity to continue their education beyond primary school. Since the beginning of this project, we have granted access to secondary education to a total of 177 girls (65 in Year 1, 52 girls in Year 2 and 60 in Year 3). Furthermore, we established a 6,000m^2 model ethnobotanical school garden,

which provides a training space for students to develop new skills and knowledge in plant conservation, plant uses, agroecology techniques and indigenous practices. Since the beginning of this project in 2017, we provided 108 trainings for the Dar Taliba students in collaboration with our partner Radiant Design.

The project provides a healthy outdoor activity for the students in residence, while also encouraging the girls to share the knowledge they gather during the trainings with their families. Throughout the school year, students bring home plant saplings, vegetables and medicinal plants to their families, and plant them in their home gardens to practice and share their skills with the local community. In addition to these activities, the girls grow and harvest most of the fruits, vegetables and herbs used by the Dar Taliba kitchens to feed the girls and local staff.

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

Note: Insert your full logframe. If your logframe was changed since your Stage 2 application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert the Stage 2 logframe.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Atlas Mountains Amazigh people are empowered to expand their role as stewards of Important Plant Areas and plant genetic resources while improving their livelihoods in a changing socio-economic context.			
Outcome: Integrated conservation of regionally threatened culturally-important plant species and management of Important Plant Areas in the Atlas Mountains is achieved through Amazigh community action and capacity-building, accompanied by improved livelihoods.	0.1 Twelve regionally threatened plant species and varieties are assessed, cultivated, distributed, sustainably harvested and monitored over three years 0.2 In three rural municipalities of the High Atlas, 2500 people, including from the 50 most vulnerable households, benefit from modest income increases and improved wellbeing through useful plant cultivation and marketing, irrigation, access to secondary school for girls, health improvements and adequate nutrition. 0.3 Three hundred and twenty-five people benefit from capacity-building delivered in training courses, workshops, a community exchange, and on-the-job experience by project end 0.4 One detailed case study of implementation of the new national law #29-05 on the protection and commercialization of wild flora and fauna and its relationship to law #22-07 on protected areas developed and disseminated within Morocco, by year 3 0.5 A participatory process of characterizing 50 additional species for the household basket of useful plant resources that bring monetary and non-monetary benefits, launched by year 2	0.1 Conservation assessments, business plans, cultivation and distribution records, harvesting and monitoring data, peer-reviewed article 0.2 Project updates and photo essays, list of secondary school students, results of household surveys, medical assessments and participatory appraisals. 0.3 Exchange, training course and workshop reports with participant lists; photo essay on community researchers 0.4 Action plan, working paper and peer-reviewed article 0.5 Herbarium collections, database, popular manual and peer-reviewed article on cultural keystone species	Selected species are easily cultivated and resilient to attested harvest levels Community associations capable of consensus on the most vulnerable families in their villages Community members and students available and interested in participating in capacity-building events Government authorities open to collaboration on implementation of new law Sufficient candidate useful species
Outputs: 1. Conservation action plans for threatened useful plants implemented	1.1 Conservation assessments and action plans for 12 species of threatened useful plants updated and drafted in year 1; published in year 2 1.2 Collection and conservation of seed of these 12 species in community seed banks in year one 1.3 Market analysis and business plans for sustainable commercialization of the six most commercially promising species, by year 2 1.4 Cultivation of at least 2000 plants of each of the 12 species in community nurseries by year 1, and enrichment planting by year 2	1.1 Updated assessments published and uploaded to IUCN Red List of Threatened Species 1.2 Seed collection protocols and community seed bank accession records for all species 1.3 Written business plans, incorporating market analysis 1.4 Community nursery and enrichment planting records and photo documentation	Government permission for collection of seed granted under new law #29-05 Viable seed or other germplasm available and not affected by drought, insect predation or other environmental factors Multiplication of threatened plants does not confront problems of seed dormancy or recalcitrance

	1.5 Participatory ecological monitoring and matrix modelling of population trends in enrichment planted areas by year 3 1.6 Journal article on outcome of conservation actions plans by year 3	1.5. Monitoring and matrix modelling data sets and photo documentation 1.6 Manuscript and confirmation email of article submission	Community members agree to participate in enrichment planting trials on their lands
2. Livelihood improvements for Amazigh villages, households and residents achieved	2.1 Annual distribution of commercially valuable plants – an average of 10 useful trees (e.g. almond, oak, ash as well as carob, olive, walnut and others) and 100 medicinal and aromatic herbs (e.g cultivated thyme, mint, sage) – to 400 households in 5 Amazigh villages, compared with no distribution at present 2.2 Medicinal and aromatic plants (e.g. thyme, mint, etc) and produce of useful trees (e.g. almond, carob, etc.) are of suitable commercial quality, as tested through participatory processes with farmers and commercial buyers and laboratory-based phytochemical analysis, at end of year 1 and year 2. 2.3 Improved irrigation of 50 hectares of arable land benefitting a total of 5 Amazigh villages, 400 households and 2500 residents, on plots currently with insufficient water for cultivation, by year 2 2.4 Increase of 20% in annual income derived from sale of commercialized medicinal and aromatic plants from the baseline of 1000 – 2000 Dhs (£) annually per household, by year three 2.5 Reduction, in children of 0 -15 years, by 75% in incidence of intestinal parasites (currently found in 30% of this age group), goitre (20% of the age group) and dermatological problems (3%) by year 3 2.6 Access to secondary school for 75 girls from 5 communities through residency in boarding houses over three years, compared to no girls in secondary school from these families 2.7 Annual supplements of locally-produced food provided to approximately 25 highly vulnerable households in February 'famine period' compared to no food relief presently	2.1 Plant distribution records 2.2 Community research protocols; reports on plant quality and commercial viability, including recommendations for adjustments to improve quality 2.3 Water engineering reports detailing irrigation infrastructure and m3 of water provided 2.4 Household surveys on income derived from sale of plant products 2.5 Reports from annual public health caravans, including sections from dermatologists, gastroenterologists and other specialists 2.6 Lists of boarding house residents with village of origin; student surveys 2.7 List of beneficiaries, and of contents of supplementary food packages	Sufficient and suitable useful plants can be grown in community nurseries or purchased at reasonable cost from commercial nurseries Drought conditions, limiting water availability and flow, do not prevail Irrigation leads to higher production of medicinal and aromatic plants; associations negotiate beneficial sale prices. Families willing to send children for medical visits and their girls to secondary school Most vulnerable families easily identified
3. Capacity-building for Amazigh associations, community members, community researchers and institutional representatives delivered	3.1 Twelve leaders (50% women) of 3 community associations participate in 3 training courses on economical use of water, plant product marketing and new Moroccan laws on wild species conservation and commercialization by year 3 3.2 Two hundred community members (40% women) participate in 12 workshops on water harvesting, sustainable harvest and adding value to plant resources by year 3 3.3 Ten community researchers (6 men/4 women) receive continuous on-the-job training over 3 years	3.1 Training course reports, including participant list and evaluation 3.2 Workshop reports, including participant list and evaluation 3.3 Community researcher work records; interviews and photo essays 3.4 Workshop videos; reports, including participant list and evaluation	Association leaders, community members and students available to participate in training events Permission granted by participants to film and photographs events Sufficient co-funding obtained to allow candidates from other North African countries and areas of the

	3.4 Seventy-five girls in secondary school boarding houses participate in 2 workshops on transformation and adding value to plant products, every year 3.5 Twenty-five representatives of institutions working on biodiversity and livelihoods in Atlas Mountains throughout North Africa participate in a Community Exchange on the topic of wild plant species conservation, community seed banks and nurseries in year 2	3.5 Exchange video, photo essay and report including participant list and evaluation	Mediterranean to attend the Community Exchange
4. Case study on implementation of new national law #29-05 on the protection and commercialization of wild flora and fauna and its relationship to law #22-07 on protected areas submitted	4.1 Repatriation of 10 years of GDF data on local commercialization of fauna and flora to the Marrakech Delegation of Water and Forests 4.2 Action plan for participatory natural resource management strategy around Toubkal National Park under law #22-07 on protected areas developed with the Marrakech Delegation, by year 2 4.3 Permits under law #29-05 for seed collection, multiplication and sale for 12 wild plants species obtained, by year 1 4.4 Working paper on implementation of new national law #29-05 completed and disseminated to government agencies, academic institutions and non-governmental organizations, by year 3 4.5 Journal article on protection and marketing of wild flora submitted, by year 3	4.1. Fauna and flora market inventory database formatted for use by government agency 4.2 Written action plan, submitted in French 4.3 Copies of permit applications and approvals 4.4 PDF of working paper 4.5 Manuscript and confirmation email of article submission	Government authorities find database information relevant for implementation of law #29-05 Government authorities grant permission in a timely manner, as envisioned by law #29-05 Sufficient data available for publication by end of project Community permission granted to use local surveys and community research data in publication
5. Identification and characterization of additional plant genetic resources completed	5.1 Floristic and ethnobotanical surveys provide information on an additional 50 species of useful plants by year 2 5.2 Conservation assessments of 50 additional useful plants completed by year 3 5.3 Initial analyses of market potential prepared for at least 20 species by year 3 5.4 Seed collection, cultivation and distribution to community members, on a small experimental scale, of at least 10 additional species of high potential, by year 3 5.5 Popular manual, in Arabic and French, of the household basket of more than 50 useful plants that can improve local livelihoods and wellbeing, disseminated in High Atlas communities by year 3 5.6 Journal article on cultural keystone species of the High Atlas	5.1 Databases of floristic and ethnobotanical surveys; useful plant photos 5.2 Conservation assessments published and uploaded to IUCN Red List of Threatened Species 5.3 Report on market potential analysis 5.4 Collection and distribution records, photo essays 5.5 PDF of popular manual 6.6 Manuscript and confirmation email of article submission	Existence of at least 50 additional species about which community members share their knowledge Sufficient information available about market demand and commercial potential of selected species Collected seeds do not demonstrate excessive dormancy or recalcitrance Community permission granted to publish traditional knowledge about useful plants.
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) **Output 1. Conservation action plans for threatened useful plants implemented** 1.1 Conservation assessments compiled and published, including GIS mapping of species and threats 1.2 Community seed banks established, and seeds collected and stored 1.3 Market analyses and business plans elaborated			

1.4 Cultivation of plants in community plant nurseries established
1.5 Quality of plants grown controlled through participatory processes and phytochemical analysis and necessary adjustments made
1.6 Enrichment planting implemented
1.7 Participatory ecological monitoring and matrix modelling completed
1.8 Peer-reviewed article on conservation actions submitted

Output 2. Livelihood improvements for Amazigh villages, households and residents achieved
2.1 Annual distribution of an average of 10 trees and 100 MAPs per household
2.2 Efficient irrigation systems for community nurseries and smallholder parcels established
2.3 Annual health caravans carried out
2.4 Annual food supplements distributed during 'famine month' to most vulnerable families
2.5 Annual selection of girls for entry to boarding houses completed

Output 3. Capacity-building for Amazigh associations, community members, community researchers and institutional representatives delivered
3.1 Training courses on economical use of water, plant product marketing and new Moroccan laws implemented
3.2 Community workshops on water harvesting, sustainable plant harvesting and adding value to plant resources implemented
3.3 Community researchers trained
3.4 Workshops for secondary school girls on transformation and adding value to plant products carried out
3.5 Community Exchange on wild plant species conservation, community seed banks and nurseries implemented

Output 4. Case study on implementation of new national law #29-05 and its relationship to law #22-07 submitted
4.1 GDF database on commercialization of fauna and flora in Marrakech markets repatriated
4.2 Participatory action plan on natural resource management around Toubkal National Park elaborated
4.3 Permits for seed collection, multiplication and sale sought and obtained
4.4 Working paper on implementation of law 29-05 completed and disseminated
4.5 Peer-reviewed paper on protection and marketing of wild flora submitted

Output 5. **Identification and characterization of additional plant genetic resources completed**
5.1 Floristic and ethnobotanical surveys conducted
5.2 Conservation assessments of 50 additional species completed
5.3 Initial market analyses of 20 species achieved
5.4 Seed of at least 10 species collected and cultivated; plants distributed
5.5 Popular manual completed and disseminated
5.6 Peer-reviewed paper on cultural keystone species submitted

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

Project summary	Measurable Indicators	Progress and Achievements
Impact: Atlas Mountains Amazigh people are empowered to expand their role as stewards of Important Plant Areas and plant genetic resources while improving their livelihoods in a changing socio-economic context.		Through our capacity-building approach, we (a) enhanced community engagement in the project, ensuring ownership and the programme's legacy locally, (b) provided opportunities for personal growth and development for community members, and (c) ensured community members now have key skills and capacities to implement actions for conservation and sustainable management as stewards of Important Plant Areas. Our conservation research on regionally threatened and culturally important plant species resulted in the production of 60 conservations assessments and a High Atlas Red Book. These provide essential context and are important tools for the development of conservation actions. By distributing commercially valuable plants for cultivation and sale, we contributed local livelihood benefits (both monetary and non), thus contributing to household wellbeing. In tandem with other interventions, food supplements for most vulnerable households during 'famine months' helped reduce seasonal migration, allowing the creation of durable family economies. Finally, improved water harvesting infrastructure has provided safe drinking water and extended the irrigation season in community nurseries and smallholder plots, consolidating the project's health, food security and income results.
Outcome Integrated conservation of regionally threatened culturally-important plant species and management of Important Plant Areas in the Atlas Mountains is achieved through Amazigh community action and capacity building, accompanied by improved livelihoods.	0.1 Twelve regionally threatened plant species and varieties are assessed, cultivated, distributed, sustainably harvested and monitored over three years 0.2 In three rural municipalities of the High Atlas, 2500 people, including from the 50 most vulnerable households, benefit from modest income increases and improved wellbeing through useful plant cultivation and marketing, irrigation, access to secondary school for girls, health improvements and adequate nutrition. 0.3 Three hundred and twenty-five people benefit from capacity building delivered in training courses, workshops, a community	0.1 Publication of conservation assessments of 12 regionally threatened plant species, published online on the IUCN Red List of Threatened Species (see Annex 3 for the list of 12 species). This research provides a baseline dataset of High Atlas flora including taxonomy, species distributions, ecological requirements and conservation recommendations to ensure the development of targeted and effective conservation measures in the future. 0.2 Distribution of 55,924 plants in Imegdal (45,724) and Aït M'hamed (10,200), benefiting 500 households in Imegdal and 113 households in Aït M'hamed; free medical consultations and medicine to 1912 adults and children (1200 in Aït M'hamed and 712 in Imegdal); access to secondary education to a total of 177 girls (65 in Year 1, 52 girls in Year 2 and 60 in Year 3). 0.3 Capacity building on sustainable agriculture and land use practices such as sustainable plant harvesting delivered to 422 community members (incl. 177 Dar Taliba students), exceeding our three-year target of 325. 0.4 Development of a case study on the implementation of law 29-05 (see Annex 31). This case study was presented by GDF staff in a regional meeting in Marrakech on 2nd January organised by the High Commissariat for Water and Forests and Desertification (HCWFD). This case study provides an important tool to

Project summary	Measurable Indicators	Progress and Achievements
	exchange, and on-the-job experience by project end 0.4 One detailed case study of implementation of the new national law #29-05 on the protection and commercialization of wild flora and fauna and its relationship to law #22-07 on protected areas developed and disseminated within Morocco, by year 3 0.5 A participatory process of characterizing 50 additional species for the household basket of useful plant resources that bring monetary and non-monetary benefits, launched by year 2	contribute to national policy frameworks on the protection and commercialization of wild flora and fauna. 0.5 Publication of an educational booklet featuring 50 local and useful plant products of the High Atlas selected and characterized through a community-based participatory approach by students during eight workshops carried out in Imegdal, Aït M'hamed and Ourika and an online High Atlas Biocultural Database (HABD) containing over 300 interviews, more than 200 species and 4,972 use reports.
Output 1. Conservation action plans for threatened useful plants implemented	1.1 Conservation assessments and action plans for 12 species of threatened useful plants updated and drafted in year 1; published in year 2 1.2 Collection and conservation of seed of these 12 species in community seed banks in year one 1.3 Market analysis and business plans for sustainable commercialisation of the six most commercially promising species, by year 2 1.4 Cultivation of at least 2000 plants of each of the 12 species in community nurseries by year 1, and enrichment planting by year 2 1.5 Quality of plants grown controlled through participatory processes and	1.1 Species accounts and conservation assessments for all 12 species completed, and published online on the IUCN Red List of Threatened Species (See Annex 3a). 1.2 Seeds of all 12 species are collected and stored in community seed banks and MARK regional seed bank in Marrakech. See section 3.1 and Annex 38. 1.3. Characterisation of 6 species selected as the most commercially viable completed in Year 2 (Annex 56). A detailed commercialisation report with feasibility studies of the following 12 products/species: saffron (*Crocus sativus*), carob tree (*Ceratonia siliqua*), almonds (*Prunus dulcis*), walnuts (*Juglans regia),* bee hive products (honey, propolis, royal jelly and other wax) and aromatic and medicinal plants (*Thymus satureioides*, *Lavandula dentata*, *Anacyclus pyrethrum* and *Mentha suaveolens* subsp. *timija*) (Annex 14). 1.4. Cultivation of 2000 plants of all 12 species in both Imegdal and Aït M'hamed community nurseries achieved. See section 3.1 and Annexes 5 and 6. Enrichment planting was conducted in Imegdal and Aït M'hamed by local communities (following plant distribution) in designated areas and local terraces to reduce the pressure of collection on wild habitat and populations. 1.5 Abdellah Aghraz (GDF Plant Quality and Laboratory Scientist), has completed laboratory-based plant quality testing and analyses of 9 species to compare the

Project summary	Measurable Indicators	Progress and Achievements
	phytochemical analysis and necessary adjustments made 1.6 Enrichment planting implemented 1.7 Participatory ecological monitoring and matrix modelling of population trends in enrichment planted areas by year 3 1.8 Journal article on outcome of conservation actions plans by year 3	quality of (1) wild specimens with those cultivated in the community nurseries and (2) plants of the same species grown in the two nurseries. His analysis shows that the quality of plants cultivated in the community nurseries is similar to those of wild species, thus confirming the nursery cultivated plants are of suitable commercial quality. See section 3.1 and Annex 11 for the full report. 1.6 Enrichment planting in Imegdal and Aït M'hamed carried out through annual plant distributions to local community members, in addition to continued planting of nursery-grown seedings of *Lavandula maroccana* and *Thymus saturejoides* in Boumagour, a 5ha parcel of forest land in Imegdal that had been significantly overharvested for those two species (see Annexes 17 and 18 for plant distribution records. 1.7 Three annual cycles of participatory ecological monitoring and remote sensing completed (see section 3.1 and Annex 8 for the full report). 1.8 The article manuscript 'Towards a conservation action plan for the High Atlas flora' is completed and provided in Annex 10.
Activity 1.1 Conservation assessments compiled and published, including GIS mapping of species and threats		Completed. 12 conservation assessments produced and published on the IUCN Red List for Threatened Species. Please see activity narrative report for further details and means of verification (Annex 3a).
Activity 1.2 Community seed banks established, and seeds collected and stored		Completed. Community seed bank accession records achieved for 12 species. See activity narrative report for further details and means of verification (Annex 38).
Activity 1.3 Market analyses and business plans elaborated		Completed. Full characterisation for 6 species selected for their commercial potential (*Quercus ilex, Fraxinus dimorpha, Ceratonia siliqua, Thymus saturejoides, Mentha sauveolens* and *Hordeum vulgare*) (Annex 55), in addition to a detailed commercialisation report with feasibility studies for 12 products/species: saffron (*Crocus sativus*), carob tree (*Ceratonia siliqua*), almonds (*Prunus dulcis*), walnuts (Juglans regia*), bee hive products (honey, propolis, royal jelly and other wax) and aromatic* and medicinal plants (*Thymus satureioides, Lavandula dentata, Anacyclus pyrethrum* and *Mentha suaveolens* subsp. *timija*) (Annex 14).
Activity 1.4 Cultivation of plants in community plant nurseries established		Completed. Over 2000 plants of the 12 species (Annex 3) have been cultivated in Imegdal and Aït M'hamed community nurseries. See section 3.1 and Annexes 5 and 6 for plant cultivation records.
Activity 1.5 Quality of plants grown controlled through participatory processes and phytochemical analysis and necessary adjustments made		Completed. Plant quality testing and phytochemical analysis carried out (Annex 11).
Activity 1.6 Enrichment planting implemented		Completed. Enrichment planting in Imegdal and Aït M'hamed carried out through annual plant distributions to local community members, in addition to continued

Project summary	Measurable Indicators	Progress and Achievements
		planting of nursery-grown seedlings of *Lavandula maroccana* and *Thymus saturejoides* in Boumagour, a 5ha parcel of forest land in Imegdal (see Annexes 17 and 18 for plant distribution records).
Activity 1.7 Participatory ecological monitoring and matrix modelling completed		Completed. Three annual cycles of participatory ecological monitoring and remote sensing completed (see section 3.1 and Annex 8 for the full report).
Activity 1.8 Peer-reviewed article on conservation actions submitted		Completed. The article manuscript 'Towards a conservation action plan for the High Atlas flora' is provided in Annex 10.
Output 2. Livelihood improvements for Amazigh villages, households and residents achieved	2.1 Annual distribution of commercially valuable plants – an average of 10 useful trees (e.g. almond, oak, ash as well as carob, olive, walnut and others) and 100 medicinal and aromatic herbs (e.g cultivated thyme, mint, sage) – to 400 households in 5 Amazigh villages, compared with no distribution at present 2.2 Medicinal and aromatic plants (e.g. thyme, mint, etc) and produce of useful trees (e.g. almond, carob, etc.) are of suitable commercial quality, as tested through participatory processes with farmers and commercial buyers and laboratory-based phytochemical analysis, at end of year 1 and year 2. 2.3 Improved irrigation of 50 hectares of arable land benefitting a total of 5 Amazigh villages, 400 households and 2500 residents, on plots currently with insufficient water for cultivation, by year 2. 2.4 Increase of 20% in annual income derived from sale of commercialized medicinal and aromatic plants from the baseline of 1000 – 2000 Dhs (£) annually per household, by year three	2.1 Annual plant distributions carried out with a total of 55,924 plants in Imegdal (45,724) and Aït M'hamed (10,200) including useful trees such as almond (*Prunus dulcis*) and medicinal and aromatic herbs such as Moroccan wild thyme (*Thymus saturejoides*). These plant distributions benefited around 500 households in Imegdal spread across 21 villages and 113 households of 12 different *douars* in Aït M'hamed, thus exceeding our three-year target of 400 households. 2.2 To support the sustainable plant commercialisation element of this project, Abdellah Aghraz (GDF Plant Quality and Laboratory Scientist) carried out laboratory-based plant quality testing (see Activity 1.5 above). The results showed almost similar effects and the same chemical composition for the cultivated and wild plants, thus confirming the nursery cultivated plants are of suitable commercial quality. In addition, Meghan Henshaw, MSc Ethnobotany student at University of Kent, carried out ethnographic fieldwork on how different social groups assess plant quality along the supply chain for commercialising wild-crafted thyme and lavender in the High Atlas. Her thesis "From Mountain to Market: exploring markers of quality, identification and sources of confusion of Lavandula spp. and Thymus spp. through the Moroccan supply chain", is provided in Annex 51. 2.3. New irrigation systems including three water basins and drip irrigation systems have been established for three community nurseries in Imegdal, Aït M'hamed and Oukaïmeden. In collaboration with our partner RESING, a Marrakech based hydrology engineering firm, we repaired *seguias* (traditional water canals) in partner communities Imegdal and Aït M'hamed, providing irrigation to 21,7 ha of land and directly benefiting 87 smallholders and village inhabitants. Additionally, we built a water reservoir in Imegdal, which serves and provides drinking and irrigation water to 5ha of land in four main douars: Warti, Annamer, Taourirte et Wasntote (Annex 10). The above-mentioned irrigation infrastructure accounts for a total of 30,2ha which represents 60,4 % of our original indicator of 50ha. However, given the baseline of no maintained irrigation systems in these communities and the difficulties of obtaining authorisations from local authorities for (re)construction works, we consider this number a success.

Project summary	Measurable Indicators	Progress and Achievements
	2.5 Reduction, in children of 0 -15 years, by 75% in incidence of intestinal parasites (currently found in 30% of this age group), goitre (20% of the age group) and dermatological problems (3%) by year 3 2.6 Access to secondary school for 75 girls from 5 communities through residency in boarding houses over three years, compared to no girls in secondary school from these families 2.7 Annual supplements of locally-produced food provided to approximately 25 highly vulnerable households in February 'famine period' compared to no food relief presently)	2.4 We completed socio-economic surveys among 136 Amazigh households using the Rural Households Multi-Indicator Survey (RHoMIS). Through 84 surveys in Imegdal and 52 surveys in Ait M'hamed, we collected data related to agriculture, wild plants, livestock, food security and income sources. We found that livestock and agriculture are the most common economic activities and are most often combined (79% in Imegdal and 98% in Aït M'hamed). In both communes, most products of agricultural origin are intended for personal consumption. We found that the RHoMIS survey presented multiple challenges as they were very time intensive (2-3 hours per survey) which limited our ability to conduct surveys on a larger scale, and to gather specific data demonstrating the 20% increase in annual income from commercialisation of medicinal and aromatic plants. The full results report, which provides a baseline data and a characterisation of households in Imegdal and Aït M'hamed, is available in Annex 40. We have now implemented a more general survey to document who has benefitted from livelihood actions and how, a more culturally appropriate approach than the RHoMIS survey. 2.5 We delivered three annual medical caravans in Aït M'hamed and Imegdal, during which a total of 1912 adults and children (1200 in Aït M'hamed and 712 in Imegdal) benefited from free medical consultations and medicine in response to chronic conditions such as diabetes, arthritis and rheumatism. As shown in Annexes 19 and 20, the caravans were well received by community members but they did allow specific monitoring of disease incidence in children of 0-15 years. 2.6 177 new students gained residency at the Dar Taliba boarding house for girls since the beginning of this project (65 in Year 1, 52 in Year 2 and 60 in Year 3), far exceeding our three-year target of 75. See Annex 24 for Dar Taliba residency records. 2.7 We delivered two annual food packages to 145 highly vulnerable households (far exceeding our yearly target of 25 households) in Aït M'hamed and Imegal during the cold 'famine period' in February 2018 and 2019. Please see Annexes 21 and 21a for the full recipient list.
Activity 2.1. Annual distribution of an average of 10 trees and 100 MAPs per household		Completed. 55,924 plants distributed in Imegdal (45,724) and Aït M'hamed (10,200) including useful trees such as almond (*Prunus dulcis*) and medicinal and aromatic herbs such as Moroccan wild thyme (*Thymus saturejoides)* benefiting a total 613 households (Annexes 17 and 18).
Activity 2.2. Plant quality testing carried out		Completed. Laboratory-based plant quality testing (see Activity 1.5 above) was carried out and results show almost similar effects and the same chemical composition for the cultivated and wild plants, thus confirming the nursery cultivated plants are of suitable commercial quality. See Annexes 11 and 11a for the report and a photo essay.

Project summary	Measurable Indicators	Progress and Achievements
Activity 2.3 Efficient irrigation systems for community nurseries and smallholder parcels established		Completed. New and efficient irrigation systems established for 30,2ha of land, including water basins and drip irrigation systems in three community plant nurseries, a water reservoir in Imegdal and restoration of 160 metres of *seguias* (traditional water canals) in partner community Imegdal (providing irrigation to 10 ha of land and directly benefiting 40 smallholders and 232 inhabitants) and restoration of 1,16km of *seguias* in Aït M'hamed (providing irrigation to 47 local smallholders). See Annexes 22 and 23 for reports.
Activity 2.4 Household surveys on income derived from sale of plant products		Completed. 136 household surveys were carried out in partner communes Aït M'hamed and Imegdal, using the Rural Households Multi-Indicator Survey (RHoMIS) during which data related to agriculture, wild plants, livestock, food security and income sources was collected. See Annex 40 for the full report.
Activity 2.5 Annual health caravans carried out		Completed. Three annual medical caravans carried out in Aït M'hamed and Imegdal, providing free medical consultations and medicine to a total of 1912 adults and children (1200 in Aït M'hamed and 712 in Imegdal) (see Annex 19 and 20 for the reports).
Activity 2.6 Annual selection of girls for entry to boarding houses completed		Completed. 177 new students gained residency at the Dar Taliba boarding house for girls since the beginning of this project (65 in Year 1, 52 in Year 2 and 60 in Year 3).
Activity 2.7 Annual food supplements distributed during 'famine month' to most vulnerable families		Completed. Food distribution to 145 highly vulnerable households carried out in Aït M'hamed and Imegdal in February 2018 and 2019.
Output 3. Capacity-building for Amazigh associations, community members, community researchers and institutional representatives delivered.	3.1 Twelve leaders (50% women) of 3 community associations participate in 3 training courses on economical use of water, plant product marketing and new Moroccan laws on wild species conservation and commercialization by year 3 3.2 Two hundred community members (40% women) participate in 12 workshops on water harvesting, sustainable harvest and adding value to plant resources by year 3 3.3 Ten community researchers (6 men/4 women) receive continuous on-the-job training over 3 years	3.1 and 3.2 Since the beginning of this project in 2017, we organised targeted capacity building on sustainable land use practices and a two-day Farmer Field School for 422 community members (incl. 177 Dar Taliba students) in our partner communes Imegdal, Aït M'hamed and Ourika (see Annexes 25, 26 and 27 for reports on the events. In addition, we provided targeted capacity building to 52 cooperative members in Imegdal and Aït M'hamed in December 2019 to improve their skills in cooperative management and plant commercialisation (see Annex 28 for the report) and organised a community exchange on seeds and agricultural policies in Morocco in February 2020 with 33 community representatives from Imegdal, Aït M'hamed and Oukaïmeden (Annex 52). 3.3 Since the beginning of this project, we trained 11 community researchers including 4 women, in nursery management, participatory research and monitoring approaches (Hamid Ait Baskad, Mohamed Ait Boujemaa, Fadma Ait Illigh, Touda Atyha, Hassan Ouchaha, Hammou Malih, Hafida Mouhdach, Saïd Oughzif, Rachid Ait Elhadj, Youssef Rochdi and Fatema Wahmane). See Annex 29 for our 2020 organigramme, in addition to a blog on two of GDF's female community researchers in Aït M'hamed and Imegdal.

Project summary	Measurable Indicators	Progress and Achievements
	3.4 Seventy-five girls in secondary school boarding houses participate in 2 workshops on transformation and adding value to plant products, every year 3.5 Twenty-five representatives of institutions working on biodiversity and livelihoods in Atlas Mountains throughout North Africa participate in a Community Exchange on the topic of wild plant species conservation, community seed banks and nurseries in year 2	3.4 Through this three-year project, we established a weekly garden training programme for students at the Dar Taliba boarding house. We delivered 108 garden trainings to 177 new students on the valorisation of plant products and sustainable agricultural practices such as composting, plant cultivation and seed saving (33 in Year 1, 37 in Year 2 and 38 in Year 3). Please see Annex 53 for training reports of Year 3. 3.5 Given the fact that GDF hosted a European Community Exchange on Seed Diversity and Sovereignty in Barcelona in September 2017 with funding from other sources, we directed Darwin funds for the exchange to another Global Environments Network event, the Mediterranean Environments Regional Academy (MERA 2018), which took place from 2-11 November 2018 in the Moroccan High Atlas and welcomed 30 participants, see Annex 30 for the full report, in addition to an online blog on the event.
Activity 3.1 Training courses on economical use of water, plant product marketing and new Moroccan laws implemented		Completed. Capacity building on sustainable water management, land use practices and plant commercialisation provided to over 422 community members, in addition to a community exchange on seeds and agricultural policies in Morocco (see Annexes 25, 26, 27 and 28).
Activity 3.2 Community workshops on water harvesting, sustainable plant harvesting and adding value to plant resources implemented		Completed. See Activity 3.1. above.
Activity 3.3 Community researchers trained		Completed. 11 community researchers trained in nursery management, participatory research and monitoring approaches, see Annex 29 for GDF's 2020 organigramme.
Activity 3.4 Workshops for secondary school girls on transformation and adding value to plant products carried out		Completed. 108 garden trainings carried out to 177 new Dar Taliba students on the valorisation of plant products and sustainable agricultural practices such as composting, plant cultivation and seed saving (33 in Year 1, 37 in Year 2 and 38 in Year 3). Please see Annex 53 for training reports of Year 3.
Activity 3.5 Community Exchange on wild plant species conservation, community seed banks and nurseries implemented		Completed. This project supported the Mediterranean Environments Regional Academy (MERA 2018), which took place from 2-11 November 2018 in the Moroccan High Atlas and welcomed 30 participants, see Annex 30 for the full report, in addition to an online blog on the event.
Output 4. Case study on implementation of new national law #29-05 and its relationship to law #22-07 submitted	4.1 Repatriation of 10 years of GDF data on local commercialization of fauna and flora to the Marrakech Delegation of Water and Forests	4.1 Mohamed El Haouzi, Morocco Field Officer, led the process of revision and repatriation of the database of fauna and flora commercialised in the markets (souks) of Marrakech and its rural hinterland. To complement each database entry, they have developed a short summary of the conservation status, public health concern and commercial viability of the species recorded in the inventory, with additional information on its local names, use and marketing in Morocco, an

Project summary	Measurable Indicators	Progress and Achievements
	4.2 Action plan for participatory natural resource management strategy around Toubkal National Park under law #22-07 on protected areas developed with the Marrakech Delegation, by year 2 4.3 Permits under law #29-05 for seed collection, multiplication and sale for 12 wild plants species obtained, by year 1 4.4 Working paper on implementation of new national law #29-05 completed and disseminated to government agencies, academic institutions and non-governmental organizations, by year 3 4.5 Journal article on protection and marketing of wild flora submitted, by year 3	annotated bibliography and photographs. See Annex 31a for the Guidelines for the market ethnobiological survey repatriation – which provide an example of one species, *Vitex agnus-castus.* 4.2 Based on requests and recommendations of community members; we shifted this activity to a wider community-based focus, and elaborated two detailed Community Action Plans with our partner communes Aït M'hamed and Imegdal to address key socioeconomic, management and biodiversity challenges in Imegdal and Aït M'hamed. Between October and December 2019, we carried out five focus groups to elaborate the CAPs through a participatory approach, focusing on four key pillars: pastoralism, agriculture, commercialisation and youth – all with a strong biodiversity angle – which respond directly to community aspirations and needs. In Imegdal, located in the Toubkal National Park, one of the suggested actions relates to supporting the commercialisation and value chain research of dried lavender (*Lavandula dentata*) and thyme (*Thymus saturejoides*). Please see Annexes 32 and 33 for the Community Action Plans. 4.3 Permits for seed collection and multiplication have been obtained during Year 1 of this project. Regulations for obtaining permits for seed sale have not been formally and explicitly established due to relatively slow implementation of law #29-05. We have obtained permission from local authorities at various levels, from the moqadems to the Provincial governors, and from national agencies such as the Water and Forests Department. 4.4 We completed a case study on the implementation of law 29-05 (see Annex 31). This case study was discussed during a regional meeting in Marrakech on 2nd January organised by the High Commissariat for Water and Forests and Desertification (HCWFD) during which GDF Legal and Policy Advisor Ahmed Bendella participated on behalf of GDF, and serves an important tool to expand our national policy network and partnerships. 4.5 Due to the slow implementation of law #29-05 by Moroccan authorities, we have not been able to produce the journal article on protection and marketing of wild flora we had envisioned for year 3. We had stated as an assumption that sufficient data would be available for this publication by end of project, but this has not been the case. With animals as a priority, there has not been a concerted effort by government authorities to address the protection and marketing of wild plants. We have shifted our attention to producing an article that provides summary statistics and an analysis of the commercialised fauna and flora database, which we expect to submit in early 2021.
Activity 4.1 GDF database on commercialization of fauna and flora in Marrakech markets repatriated		Well advanced. Consolidation of data from diverse sources complete for many species, with plans to make the database available online in late 2020.

Project summary	Measurable Indicators	Progress and Achievements
Activity 4.2 Participatory action plan on natural resource management around Toubkal National Park elaborated		Completed. Two detailed Community Action Plans produced for partner communes Aït M'hamed and Imegdal (Toubkal National Park). See Annexes 32 and 33.
Activity 4.3 Permits for seed collection, multiplication and sale sought and obtained		Completed. The permits for seed collection and multiplication have been obtained and Seed Protocol established in Year 1 (Annex 4). Regulations for obtaining permits for seed sale have not been formally and explicitly established due to relatively slow implementation of law #29-05. We expect regulations will be normalised in the future, but the status quo is broadly accepted.
Activity 4.4 Working paper on implementation of law 29-05 completed and disseminated		Completed. Please see Annex 31 for the case study on law 29-05.
Activity 4.5 Peer-reviewed paper on protection and marketing of wild flora submitted		Pending. Due to the slow implementation of law #29-05 by Moroccan authorities, we have not been able to produce the journal article on protection and marketing of wild flora we had envisioned for year 3 (See above). We have shifted our attention to producing an article that provides summary statistics and an analysis of the commercialised fauna and flora database, which we expect to submit in early 2021.
Output 5. Identification and characterization of additional plant genetic resources completed	5.1 Floristic and ethnobotanical surveys provide information on an additional 50 species of useful plants by year 2 5.2 Conservation assessments of 50 additional useful plants completed by year 3 5.3 Initial analyses of market potential prepared for at least 20 species by year 3 5.4 Seed collection, cultivation, and distribution to community members, on a small experimental scale, of at least 10 additional species of high potential, by year 3 5.5 Popular manual, in Arabic and French, of the household basket of more than 50 useful plants that can improve local livelihoods and wellbeing, disseminated in High Atlas	5.1. We completed ethnobotanical surveys of 200 species which are stored in GDF's ethnobotanical database. The database contains over 300 interviews, more than 200 species and 4,972 use reports and will soon be officially published as an online public database on GDF's website. We also produced a detailed review entitled '*Traditional land use practices, biodiversity and community wellbeing in a Mediterranean cultural landscape'* which consolidates the extensive research carried out on CPCs since 2016 and explores their relationships with biodiversity conservation (see Annex 34). 5.2 We produced 60 conservation assessments, detailing threats to species and habitats, including climate change, water mismanagement, plant overharvesting and overgrazing, amongst others. These assessments have been published online in the IUCN Red List of Threatened Species (see Annex 36 for the list of the 60 species). Based on these assessments, we developed a High Atlas Red Book (Annex 37), summarizing the plant conservation status of these key plant species of the Moroccan High Atlas. Our study showed that the strict endemic High Atlas flora is facing an exceptional level of extinction risk. This research provides a baseline dataset of High Atlas flora including taxonomy, species distributions, ecological requirements and conservation recommendations to ensure the development of targeted and effective conservation measures in the future. 5.3 As a result of consultation with local cooperatives, and given the time-consuming nature of market analyses, we produced commercialisation feasibility studies and initial market analyse of 12 products/species instead of 20, to ensure the quality of our research. The plant products/species inculude: saffron (*Crocus sativus*), carob tree (*Ceratonia siliqua*), almonds (*Prunus dulcis*), walnuts (*Juglans*

Project summary	Measurable Indicators	Progress and Achievements
	communities by year 3 5.6 Journal article on cultural keystone species of the High Atlas	*regia*), bee hive products (honey, propolis, royal jelly and other wax) and aromatic and medicinal plants (*Thymus satureioides, Lavandula dentata, Anacyclus pyrethrum* and *Mentha suaveolens* subsp. *timija*). See Annex 14 for the full report. We also developed plant monographs for 12 plant species which represent detailed summaries of all available information on target species and plant genetic resources, including sections on the botanical description, distribution, ecology, conservation status, cultivation status, local names and uses, phytochemical profile, plant product profile, market analysis and other relevant data (see Annex 15 for an example). 5.4 We stored 205 seed collections in the Imegdal and Aït M'hamed community seed banks and in the regional MARK seedbank, hosted by Cadi Ayyad University Marrakech. Plant and seed identification were carried out at the regional Herbarium MARK of Cadi Ayyad University where all species have been added to the BRAHMS database and published online. Please see Annex 38 for our seed bank accession records, in addition to a blog on seed collection and community seed banks in the High Atlas. We also cultivated species in our community plant nurseries and organised annual plant distributions (see Activities 1.4 and 2.1 above). 5.5 We produced a popular manual entitled "Le Panier Amazigh " which features 50 local and useful plant products illustrated by the students in Imegdal, Aït M'hamed and Ourika who participated in the development of the booklet. We produced 1000 hard copies for distribution to local schools and partners. The booklet is written in French and Arabic and is available for download here. 5.6 We produced a peer-review paper "Assessing plant conservation status: linking local ecological knowledge and biodiversity conservation in the High Atlas, Morocco" and submitted it for publication to Ecology & Society (Annex 35).
Activity 5.1 Floristic and ethnobotanical surveys conducted		Completed. Ethnobotanical survey of 200 species carried out which are stored in GDF's ethnobotanical database. The database contains over 300 interviews, more than 200 species and 4,972 use reports and has been officially published as an online public database on GDF's website.
Activity 5.2 Conservation assessments of 50 additional species completed		Completed. 60 conservation assessments carried out and published online on the IUCN Red List of Threatened Species. Development of a High Atlas Red Book (Annex 37), summarizing the plant conservation status of these key plant species of the Moroccan High Atlas.
Activity 5.3 Initial market analyses of 20 species achieved		Completed. Commercialisation feasibility studies and initial market analyse of 12 products/species produced (Annex 14).
Activity 5.4 Seed of at least 10 species collected and cultivated; plants distributed		Completed. 205 seed accessions stored in the Imegdal and Aït M'hamed community herbaria and seed banks and in the regional MARK herbarium and

Project summary	Measurable Indicators	Progress and Achievements
		seedbank, hosted by Cadi Ayyad University Marrakech. Please see Annex 38 for our seed bank accession records, in addition to a blog on seed collection and community seed banks in the High Atlas. We also cultivated species in our community plant nurseries and organised annual plant distribution (see Activities 1.4 and 2.1 above).
Activity 5.5 Popular manual completed and disseminated		Completed. The popular manual “Le Panier Amazigh", written in French and Arabic, features 50 local and useful plant products and illustrated by students in Imegdal, Aït M’hamed and Ourika, is available for download here. We produced 1000 hard copies for distribution to local schools and partners.
Activity 5.6 Peer-reviewed paper on cultural keystone species submitted		Completed. The peer-review paper entitled “Assessing plant conservation status: linking local ecological knowledge and biodiversity conservation in the High Atlas, Morocco” was submitted for publication to Ecology & Society (Annex 35).

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis	4	Moroccan	Male	See comments	French	1) 'Dimorphic ash tree in Moroccan agroforestry systems: agroecological, phytochemical and uses aspects' (2019) – Soufiane M'sou 2) 'Evaluation of growth conditions, production and valorization of products of different genotypes of Jatropha curcas L. (Euphorbiaceae) grown under the requirements of the Marrakech-Safi region' (2019) – Rachid Ait Babahmad 3) 'Phytochemical and pharmacological study of two Moroccan plants of the Asteraceae: Bubonium imbricatum & Cladanthus arabicus' (2019) – Abdellah Aghraz 4) 'The use of sugar lime sludge for the valorization by composting of sludge from the refining units of edible oils' (2020) – Omar Saadani Hassani
1b	Number of PhD qualifications obtained	4	Moroccan	Male	See above	French	See above
2	Number of Masters qualifications obtained						
3	Number of other qualifications obtained						
4a	Number of undergraduate students receiving training	68	Moroccan	Male + Female		Arabic, French	Training at Cadi Ayyad University in Marrakech (2017 and 2018) on conservation and ecological monitoring and climate change. One training week was cancelled due to COVID19 in March 2020.

4b	Number of training weeks provided to undergraduate students	2	Moroccan	Male + Female		Arabic, French	See above.
4c	Number of postgraduate students receiving training (not 1-3 above)	56	Moroccan	Male + Female		Arabic, French, English	Training at Cadi Ayyad University in Marrakech (2017 and 2018) on ethnobotanical techniques and one two-day workshop for 19 Moroccan MSc students “How to benefit local communities through conservation action: a young researchers workshop in Morocco". One training week was cancelled due to COVID19 in March 2020.
4d	Number of training weeks for postgraduate students	3	Moroccan	Male + Female		Arabic, French, English	See above.
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification (e.g., not categories 1-4 above)	177	Moroccan	Female	Dar Taliba school garden project	Arabic, Tashelhit	We delivered 108 garden trainings to the students in residence of the Dar Taliba boarding house for girls, since 2017 on traditional plant knowledge, permaculture practices and seed saving. 177 new students were granted access to Dar Taliba and the garden trainings with the support of this project (65 in Year 1, 52 girls in Year 2 and 60 in Year 3).
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	245	Moroccan	Male + Female	Farmer Field Schools + Capacity building weeks	Arabic, Tashelhit	In December 2019, we organised a two-day Farmer Field School (FFS) on soil health and fertility in Imegdal and Aït M'hamed in collaboration with our partner DEAFAL with a total of 106 participants (47 women). In October and December 2018, we held a series of workshops over three days in the rural communes of Imegdal and Aït M’hamed during which we were joined by our long standing local partners RESING, Radiant Design, and MBLA who delivered interactive workshops and field visits to local community members on the following topics:

							1) Sustainable water management and water harvesting techniques 2) Value-adding and marketing of aromatic and medicinal plants 3) Sustainable harvesting practices and seed collection 4) Permaculture, agroecology and sustainable agricultural practices 5) Beekeeping and bee products
6b	Number of training weeks not leading to formal qualification	4	Moroccan	Male + Female	Farmer Field Schools + Capacity building weeks	Arabic, Tashelhit	See above
7	Number of types of training materials produced for use by host country(s) (describe training materials)						

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)	60	Moroccan Spanish UK	Male Female	See conservations assessments	English	Throughout this three-year project, we produced 60 conservation assessments, detailing threats to species and habitats, including climate change, water mismanagement, plant overharvesting and overgrazing, amongst others. These assessments have been published online on the IUCN Red List of Threatened Species.
10	Number of formal documents produced to assist work related to species identification, classification and recording.						

11a	Number of papers published or accepted for publication in peer reviewed journals						
11b	Number of papers published or accepted for publication elsewhere	3	Moroccan UK Spanish	Male + Female	See table below		Book chapters/ case studies: 1) https://www.routledge.com/Agrobiodiversity-School-Gardens-and-Healthy-Diets-Promoting-Biodiversity/Hunter-Monville-Oro-Burgos-Roel-Calub-Gonsalves-Lauridsen/p/book/9780367148867 (Annex 54) 2) "Studying ecosystems with the involvement of local communities" 3) KBAs for plants by country – Morocco
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	1	Moroccan Spanish UK	Male Female	High Atlas Biocultural Database	English	http://habd.global-diversity.org/ 615 plant species are included in the online database.
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country	1	Moroccan Spanish UK	Male Female	BRAHMS database (Botanical Research and Herbarium Management) database of the High Atlas Flora	English	https://herbaria.plants.ox.ac.uk/bol/floraofmorocco
13a	Number of species reference collections established and	1205	Moroccan	Male	MARK regional		1000 herbarium specimens and 205 seed collections have been added as accessions to the

	handed over to host country(s)		UK	Female	herbarium and seed banks		BRAHMS database and published online. Seeds and plant specimens are stored in the Imegdal and Aït M'hamed community herbaria and seed banks and in the regional MARK herbarium and seedbank, hosted by Cadi Ayyad University Marrakech.
13b	Number of species reference collections enhanced and handed over to host country(s)						

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.	X
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.	X
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.	X
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.	X
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.	X
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.	X

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.	X
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.	X
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.	X
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.	X
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)
Electronic book *	"KBA's for plants by country – Morocco" in Valderrábano, M., Gil, T., Heywood, V., Montmollin, B.d. (eds) Conserving wild plants in the South and East Mediterranean region, pp. 45-52	British-Moroccan	Spain	Male	Gland, Switzerland : IUCN ; Málaga, Spain : IUCN Centre for Mediterranean Cooperation, 2018	KBAs for plants by country – Morocco
Electronic book *	D'Ambrosio, U., Rankou, H., Caruso, E. & Martin, G. 2018, Studying ecosystems with the involvement of local communities: A conservation programme case study in Morocco. P. 122. In: Valderrábano, M., Gil, T., Heywood, V. & de Montmollin, B. (Eds.). Conserving wild plants in the south and east Mediterranean region.	Spanish	UK	Male	Gland, Switzerland : IUCN ; Málaga, Spain : IUCN Centre for Mediterranean Cooperation, 2018	"Studying ecosystems with the involvement of local communities"
Book *	Da Silva Cosme, P., Case study: Preserving local cultural heritage through capacity building for girls in the Moroccan High Atlas. In Hunter, D., Monville-Oro, E., Burgos, B., Nyhria, C., Calub,	Belgian	U K	Female	Bioversity International, Rome, Italy, 2020.	Agrobiodiversity, School Gardens and Healthy Diets: Promoting Biodiversity, Food and Sustainable Nutrition

	B.M., Gonsalves, J., Lauridsen, N. Agrobiodiversity, School Gardens and Healthy Diets: Promoting Biodiversity, Food and Sustainable Nutrition. 2020					
Electronic journal	Rankou, H., M'SOU , S., Alifriqui , M. & Martin, G. *Fraxinus dimorpha*, Wild Ash, 2017	British-Moroccan	British-Moroccan	Male	The IUCN Red List of Threatened Species, United Kingdom	http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T109366166A109366170.en
Electronic journal	Rankou, H., M'SOU , S., Barstow, M., Harvey-Brown, Y. & Martin, G. *Quercus ilex*, Holm Oak, 2017.	British-Moroccan	British-Moroccan	Male	The IUCN Red List of Threatened Species, United Kingdom	http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T62537A3116134.en
Electronic journal	Rankou, H., M'SOU , S., Chadburn, H., Rivers, M.C., Ouhammou, A. & Martin, G. *Ceratonia siliqua*, Carob, 2017.	British-Moroccan	British-Moroccan	Male	The IUCN Red List of Threatened Species, United Kingdom	http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T202951A112823254.en
Electronic journal	Rankou, H., Ouhammou, A., Taleb, M., Manzanilla, V. & Martin, G. *Anacyclus pyrethrum*, Atlas Daisy, 2017.	British-Moroccan	British-Moroccan	Male	The IUCN Red List of Threatened Species, United Kingdom	http://dx.doi.org/10.2305/IUCN.UK.2015-4.RLTS.T202924A53798702.en
Electronic journal	Rankou H., M'SOU , S., Ait Babahmad, R.A., Ouhammou, A., Alifriqui , M. & Martin, G. *Pistacia atlantica* – Desf, 2017.	British-Moroccan	British-Moroccan	Male	The IUCN Red List of Threatened Species, United Kingdom	https://www.iucnredlist.org/species/19365844/117264678
Electronic journal	Rankou, H., M'Sou, S., Ait Babahmad, R.A. & Diarra,	British-Moroccan	British-Moroccan	Male	The IUCN Red List of Threatened	https://dx.doi.org/10.2305/IUCN.UK.2020-1.RLTS.T139600868A139601223.en

	A. 2020. *Thymus saturejoides*.				Species, United Kingdom	
Electronic journal	Rankou, H., M'Sou, S., Diarra, A. & Ait Babahmad, R.A. 2020. *Mentha gattefossei*.	British-Moroccan	British-Moroccan	Male	The IUCN Red List of Threatened Species, United Kingdom	https://dx.doi.org/10.2305/IUCN.UK.2020-1.RLTS.T164184A72262769.en.
Electronic journal	Rankou, H. 2018. *Dactylorhiza atlantica*. The Atlantic Dactylorhiza	British-Moroccan	British-Moroccan	Male	The IUCN Red List of Threatened Species, United Kingdom	https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T13164114A18613360.en.
Electronic journal	Rankou, H. 2018. *Vagaria ollivieri,* Bsela	British-Moroccan	British-Moroccan	Male	The IUCN Red List of Threatened Species, United Kingdom	https://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T13147515A18609594.en.
Electronic journal	Rankou, H. 2018. *Narcissus tingitanus,* Anssel Srhir	British-Moroccan	British-Moroccan	Male	The IUCN Red List of Threatened Species, United Kingdom	https://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T13147084A18613945.en.

Annex 6 Darwin Contacts

Ref No	24-010
Project Title	Mobilising useful plant conservation to enhance Atlas mountain community livelihoods
Project Leader Details	
Name	Gary Martin
Role within Darwin Project	Project Leader
Address	
Phone	
Fax/Skype	
Email	
Partner 1	
Name	Rachid Ait Babahmad
Organisation	Moroccan Biodiversity and Livelihoods Association (MBLA)
Role within Darwin Project	Lead partner
Address	
Fax/Skype	
Email	
Partner 2 etc.	
Name	Ahmed Ouhammou
Organisation	Regional Herbarium MARK Cadi Ayyad University Marrakech
Role within Darwin Project	Partner
Address	
Fax/Skype	
Email	

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Yes
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	No
Have you included means of verification? You need 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 want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	N.A.
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	