Darwin Initiative Main Project Annual Report

Important note: *To be completed with reference to the Reporting Guidance Notes for Project Leaders: it is expected that this report will be about 10 pages in length, excluding annexes*

Submission Deadline: 30 April

Darwin Project Information

Project Reference	19-016
Project Title	Leveraging markets to conserve mangrove biodiversity and alleviate poverty in Madagascar
Host Country/ies	Madagascar
Contract Holder Institution	Blue Ventures Conservation
Partner institutions	Direction Régionale de l'Environmnnement et des Forêts; Centre Nationale de Recherche Océanographie; Honko Mangrove Conservation and Education; Institut Halieutique et des Sciences Marines; Département Forêt de l'Ecole Supérieure des Sciences Agronomiques of the University of Antananarivo (ESSA-Forêt)
Darwin Grant Value	£226,839
Funder (DFID/Defra)	DFID
Start/end dates of project	1 July 2012 – 30 June 2015
Reporting period (e.g., Apr 2014 – Mar 2015) and number (e.g., Annual Report 1, 2, 3)	April 2014- March 2015
Project Leader name	Dr Alasdair Harris
Project website/blog/Twitter	http://blueventures.org/conservation/blue-forests.html
Report author(s) and date	Frances Humber, Aude Carro, Lalao Aigrette, Leah Glass, 30 April 2015

1. Project Rationale

The mangrove forests of Madagascar have been lost at rates exceeding 1-2% annually since 1990 (Blue Ventures unpubl. Data; Giri *et al*. 2011)[1], imposing significant threats to both the unique biodiversity they support and the millions of coastal people who depend directly on mangroves for their livelihoods. In the fight against global climate change, mangroves are at the frontlines – sequestering between 6 and 20 times the amount of carbon sequestered by undisturbed Amazonian rainforest.

Promotion of voluntary carbon projects is a key strategy in Madagascar's National Policy on Climate Change 2011 for mitigating threats and promoting development. This, combined with the high ecosystem services value of Madagascar's mangroves, provides motivation for the goals of this project at local and national levels.

[1] *Giri, C. National-Level Mangrove Cover Data-Sets for 1990, 2000 and 2010; United States Geological Survey: Sioux Falls, SD, USA, 2011*

By capitalising on our experience working with communities towards sustainable management, this project aims to stop forest loss by alleviating poverty. Primary activities under this project, supported by Darwin, are taking place in three locations, as summarised in Figure 1. Key development challenges addressed through this project are a lack of capacity for governance and forest management, at the local scale for the Darwin project, and the national-level in Madagascar for Blue Ventures' Blue Forests programme (an overview of this programme is attached as Annex 1_Blue Forests_Factsheet).

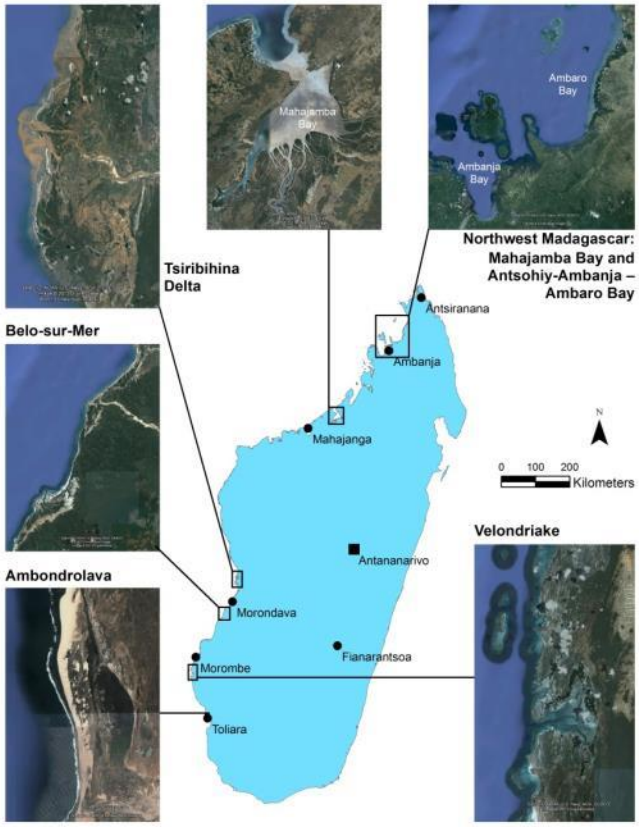


Figure 1. An overview of sites where Blue Ventures is conducting research and carrying out activities on the Blue Forests programme. Activities undertaken as part of the Darwin project are focused on the two southernmost sites (Ambondralava and Bay of Assassins in Velondriake) and the northernmost site (Ambaro and Ambanja Bays).

Ambaro-Ambanja Bay (AAB) showed the highest rates of deforestation in Madagascar from 2000 to 2010 and is a candidate site for a pilot VCS mangrove REDD+ project given its severe levels of mangrove loss. Mamelo Honko (MH) in Ambondrolava and the Bay of Assassins (BOA) in the Velondriake Locally-managed Marine Area (LMMA) are candidate sites for Plan Vivo Foundation mangrove carbon projects, and were chosen based on strong community links already existing with Blue Ventures (BV) and our partner, Honko Mangrove Conservation and Education (Honko).

2. Project Partnerships

Government Authorities

Our membership in Madagascar's national Monitoring, Reporting, and Verification Group (GT-MRV) for REDD+ meets the demand for mangrove carbon experts at the national-level within Madagascar. Since April 2013, we attended three workshops hosted by the National REDD+ Authorities: National Environment Office (ONE), Director of Environmental Information (DIE), Director of Climate Change (DCC), Designated National Authority (DNA), and REDD+ Coordinator. Regular consultations and workshops allow us to ensure mangrove forests are properly taken into account by, and contribute meaningfully to, Madagascar's Readiness Preparation Proposal (R-PP) for REDD+, notably with the inclusion of AAB carbon stock data. With the cooperation of all members of the GT-MRV, the R-PP was approved by the Forest Carbon Partnership Facility on 4 July, 2014. Our work with authorities contributes directly to the objectives in Output 5 for the Darwin project. See Section 3.1, Output 5 for further detail on

our work with government authorities and Annex 2_Meeting_Record for a comprehensive list of 49 government meetings attended between April 2013 and March 2014.

National Research Institutes

Our work with academic institutions, including the Ecole Supérieure des Sciences Agronomiques Forêts, Université d'Antananarivo (ESSA-Forêts) and Institut Halieutique et des Sciences Marines, Université de Toliara (IHSM) consists of ongoing research collaborations. During Y3 our team has collaborated with 3 ESSA-Forêts MSc students, 1 IHSM PhD student and 2 MSc students, with each student working under a contract agreement or "Convention de Stage" (Annex 3_Intership_Convention_example) co-signed by BV project managers, students, and their academic supervisors. Research proposals, terms of reference for academic studies, data analysis, and final deliverables are developed in cooperation with students and supervisors to ensure that the work conducted contributes to the overall Darwin project objectives. While students conduct their theses, our team reviews their proposals and when theses are defended, a member of BV staff sits on the jury as a thesis examiner.

At the institutional level, we participated in events and symposiums held by partner academic institutions. In Year 3 our team participated in 10 conferences, of which 6 were international, and the majority focussed on blue carbon.

Our partnership with the National Centre for Oceanography Research (CNRO) in Ambaro-Ambanja Bay did not yield significant results again in Year 3 due to continuing difficulties coordinating activities with the CNRO which has been undergoing a management transition since 2013.

NGO Partners

Our partnership with Honko has been on standby since April 2013, when Honko experienced funding and staffing shortfalls which limited community activities on the ground. Nonetheless, an exchange visit to build BOA communities' capacities in mangrove reforestation was carried out on Y3, and Honko partnered with BV to organize activities for International Mangrove Day in July 2014.

Private partners

Discussions with UNIMA re-started in November 2014 as a result of increased interest from one of their distributors, Carrefour, to finance a large-scale mangrove and fishery management project in Mahajamba Bay. A draft proposal was submitted to UNIMA in January 2015 (Annex 4_Mahajamba_ConceptNote_January2015), and following a prospection mission in Mahajamba Bay in March 2015, a revised proposal will be submitted to them in April 2015.

Other collaboration

East Africa Forum for Payments for Ecosystem Services (EAFPES)

One of our project managers is the EAFPES Madagascar focal point, and leads communications with this forum of stakeholders working on PES projects in East Africa.

Plan Vivo Foundation

The Plan Vivo Foundation supports the technical development and evaluation of our BOA and MH projects (see Output 5, Activity 5.3 for further details on our work with Plan Vivo).

Madagascar National Parks

Madagascar National Parks (MNP) is a former partner of BV who we still collaborate with on an *ad-hoc* basis. For the Darwin project, we keep MNP updated on all progress and major milestones in the Velondriake LMMA project area, which shares an easterly border with the Mikea National Park. As with other regional partners, this has been undertaken through formal consultations in August 2014.

Asity Madagascar

Asity Madagascar is BirdLife International's official partner within Madagascar, and acts as promoter of the Mangoky-Ihotry protected area, which shares a northerly border with the Velondriake LMMA. BV conducts annual meetings with Asity (last one in February 2014) to update them on project progress.

Worldwide Fund for Nature

Our formal partnership with Worldwide Fund for Nature, Madagascar and Western Indian Ocean Programme Office (WWF MWIOPO) to conduct a feasibility study for blue carbon in the Tsiribihina and Manambolo Deltas in Y2 has expired. However, Blue Ventures has partnered with WWF at several occasions in Y3 to carry out management association inventories and REDD+ FPIC consultation in AAB. In addition, a formal agreement of principle was obtained from WWF MWIOPO to integrate two of their sites, Antsatrana and Ankazomborona, into the AAB REDD project area (Annex 5_WWF_Email).

3. Project Progress

3.1 Progress in carrying out project activities

Output 1. Communities have clear and uncontested land and user rights to their customary mangrove areas; and give their Free Prior & Informed Consent to use these areas for a forest carbon project

Activity 1.1 Consultation & project development with the communities so as to fulfil the conditions of gaining their Free, Prior and Informed Consent (FPIC) for the implementation of a forest carbon project

Preliminary FPIC from communities was gained in AAB and BOA at the end of 2014. This was achieved through two consultation campaigns in 21 villages of the VCS project area in AAB in September-October 2014 as well as four rounds of consultation in the 10 villages of BOA from June 2014. In AAB, the villages were selected based on the results of an inventory of the mangrove management associations carried out in July-August 2014 which allowed to collect data on, and define the boundaries of 19 management associations (CLB) across Ambanja and Ambaro Bays, in addition to the five in the project pilot site (Annex 6_CLB_Database_AAB).

While the process is completed in BOA, with all participating communities formally confirming their consent to be a part of the project (Annex 7_PV_Consultation_BOA_example), the results of the votes and knowledge assessment carried out in AAB immediately after the second campaign highlighted the need for further trainings to ensure communities have an adequate level of understanding of REDD+ (Annex 8_FPIC_Results_AAB). Experience from both sites on the FPIC process were synthesised in a report (Annex 9_FPIC_Report).

A regional workshop was carried out on the 11th of December in Ambanja to present the results of the management transfer inventory and pre-validate the VCS project area. This workshop, which gathered regional authorities, fishery and forestry administrations, 12 Mayors and 19 representatives of management associations of AAB, represented a key step in consulting regional stakeholders on the project development, and resulted in the pre-validation of the project zoning (Annex 10_Workshop_11Dec2014_AAB).

Due to soil carbon analysis causing delays in developing the AAB VCS project, the FPIC consultation process has been put on standby until the project feasibility and start date is defined. This is expected to happen beyond the project's timeframe, end 2016.

Activity 1.2 Detailed analyses of land tenure and use rights of the potential mangrove areas with both the government cadastral services and the local communities; and resolution of conflicts

In AAB, despite the pre-validation of the VCS project area, the analysis of tenure conflicts has been slightly delayed due to a staff shortage, as the project's National Coordinator and GIS specialist are both also responsible for the carbon science aspects of the project. With the recruitment of a Carbon Manager in March 2015, this work will be addressed over the second quarter of 2015.

In BOA the process is ongoing and should be completed by the end of the project through verification at the cadastral services of Tulear and the advertising of the Plan Vivo delimitation at Befandrefa Commune.

Activity 1.3 Establishment of legal user and carbon rights for community members participating in the project

In AAB the evaluation of the three expired management transfers (CLBs) by Regional Forest services (DREEF) occurred in May 2014 and resulted in the extension of their contracts for another 3 years, under the condition that a management plan requiring a forest inventory was provided to the regional forestry services. The results of the forest inventory are currently being analysed and this activity is expected to be completed by the end of the project.

In BOA, an updated Plan d'Aménagement et de Gestion (PAG), along with an added section on mangrove management (Annex 11_ Management_Plan_BOA) were successfully submitted to Système d'Aires Protégées de Madagascar (SAPM) in March 2015.

The issue of legal ownership over carbon by communities (required by Plan Vivo projects, and not recognised in the protected areas convention or Malagasy law) was addressed through consultation with the Direction Générale des Forêts (DGF), SAPM and the Plan Vivo Foundation. Following these discussions, our team is in the process of obtaining a formal letter from regional authorities confirming full governmental support of the project and agreed upon revenue sharing arrangement, which will suffice as legal evidence for the Plan Vivo Foundation.

Output 2. Communities have established mangrove A/R, SFM and conservation areas; and are competently managing these areas

Activity 2.1 Establishment of community management plans, zonings and sustainable harvest quotas

In AAB our team has officially validated the mangrove zoning established through Google Earth by physically marking zones with local forest services from June 2014 to March 2015 (Annex 12_Management_Plan_AAB). The mangrove forest inventory was completed, with an additional 92 plots measured from October 2014 to February 2015 (Annex 13_Inventory_Plots_AAB). These data are now being analysed to define sustainable mangrove timber extraction quotas for each of the five project partner CLBs. Quotas will be annexed to management contracts and communities trained to use a quota-tax management toolkit by the end of the project.

In BOA participatory mapping data has been collated for the ten villages, and two missions have been conducted from September to October 2014 to establish forest zoning areas, in collaboration with the Velondriake Management Committee. Similar to AAB, this comprises 830 ha of no cut areas (Tahiry Honko), 1877 ha of user right areas and 1095 ha of reforestation areas This mangrove management plan was integrated into the Velondriake PAG submitted to the SAPM in March 2015 (Annex 14_Velondriake_PAG), meaning that community mangrove management rights will be definitely secured through obtaining permanent status for Velondriake MPA, which is expected to happen in May 2015. In February 2015, our team started the development of local management rules (*Dina*) for each of the three mangrove zones defined in the management plan (Annex 15_BOA_Pictures). Due to the participatory nature of this process, which isn't expected to be completed before June 2015, mangrove management rules could not be integrated into the Velondriake PAG submitted to obtain permanent status, but will be when it is next reviewed scheduled for 2020. In the meantime, management rules will be implemented by both of Dina enforcement committee (KMD) and the mangrove commission (Vaomiera Alahonko) in the ten BOA villages that are part of the Plan Vivo project.

Activity 2.2 Establishment and maintenance of mangrove nurseries by female teams

In AAB, 1,500 seedlings of *Avicennia marina* were established in Antetezambato and Ambalahonko in February 2015. Out of the total 3,000 seedlings, 600 died due to a worm attack, which was controlled using an organic treatment method, 1,500 were planted in March 2015, totalling a surface of 1.5 ha, and the remaining 900 will be planted by the end of April 2015 (Annex 16_AAB_Pictures). Building on our experience from last year, it was decided to plant seedlings at 1 month, instead of 4 months, to avoid damages to the root system during the plantation, which yielded poor survival rate (~10%) across 2014 plantations.

In BOA, *Avicennia marina* nurseries will not be established by the end of the project, but as a critical part of the Plan Vivo project, are planned to take place from January 2016.

Activity 2.3 Mangrove planting and maintenance of seedlings by female teams

Our strategy in AAB in Y3 has focused on transferring knowledge developed by the women associations in Antetezambato village to Ambalahonko commune. Two exchange trips were carried out between women associations of these localities in September 2014 on reforestation and monitoring techniques for Rhyzophoracae species (Annex 16_AAB_Pictures).
Our capacity development and awareness raising work in Y2 and Y3 was successful in mobilizing communities to carry out direct Rhizophoracae reforestation: 36.5 ha where reforested in Y3 across 10 villages of the pilot site (Annex 27_Reforestation_AAB_April2015), of which >25 ha was done without direct support from Blue Ventures. It is expected that our capacity development program will allow for the reforestation of an additional 6 ha of mangrove by the end of the project.

In BOA, eligible areas for reforestation and restoration were identified through participatory zoning in June-July 2014 and in July 2014 an exchange trip was organised for community members of the BOA with the management and reforestation committees of Mamelo Honko, with our partner organisation Honko Mangrove Conservation and Education (Annex 15_BOA_Pictures). Following this, four Rhizophoraceae reforestation campaigns, mobilizing 20 seaweed and sea cucumber farmers, 16 scholarship children and 116 members of local women associations were carried out from August 2014 to March 2015. It allowed for the plantation of 4,560 propagules of *Rhizophora mucronata,* 17,607 of *Ceriops tagal* and 1,143 of *Bruguieira gymnorhyza* (Annex 15_BOA_Pictures). This represents an area of about 1.2 ha. As in AAB, to ensure the sustainability of reforestation initiatives we are promoting a voluntary reforestation programme approach heavily involving youth and women.

Output 3.Communities are producing sustainable charcoal and timber

Activity 3.1 Training of the community participants in sustainable harvesting and improved management; initial timber harvesting according to sustainable quotas and planned rotations

In AAB all five CLBs have been trained to use the tax toolkit from May to June 2014. The mangrove forest inventory was completed, with an additional 92 plots measured from October 2014 to February 2015. Data are now being analysed to define sustainable mangrove timber extraction quotas for each of the five project partner CLBs. Quotas will be annexed to management contracts.

Timber use for building was assessed in BOA in early September 2014 through inventories of mangrove wood extraction at the village-level. Building upon these results, community consultations to define acceptable mangrove timber extraction quotas will be conducted separately after completing the Dina consultation. Community-defined quotas will then be translated into sustainable extraction quotas calculated using the results of the carbon inventory carried out in November 2014 to seek a compromise. In addition, a sustainable management plan for mangrove use in aquaculture activites is being developed in collaboration with Blue Ventures' aquaculture team and the local Direction of Environment and Forestry, and will be completed by the end of the project.

Activity 3.2 Training & production of charcoal using improved kilns; continued technical support

In AAB a study carried out in July-August 2014 by a Master's student from Yale University assessed small-holders' preference for fuel wood and timber species in the project area and identified 17 species adapted to local conditions that could replace mangrove as a charcoal source while providing other co-benefits (fertilisation, soil conservation, fodder, beekeeping etc.) (Annex 17_Fuelwood_database). Following this important step, five producers were identified in one village, Ambaliha, and a community nursery was established in October 2014 (Annex 16_AAB_Pictures). In total, 1,300 seedlings of *Eucalyptus camaldulensis* and 1,000 seedlings of *Acacia mangium* were planted from February to March 2015 on the land of these five producers, totalling 3 ha of plantations (Annex 18_Fuelwood_Results). Due to multiple issues with insect attacks on the nursery, indigenous and local timber species couldn't be tested during Y3. Building on this experience and a new collaboration with Eden reforestation project, at least four local and endemic species will be tested during the next campaign from July 2015 to March 2016.

In BOA, areas eligible to establish alternative timber plantation have been defined through a participatory zoning exercise in May 2014 and candidate species were identified in partnership with a technician from the Direction des Ecologie, Environnement, Mer et Foret (DREEMF) during a mission in January 2015 (Annex 19_DREEMF_Timber_Report). The characteristics (naturalized, native, fast or slow growing) and the availability of the seeds for the species identified were investigated at the SGNF (National bank of Forestry seeds) Antananarivo in February 2015. Our team is currently planning an exchange visit with NGO Ho Avy, who has experience in alternative timber plantations in the region, in May-June 2015. This will support preparations for the first campaign of plantations in August 2015-March 2016.

Funding has been secured from the Helmsley Foundation to continue and scale-up our work on alternative fuelwood and timber plantations at both sites beyond the project timeframe.

Output 4: The carbon stocks and harvestable timber of the community mangroves have been measured and are being accurately monitored

Activity 4.1 Development of a measurement & monitoring plan which meets the requirements of the selected approved methodology for the generation of carbon offsets

A draft monitoring methodology comprising two levels (forest inventory and scientifically rigorous carbon inventory) of methodologies meeting the VCS Project Standards v.3.0 and Plan Vivo Foundation Standards, 2013 has been established (Annex 20_Draft Monitoring_Methodology). Following a review of our methodology and field methods in June 2015 (see Activity 4.3), this draft will be finalized and released by December 2015.

In collaboration with the United States Forestry Service, the scientific methodology is also being harmonized and integrated with other measurement protocols currently employed in the East African region.

Activity 4.2 Creation & training of female monitoring teams in the use of appropriate forest inventories, carbon stock measurements and monitoring protocols; piloting collection of community forest monitoring data using smartphones

In AAB, it was decided not to carry out additional carbon stock inventory trainings by the end of the project due to uncertainties on the project feasibility and start date. In place of carbon monitoring, 61 men and 30 women were trained to carry out mangrove forest inventory from October 2014 to February 2015.

In BOA, a second round of community carbon monitoring training was carried out in November 2014 and involved 12 more women from other target villages (22 total), using co-trainers from previous carbon monitoring sessions conducted in the BOA.

Activity 4.3 Stock measurements, continuous monitoring and analysis of the data; integration into management plans; and continued technical support & quality control by BV scientists

AAB above-ground carbon stock data were re-analyzed by a student from the Imperial College of London (Annex 21_Marianne_Theo_Thesis) and soil organic carbon was estimated by combining Loss on Ignition (LOI) analysis carried out at the soil lab established in Antananarivo in partnership with the ESSA-Forêt and total carbon (CN) analysis carried out by Bangor University on a sub-sample throughout 2014. However, carbon stock values found appear very low compared to literature and present an inconsistent trend between forested and deforested plots. These might be the result of several methodological biases that will be addressed through additional research beyond the timeframe of this project in 2015/2016. A method that combines soil elevation table and sediment accretion markers is currently being developed in collaboration with Troy Hill from the Yale University School of Forestry. Twenty plots will be established in June 2014 with the help of one of the world's top mangrove carbon scientists, Boon Kauffman. This will provide a unique opportunity to review the full carbon stock data collection and analysis cycle from the plot to the laboratory to ensure our methodology and practices meet the most up to date scientific standards. In addition, a sub-set of AAB soil samples will be analysed using Near Infra-Red to assess whether a relationship can be found between grain size and soil carbon value, and new soil samples will be collected in June 2015 and sent to Bangor University to be analysed using a revised CN analysis protocol. The results of this research, which will be financed through 2014-2018 by the GEF-funded Blue Forests project, is not expected to be finalised by the end of this project.

Carbon inventory results of 2013 and 2014 have been aggregated into a community carbon database in BOA (Annex 22_BOA_Carbon_database). Additional carbon stock data will be collected in July-September 2015 to reach an adequate sample size and range. Carbon stocks, from which soil carbon was excluded to avoid any delay in the project development, will be presented in the Plan Vivo Project Development Document and Technical Specifications, to be released by the end of 2015.

Output 5. The requirements for a forest carbon project that will generate carbon offsets are fulfilled

Activity 5.1. Consultation with the government & Designated National Authority (DNA) in the project development; gaining of DNA support for the project

In AAB, two regional consultations workshops were held in Ambanja in May and December 2014 (Annex 10_Workshop_11Dec2014_AAB and 23_Workshop_21May2014_AAB). Madagascar's principal Authority on REDD+, the REDD Coordinator, as well as the Director of the Forestry Department at the Ministry of Environment and Forestry participated in the workshop in May and extended their stay to visit our site and meet with the communities.

In BOA, consultations at the national level include a meeting with the DGF and two regional consultations held in July and September 2014 regarding the Plan Vivo project (Annex 24_Attendance_Sheet_PlanVivo).

Activity 5.2. Production of a Project Idea Note (PIN) and business plan based on actual monitoring; submission to investors / funders

The draft AAB PIN was released in November 2014 accompanied by a financial analysis using the model developed by the MBA students from Tuck Business School in 2014 (Annex 25_Financial_Analysis). This financial analysis will be refined, and an economic impact model developed by an MBA student from Duke University from September 2015 to April 2016.

For BOA, the updated PIN (Annex 26_PIN_Tahiry_Honko_Project) including the results of the latest community forest zoning exercises, was successfully evaluated by the Plan Vivo Foundation and published on their project register webpage in February 2015.

As a means to attract investors/funders to the BOA project, a short promotional documentary was filmed in March 2015, outlining the activities that form the project, the resulting benefits to the local communities and why the project is worthy of investment.

5.3 Production of monitoring reports and a draft project design document

Due to the amount of research still required to finalise AAB carbon stock measurement (see Activity 4.3.), the preparation of the PDD will not start before the end of the project. For the same reason, the PIN has been put on standby until reliable soil carbon stock values are established, which is expected to occur by mid-2016. As stated above, the GEF-funded Blue Forests project will support the cost of carrying out additional research on soil carbon, finalizing the PIN and developing the PDD beyond the timeframe of this project.

In BOA, mangrove carbon stock measurements will be finalized with a last inventory carried out in July-September 2015. Results will be synthesized and presented in the Plan Vivo technical specifications and PDD, to be submitted to the Plan Vivo Foundation by December 2015.

3.2 Progress towards project outputs

Output 1. The securing of mangrove management rights for about 16,000 inhabitants over 5,880 ha of mangrove forests in AAB through GELOSE, and for 7,300 inhabitants in the Velondriake LMMA over 4,612 ha of mangrove forests in BOA through the creation of a protected area is almost achieved and expected to happen by the end of the project at both location.

Output 2. Two *A. marina* nurseries have been established in AAB and over 45 ha of mangrove have been reforested across BOA and AAB in Y3. While this is much lower than the 750 ha in proposal, as stated in Year 2 annual report, local tide conditions, the voluntary reforestation approach promoted by the project as well as staff shortages have limited our potential impact. Nonetheless, the definition of reforestation zones and trainings of community members during years 2 and 3 did establish the foundations of regular reforestation programs in the five CLBs of the project area in AAB and the communities of BOA. Further capacity building is necessary to secure the sustainability of these programs at both sites by the end of the project.

Across AAB and BOA, where clear management plans have been established during year 3, 2,630 ha of mangroves are now under conservation and 3,762 ha are under controlled harvesting regime.

Significant progress has been made in AAB and BOA towards establishing sustainable harvesting regimes using the forest and carbon inventory data. Quotas will be established in AAB by the end of the project, and shortly after in BOA. Lastly, the sustainable management plan for mangrove use in aquaculture in development will allow for the expansion of aquaculture activities in BOA without negatively impacting adjacent mangrove ecosystems.

Output 3. Significant progress has been achieved on this output in Year 3, with the establishment of 3.7 ha of alternative fuelwood plantations in AAB, as well as the forest and carbon inventories in AAB and BOA that will allow for the implementation of sustainable timber harvesting quotas by the end of the project, or shortly thereafter.

Output 4. Community training in carbon monitoring was completed in BOA and replaced by forest inventory trainings in AAB in year 3. The monitoring methodology will be finalized shortly after the end of the project, following the reviewing of our methods and field practices in June 2015. Carbon stock measurements at both sites will not be finalized by the end of the project due to the difficulties encountered in the assessment of soil carbon stocks.

Output 5. The four regional consultations carried out during Y3 at both sites, one involving the REDD+ Coordinator in AAB, yielded continuous support to the development of the VCS and Plan Vivo projects. In AAB, due to the difficulties encountered with assessing soil carbon stocks, the PIN will not be finalized

and the PDD not started by the end of the project. In BOA however, significant progress was achieved in Y3 with the validation and registration of the PIN by the Plan Vivo Foundation. The PDD and technical specifications are expected to be submitted shortly after the end of the project.

Overall, the project is 70% on-track with planned activities for Y3, with the most significant progress achieved on outputs 1, 3 and 5. While difficulties in assessing soil carbon stocks have resulted in delays on outputs 4 and 5 in AAB, significant progresses have been achieved on output 5 in BOA, where the Plan Vivo project has been registered. Targets that the project is expected not to achieve by its end include the reforestation of 2,500 ha of mangroves, the full assessment of soil carbon stock values, as well as the finalization of the PIN and development of the PDD for AAB.

Output indicators are also monitored using the result tracker (see section 7).

3.3 Progress towards the project Outcome

To achieve the project purpose, at each of the sites the project must: establish effective community-based forest management; gain formal tenure and management rights for the participating communities; and carry out all of the activities specific to the forest carbon project cycle (measurement of carbon stocks estimation of emission reductions, production of project documentation, validation, verification).

The project has made concrete progress towards achieving these fundamental foundations in Y3 by establishing sustainable management regimes over 7,240 ha of mangrove forest and achieving the reforestation of ~45 ha of mangrove. While the establishment of a tax on timber products managed through sustainable harvest quotas has been delayed by the forest inventory necessary to define quotas, this will provide management associations with a long-term sustainable income by the end of the project. The project has also progressed further in the forest carbon project cycle, with the registration of BOA PIN by the Plan Vivo Foundation and the release of a draft PIN in AAB.

While the purpose level assumption still holds true for the coastal communities to gain REDD+ financing; the project stated clearly in the proposal application that the generation of carbon income within the funding period was unlikely. Few forest carbon projects have gained formal validation and generated carbon offsets within three years. Nevertheless, at both project sites, we are on target to achieve fully developed carbon projects within two to four years, in keeping with most forest carbon projects.

In keeping with logframe, the project has continued to put into place certain of the key building blocks for communities to be able to implement sustainable forestry management. However, despite our consultation efforts in Y2 and Y3, sustainable commercial exploitation of mangroves still faces legal barriers. The project has overcome this challenge through the development of fuelwood and timber plantations, which will allow for replacing mangrove charcoal in urban markets while continuing to provide local communities with a crucial income source.

3.4 Monitoring of assumptions

Output 1 assumptions remain valid and there have been no significant land disputes within any of the project areas. The legal formalisation of user and carbon rights are based on transfers of local management rights in AAB and through permanent protection as an MPA with locals law (Dina) in Velondriake. Neither of these mechanisms marginalise women, although the number of women participating in management meetings can be low due to cultural norms. BV is addressing this through specific activities to engage women in natural resource management (eg. women's management groups and training).

For output 2, the final sustainable mangrove extraction quotas are still being finalised but we are assuming that they will ensure that residents can forego immediate exploitation of mangroves. The growth cycle of *A. marina* seedlings is sufficiently short to allow the project to undertake reforestation annually. However, due to time-constraints to maintain nurseries and plant seedlings, as well as limits to staff time, it is not feasible to reforest >2 ha per year.

For output 3, unsustainable harvesting has been addressed through participatory zoning of mangrove sustainable use areas and undertaking a mangrove inventory to define extraction quotas. As these quotas are not been defined yet, we do not have data on whether the management systems set up will prevent unsustainable harvesting in the future.

Delays in finalising carbon stock measurements mean that it is not clear if the assumptions in relation to Outputs 4 and 5 still hold true. Whether adequate project finance can be gained from carbon revenues relies on the final carbon stock measurements, and no suitable methodology has yet to be produced specific to mangroves (although Blue Ventures is supporting efforts to address this). However, despite changes in Government, support for mangroves has grown stronger in the last year, as testified by the two national mangrove reforestation events organized in March and April 2015 by the Ministry of Fisheries.

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

The goal/impact of this project is to make effective contributions in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources. The sub-goal of this project is to achieve conservation of Madagascar's mangrove habitats and their associated biodiversity. By securing mangrove areas in some of the poorest regions of Madagascar, our project directly contributes to the welfare of coastal communities in Madagascar whose livelihoods are directly dependent on mangrove forests. Simultaneously, our core project activities are building community capacity to govern natural resources, contributing directly to Madagascar's targets under the CBD for 1) the conservation and sustainable use of biodiversity, and, 2) fair and equitable sharing of the benefits from biodiversity.

As stated in the original proposal, it will not be possible to detect changes in household incomes attributable to sustainable forest management within the project lifetime (see Section 5), but a baseline has been established for tracking this through the forest carbon project cycle. Similarly, it will not be possible to establish changes in biodiversity indices through the lifetime of this project, however, our projects directly contribute to the conservation of biodiversity by protecting 10,492 ha of mangrove habitat and building capacity for mangrove monitoring, management, and reforestation in Madagascar (see Section 4).

4. Project support to the Conventions (CBD, CMS and/or CITES)

Convention on Biological Diversity

Madagascar's National Strategy for Sustainable Management of Biodiversity (NSSMB) was established in 1996 under the CBD. Outputs 1 and 2 in the Darwin project contribute directly to the NSSMB objective of promoting a common welfare and ownership and involving local people in development processes. By implementing the building blocks for REDD+ projects, we are working to promote alternatives to deforestation as leakage management activities (see Section 7) and the inclusion of mangroves in Madagascar's national REDD+ strategy (see Section 2., Government authorities). By supporting development of the national REDD+ strategy for Madagascar, we are also directly contributing to the NSSMB goal to account for international trade (in this case for carbon credits) in biodiversity conservation.

Our mangrove reforestation efforts (see Section 3.2, Output 3) contribute directly to the Aichi Biodiversity 2020 targets of increasing forest areas in Madagascar. Additionally, the protection and monitoring of mangroves under this project directly contribute to action plans for several known threatened species in Madagascar who spend at least part of their life history (roosting, feeding or breeding) in mangroves at our project sites including Madagascar Flying Fox (*Pteropus rufus*, Vulnerable), Madagascar Fish Eagle (*Haliaetus vociferoides*, Critically Endangered), Sawfish (Pristidae spp Critically Endangered), Squat-headed Hammerhead Shark (*Sphyrna mokarran*, Endangered), Hawksbill Turtle (*Eretmochelys imbricata*, Critically Endangered), and Madagascar Teal (*Anas bernieri*, Endangered).

To account for the long-term contributions of our projects to biodiversity conservation, baselines were established on Y2 for the Velondriake LMMA, according to the Community, Climate, and Biodiversity (CCB) Standards, and a biodiversity assessment mission carried out in AAB on Y3 (Annex 28_Biodiversity_Antsahampano). This will be complemented with data collected at two other mangrove sites within the AAB REDD+ project area to establish the project's biodiversity baseline by December 2015.

Our project actively engages with the focal point for the CBD, the DIE at Madagascar's ONE, by providing data and regular updates on project activities (Annex 2_Meeting_records). We collaborate with the UN and BirdLife International on TESSA on an ongoing basis.

Convention on Trade in Endangered Species

Because our project is focused on the trade of non-tangible materials (i.e. carbon sequestration and fishery support services), our project is not directly linked to Madagascar's national CITES action plan. However, in the long-term, mangrove monitoring programmes and management plans will account for international regulations stipulated in CITES and forest monitoring will account for the tracking of trade in endangered species within our project areas.

Conservation of Migratory Species of Wild Animals

The CMS action plan in Madagascar focuses on the Sooty Falcon (*Falco concolor*, Near Threatened) and Eleanora's Falcon (*Falco eleonorae*, Least Concern). Both species winter on Madagascar's west coast, and have been observed in the mangroves of the southwest by our project staff. Our work contributes directly to the action plan for their conservation under CMS by promoting local engagement in conservation and protecting mangroves as part of their habitat. As our projects adhere to CCB Standards, eventual biodiversity monitoring programmes at our project sites will contribute to national efforts at monitoring population trends of these species.

5. Project support to poverty alleviation

By maintaining healthy mangrove ecosystems, this project contributes directly to securing the livelihoods of the estimated 10,000 people relying primarily on fisheries across both sites.

While this project has faced considerable challenges to provide current mangrove charcoal and timber producers with a sustainable alternative within its timeframe due to legal constraints (e.g. the ban on commercial mangrove exploitation), it allowed for identifying locally-adapted integrated conservation and poverty reduction strategies and secure financing to implement them (eg. alternative fuelwood plantations). A three year grant from the Helmsley Foundation will allow our team to scale up fuelwood plantations and launch timber plantations, in order to reduce pressure on mangroves and to provide new alternative livelihoods for charcoal and timber producers in beekeeping and aquaculture.

6. Project support to Gender equity issues

Our project contributes directly to improving gender equality in the project area through the promotion of women's participation in mangrove management (Activity 2.2, 2.3. and 4.2). On the project sites, women are under-represented in traditional governance structures. By training women in mangrove reforestation, carbon stock and forest inventories, our project provides them with skills and legitimacy to take an active role in mangrove management. This is already a reality in AAB where two out of the five management associations' presidents are women.

In the short term, participation in mangrove management provides women with an avenue to gain technical skills and leadership experience. In the medium term, it is expected that the revenues from carbon credits will allow women to gain more influence over their communities' socio-economic development.

7. Monitoring and evaluation

The progress of the project has been tracked using BV's internal project monitoring document developed in Y2, which provides a clear overview of status of activities against our project Darwin logframe. The draft results tracker developed in early-2014 was finalized and used to monitor progresses against outputs (Annex 29_Results_Tracker).

While detailed workplans are still upheld at the site-level and reviewed on a monthly basis, project monitoring documents are updated every three months to reflect progress, identify issues, and devise solutions associated with project activities.

The outputs and activities within this project have been identified as intermediate results, or precursory results to achieving the project outcome within the project theory of change. There is an assumption that by achieving these intermediate results the project is progressing towards the ultimate outcome. Internal evaluation of these results and assumptions is conducted through communications with communities, partners and staff identifying threats to the project and highlighting barriers to achievement of the outcome.

8. Lessons learnt

Our work to develop voluntary community programs was successful in AAB in Y3, with 36.5 ha reforested. The fuelwood plantation program launched in Y3 also appears as a promising solution to mangrove deforestation given the high level of interest of communities to participate and motivation of the five pilot producers in the plantation cycle.

The challenges our project team has faced to assess soil carbon stocks are largely as a result from a lack of expertise at a few key stages of the design of the methodology and field protocols. Similar projects could address this in the future through making provisions in the budget for international experts to support the development of soil carbon assessment methodologies, and build project team capacity to use the protocols from field to laboratory. This project will provide extremely valuable experience and expertise in Madagascar and other relevant countries in that field through the dissemination of the carbon monitoring methodology and the training of 3 MSc students in soil lab analysis.

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

In order to address capacity gaps with local partners, eg. Mamelo Honko, we organised an exchange trip with the community and their partner NGO and continue to assist where possible. However, the partners have not addressed their own lack of financing and capacity and BV are therefore limited in our ability to further build their capacity.

As highlighted in the report, we have recently hired a Carbon Manager to lead on finalising the carbon soil stocks, and will also be hiring an expert to assist through GEF project funding. This hire should also allow other senior staff more time to concentrate on the main deliverables within this project. The number of Malagasy staff working within the overall Blue Forests project has also through the hiring of two community liaisons.

We have highlighted how the delays in certain outputs effect each other in Section 3.2. We have included an updated Gantt chart for Y3 and Y4 of the project.

As suggested we have included a column in our Results Tracker to show relevant annexes.

10. Other comments on progress not covered elsewhere

The main difficulties encountered by the project in Y3 include:

- Lengthy process for the establishment of protected area and renewal of management transfers, slowing down the securing of community forest user and carbon rights.
- Methodological difficulties regarding the evaluation of mangrove soil carbon stocks, which will be addressed in June 2015 through a review of our methodology and field protocols.

The main risk faced by the project is associated with the attractiveness of the carbon credits for sale to investors and market capacity to absorb REDD+ credits in the medium term. To mitigate this risk, the project is pursuing high valued CCB standard together with VCS in AAB and a financial model was established to test the sensitivity of the project to market demand.

11. Sustainability and legacy

On the ground, mangrove conservation meets a strong demand from communities, as the large proportion of communities who have decided to put mangroves under conservation regimes across both sites (25%) testifies, and major progresses have been achieved in building management associations' capacity. However, ensuring communities have the technical, organizational and financial capacity to manage their mangrove forests in the long term still requires several steps to be completed.

BV has secured three grants to do so and will continue to structure CLB boards, carry out the necessary steps to finalize carbon stock assessment and carbon project development, scale up sustainable fuelwood and timber plantations and develop alternative livelihoods at both sites.

There is promising evidence that these projects will be able to leverage sustainable financing for mangrove conservation in the short and medium-term.

12. Darwin Identity

The Blue Forests project is a large programme also funded by the Waterloo, MacArthur and Helmsley Foundations, and is now part of a GEF project. We aim to ensure that Darwin's support is highlighted. Within this project, the BOA site stands as a distinct Darwin project and is communicated as such to local and international partners.

The project communicates on Darwin by putting the Darwin logo on the header of the Blue Forests project newsletter, which is sent twice a year to eighty partner NGOs, national, regional and local authorities as well as research institutes. Furthermore, the Darwin logo is included on all maps and reports prepared for the BOA project site.

Tweets and blogs on this project have recognised Darwin's support.

Within Madagascar, organisations likely to be familiar with the Darwin Initiative include other international conservation NGOs.

13. Project Expenditure

Table 1 Project expenditure during the reporting period (1 April 2014–31 March 2015)

Project spend (indicative) since last annual report	2014/15 Grant (£)	2014/15 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				Savings were made on overheads by sharing costs with other projects where possible.
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				Some delays to defining boundaries of mangrove areas means that these items were not required yet.
TOTAL	77,696	77,665		

14. OPTIONAL: Outstanding achievements of your project during the reporting period (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)

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2014-2015

Project summary	Measurable Indicators	Progress and Achievements April 2014 - March 2015	Actions required/planned for next period
Impact Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.		Mangrove management plans to reduce deforestation and conduct reforestation are well underway, contributing to the Aichi 2020 targets of increasing areas of protected forest and the CMS action plan for the protection of habitat for migratory birds.	
Outcome Coastal communities are earning income from the sale of carbon credits, charcoal and timber that they supply through mangrove reforestation and sustainable forest management, so enabling them to improve their livelihoods and conserve mangrove forests in the long term.	• Increase in household revenues (male, female) from charcoal, timber and carbon credits* • Area (ha) of restored and conserved mangrove forest that is under effective community management	• Community management plans were established for 10,492 ha of mangroves in AAB and BOA • 45 ha of mangroves were restored across sites • Tax on mangrove products are collected in 2/5 management associations in AAB and 3 ha of alternative fuelwood plantations were established	• Establish a quota-tax system to ensure the sustainable use of mangrove timber in AAB • Enforcing management plans and tax payment through the implementation of mangrove patrols in AAB Establishing community forest management units, harvesting zones, and monitoring teams in BOA
Output 1. Communities have clear and uncontested land and user rights to their customary mangrove areas; and give their Free Prior & Informed Consent to use these areas for a forest carbon project	• Area (ha) with secure title (RFRs and GCFs) • Number of individuals (male, female) with formalised user & carbon rights	In partnership with the Ministry of Environment in Madagascar, we are working to establish user rights through a mixed model of both management transfers and protected area status which should grant carbon ownership to communities within the respective project areas. In AAB, the re-evaluation of the management contract by DREF in May 2014 secured the long-term management rights over 5880 ha of mangrove to local communities in five Communaute Locale de Base (CLBs) (16,000 people). In Velondriake, the protected area validation expected in May 2015 will defer carbon rights over an area of 4,612 ha to an estimated 7,300 people in the Velondriake LMMA.	
Activity 1.1 Consultation & project development with the communities so as to fulfil the conditions of gaining their Free, Prior and Informed Consent (FPIC) for the implementation of a forest carbon project		Formal approval from communities was gained in BOA through three community FPIC consultations, and preliminary approval in AAB through two workshops and two community FPIC consultations.	
Activity 1.2 Detailed analyses of land tenure and use rights of the potential		Tenure regimes have been obtained from participatory mapping at all project sites	

mangrove areas with both the government cadastral services and the local communities; and resolution of conflicts		through focus groups sessions and are delineated in Google Earth (GE). Tenure conflicts will be identified by the end of the project through comparison with the official tenure map in AAB and BOA.
Activity 1.3 Establishment of legal user and carbon rights for community members participating in the project		AAB: The Natural Resource Management Transfer (TGRN) renewal was completed for the 3/5 CLBs requiring evaluation by DREF and will become permanent after submission of the full management plan (inc. quotas) to the DREEMF on Y4. BOA: The management plan of BOA was submitted to the SAPM as part of Velondriake PAG. Permanent protection status is expected in May 2015.
Output 2. Communities have established mangrove A/R, SFM and conservation areas; and are competently managing these areas	• Area of mangrove planted • Area of mangrove under SFM and conservation regimes • % of sites implementing clear management plans and which have sustainable harvesting quotas & rotations set according to output 4	Across sites, over 45 ha of mangrove were reforested to date. Both sites have implemented management plans with a total of 2630 ha under conservation, and 3,762 ha under controlled harvesting regimes. BOA: A mangrove restoration program was launched with about 1 ha reforested. A management plan for use of mangroves for aquaculture, developed in partnership with Ministry of Forests, will be released by the end of the project.
Activity 2.1 Establishment of community management plans, zonings and sustainable harvest quotas		AAB: The field delineation of management plans established through participatory zoning was completed. 1800 ha are under conservation and 1885 ha under a controlled harvesting regime. 92 plots were inventoried so as to define sustainable timber quotas. BOA: A mangrove management plan was established and validated through participatory zoning, putting 830 ha under conservation and 1877 ha under a controlled harvesting regime.
Activity 2.2 Establishment and maintenance of mangrove nurseries by female teams		Two nurseries, totalling 3,000 seedlings, were established and maintained by women associations in AAB this year and 1,500 seedlings planted over 1.5 ha.
Activity 2.3 Mangrove planting and maintenance of seedlings by female teams		AAB : Our voluntary reforestation program resulted in the reforestation of 36 ha of mangroves. 2 ha are annually monitored. BOA: A mangrove reforestation program was launched and about 1 ha reforested during four reforestation events.
Output 3. Communities are producing sustainable charcoal and timber*	• All participants have been trained in SFM and improved charcoal production • % of sites where timber is harvested according to the	Significant progress has been made to define sustainable harvesting quotas in AAB. This process will start by the end of the project in BOA. As highlighted in the half year report on Y3, due to legal constraints the sustainable production of commercial timber and charcoal from mangroves was

	sustainable quotas & rotations defined in the management plans • Number of improved charcoal production units in place	replaced by the establishment of alternative timber and fuelwood plantations at both sites.
Activity 3.1 Training of the community participants in sustainable harvesting and improved management; initial timber harvesting according to sustainable quotas and planned rotations		A forest mangrove inventory has been carried out in AAB on 92 plots; data are being analysed and CLB will be trained to implement them by the end of the project. In BOA consultations to define quotas, building on the results of the carbon inventory, will allow for implementing a similar system beyond the project timeframe.
Activity 3.2 Training & production of charcoal using improved kilns; continued technical support		This activity was altered to establishing alternative fuelwood and timber plantations. 3 ha of *Eucalyptus camaldulensis* and *Acacia mangium* were established in AAB on the land of 5 producers. Plantations will be scaled-up to 10 ha and species diversified during the next plantation campaign (July 2015-March 2014). Zoning and species identification was carried out in BOA that will allow the launching of a timber plantation program beyond the project timeframe
Output 4. The carbon stocks and harvestable timber of the community mangroves have been measured and are being accurately monitored	• % of community management units that have been trained to take carbon measurements and have a functioning monitoring team • Biomass and soil carbon measurements have been taken at all sites • Quality controls by BV scientists show less than 10% error in the carbon stocks measurements for all sites • % of sites for which complete monitoring reports are archived in a central project database	Carbon stock measurements have been taken at both sites and AAB soil carbon content analysed. As the results of the latter proved unreliable our team will work on Y4 and beyond to refine our methodology and field protocols through a GEF grant. In AAB 61 men and 30 women have been trained in forest inventory and in BOA 12 women were trained in carbon stock inventory.
Activity 4.1. Development of a measurement & monitoring plan which meets the requirements of the selected approved methodology for the generation of carbon offsets (this monitoring will include mangrove planting, timber harvesting & charcoal production)		A draft monitoring methodology comprising two levels (forest inventory and scientifically rigorous carbon inventory) of methodologies meeting the VCS Project Standards v.3.0 and Plan Vivo Foundation Standards, 2013 has been established.
Activity 4.2. Creation & training of female monitoring teams in the use of appropriate forest inventories, carbon stock measurements and monitoring protocols		In AAB carbon monitoring was replaced by forest inventory training. 61 men and 30 women were trained from October 2014 to February 2015. In BOA, an additional 12 women were trained in November 2014 (22 total), using

		co-trainers from previous carbon monitoring sessions conducted.
Activity 4.3 Stock measurements, continuous monitoring and analysis of the data; integration into management plans; and continued technical support & quality control by BV scientists		AAB above-ground carbon stock data were re-analyzed by a student from the Imperial College of London and soil organic carbon was estimated by combining Loss on Ignition (LOI) analysis and total carbon (CN) analysis throughout 2014. Carbon stock values found appear very low compared to literature and present an inconsistent trend between forested and deforested plots, which might be the result of several methodological biases. This will be addressed through additional research financed beyond the timeframe of this project by the GEF-funded Blue Forests project. In BOA carbon inventory results of 2013 and 2014 have been aggregated into a community carbon database in BOA. Additional carbon stock data will be collected in July-September 2015 to reach an adequate sample size and range.
Output 5. The requirements for a forest carbon project that will generate carbon offsets are fulfilled	• The government & Designated National Authority (DNA) support the project & are involved in its development • A Project Idea Note (PIN) & business plan prove the viability of the carbon project • A draft Project Design Document (PDD) is written	Significant progresses were made to meet the requirement of forest carbon project in BOA with the registration of the PIN by the Plan Vivo Foundation. A draft PIN and financial analysis was released for AAB but due to challenges in assessing soil carbon stocks the final PIN and PDD will not be issued by the end of the project.
Activity 5.1. Consultation with the government & Designated National Authority (DNA) in the project development; gaining of DNA support for the project		In AAB, two regional consultations workshops were held in Ambanja in May and December 2014 and Madagascar's principal Authority on REDD+, the REDD Coordinator, visited our site in May. In BOA, a meeting with the DGF and two regional consultations held in July and September 2014 regarding the Plan Vivo project.
Activity 5.2. Production of a Project Idea Note (PIN) and business plan based on actual monitoring; submission to investors / funders		A draft AAB PIN was released in November 2014 accompanied by a financial analysis. BOA PIN was successfully evaluated by the Plan Vivo Foundation and published on their project register webpage in February 2015. A short promotional documentary to attract investors' interests filmed in March 2015 will be released by the end of the project.
5.3 Production of monitoring reports and a draft project design document		Due to the amount of research still required to finalise AAB carbon stock measurement (see Activity 4.3.), the preparation of the PDD will not start before the end of the project. In BOA, the Plan Vivo technical specifications and PDD will be submitted to the Plan Vivo Foundation by December 2015.

Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
Sub-Goal: Conservation of Madagascar's mangrove habitats and their associated biodiversity	• Deforestation rates for natural forest habitats of the coastal districts of western Madagascar • % of charcoal and timber that comes from the deforestation of natural forests of the coastal districts of western Madagascar	• Existing CI-MEFT-USAID National deforestation analysis for 1990-2000-2005; present BV & literature analyses of mangrove deforestation; future national deforestation analyses that CI-MEFT plan to undertake • Existing CI, USAID & WWF reports on timber & charcoal consumption in coastal areas; future participative appraisals & research	
Purpose Coastal communities are earning income from the sale of carbon credits, charcoal and timber that they supply through mangrove reforestation and sustainable forest management, so enabling them to improve their livelihoods and conserve mangrove forests in the long term.	• Increase in household revenues (male, female) from charcoal, timber and carbon credits* • Area (ha) of restored and conserved mangrove forest that is under effective community management	• Sales figures of charcoal and timber (from participative appraisals done to establish mangrove management plans & uses; project records of sales) • Household revenues, disaggregated by sex • Project GIS, land titles and community management contracts	• Sustainable mangrove timber and charcoal is competitive with those from other sources • Adequate, long term market demand exists for such carbon offsets (or strong donor commitment to REDD+ continues)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Outputs*			
1. Communities have clear and uncontested land and user rights to their customary mangrove areas; and give their Free Prior & Informed Consent to use these areas for a forest carbon project	• Area (ha) with secure title (RFRs and GCFs) • Number of individuals (male, female) with formalised user & carbon rights • Decrease in the incidence of forest exploitation by outsiders	• Government cadastral records • Land titles and community conservation contract agreements • Project GIS • Community management association records	• No significant land disputes exist so that uncontested ownership can be established • If there are land disputes, these can be resolved • The legal formalisation of user and carbon rights using existing instruments does not marginalise women
2 . Communities have established mangrove A/R, SFM and conservation areas; and are competently managing these areas	• Area of mangrove planted • Area of mangrove under SFM and conservation regimes • % of sites implementing clear management plans and which have sustainable harvesting quotas & rotations set according to output 4 • Participative monitoring shows a decrease in uncontrolled harvesting of mangroves	• Participative maps in community management contracts; project GIS of community management areas • Planting & maintenance schedule; project GIS of planted areas • Community monitoring data books	• Residents can forego immediate exploitation of mangroves long enough to begin earning from A/R and SFM • The community participants agree to robust enough management plans • Growth cycles of target mangrove tree species allow adequate production of seedlings within project schedule
3. Communities are producing sustainable charcoal and timber*	• All participants have been trained in SFM and improved charcoal production • % of sites where timber is harvested according to the sustainable quotas & rotations defined in the management plans • Number of improved charcoal production units in place	• Training workshop reports • Carbon monitoring for each site; verification of rotational harvesting by BV project staff; checked monthly • Existence & use of improved kilns within the target sites as verified by BV staff; project reports	• The combination of individual ownership of A/R and SFM plots with the collective management associations is effective in preventing unsustainable harvesting
4. The carbon stocks and harvestable timberof the community mangroves have been measured and are being accurately monitored	• % of community management units that have been trained to take carbon measurements and have a functioning monitoring team • Biomass and soil carbon measurements have been taken at all sites • Quality controls by BV	• Training workshop reports & Standard Operating Procedures • Carbon stock calculations • Quality Control reports • Project archive; 1st measurements taken by month 9; monitoring checked monthly	• Adequate project finance can be gained from carbon revenues or other sources to support long term monitoring

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	scientists show less than 10% error in the carbon stocks measurements for all sites • % of sites for which complete monitoring reports are archived in a central project database		
5. The requirements for a forest carbon project that will generate carbon offsets are fulfilled	• The government & Designated National Authority (DNA) support the project & are involved in its development • A Project Idea Note (PIN) & business plan prove the viability of the carbon project • A draft Project Design Document (PDD) is written	• Formal letter of support from the government (DNA) for the project • Project Idea Note & business plan submitted to investors • Draft Project Design Document	• A suitable approved methodology specific to mangroves is available by 2014 (this process has already begun, and a CDM A/R methodology has been recently approved) • Formal government support to the project is not jeopardized by changes in government
Note: * - these project outputs will not necessarily be fully realised within the three years of the requested funding given that forest carbon projects normally work on a 5-year verification cycle and can take several years to be developed; 1st generation planted trees will take several years to attain a harvestable size			

Annex 3 Standard Measures

Table 1 Project Standard Output Measures

Code No. Established codes	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for reporting period	Total planned during the project	Brief Description Year 3
1B	Number of people to attain PhD qualification (in host country)	0	0	0		0	0	1	One student currently doing his PhD
2	Number of people to attain Masters qualification (MSc, MPhil etc)	0	0	2		0	2	2	Five Master students preparing their defense (expected in April-June 2015)
3	Number of people to attain other qualifications (ie. Not outputs 1 or 2 above)	0	1	0		1	0	0	
4C	Number of postgraduate students to receive training	4	5	0		9	0	0	
5	Number of people to receive at least one year of training (which does not fall into categories 1-4 above)	0	1	0		1	0	2	One staff member conducted one year of training in use of TESSA
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above)	2 women 2 men	12 women	61 men and 40 women		54 women 63 men	60	30 women 30 men	61 men and 30 women trained in forest inventory; 10 women trained in carbon stock monitoring
6B	Number of training weeks to be provided	1	2	4		7	4	5	
8	Number of weeks to be spent by UK project staff on project work in the host country	2	2	1		5	1	18	One week spent by conservation programmes manager
9	Number of species/habitat management plans (or action plans) to be produced for Governments, public authorities, or other implementing agencies in the host country	0	1	1		2	1	1	One mangrove management plan finalised for one CLB in AAB
10	Number of individual field guides/manuals to be produced to assist work related to species	0	0	1		1	1	1	Mangrove ID toolkit

Code No. Established codes	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for reporting period	Total planned during the project	Brief Description Year 3
	identification, classification and recording								
11A	Number of papers to be published in peer reviewed journals	0	1	1		1	2	3	From BC's Gulf Islands to Madagascar's mangroves, Branchlines
12A	Number of computer based databases to be **established** and handed over to host country	1	0	1		2	1	0	CLB database
14A	Number of conferences/seminars/ workshops to be **organised** to present/disseminate findings	2	1	4		7	3	0	Two workshops in Tulear and 2 in Ambanja
14B	Number of conferences/seminars/ workshops **attended** at which findings from Darwin project work will be presented/ disseminated.	0	2	5		7	4	3	Portland State University: Dynamic Ecosystems and Landscapes Lab Seminar, Across Landscapes: Conserving Coastal and Marine Biodiversity International Workshop, PSU Research to Action Symposium: Ecosystem Services, Geo for Good Summit, International Blue Carbon Science Working Group meeting
15A	Number of national press releases in host country(ies)	0	1	0		1	1	3	

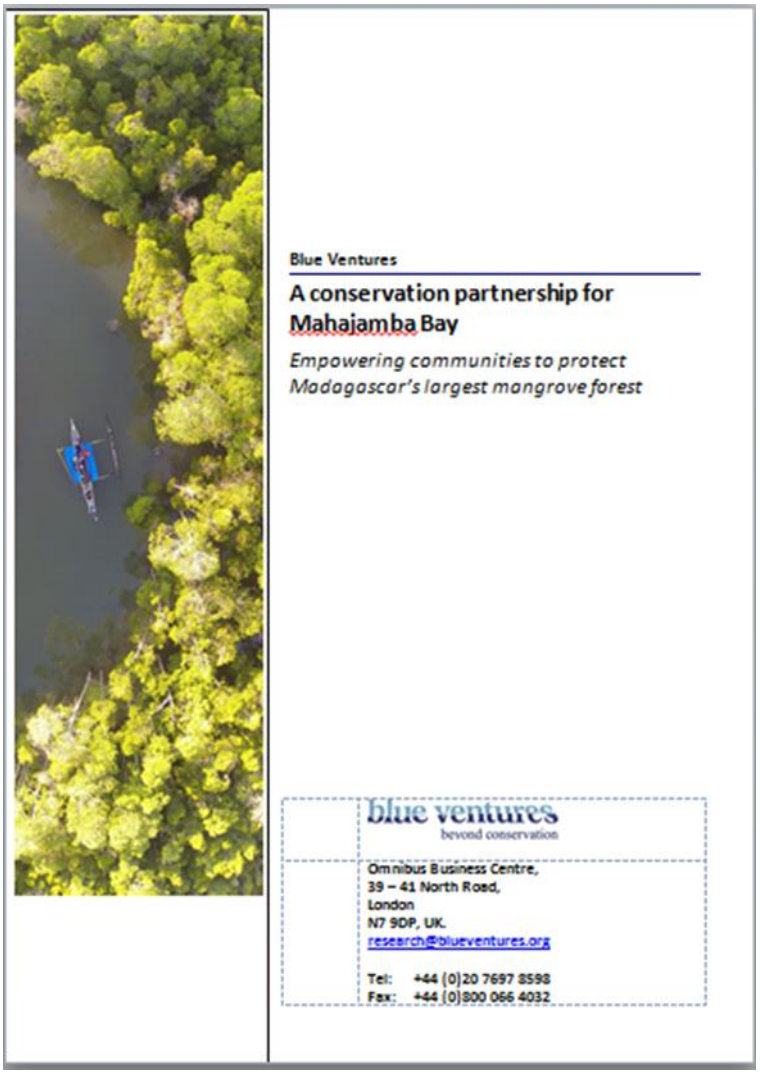
Code No. Established codes	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for reporting period	Total planned during the project	Brief Description Year 3
15B	Number of local press releases in host country(ies)	1	1	0		2	0	6	
15C	Number of national press releases in UK	0	1	0		1	0	3	
16A	Number of newsletters to be produced	2	3	2		7	2	6	Two Blue Forests newsletters
16C	Estimated circulation of each newsletter in the UK	3000 people	6000 people	6000 people		15000 people	6000	10 000	
18D	Number of local TV programmes/features in UK	0	1	0		1	0	0	
19A	Number of national radio interviews/features in host county(ies)	0	0	0		0	0	3	
19C	Number of local radio interviews/features in host country(ies)	0	0	0		0	0	8	
23	Value of resources raised from other sources (ie in addition to Darwin funding) for project work		0				NA	£300,000	Funding secured from MacArthur and Waterloo Foundation in Y1; Helmsley and GEF for Y3 onwards.

Table 2 Publications

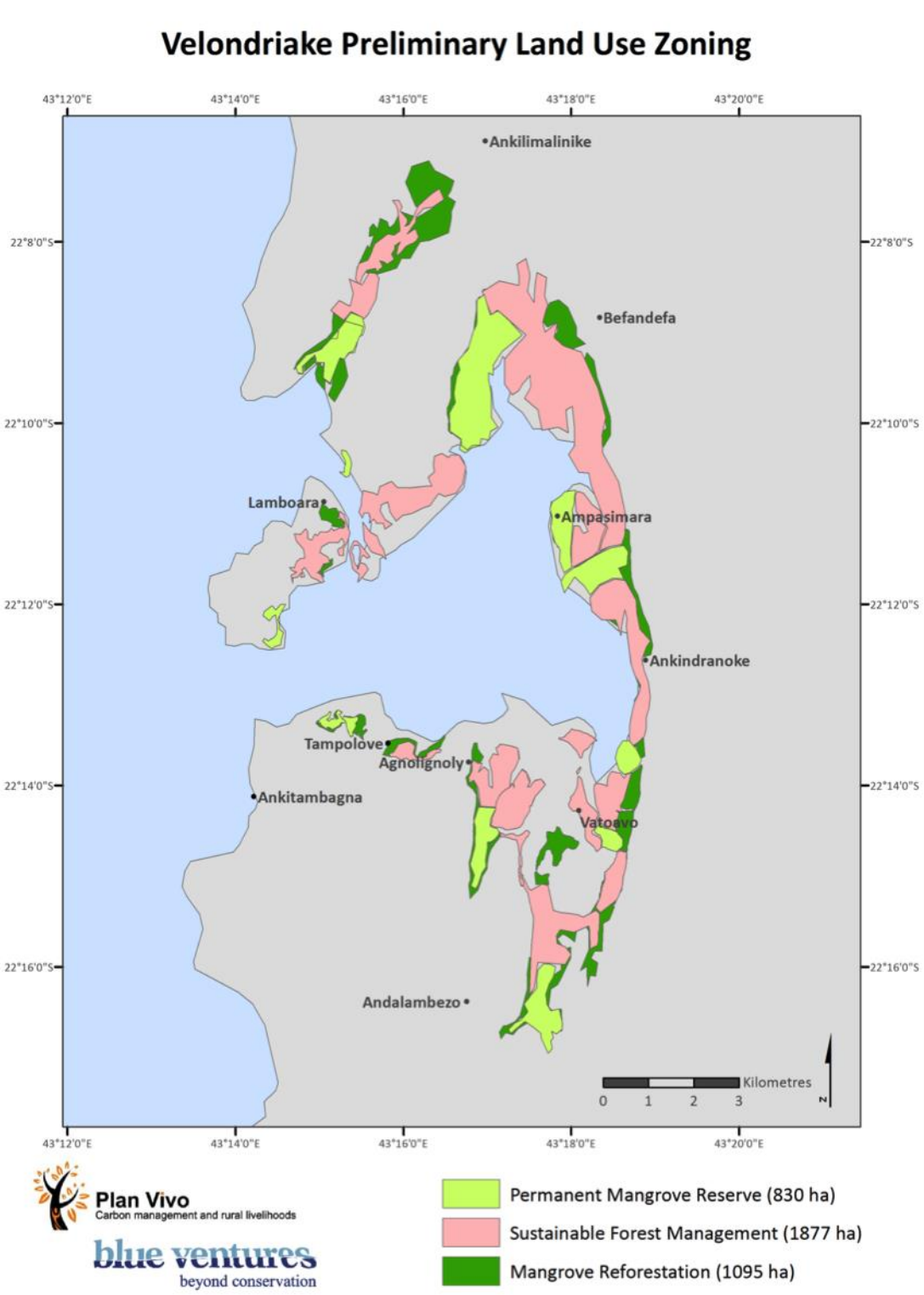
Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Factsheet	Blue forests: Community-led mangrove management to protect coastal ecosystems and livelihoods; Trevor G. Jones, Leah Glass, Garth Cripps, Lalao Aigrette, Aude Carro	Blue Ventures	http://blueventures.org/conservation/blue-forests/	£50
Article	From BC's Gulf Islands to Madagascar's mangroves; Jones, T.G.	Branchlines	Issue # 25	0
Blog	Mangrove deforestation in Madagascar: What are the options?, Brian Jones, Dec 2014	National Geographic	http://voices.nationalgeographic.com/2014/12/16/mangrove-deforestation-in-madagascar-what-are-the-options/	0
Blog	Communities Leading the Way to Save Madagascar's	National	http://voices.nationalgeographic.com/2015/03/17/communities-leading-the-	0

	Mangroves; Brian Jones, March 2015	Geographic	way-to-save-madagascars-mangroves/	

Annex 4 Onwards – supplementary material (optional but encouraged as evidence of project achievement)



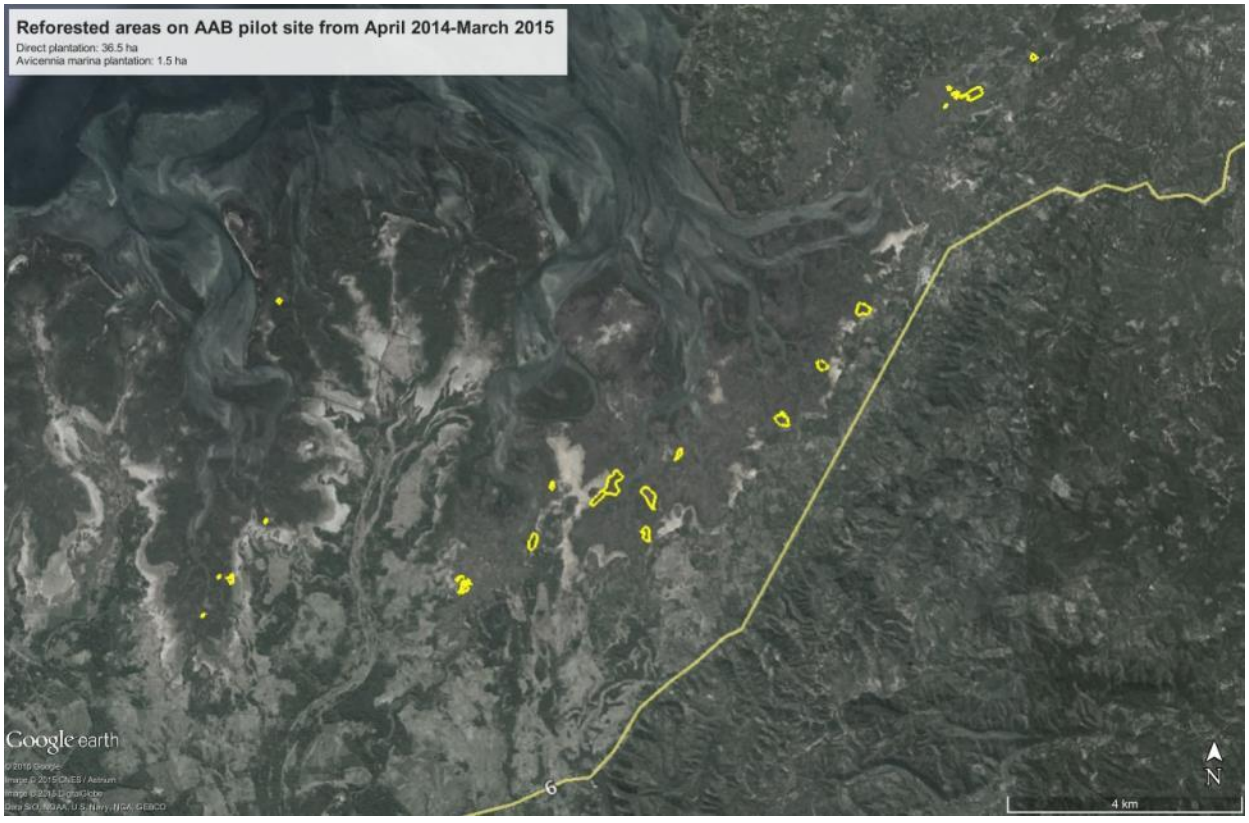
Annex 4_Mahajamba_ConceptNote_January2015. A full copy of the report is available.



Annex 11_ Management_Plan_BOA: In BOA, an updated Plan d'Aménagement et de Gestion (PAG), included an added section on mangrove management and were successfully submitted to Système d'Aires Protégées de Madagascar (SAPM) in March 2015.

Annex 15_Pictures_from_BOA: Mangrove reforestation on women's day, 8th March 2015 (top) and an exchange visit between the communities of BOA and Mamelo Honko, July 2014 (bottom).

Annex 16_AAB_Pictures: The Avicennia marina nursery in Ambalahonko (top); Antetezambato women's association doing a demonstration of direct plantation for Ambalahonko women association during an exchange visit in Ambalahonko (middle); and an *Acacia mangium* nursery in Ambaliha (bottom).



Annex 27_Reforestation_AAB_April2015: Reforested areas in AAB pilot site from April 2014 to March2015.

Assessing the impact of anthropogenic degradation on mangrove carbon stocks in NW Madagascar

Marianne Teoh

2014

***Keywords**: Carbon; Degradation; Deforestation; Diversity; Madagascar; Mangroves; REDD+*

Supervisors: Marion Pfeifer[1] and Trevor Jones[2]

[1]Department of Life Sciences, Imperial College London, South Kensington, London, SW7 2AZ
[2]Blue Ventures Conservation, Omnibus Business Centre, 39-41 N Rd, London N7 9DP

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Annex 21_Marianne_Theo_Thesis

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.	X
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.	NA
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Do not include claim forms or other communications with this report.	