Department for Environment Food & Rural Affairs

DARWIN INITIATIVE

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Darwin Initiative
Final Report

Reviving socio-ecological landscapes for biodiversity conservation and climate change adaptation

Darwin project information

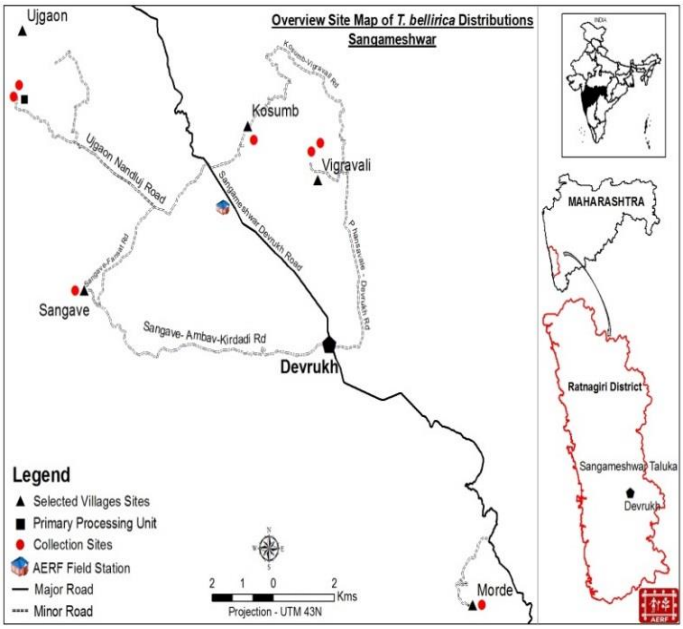
Project Reference	20-016
Project Title	Reviving socio-ecological landscapes for biodiversity conservation and climate change adaptation
Host country(ies)	India + UK
Contract Holder Institution	Durrell Institute of Conservation and Ecology (DICE)
Partner Institution(s)	Applied Environmental Research Foundation Pukka Herbs Ltd
Darwin Grant Value	£171.317
Funder (DFID/Defra)	Defra
Start/End dates of Project	01/06/2013 - 31/05/2016
Project Leader's Name	Prof. D.MacMillan
Project Website/blog/twitter	http://aerfindia.org/darwin-initiative-project.html
Report Author(s) and date	Dr. I.G.Bride (DICE), Mr. J.Sarnaik (AERF), Prof. D.MacMillan (DICE), Mr. B.Heron (Pukka Herbs), Dr. A.Timoshyna (TRAFFIC), Dr. A. Godbole (AERF) (27/07/2016)

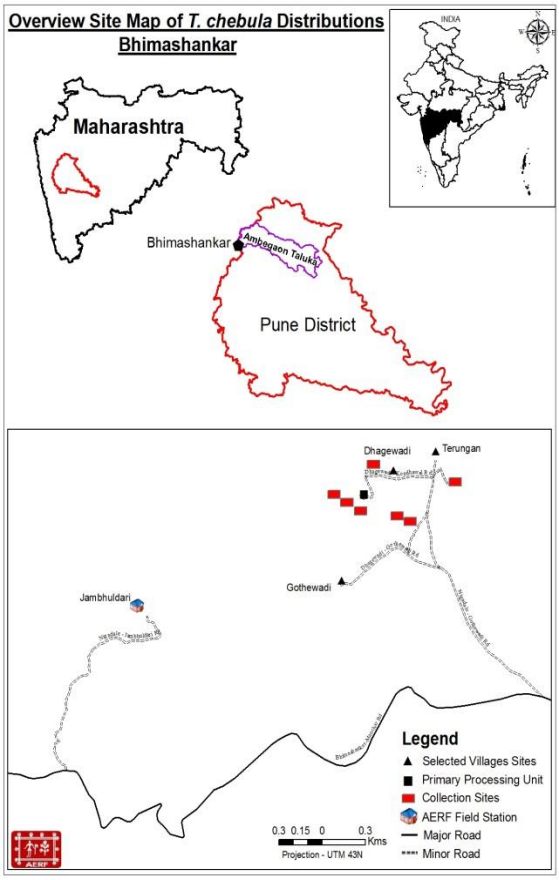
Nanladj temple – unnecessary removal of mature *Terminalia bellirica* trees (2016)

1 Project Rationale

In the wider project region of the Western Ghats, a global biodiversity hotspot, the livelihoods and culture of the local communities are directly dependent on the biodiversity and ecosystem services provided by the socio-ecological landscapes. Yet the pressure to sustain livelihoods is driving the replacement of traditional crop varieties with hybrid cash crops, the clear felling of forests, and the erosion of traditional knowledge, causing degradation of ecosystem services and the loss of key species. This project involved DICE working with experienced partners (AERF, Pukka Herbs and TRAFFIC International) to address this problem through exploiting the economic opportunity offered by a diversity of medicinal plants, many in demand commercially by the traditional Indian system of medicine (Ayurveda) and/or having considerable potential on international markets. Central to this process has been the objective of developing supply chains for the fruit of two high conservation value tree species (*Terminalia bellirica* and *T. chebula*), with an associated community regulated Access and Benefit Sharing (ABS) mechanism. This has been complemented with the creation of agro-forestry nurseries and plots with the aim of demonstrating how ecological restoration can help revive the social and economic capacity of fragile rural communities whilst pursuing the clear goal of conserving biodiversity rich habitats, notably sacred groves and community forests, over a longer period.

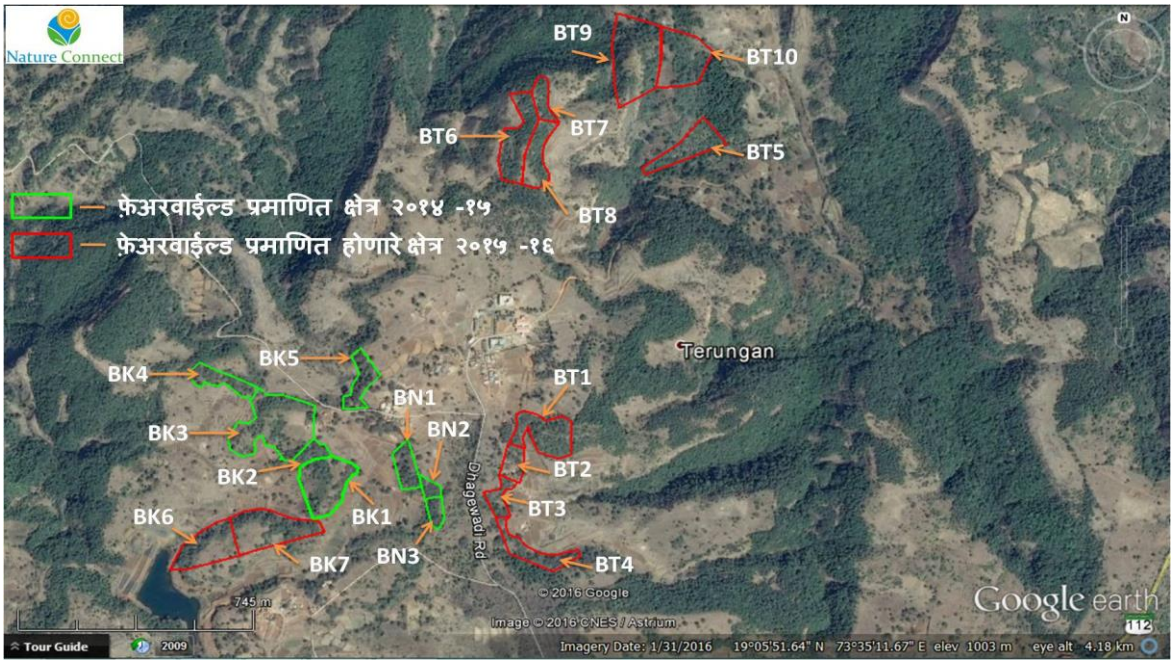
The two principle project sites are around the village of Dhagewadi, Bhimashanker and several villages in the vicinity of Sangameshwar, both located in the North Western Ghats, Maharashtra, India. The figures show the location of these sites and the main nearby distributions of *Terminalia bellirica* and *T. chebula* recorded by project surveys.



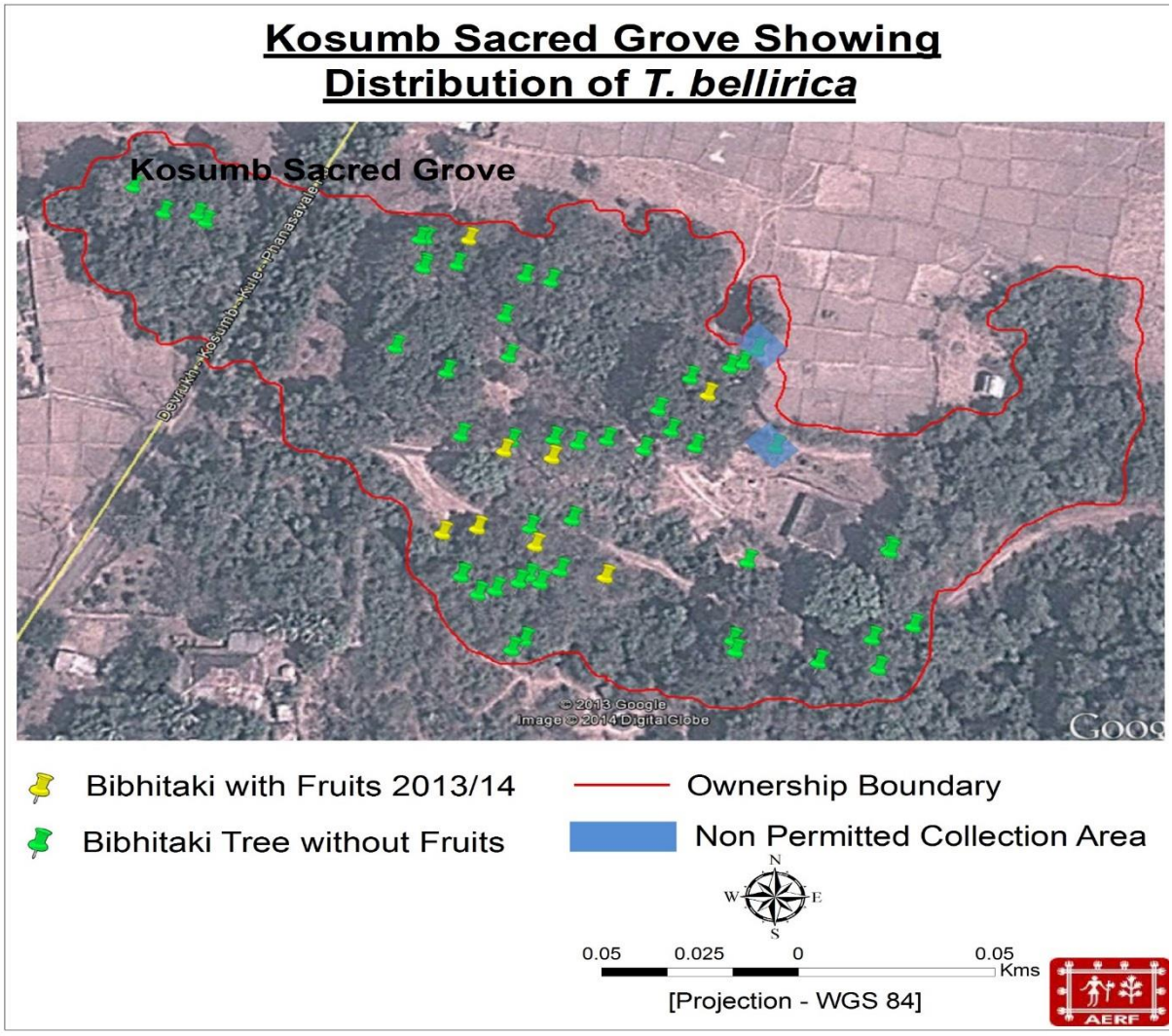


Both sites were systematically assessed for populations of *T. bellirica* and *T. chebula*, first using satelite imagery, and then ground-truthed with the use of field surveys - employing GIS to develop a database of individual specimens. Along with the land ownerhip, management regimes, other uses, and any current levels of exploitation of these species currently occuring, patterns of fruiting were also recorded during repeat visits.

The following examples illustrate the level of detailed data gathered for each site.



Example of distribution map - *T. chebula* sites in Bhimashanker



Example of detailed distribution map – single *T. bellirica* site in Sangameshwar

2 Project Achievements

2.1 Outcome

Outcome:	To increase the capacity of targeted local communities in the North-Western Ghats to adapt to climate change and participate in biodiversity conservation through the improved management of socio-ecological landscapes and the adoption of alternative, ecologically-sound livelihoods based on agroforestry principles and practice coupled with an effective access and benefit sharing mechanism that improves the situation of poor people. To these ends the project will conduct a NTFP feasibility study focussed on Sacred Groves, set up and run a supply chain for two products at two study sites, and seek to establish economically viable nurseries and experimental plots.			This outcome has been met to a significant degree at the two study sites - notably, with the completion of two species supply chains, the creation of nursery and pilot restoration plots, the setting up of an ABS mechanism, and identification of other suitable candidate species.
	Baseline	Change by 2016	Source of evidence	Comments
Indicator 0.1	Ecological surveys and biodiversity assessment at target sites show increased biodiversity health of sacred groves and community forests within socio-ecological landscapes	Following our questioning the value of 'before and after' replicate biological surveys, the need for indirect indicators of improved biodiversity was identified (and agreed by Y2 Annual Report Reviewer). These were identified as: measures to reduce livestock grazing; increased areas of forest under conservation management/protection agreements; established plantations of native tree species; and, increased levels of participation by local people in biodiversity conservation activities.	Details provided in Annex 3 and documentary + photographic evidence in Annex 7	
Indicator 0.2	New participatory agro-forestry pilot schemes, with collection and marketing of non-timber forest produce by the local community following the FAIRWILD scheme and standards, and a functioning complete product chain for the two pilot species	Agreement was made with five villages for setting up agro-forestry pilots. These are being managed according to the FAIRWILD protocol, with stems of *Tinospora cordifolia* having been collected by the local communities, processed and sold in the domestic market, as well as tumblers made from *Pterocarpus marsupium.* A complete product chain has been achieved of processed material for two species of tree fruit used in Ayurvedic preparations -*Terminalia bellirica* and *T. chebula* - both awarded FAIRWILD certification in 2015 and 2016 – with significant volumes having been delivered through to Pukka Herbs UK.	Details provided in Annex 3 and evidence in Annex 7+8	
Indicator 0.3	Significant increase in income for the	This has been achieved at both study sites – and has been significantly amplified by the	Details provided in Annex 3	

	NTFP collectors and other primary stakeholder participants	project's provision of processing equipment, which has added value at front of the supply chain - and will increase in proportion to greater product volumes.	and evidence in Annex 7+8	
Indicator 0.4	Increased knowledge and understanding of traditional adaptive agricultural practices amongst project partners and stakeholders, and increased local stakeholder knowledge and practice of ABS, GACP and basic commercial principles	All three principle partners have substantially improved their knowledge of these practices, whilst that of the stakeholders has been significantly improved, most notably in the context of the training provided to achieve FAIRWILD certification. This certification would not have been granted without the key members of the communities fulfilling the FAIRWILD standards according to its protocol.	Details provided in Annex 3 and evidence in Annex 8 - training workshop reports, Annex 10 - FAIRWILD protocol	In Sangameshwar AERF has been appointed by the State Biodiversity Board to act as the nodal agency charged with setting up bio-diversity management committees. This provides the opportunity to link FAIRWILD protocol practice and certification with ABS mechanisms e.g. so that the FAIRWILD premium is deposited in bank accounts for these committees to use to fund the conservation management of certified areas.

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

Impact statement from logframe: To reverse the degradation of sacred groves and restore and improve the biodiversity value of community forests in the North-Western Ghats, India

Substantial progress has been achieved in reaching this goal, with ~750 large trees of *T. bellirica* and their habitats in 11 villages in the Sangameshwar block having been conserved through the promotion of sustainable collection of its fruits under certification. Out of the 750 large trees, 400 trees have qualified for FAIRWILD and Organic certification. The remaining 350 trees are conserved because they lie within the certified resource area. This has provided income opportunities to 10 collector families, with an additional 20 families engaged in primary processing in Sangameshwar block. As for the second target species, *Terminalia chebula*, sustainable collection is contributing to the conservation of 27 groves of *T. chebula* which received both FAIRWILD and Organic certification in the Bhimashankar Wildlife Sanctuary, where it provides direct economic benefit to 100 individual collectors.

Furthermore, in the Sangameshwar villages of Kalambaste and Wada Vesaravat, Morde, Vighravali and Muchari, local community members have signed agreements to stop indiscriminate cutting of trees from a total of 233 hectares of community forest for the next 5 years. In addition, agro-forestry pilot plots have been established in the open spaces of these forests to improve its productivity and facilitate soil moisture conservation. In total the AERF team delivered 5 training sessions in restoration and sustainable management and conducted plantation establishment of native species at 5 sites two years in succession, benefitting 110 farmers and communities from 5 villages. As regards the capacity building of local communities with respect to FAIRWILD certification, 100 collectors from Bhimashankar and 10 collectors from Sangameshwar were trained in: sustainable collection; the maintenance of hygienic practice during collection and storage; and, the grading, packing and labelling of fruits of the target species. Furthermore, 3 marginal farmers each from Sangameshwar and Bhimashankar received training in the maintenance and operation of processing equipment and record keeping.

2.3 Outputs

Output 1:	The conservation status of the targeted forest sites within the socio-ecological landscape is improved		
	Baseline	**Change recorded by 2016**	**Source of evidence**
Indicator 1.1	Existence of co-management plans for community forests	A 5-year conservation agreement signed for sustainable and participatory management of 233 hectares of community forest in 2 villages (Kalambaste, Wada Vesaravat). A 10 year contract signed for participatory management of agro-forestry plots in Morde and Vighravali villages. A private forest area of 13 hectares in Muchari village was offered to AERF by the owner for conservation activities - after his getting to know of the DI project.	See Annex 7 of this report. Copy of agreement (page 1) Copy of contract (page 1)
Indicator 1.2	Increase in number/areas of forests conserved by the community	A total of 233 hectares of community forest will be conserved through community participation for 5-10 years and will serve as the first sentinel agro-forestry site in the North Western Ghats	See Annex 7 of this report. Copy of agreement (page 1)
Indicator 1.3	Restoration activities in target forests/groves	Seven hundred saplings of 17 native and rare species planted as part of restoration in sacred groves of Lovale and Sangave SG. 850 saplings of 13 species in Kalambaste, Wada Vesaravat and Morde villages. The survival rate has been ~50% - which is normal under such conditions. Another 600 saplings of 17 different species were planted in year pre monsoon period of 2016 at two sites – Vighravali and Muchari.	See Annex 7 of this report. Photo examples pictures Kalambaste and Sangave
Indicator 1.4	Improved community & stakeholder attitudes to sacred groves	Four capacity building sessions in restoration helped communities from 8 villages to understand the role of sacred groves in biodiversity conservation and sustainable livelihoods. Another 2 capacity building sessions for new collectors at an additional 6 additional sacred groves were conducted during the FAIRWILD and Organic	See Annex 7 of this report.

		certification. A training session on sacred grove restoration was conducted with community members from the villages of Lowale and Vighravali.	
Output 2:	A platform for Access and Benefit sharing (ABS) of traditional knowledge based NRM practices and local biodiversity is created		
	Baseline	**Change recorded by 2016**	**Source of evidence**
Indicator 2.1	Locally facilitated knowledge-sharing workshops for indigenous communities	A knowledge sharing process was a key component of the FAIRWILD certification and protocol training (96 participants in Bhimashankar; 28 in Sangameshwar). Practiced-based knowledge sharing on honey collection and apiculture took place with indigenous community members in FAIRWILD certified areas in Bhimashanker in Jan, 2016 for a sustainable honey collection project.	See Annex 7 of this report. Pictures of the different training workshops
Indicator 2.2	Information archive of Traditional Knowledge-based NRM practices	A series of 7 interviews and 5 short videos have been produced that document the traditional knowledge of indigenous communities regarding NRM practices from Bhimashankar.	The best examples have been made available on the AERF website
Indicator 2.3	Means of disseminating the Traditional Knowledge-based NRM practices	AERF website + via workshops and village meetings	
Indicator 2.4	Community acceptability in developing an ABS mechanism	Each of the 8 target villages has set up a committee to decide upon and monitor the ABS mechanism (2 in Bhimashankar; 6 in Sangameshwar)	Annex 8 -Example of ABSM meeting in, Bhimashankar
Output 3:	A complete and viable supply chain for at least one NTFP is established		
	Baseline	**Change recorded by 2016**	**Source of evidence**
Indicator 3.1	Existence and performance of pilot plots	Five agro-forestry pilot plots established (Kalambaste, Wada Vesaravat, Vighravali, Umare and Muchari).	See Annex 7 of this report. Photo examples pictures Kalambaste and Sangave
Indicator 3.2	No. of endemic species planted & no. of saplings established	A total of 2150 saplings of multipurpose trees of 17 species planted at four different locations.	See Annex 7 of this report.
Indicator 3.3	Number of farmers signed up to pilot agroforestry scheme	Kalambaste (96); Wada Vesaravat (14); Morde (2),	List of names can be provided on request

		Vighravali (1), Umare (15), Muchari (1). Total = 129	
Indicator 3.4	Raised awareness and interest amongst stakeholders	Community surveys and village meetings in 10 Sangameshwar villages and 3 in Bhimashankar, along with capacity building sessions have raised awareness and interest among the stakeholders – as have community meetings and consultations in relation to another 6 sacred groves for FAIRWILD certification and 2 sites for agro-forestry pilot plots. Environmental education programs in 10 schools in the Sangameshwar block facilitated engagement with school children on the conservation of native forests and sacred groves. Demonstration sessions of the '*Bio-stove*' gasifier cook-stoves in 25 schools has created awareness among teachers and school children about the impact of fuel wood collection on the forests in neighbouring areas.	Annex 7 of this report Annex 9 of this report. Report on environmental education. Report attached in document bundle
Indicator 3.5	Collection of non-timber produce based on protocols and standards	In 2015 - 3.6 tonnes *T. chebula* fruits and 2.6 tonnes of *T. bellirica* fruits were collected, under the FAIRWILD standard. In 2016 – 4.9 tonnes *T. chebula* fruits and 4.6 tonnes of *T. bellirica* were collected from FAIRWILD certified areas. Also, 1.1 tonnes of stems of *Tinospora cordifolia* have been collected by locals, processed and sold in the domestic market, as have tumblers (n=800) made from *Pterocarpus marsupium* wood.	Annex 8 of this report Photographic evidence
Output 4:	An enabling environment for scaling-up the project activities is catalysed		
	Baseline	**Change recorded by 2016**	**Source of evidence**
Indicator 4.1	A supply chain for at least one NTFP	Supply chains for *T. chebula* and *T. bellirica* have been established. These have been further strengthened by addition of total 17 collection areas in the project region	Annex 8 of this report Product in Pukka storage

		under FAIRWILD certification.	
Indicator 4.2	Existence of collection/drying facilities	Full processing facilities and equipment are operating at both project field sites.	Annex 8 of this report
Indicator 4.3	Evidence of the successful performance of this supply chain	Supply chain performance demonstrated. Pukka Herbs has imported two shipments: 650kg in 08/15 and 850kg in 09/15, with 900kg on-route.	Annex 8 of this report Product in Pukka Herbs warehouse
Indicator 4.4	FAIRWILD certification awarded	FAIRWILD certification awarded for *T. chebula* and *T. bellirica* in Jan. 2015 and Jan. 2016	Annex 8 of this report Certificates

Problems encountered.

The main problem encountered by the project was the unexpectedly high cost of the FairWild certification process (section 6 – Lessons Learned). Fortunately this was able to be overcome with the help of funding from another source (the Keidanran Nature Conservation Fund), together with considerable commitment by project staff and representatives of the partner organisations – notably Pukka Herbs UK.

A second significant problem was the destruction of a large amount of the first certified *T. bellirica* fruit harvest when the Sangameshwar storage facility was inundated by monsoon flooding. The move to a much better rented facility has eliminated the possibility of any such reoccurrence.

3 Project Partnerships

The primary project partnership between DICE, AERF and Pukka Herbs was extended in 2015 to include TRAFFIC International as the species supply chains and the organic and FAIRWILD certification processes were instituted – TRAFFIC having been closely involved in the development and promotion of the FAIRWILD scheme. Pukka Herbs and AERF staff worked alongside each other in January 2015 and January 2016 to prepare for and host the visit of the FAIRWILD inspectors, training collectors and processors and producing training materials. One or more DICE staff undertook regular project visits (10/13, 02/14, 06/14, 10/14, 11/14, 03/15, 09/15 and 05/16), which focussed on monitoring the project's progress and planning future developments. Ben Heron, of Pukka Herbs, visited AERF seven times (08/11, 01/12, 10/13, 01/14, 11/14, and 10/15), focussing on the supply chain development and supporting the training provision and other protocol requirements of the organic and FAIRWILD certification. These visits involved lengthy discussions as to how to improve and grow the project process and deliver the intended outputs so as to guarantee legacy whilst extending the project scope and attracting further funding. Some were focused specifically on providing the appropriate training to meet the requirements of the FAIRWILD and Organic protocols and inspections. The decision-making process was transparent and informed by the partners according to the particular issue at hand and the specific expertise each had to offer. Open and honest relationships between the partners were key to the success of this process, not least in enabling the difficulties relating to implementation to be overcome. Regular Skype and email communications were used to supplement the periods spent together in the field – which constituted an estimated total of 170 person-days having been shared by individuals from at least two partner organisations over the three years.

An important strength (and challenge) of the partnership was the fact that the three initial partners represented different types of institution (academic, NGO, and business); each seeking its own organisational objectives whilst engaging with the common agenda. Regularly discussing this issue helped maintain mutual respect of each other's needs and inform project planning. In addition, the support from the Keidanran Nature Conservation Fund, which the project helped lever in, brought TRAFFIC Int. in as an additional partner, albeit in a backseat role. The final project year supported by Darwin Initiative funding involved planning a careful extension of existing partnerships to other institutions interested in researching, understanding and strengthening the link between the sustainable use of biodiversity and improved livelihoods. Candidates included: IIED-UK; the Swedish Biodiversity Center Stockholm; Ayurveda research organizations and buyers of medicinal raw material in India; and

international buyers of FAIRWILD and organic certified goods (Banyan Botanicals, USA; FIT Ingredients, Germany). In the event it was the in-country organizations and US buyers who were pursued in order to strengthen the resilience of the supply chains. These were: Dynamic Remedies, Green Pharmacy, Natural Remedies, Ayurveda Rasashala (in India) and Traditional Medicinal USA (a buyer of FAIRWILD certified products), and Canopy Bridge, USA, a free online platform for buyers and producers of sustainable products. Also, a well-established Indian company (Phalada), which processes and exports large volumes of herbs, spices and other materials, was contracted to mill, pack and export powder of both species. However, the installation of milling machines at both sites, has enabled greater value to be added to the front of the two supply chains, and the longer term plan is to eliminate the need to employ Phalada (see 4.8 Legacy).

This report was drafted by DICE/AERF staff and circulated to the other core project partners (Pukka Herbs and TRAFFIC) for comments and contributions. Despite the post project Darwin application (which was oriented at consolidating and adding supply chains, and scaling up the agro-forestry and conservation aspects) having been unsuccessful, the partners hope to find other means of building on its remarkable success and helping it further realise its potential in meeting conservation objectives through providing long-term viable livelihood options in an integrated, holistic framework that builds true capacity in target communities - something that the majority of conservation projects fail to do.

4 Contribution to Darwin Initiative Programme Outputs

4.1 Contribution to SDGs

The project principally contributes to four of the SDGs:

1. End poverty in all its forms everywhere – The establishment of a local level enterprise for creating sustainable livelihood opportunities for key stakeholders (*Nature Connect*) has provided enabling conditions for reducing poverty.

3. Ensure healthy lives and promote well-being for all at all ages - The value chains (for *T. bellirica* and *T. chebula* powder) that have been developed offer a naturally based cure for stomach related disorders. The main retail end product -*Triphala* - one of the main Ayurvedic preparations and in which these two species are complemented with a third, is widely accepted as increasing longevity on regular use, having been used for centuries in India for this purpose.

12. Ensure sustainable consumption and production patterns – The primary objective behind developing value chains has been to promote sustainable biodiversity use and achieve higher value realization which in turn will contribute to development of sustainable consumption and production patterns

15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss – The agro-forestry pilots have contributed to reversing land degradation and halting biodiversity loss on ~250 hectares at 4 different locations in the NW Ghats biodiversity hotspot. Similarly, the value chains developed using the FAIRWILD protocol and restoration plantations have helped the conservation of 6 sacred groves – remnant repositories of old growth primary forests. The project activities and associated and specific educational practices have also served to promote sustainable use of the targeted forest ecosystems.

4.2 Project support to the Conventions or Treaties (CBD, CMS, CITES, Nagoya Protocol, ITPGRFA))

The project can be regarded as addressing all eleven CBD goals to differing degrees.

Goal 1: Promote the conservation of the biological diversity of ecosystems, habitats and biomes

Goal 2: Conservation of species

Goal 3: Conservation of agricultural biodiversity

Goal 4: Promote sustainable use and consumption

Goal 5: Pressures from habitat loss, land use change and degradation and unsustainable water use reduced

Goal 7: Address the threats from climate change and pollution

Goal 8: Maintain capacity of ecosystems to deliver goods and services and support livelihoods

Goal 9: Protect traditional knowledge, innovations and practices

Goal 10: Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources

Goal 11: Parties have improved financial, human, technical and technological capacity to implement the convention

Through the promotion and establishment of agro-forestry schemes on degraded lands and signing local community forest agreements, the project has contributed to **Aichi Target 5 - reducing rate of habitat loss, fragmentation and degradation**.

In paying a premium price to the local communities for the sustainable collection of fruits of *Terminalia chebula* and *T. bellirica* the project has contributed to **Aichi Target 3 - providing positive incentives to local communities for biodiversity conservation**. The same applies to the training provision and educational works carried out in the context of the FAIRWILD certification achieved for both species in 2015 and 2016, which is not only a unique achievement for India, but at the time comprised two of just three such certificates awarded anywhere outside Europe.

The promotion of sacred groves as flagships for biodiversity conservation and climate change adaptation, together with the conservation agreements made with local communities, have addressed **Aichi Target 14 - safeguarding ecosystem services**. Similarly, the data collected on pollinator diversity from six sacred groves and the community meetings and training workshops conducted with the participating villages, that have, amongst other aspects, highlighted the role of pollinators in sustainable agriculture, have impacted this same target.

4.3 Project support to poverty alleviation

The economic evaluation of the collection of *T.chebula* at Dhagewadi has estimated that the amount received per kilo by the villagers increased from approximately 5INR/kg to 12INR/kg once the FAIRWILD certified supply chain was in place – with an initial target volume of 3 tonnes to be imported by Pukka Herbs – and an additional amount of 10% of the value of what Pukka paid being contributed to community projects via the agreed benefit sharing mechanism and *Nature Connect*. Similar benefits are anticipated for the supply chain of *T. bellirica* from the sites in Sangameshwar, but in the meantime AERF has tied up with a local Ayurveda drug manufacturer to sell collected medicinal plants independent of certification and this company has communicated their annual requirement for the species collected in the context of the Darwin project, with local collectors already having received direct benefits for their collection of *T. bellirica* fruits in Sangameshwar region. Specifically, total 24 families of registered collectors have benefitted from the sale of 4900kg of certified (4140kg) and non-certified fruits (760kg) of *Terminalia chebula* in Bhimashankar Wildlife Sanctuary. In addition, 40 women earned INR 200/day for a period of a minimum of 15 days for sorting *T. chebula* processed fruits in Bhimashankar. This income is of particular significance because it is during a lean period for agricultural activity and at same time a festive season when cash is needed. Two otherwise unemployed youths, having received training themselves, each gained an additional 120 days employment training communities in sustainable collection, processing of harvest, packing of processed material and record keeping. Similarly, 10 collector families benefitted from the sale of 4600kg of certified fruits of *T. bellirica* in Sangameshwar block. Here 10 women also earned INR 150/day for a period of 35 days, whilst 3 unemployed youths received direct benefits from processing, packing and transporting harvest for a period of 30 days. In addition, 2 collectors also benefitted from the sale of 1100kg of stems of *Tinospora cordifolia* in Sangameshwar block. This supply chain was developed at a pilot scale in order to understand the economic benefits from adding value through primary processing. A domestic company- *Dynamic Remedies* bought 400kg of processed stems of *Tinospora cordifolia.*

The project also built infrastructure and the personal capacity of 2 unemployed youths to raise saplings of native species for agro-forestry pilot plots - providing them with additional income from raising and maintenance of the saplings. This infrastructure and capacity built will be useful for income generation from opportunities offered through government schemes such as the Green Indian Mission whereby local governing bodies are required to plant saplings in significant numbers every year.

In addition, the FAIRWILD training in collecting uncontaminated produce and properly processing it clearly served to raise awareness about best sanitary practices amongst collectors, processers and the

communities in general, both specifically in relation to the species being harvested, and more generally. In continuing to maintain and share these practices into the future, an additional benefit to health and well-being, and therefore to poverty alleviation, is anticipated.

The marginal farmers and tribal communities this project has focussed on, are money poor, with many individuals having little or no annual cash income. Moreover, with the continuing drain of, the mainly younger, population into urban centres, predominantly for economic reasons, their relationship with 'nature' and their environment is rapidly changing. For instance, there are increasing human/wildlife conflicts because there are fewer people to guard the crops. Yet when considered in the context of the sustainable use of non-timber forest products from resources that are still quite rich, these communities have considerable potential for developing alternative, viable livelihoods that can meet their economic, spiritual, well-being and other needs. The issues, incentives and barriers are clearly complex, but this project has demonstrated, albeit it in small measure, this objective can be addressed with some degree of success.

4.4 Gender equality

Gender equality has been addressed in the project to some effect, with many women engaged at the processing centres, especially in quality control operations. Thirty-five women earned significant income from this employment in the last *T. chebula* harvest season in Bhimashankar, and another 25 were employed processing *T. bellirica* fruit and stones at Sangameshwar. In the second year of operation 55 women benefitted directly from processing *T. chebula* fruits at Bhimashankar and *T. bellirica* fruits at Sangameshwar. In addition, 25 women played an important role in plantation and restoration activities as part of agro-forestry operations and benefitted more than men from these activities (see 5.3).

4.5 Programme indicators

The project led to greater representation of local poor people in the management structures of biodiversity, primarily in the context of the biodiversity management committees

For all FAIRWILD certified sites in Bhimashankar and Sangameshwar conservation management plans were put in place after being prepared in due consultation with local communities. Management guidelines were also developed for the agro-forestry pilot plots and form an important component of the conservation agreements. The participation of local people plays a central role in the implementation of the management plan, which remains a challenging and slow process that requires the mobilisation of additional resources.

Significant gains to household income was achieved by 30 families, with a 150% rise in annual income for the registered collectors from Bhimashankar, a 200% rise in daily wages for women working at processing centres and 150% increase in wages for unemployed youth working at processing centres at both the places. These figures have been calculated in the context of the employment opportunities available during a particular period, the skill set of the target beneficiaries, and the standard wages offered at local level.

4.6 Formal qualifications

The project was not designed to specifically result in any formal qualifications for any of the participants. However, two students from DICE, who were studying for their taught MSc in Conservation and Rural Development (Elizabeth Hornsey and XX) successfully undertook their dissertation research in India in collaboration with AERF because of the partnership established through the project.

4.7 Transfer of knowledge

Although the project was principally focused on building capacity amongst members of the local community at the target sites, opportunities to share knowledge from the project with practitioners and policy-makers, were taken up. Jayant Sarnaik, Deputy Director of AERF and technical officer on the Darwin project was invited to three international conferences and one national level workshop where he made presentations on the Darwin Initiative project, as follows:

- Global Conference of Satoyama Initiative in Pyonchang, South Korea, Oct. 2014
- World Parks Congress, Sydney, Nov. 2014
- Global Conference of Satoyama Initiative, Cambodia, Jan. 2016.
- National Workshop on the Sustainable Management of Medicinal Plants, organized by TRAFFIC INDIA, New Delhi, March 2016.

In June 2015, Ian Bride, UK Project Officer, gave a presentation on the impact of FairWild certification on the project's development, at a 2-day symposium organised by his School of Anthropology and Conservation - *Towards a Sustainable and Legal Wildlife Trade*.

Following its role in forming seven local level committees to manage revenues generated from certified goods, AERF was recognised as a key actor by the Maharastra State Biodiversity Board, and appointed as a 'nodal agency' to set up biodiversity management committees in sixty villages in the Sangameshwar administrative block.

AERF Directors and project team members, Dr. Archana Godbole and Jayant Sarnaik, have been entered into the 2015 'Hall of Fame' of *Civil Society*, a highly respected monthly magazine that is dedicated to serving the needs of citizens and consumers with the provision of quality information. http://www.asianage.com/delhi/civil-society-awards-honour-eight-people-across-india-297

In 2014, 2015, and 2016 AERF ran a 10-day residential course '*Understanding Community Approaches to Conservation*' for the University of Miami *Earth Expeditions* programme students - many likely to become future practitioners and policy makers. This course teaches and illustrates the fundamental approach that lies at the heart of the AERF/DICE Darwin project shttps://www.earthexpeditions.org/india

The Critical Ecosystem Partnership Fund (which funded the initial phases of the overarching project) sponsored the production of a documentary film: *Western Ghats Conservation India*, which promoted the project approach and featured a strong Darwin/DICE presence (see publications).

4.8 Sustainability and Legacy

If the business model proves to be sufficiently robust to withstand the next few years of harvesting and marketing it is expected that the existing value chains will become economically sustainable. There is however a need for further investment in order to develop additional value chains and support the agroforestry restoration project elements in the long term in order to enable them reach a harvesting stage. The significant cost of new and repeat FAIRWILD certification is also a concern, particularly given the relatively low volumes of product currently involved, the pressure to develop economies of scale, and the primary need to harvest sustainably. This will be of particular importance for species such as *Pterocarpus marsupium* and *Hemidesmus indicus,* where it is the timber and roots respectively that are harvested.

The project results have been appreciated at national level, especially by the National Medicinal Plants Board, Govt of India. There is increased level of interest to introduce the good practices developed through FAIRWILD certification, whilst its contribution to implementation of ABS mechanisms and higher revenue generation from sustainable collection of fruits have caught the attention of traders and the manufacturing community who are interested in sourcing quality material. Similarly, there is a good possibility for the adoption of the FAIRWILD standard for implementation of ABS considering the overlap between the two and enabling conditions created through FAIRWILD for ensuring transparency and sustainability in supply chains.

AERF has been working on participatory biodiversity conservation in the North Western Ghats since 1996. They have substantial experience in ensuring sustainability of the successful initiatives. They have secured some financial support from Credit Suisse to continue some project activities especially related to value chain development over the next three years. In addition, Jayant Sarnaik- technical officer of the Darwin project has won conservation leadership award from the Conservation Leadership Program. The award money will utilized to look at the extent to which certification schemes such as FAIRWILD standard can contribute to sustainable habitat conservation in the North Western Ghats.

5 Lessons learned

As indicated in the section on partnerships, one of the main challenges for this project has been to address the different needs of the main participant organisations. In the event the partners agreed that the co-operation was very successful and worked well. However, with the focus having been on realising positive impact on conservation and livelihoods on the ground, the gathering of objective, scientific data to record this process has not been the primary concern. This has meant that although the project has been highly successful in many ways, it has not produced the anticipated weight of data of academic publishable quality because it had been much more about capacity building than about conducting scientific research.

The most significant problem encountered in Year 2 was meeting the costs of the FAIRWILD certification, which had not been adequately built into the original budget request and, even when resources were found proved to be significantly more than anticipated (e.g. the organic certification had to be repeated due to organisational changes to the FAIRWILD assessment process). Thankfully the DI budget carry-forward, together with the substantial additional contribution provided by Pukka Herbs and the KNCF funding, enabled the shortfall to be met and a crisis thereby averted. Some of these difficulties could not have been anticipated. However, a more detailed initial estimation of certification costs would have helped, and we would recommend others take care and learn from our oversight in this matter.

The other key lessons concern the development of robust supply chains, notably through improving harvesting efficiency and establishing storage facilities to cope with weather and market fluctuations. However, despite such difficulties, the partners have appreciated the importance of the certification process as a driver for involving members of the local community and adding value to the project outputs (the supply chains) and to the overall project profile. There are many important issues associated with certification, such as benefitting one community over others, but we recognise that it has been highly significant in giving momentum to this project in reaching its targets, and in smoothing the way for the approval of new candidate species supply chains. Similarly, the need to push as much added value to the front of the supply chains has also been recognised by the core partners, such that to this end *Nature Connect* plans, at the earliest opportunity, to itself deliver the mixing and packing of final raw product (Triphala powder) for delivery to Pukka Herbs for packaging and sale.

Another important observation form the point of view of the UK University partner, was the realisation of the importance, when working with marginal farmers and impoverished communities, of not setting their expectations too high in respect of what the project might achieve. This was a lesson shared by AERF from its many years of experience working in these communities and was immensely valuable in framing the project approach to its activities in terms of what it could realistically deliver.

Some difficulties were also encountered in the project's financial management. The requirements of Darwin, which understandably had to be rigorous in order to address the need for transparency and achieve value for money, imposed some strain on AERF's ability to meet reporting deadlines when it had also to deal with the in-country requirements of accountants and auditors, which were also very precise. Similarly, the procedures required but the University Research Office meant that payments to AERF were not made as quickly as desired, which meant they had to draw on other resources to meet temporary shortfalls. This problem was successfully addressed in practice, but at times it did precipitate delays on both sides.

5.1 Monitoring and evaluation

Besides the adjustments to the indicators of increased biodiversity there were no other changes in the project design/logframe. The M&E system was practical and helpful in providing provide useful feedback

to partners and stakeholders, particularly the comments on reports provided by the assessor(s), which emphasized the need to gather evidence of project activities and achievements. A refereed journal paper evaluating the pros and cons of the FAIRWILD certification process is currently in preparation.

5.2 Actions taken in response to annual report reviews

The Annual Report Reviews have been shared with core project partners, who have endeavoured to satisfactorily address the issues, concerns and requests made. These have primarily focussed on the need to: ensure DI promotion and labelling wherever possible; make sure that activities are monitored against indicators; and, most importantly, provide evidence for the activities and claims reported. The evidence reported in response to the Y3 Half Year Report and in Annexes 7-10, demonstrate that these actions have been taken.

6 Darwin identity

The Darwin Initiative has been mentioned and prominently displayed in the context of all presentations made at national and international conferences. At project site meetings and workshops, agro-forestry pilot plot visits, nurseries, processing centres, the nature of DI has been explained to participants, together with its importance in 'seeding' activities rather than supporting them in the long term – and hence to need for these to become self-sustaining. Similarly, the Darwin logo has been clearly displayed on all promotional materials: leaflets, T-shirts and brochures, plus a new range of promotional/ educational materials for local schools that is comprised of A3 mounted posters of 12 key endemic species of importance, which are described in the Marathi language. A dedicated project webpage was also set up on AERF's website: http://aerfindia.org/darwin-initiative-project.html.

Another important recognition of the UK government's contribution to the project and its achievements has been in the context of AERF having been shortlisted as a finalist for the 2015 Equator Initiative Prize. This prize is awarded each year to ~20 outstanding local and indigenous community initiatives that advance innovative solutions for people, nature and resilient communities.

The Darwin Initiative project has been a unique and distinct entity with a clear identity. Its role in supporting the development of the sustainable supply chains is also recognised by its logo clearly being prominently displayed on the information boards outside the processing facilities. In India the Darwin Initiative is quite well recognised within the conservation sector - certainly by participants at the Bangalore Student Conservation Science Conference (which Dr Bride attended in 2014 and 2015, with support from his University's Internationalisation Fund). There is however a need to more widely publicise the importance of the Darwin Initiative and its contribution to important conservation and development goals in India. Only some sections of the Indian civil society sector are aware of the DI, and publicity and promotion needs to take place at a high level, perhaps with organisations such as the British Council and sections of the diplomatic corps becoming strategically involved. Of course this would be influenced by whether any Darwin projects were running in India at the time.

7 Finance and administration

7.1 Project expenditure (April 2015 - June 2016)

Project spend (indicative) since last annual report	2015/16 Grant (£)	2015/16 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			-1.4%	
Consultancy costs			N/A	
Overhead Costs			-5%	
Travel and subsistence			+1.2%	
Operating Costs	0	0	N/A	

Capital items (see below)			-13%	Underspend
Others (see below)			-13.5%	Underspend
TOTAL	64,523,00	62,801:93		1,721:07 underspent

Staff employed (Name and position)	**Cost (£)**
Dr. Ian Bride, Project Officer, UK	
Umesh Hiremath, Project Officer, India	
Yogesh Giri, IT Technical Officer, India	
Mangesh Khamkar, Field Worker, India	
Sanjay Pashte, Field Worker, India	
Sachin Parsharam, Field Worker, India	
TOTAL	**30,963:61**

Capital items – description	**Capital items – cost (£)**
Harvesting and processing equipment: milling machines, electric drier	
TOTAL	**3476:39**

Other items – description	**Other items – cost (£)**
Plant nurseries, project close	
TOTAL	**5571.85**

7.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	**Total (£)**
In-kind support from DICE/SAC staff, admin and facilities	
Pukka Herbs contribution towards cost of FairWild training	
Estimated in-kind staff time contribution from Pukka Herbs – staff visits, consultancy and UK-based support	
Estimated admin contribution from Pukka Herbs	
AERF in-kind staff, admin, and facilities contributions	
Keidanran Nature Conservation Fund	
TOTAL	**157,078**

Source of funding for additional work after project lifetime	**Total (£)**
Credit Suisse – awarded but details not yet released	
TOTAL	**T.B.A.**

7.3 Value for Money

Beyond the issues raised concerning the monetary costs of the FAIRWILD certification process, the partners believe that the project provided very good value for money. It met or exceeded all its most important targets, was able to lever in significant additional funding, and has made very significant long-term infrastructural contributions and investments, primarily in the form of the processing facilities and the native species nurseries.

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

Project summary	Measurable Indicators	Means of verification	Important Assumptions
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),as well as related targets set by countries rich in biodiversity but constrained in resources.			
Sub-Goal: To reverse the degradation of sacred groves and restore and improve the biodiversity value of community forests in the North-Western Ghats, India.			
Purpose To increase the capacity of local communities to adapt to climate change and contribute to biodiversity conservation through improved management of sacred groves and the adoption of alternative, ecologically sound land-use practices.	• Ecological surveys and biodiversity assessment at target sites show increased biodiversity health of sacred groves and community forests within socio-ecological landscapes • New participatory agro-forestry pilot schemes, with collection and marketing of non-timber forest produce by the local community following the FAIRWILD scheme and standards, and a functioning complete product chain for the two pilot species • Significant increase in income for the NTFP collectors and other primary stakeholder participants • Increased knowledge and understanding of traditional adaptive agricultural practices amongst project partners and stakeholders, and increased local stakeholder knowledge and practice of ABS, GACP and basic commercial principles	• Indirect methods: reduction in livestock grazing; increased areas of forest under conservation management/ protection agreements; established plantations of native tree species; increased levels of participation by local people in conservation activities. • Records of the agro-forestry model; business plans and detailed records of collection and sales along complete pilot supply chain; FAIRWILD certification granted; attendance at and successful completion of agroforestry, GACP and basic commercial principles training workshops • Data on participants' incomes • Attitudinal survey data and communication/educational materials	• AERF will maintain good relations with the local communities and a minimum number of farmers sign up to the pilot schemes • No major legislative or policy changes in the region and no change in resource tenure • AERF maintains its good relationships with community leaders who will act as workshop facilitators • The good working relationship established between AERF, DICE and Pukka Herbs will be maintained • There are no unforeseen natural disasters or major economic or political changes

Outputs			**Activities**
1. The conservation status of sacred groves is improved.	• Existence of co-management plans for community forests • Increase in number/area of forests conserved by the community • Restoration activities in target forests/groves • Improved community & stakeholder attitudes to sacred groves.	• Documentary evidence • Surveys (pre and post project), community reports, documentary evidence • Detailed records of restoration activities • Baseline pre and post-project surveys, number of stakeholder groups engaged, no. meetings held.	• Baseline monitoring of target site biodiversity – and subsequent measurement • Baseline surveys of community-conserved forests • Education and training in forest/grove restoration • Design and implementation of pre and post project community and stakeholder attitudinal survey
2. A platform for gathering and sharing Indigenous Knowledge based NRM practices is created.	• Locally facilitated knowledge-sharing workshops for indigenous communities. • Information archive of Traditional Knowledge based NRM practices. • Community acceptability in developing an ABS mechanism	• Workshop reports. • Seed banks of local crop varieties • Existence of archive and dissemination mechanisms.	• Organise and deliver knowledge-sharing workshops • Research, record and create TK base NRM practice archive • Make this archive available through various media - subject to IP considerations and agreement with indigenous people • Work with target communities to develop acceptable ABS mechanism • Establish community organisation to manage ABS and process infrastructure
3. The viability and acceptability of alternative, ecologically-sound, yet commercially-viable, livelihood options are demonstrated.	• Existence and performance of pilot plots • No. of endemic species planted & and no. of saplings established • Number of farmers signed up to pilot a/f scheme • Raised awareness and interest amongst stakeholders • Collection of non-timber produce based on protocols and standards	• Detailed records of pilot plots, including pre and post surveys, on-farm biodiversity inventory, annual data on growth, yield, sales etc. • Nursery logbooks and monitoring records • Register and feedback forms • Record of visits to demonstration sites • Record of the demand for and use of documentation and materials	• Work with members of target communities to establish pilot plots • Train members of target communities to care for pilot plot species • Work closely with farmers to design pilot agroforestry scheme • Conduct educational programmes amongst stakeholder groups • Collaborate with stakeholder groups to produce NTFP protocols

4. A complete and viable supply chain for at least one NTFP is established	• A supply chain for one NTFP • Existence of collection/drying facilities • Evidence of the successful performance of this supply chain • FAIRWILD certification awarded	• FAIRWILD Certification documentation	• Work closely with Pukka Herbs and target communities to design, create and monitor the pilot supply chains • Work closely with Pukka Herbs and target communities to design, build and organise the management of the collection/drying facilities • Researching and maintaining a detailed record of the complete length of the pilot supply chain
5. An enabling environment for scaling-up the project activities is catalysed	• Training facilities and personnel in place. • Demand for training from people outside of the project area. • Attendance at project dissemination workshops.	• Existence of training programme and infrastructure. • Certificates of training issued., attendance and participant f/back • Accounts and records of MFI institutions. • Survey of communities out of the project area + expressions of interest. • Records of dissemination w/shops	• Identifying, bringing together and organising training teams and events • Surveying potential training markets and gathering demand data • Designing, organising and delivering project dissemination workshops

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

Project summary	Measurable Indicators	Progress and Achievements	Actions required/planned for next period
Goal/Impact: To reverse the degradation of sacred groves and restore and improve the biodiversity value of community forests in the North-Western Ghats, India.		Conservation and protection secured for 11 sacred groves including large specimens of Terminalia bellirica trees in Sangameshwar block through FAIRWILD certification. Similarly, habitat conservation of 27 groves of *Terminalia chebula* in Bhimashankar Wildlife Sanctuary through FAIRWILD certification. Total 233 hectares of community forest area brought under sustainable management through conservation agreements and agro-forestry pilot plots.	Do not fill not applicable
Purpose/Outcome communities to adapt to climate change and contribute to biodiversity conservation through improved management of sacred groves and the adoption of alternative, ecologically sound land-use practices.	• Indirect measures at target sites suggest increased biodiversity health of sacred groves and community forests within socio-ecological landscapes • New participatory agro-forestry pilot schemes, with collection and marketing of non-timber forest produce by the local community following the FAIRWILD scheme and standards, and a functioning complete product chain for the two pilot species • Significant increase in income for the NTFP collectors and other primary stakeholder participants • Increased knowledge and	Plantation of total ~ 2200 saplings of 20 different species as part of restoration activities in sacred groves and agro-forestry pilot plots. A significant proportion of the saplings are species which provide fruits, nuts and oilseeds and thus will be maintained for these products for minimum of 10 years. They will also boost pollination services in the region. These species are much better than those traditionally used as timber species such as Teak, which provide no other ecosystem service than carbon storage and in fact arrests regeneration of any other plant species in the vicinity.	Do not fill not applicable

	understanding of traditional adaptive agricultural practices amongst project partners and stakeholders, and increased local stakeholder knowledge and practice of ABS, GACP and basic commercial principles		
Output 1. The conservation status of sacred groves is improved	• Existence of co-management plans for community forests • Increase in number/area of forests conserved by the community • Restoration activities in target forests/groves • Improved community & stakeholder attitudes to sacred groves.	Awareness generation, capacity building sessions as part of FAIRWILD certification and restoration activities have contributed to improved understanding of economic and ecological benefits of biodiversity in sacred groves among the communities from 11 villages in Sangameshwar block.	
Activity 1.1 Awareness generation meetings specifically in sacred grove villages targeted for conservation and FAIRWILD certification. Documentation of plant, bird and amphibian diversity Exposure visits of children from schools from the target villages		All the target sites -11 have received FAIRWILD and organic certification. Out of 11 sites, restoration plantation has been carried out at 2 sites.	
Activity 1.2. Appointment of collectors for sustainable collection from the target villages Setting up native species nursery in target villages			
Output 2. A platform for gathering and sharing Indigenous Knowledge based NRM practices is created.	• Locally facilitated knowledge-sharing workshops for indigenous communities. • Information archive of Traditional Knowledge based NRM practices. • Community acceptability in developing an ABS mechanism	AERF team conducted series of interviews to document traditional knowledge related to NRM at Sangameshwar and Bhimashankar. Relevant video clip has been posted on AERF's website for dissemination. A mechanism instead of platform for gathering and sharing of indigenous knowledge is being developed through preparation of public biodiversity registers which is in process in villages where Biodiversity management committees have been formed	
Activity 2.1. Video documentation of IK based NRM, interviews with knowledge holders		Available of AERF website	

Activity 2.2. Setting up biodiversity management committees, capacity building sessions on need to set up these committees Documentation of role of traditional knowledge in climate change mitigation and food security.		Study report on traditional varieties used by local communities in project region to address challenges of variation on climate and food security
Output 3. The viability and acceptability of alternative, ecologically-sound, yet commercially-viable, livelihood options are demonstrated.	• Existence and performance of pilot plots • No. of endemic species planted & and no. of saplings established • Number of farmers signed up to pilot a/f scheme • Raised awareness and interest amongst stakeholders • Collection of non-timber produce based on protocols and standards	1. Five agro-forestry pilot plots have been established during the entire project period. Its performance has been measured in terms of change in attitude of local communities towards sustainable management of forest area where these pilot plots have been established. The study report is available as evidence. 2. Total 1600 saplings of 17 species have been planted out of the ~4000 saplings of around 26 species raised in the nurseries. 3. 129 farmers signed up for agro-forestry pilots. 4. Awareness generation and consultation meetings were conducted in 25 villages and different stakeholder groups got engaged in these sessions. 5. Total 4 species were targeted for sustainable collection and management based on protocols and standards. Of these species two received FAIRWILD and organic certification.
Activity 3.1.	Seed collection, establishing nursery, mapping of forest areas for identifying sites for plantations, community meetings for planning plantation and maintenance of plantations.	Saplings indicated above were grown from collected seed. Plantation areas identified and plantations established
Activity 3.2.	Mapping of trees, resource areas, consultation with primary stakeholders for consent, setting up systems for sustainable collection, collection and drying of fruits.	Detailed maps of trees at all sites produced Permissions obtained, harvesting and processing successfully carried out
Output 4. A complete and viable supply chain for at least one NTFP is established	• A supply chain for one NTFP • Existence of collection/drying facilities • Evidence of the successful performance of this supply chain • FAIRWILD certification awarded	By the end of the project, supply chains for 2 NTFP species (*Terminalia bellirica* and *Terminalia chebula*) have been established on commercial scale and supply chains for 2 other species (*Pterocarpus marsupium, Tinospora cordifolia*) have established on pilot scale. Two facilities have been established for collection, drying and processing of the supply chains

		Successful performance of supply chain can be measured from the fact that the minimum 5 tonnes of fruits for each of the target species were processed for two years in succession and over 2 tonnes sold on the international market (Pukka Herbs). FAIRWILD and Organic certification has been awarded to 2 supply chains for 2 successive years.
Activity 4.1.	Mapping of trees, sustainable collection, community consultations on value chain, sustainable collection	Detailed maps of trees at all sites produced, sustainable harvesting and processing successfully carried out following community consultations
Activity 4.2	Engagement with local communities for successful running of the enterprise	Local communities employed in the supply chain and the ABS mechanism design and management
Output 5. An enabling environment for scaling-up the project activities is catalysed	• Training facilities and personnel in place. • Demand for training from people outside of the project area. • Attendance at project dissemination workshops.	Training of in country personnel in FAIRWILD certification completed. It resulted in reducing the certification costs and will facilitate uptake of FAIRWILD certification in India. Keen interest is shown by the National Medicinal Plants Board, Govt of India to support certification costs for its wider uptake in the country. Presentation of the project findings has been appreciated at national level workshop organized by TRAFFIC India.

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
6a	Number of villagers receiving collector training	100	Indian			Marathi	
6b	Numbers of half-day collector training sessions conducted		Indian			Marathi	
7	Best practice collection manual for training workshops	2	UK+Indian		*Good Agricultural and Collection Practices for Medicinal Plants* *Trainer's Manual for Good Agricultural and Collection Practices for Medicinal Plants*	English Marathi	Manuals produced by Pukka Herbs Will be translated into Marathi

Research Measures		Total	Nationality	Gender	Title	Language	Comments/ Weblink if available
10	Number of formal documents produced to assist work related to species identification, classification and recording.						Materials produced for schools – see report
11a	Number of papers published or accepted for publication in peer reviewed journals	1	Swedish + Indian	M+F	*International Journal of*	English	

					Biodiversity Science, Ecosystem Services & Management		
11b	Number of papers published or accepted for publication elsewhere	3	UK + India	M	Darwin Newsletter TRAFFIC Journal (x2)	English	
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	0					All databases produced and stored in host country

Dissemination Measures		**Total**	**Nationality**	**Gender**	**Theme**	**Language**	**Comments**
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work were/will be presented/ disseminated.	4	3x International 1x UK	Male Male	Project FARIWILD certification	English	

Physical Measures		**Total**	**Comments**
20	Estimated value (£s) of physical assets handed over to host country(s)	£11,376	Value of picking and processing equipment: ladders and nets, solar and electrical driers, seed crushers, stone removers, and pulverisers.
22	Number of permanent field plots established	5	Number of agroforestry pilot plots/interventions

Financial Measures		**Total**	**Nationality**	**Gender**	**Theme**	**Language**	**Comments**
23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work	£157,000	Japan + UK	N/A			

Project specific measures		Total	Nationality	Comments
	Number of plant nurseries established	4	Indian	
	Number of processing facilities set up	2	Indian	Sangameshwar + Bhimashanker
	Number of species supply chains completed	2	India--UK	*Terminalia bellirica* and *T. chebula*
	Number of organic certifications obtained	2	Indian	*T. bellirica* and *T. chebula* - 2015 and 2016
	Number of FAIRWILD certifications obtained	2	Indian	*T. bellirica* and *T. chebula* - 2015 and 2016

Annex 4 Aichi Targets

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

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

Annex 5 Publications

Provide full details of all publications and material that can be publicly accessed, e.g. title, name of publisher, contact details. Mark (*) all publications and other material that you have included with this report

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender lead author	Publishers (name, city)	Available from (e.g. web link, contact address etc)
Newsletter	First FAIRWILD certification for all of India *Darwin Newsletter* March 2015	Bride, I., Sarnaik, J.	British	Male	Darwin Initiative	http://www.darwininitiative.org.uk/publications/newsletter
Journal	Medical and Aromatic Plants: North Western Ghats, India *Traffic Bulletin* 26(1) 2014	Sarnaik, J., Hiremath, U.	Indian	Male	TRAFFIC International	http://www.traffic.org/bulletin/
Journal	Empowering Communities, Promoting Fair Trade and Ensuring Conservation: FAIRWILD certification in India *Traffic Bulletin* 27(1) 2015	Bride, I., Sarnaik, J., Heron, B.	British	Male	TRAFFIC International	http://www.traffic.org/bulletin/
Journal**	Safeguarding biodiversity and ecosystem	Blicharska, M., Mikusi´nski,G., Godbole, A.,	Swedish	Male	Taylor and Francis	http://www.tandfonline.com/toc/tbsm21/current

	services of sacred groves – experiences from the northern Western Ghats *International Journal of Biodiversity Science, Ecosystem Services & Management.* 2013	Sarnaik, J.				
Magazine	*Civil Society*		Indian		Civil Society	http://civilsocietyonline.com/static/media/static/2016/02/06/December_2015.pdf
Video documentary	*Green Economies*	N/A	Indian	N/A	CEPF and ATREE	https://youtu.be/gWFY9HghMKE?list=PLNcZTLJKNBrK-itnnja0QS6cFJUF1ZnzU

Annex 6 Darwin Contacts

Ref No	20-016
Project Title	Reviving socio-ecological landscapes for biodiversity conservation and climate change adaptation
Project Leader Details	
Name	Dr Ian Bride
Role within Darwin Project	Project Officer (UK)
Address	DICE, School of Anthropology and Conservation, University of Kent, Canterbury CT27NR
Phone	
Fax/Skype	
Email	
Partner 1	
Name	Mr. Jayant Sarnaik
Organisation	Applied Environmental Research Foundation
Role within Darwin Project	Project Officer (India)
Address	
Fax/Skype	
Email	
Partner 2	
Name	Mr. Ben Heron
Organisation	Pukka Herbs UK
Role within Darwin Project	Supply chain development and FAIRWILD protocol training
Address	
Fax/Skype	
Email	
Partner 3	
Name	Dr. Anastasia Timoshyna
Organisation	TRAFFIC International
Role within Darwin Project	Supporting the FAIRWILD certification process
Address	
Fax/Skype	
Email	