



Submit by Monday 1 December 2014

**DARWIN INITIATIVE APPLICATION FOR GRANT FOR ROUND 21: STAGE 2**

Please read the Guidance Notes before completing this form. Where no word limits are given, the size of the box is a guide to the amount of information required.

Information to be extracted to the database is highlighted blue.

**ELIGIBILITY**

1. **Name and address of organisation** (NB: Notification of results will be by email to the Project Leader in Question 7)

<b>Applicant Organisation Name:</b>	<b>Wildlife Conservation Society</b>
<b>Address:</b>	<b>2300 Southern Blvd</b>
<b>City and Postcode:</b>	<b>Bronx, NY 10460</b>
<b>Country:</b>	<b>USA</b>
<b>Email:</b>	
<b>Phone:</b>	

2. **Stage 1 reference and Project title**

<b>Ref</b> 2854	<b>Title (max 10 words)</b> Securing livelihoods, health and biodiversity through seascape-scale sustainable fisheries co-management.
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3. **Project dates, and budget summary**

<b>Start date:</b> 1 April 2015		<b>End date:</b> 30 September 2017		<b>Duration:</b> 2.5 years
<b>Darwin request</b>	<b>2015/16</b> £107,749	<b>2016/17</b> £85,513	<b>2017/18</b> £106,737	<b>Total request</b> £300,000
<b>Proposed (confirmed and unconfirmed) matched funding as % of total Project cost:</b> 33%				
<b>Are you applying for DFID or Defra funding?</b> (Note you cannot apply for both)			<b>DFID</b>	

4. **Define the outcome of the project. This should be a repetition of Question 24, Outcome Statement.**

**(max 30 words)**

Sustainable fisheries management and livelihoods diversification in Northeastern Madagascar protects coral reefs (7,000 hectares), improves food security, livelihoods and health for 11,000 people, and becomes a model for the region.

5. **Country(ies)**

Which eligible host country(ies) will your project be working in. You may copy and paste this table if you need to provide details of more than four countries.

<b>Country 1:</b> Madagascar	<b>Country 2:</b>
<b>Country 3:</b>	<b>Country 4:</b>

## 6. Biodiversity Conventions

Which of the conventions supported by the Darwin Initiative will your project be supporting? Note: projects supporting more than one convention will not achieve a higher scoring

Convention On Biological Diversity (CBD)	Yes
Nagoya Protocol on Access and Benefit Sharing (ABS)	No
International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)	No
Convention on International Trade in Endangered Species (CITES)	No

### 6b. Biodiversity Conventions

Please detail how your project will contribute to the objectives of the convention(s) your project is targeting. You may wish to refer to Articles or Programmes of Work here.

Note: No additional significance will be ascribed for projects that report contributions to more than one convention

**(Max 200 words)**

The project directly contributes to the CBD's Strategic Plan for Biodiversity's (2011-2020) strategic goals:

- B (reduce the direct pressures on biodiversity and promote sustainable use) by reducing destructive fishing practices, increasing yield from existing fisheries through improved management plans, and promoting community-led alternative and sustainable livelihoods.
- C (improve the status of biodiversity) by safeguarding ecosystems, species and genetic diversity through improved local management of marine areas; and
- D (enhance the benefits to all from biodiversity) by developing sustainable livelihoods opportunities for coastal people dependent upon marine resources.

It contributes to Aichi targets 1 (Awareness), 2 (Planning processes), 6 (Fisheries), 10 (Coral Reefs), 11 (Protected Areas) and 14 (Essential services).

At the IUCN World Parks Congress (November 2014), Madagascar President Hery Rajaonarimampianina committed to triple marine protected area coverage, promote community management of marine and coastal resources, and he reaffirmed Madagascar's commitment to achieving the Aichi targets. This project will help to achieve these goals, and contribute to the national Integrated Coastal Zone Management Plan (2011) and the National Strategy for Good Governance of Marine Fisheries in Madagascar (2012), which prioritizes the local fisheries management plans and collaborative management arrangements to improve management of small-scale fisheries in Madagascar.

**Is any liaison proposed with the CBD/ABS/ITPGRFA/CITES focal point in the host country?**

**Yes**  **No**      **if yes, please give details:**

WCS is working closely with Laurette Hermine Rasoavahiny, CBD focal point, and Madagascar Protected Areas Network Director, to establish protected areas, and community managed marine protected areas in particular, in Madagascar. WCS will continue to liaise with her to communicate project results, impacts and lessons learned. Also, Dr. Golden is in close communication with the CBD Secretariat David Cooper and human health lead Cristina Romanelli and they will be kept abreast of this work and asked to contribute to its conceptual development and delivery.

**7. Principals in project. Please identify and provide a one page CV for each of these named individuals. You may copy and paste this table if you need to provide details of more personnel or more than one project partner.**

<b>Details</b>	<b>Project Leader</b>	<b>WCS key staff</b>	<b>WCS key staff</b>
<b>Surname</b>	Dr. Brenier	Dr. Golden	Pr. Andrianarimisa
<b>Forename (s)</b>	Ambroise	Christopher	Aristide
<b>Post held</b>	Marine Technical Director	HEAL Program Director	Conservation Science Coordinator
<b>Organisation (if different to above)</b>	WCS	WCS and Harvard School of Public Health	WCS
<b>Department</b>	Marine Program	HEAL (Health & Ecosystems: Analysis of Linkages)	Madagascar Program
<b>Telephone</b>			
<b>Email</b>			

<b>Details</b>	<b>WCS key staff</b>	<b>Gret key staff</b>	
<b>Surname</b>	Randriamanantsoa	Vogel	
<b>Forename (s)</b>	Bemahafaly	Aurélie	
<b>Post held</b>	Marine Operation Coordinator	Project officer	
<b>Organisation (if different to above)</b>	WCS	GRET	
<b>Department</b>	Marine Program	Natural resources management and rural development	
<b>Telephone</b>			
<b>Email</b>			

**8. Has your organisation been awarded a Darwin Initiative award before** (for the purposes of this question, being a partner does not count)? **If so, please provide details of the most recent awards (up to 6 examples).**

Reference No	Project Leader	Title
2292	Lilian Painter	Sustainable Ranching and Participatory Land Use Planning in Bolivia and Paraguay
1969	Tom Clements	Conserving biodiversity and reducing poverty through wildlife-friendly farming in Cambodia
2114	Nyawira Muthiga	Strengthening the capability of Kenyan communities to conserve coral reefs
1970	Roan Balas McNab	Evaluating community-based conservation agreements in Guatemala's Maya Biosphere Reserve

**9a. If you answered 'NO' to Question 8 please complete Question 9a, b and c.**

**If you answered 'YES', please go to Question 10** (and delete the boxes for Q9a, 9b and 9c)

**9b. DO NOT COMPLETE IF YOU ANSWERED 'YES' TO QUESTION 8.**

Provide detail of 3 contracts previously held by your organisation that demonstrate your credibility as a research organisation and provide track record relevant to the project proposed. These contracts should have been held in the last 5 years and be of a similar size to the grant requested in your Darwin application.

**9c. DO NOT COMPLETE IF YOU ANSWERED 'YES' TO QUESTION 8.**

Describe briefly the aims, activities and achievements of your organisation. (Large organisation please note that this should describe your unit or department)

**10. Please list all the partners involved (including the Lead Institution) and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. This section should illustrate the capacity of partners to be involved in the project. Please provide written evidence of partnerships. Please copy/delete boxes for more or fewer partnerships.**

<p><b>Lead institution and website:</b> Wildlife Conservation Society (WCS) www.wcs.org</p>	<p><b>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</b></p> <p>WCS has worked in Madagascar for over 20 years. With partners, our team of 100 staff work to conserve the country's unique biological diversity, with a significant focus on Mamabay Land/Seascape (Masoala National Park – a World Heritage site, Makira Natural Park, and Antongil Bay). WCS is helping the Government of Madagascar to expand the country's network of marine protected areas and sustain nearshore fisheries. In Antongil Bay, where our community based fisheries management program with PCDDBA (Committee for the Sustainable Development of Antongil Bay) was awarded the 2014 United Nations Equator prize, we assisted in creation and management of 3 marine parks and 24 locally managed marine areas (LMMAs), and in the development of the first seascape scale coastal fisheries co-management plan. WCS brings expertise from WCS-HEAL (Health &amp; Ecosystems: Analysis of Linkages), a consortium led by WCS with NGO, academic (e.g. Harvard School of Public Health) and government (e.g. Madagascar Ministry of Health) partners. WCS-HEAL studies the impacts of environmental change on human health and wellbeing and leads this field through the creation and implementation of study protocols at a global scale.</p> <p>WCS will manage the project, and directly implement the first and third components.</p>
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<p><b>Partner Name and website where available:</b></p> <p>Groupe de Recherches et d'Echanges Technologiques (GRET)</p> <p>www.gret.org</p>	<p><b>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</b></p> <p>In 2012 WCS initiated a partnership with GRET, an international NGO specialising in rural development, to work together in Antongil Bay coastal villages to develop sustainable livelihoods and reduce poverty.</p> <p>For two decades GRET has engaged in agricultural development activities improving food security in southern Madagascar and more recently in LMMAs in Antongil Bay and northwest Madagascar. This work is funded by the European Union, Food and Agriculture Organisation (FAO), Agence Française de Développement (AFD). As a result, improved agro-ecological cropping systems were disseminated to thousands of local impoverished farmers.</p> <p>In this project GRET will extend their agriculture livelihood development activities (technical training of farmers to increase rice production; diversification of income especially for women through vegetable farming, raising poultry, and fish processing and marketing) in 5 pilot LMMAs. GRET will also help farmers to shift from erosive slash and burn cropping systems in watersheds to more sustainable rice cropping practices, thus reducing sedimentation in coastal habitats.</p>
<p>Have you included a Letter of Support from this institution?</p>	<p>Yes</p>

<p><b>Partner Name and website where available:</b></p> <p>Ministère des Ressources Halieutiques et de la Pêche (Ministry of Marine Resources and Fisheries, MRHP)</p> <p>www.peche.gov.mg</p>	<p><b>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</b></p> <p>Through collaborative efforts with WCS and resources users, Ministère des Ressources Halieutiques et de la Pêche (MRHP) developed the Antongil Bay Fisheries Co-management Plan (ABFMP) in 2013. This 5-year plan for Antongil Bay fisheries covering 3,746 square kilometers of marine habitats limits entry of industrial trawling boats, creates habitat protection and gear restrictions for local use, and is the first national-level plan in Madagascar to empower local communities and locally managed marine areas in securing sustainable fisheries management. The plan prohibits shark fishing in the Bay (at least 19 species are known to be harvested in this fishery, a third of which are threatened with extinction according to The IUCN Red List of Threatened Species). The MRHP role will be to oversee implementation of the Plan, support local communities to manage their fishing grounds through locally managed marine areas, and Chair the ABFMP Steering Committee. The local MRHP representative will support local communities in the management and enforcement of LMMAs. Finally, the marine national patrol of MRHP (Centre de Surveillance des Pêches – CSP) is involved in destruction of illegal gears seized during community-local authority joint patrols; e.g., in May 2014 they destroyed 96 illegal fishing nets.</p>	
<p>Have you included a Letter of Support from this institution?</p>		<p>Yes</p>

<p><b>Partner Name and website where available:</b></p> <p>Ministere de la Sante Publique (Ministry of Public Health) (MSP)</p> <p>www.sante.gov.mg</p>	<p><b>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</b></p> <p>WCS has partnered with MSP to provide health status information to garner support for local health initiatives. The MSP Director General has guaranteed collaborative efforts with MRHP and the Ministry of the Environment, understanding the environmental underpinnings of local health. Representatives from MSP will attend all of our organizing meetings and will help our organizations liaise with regional health officials. This will ensure the sustainability and long-term support of our work.</p>	
<p>Have you included a Letter of Support from this institution?</p>		<p>Yes</p>

<p><b>Partner Name and website where available:</b></p> <p>Ministre de l'Agriculture et du Développement Rural (Ministry of Agriculture and Rural Development) (MINAGRI)</p> <p>www.agriculture.gov.mg</p>	<p><b>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</b></p> <p>GRET works with the Ministry of Agriculture and Rural Development as part of its agricultural projects in the Androy region for several years, such as the implementation of a Quality Declared Seed standard and the development of the Seed Production Centre Agnarafaly. Through the Analanjirofo Regional Directorate of Rural Development (DRDR), the Ministry of Agriculture and Rural Development will collaborate with the project team, and GRET in particular, to develop environmentally sensitive small-scale agriculture benefitting at least 500 households and in the implementation of training activities through the CAS (Centre for Agricultural Services). This entity was created in 2008 to act as a technical partner of farmers, making connections with service providers and funders. MINAGRI will also be regularly informed of project activities and results.</p>	
<p>Have you included a Letter of Support from this institution?</p>		<p>Yes</p>

<p><b>Partner Name and website where available:</b></p> <p>Plateforme de Concertation pour le Développement Durable de la Baie d'Antongil (Committee for the Sustainable Development of Antongil Bay) (PCDDBA)</p>	<p><b>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</b></p> <p>The winner of a UN Equator Prize in 2014, PCDDBA and WCS have worked together since 2003 to unite communities surrounding Antongil Bay and to encourage the sustainable management of marine resources.</p> <p>The PCDDBA will play a lead role in advocating for the interests of locally managed marine areas at local and regional levels and will provide a forum to facilitate improved local government engagement and for continuing dialogue among resource users.</p> <p>Specifically, PCDDBA will actively participate in the ABFMP Steering Committee and will co organize the Antongil Bay annual LMMA forum.</p>	
<p>Have you included a Letter of Support from this institution?</p>		<p>Yes</p>

<p>11. Have you provided CVs for the senior team including the Project Leader</p>	<p>Yes</p>
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## 12. Problem the project is trying to address

Please describe the problem your project is trying to address. For example, what biodiversity and challenges will the project address? Why are they relevant, for whom? How did you identify these problems?

(Max 200 words)

Antongil Bay in Northeastern Madagascar embodies the challenge of balancing conservation and development priorities. The Bay supports spectacular coral reefs, 13 marine mammal species, 3 marine turtle species, and 140 fish species (including 19 shark species). The Endangered scalloped hammerhead (*Sphyrna lewini*), the Endangered green turtles (*Chelonia mydas*) and Critically Endangered hawksbill turtles (*Eretmochelys imbricate*) are threatened by small scale fishery by-catch and direct hunting.

Concurrently, 100,000 predominantly poor, rural people living along 200 miles of the coastline rely on these waters to sustain their health and livelihoods. Fish is their primary source of iron, zinc, vitamin B12 and fatty acids. Nevertheless, these people experience anemia rates above 40% and stunting rates (short stature from chronic malnutrition) above 30% due to inadequate dietary intake and diversity.

Overexploitation due to increasing human population, reduction of productive agricultural land, destructive fishing practices and lack of compliance with gear restrictions are driving degradation of coastal habitat and the Bay's fisheries, loss of coral reefs and declines in fish and invertebrate abundance. In addition to biodiversity loss, eventually the Bay will fail to deliver optimal economic and health benefits to local communities if immediate action is not taken.

## 13. Methodology

Describe the methods and approach you will use to achieve your intended outcomes and impact. Provide information on how you will undertake the work (materials and methods) and how you will manage the work (roles and responsibilities, project management tools etc.).

*\*Extensive changes to the Methodology have been made to address Stage 1 reviewer comments; we have not highlighted the entire section for ease of reading*

(Max 500 words – repeat from Stage 1 with changes highlighted)

Project activities will diminish biodiversity and fisheries resources overexploitation and concurrently conserve biodiversity, diversify livelihoods, improve food security and nutritional status, and reduce rates of low birth weight and stunting.

### 1) Increase enforcement and compliance of marine use policies for a more productive fishery.

WCS and PCDDBA will strengthen management in 24 LMMAs:

- 1) Through annual ABFMP Steering Committee meetings, improve engagement and accountability of ABFMP stakeholders;
- 2) Organize annual LMMA network forums to raise awareness, support participation of community representatives at the national LMMA level;
- 3) Share lessons learned and advocate for stronger support from local authorities;
- 4) Organize management training workshops, design and implement outreach programs to empower communities;
- 5) Organize joint community/ local authority patrols to enforce fishery regulations, and, for the first time in Madagascar, trial the use of SMART (Spatial Monitoring and Reporting Tool - <http://www.smartconservationsoftware.org>).

WCS will continue to build long-term datasets of reef surveys and catch/landings statistics to measure effects of improved resource management on fish catch.

### 2) Diversify coastal village livelihoods.

To increase food security and revenue for disadvantaged households reliant on fisheries and agriculture, reduce fishing effort, and encourage fishing restriction compliance, GRET will provide financial and technical support and training to farmers in 5 pilot LMMAs:



1) To increase rice production, implement current practice participatory diagnosis, identify new activities, and pilot with 50 farmers who will test new practices, participate in exchange visits, learn through trainings and technical leaflets and assess crop cycles. Within 30 months, 250 farmers are expected to adopt these practices;

2) Establish village vaccinators' network to decrease poultry mortality due to disease;

3) Develop with 250 women new income generating activities traditionally carried about by women (gardening, poultry raising and smoked fish production);

Supply-chain studies will define the strategies for improved commercialisation, targeting the local market.

**3) Empirically demonstrate the health and livelihood benefits to local communities, and share this information to inform adaptive management and policy.**

Our mixed-method approach will measure fishery improvements, improved food security and nutrition, and increased wealth that arise through sustainable fisheries co-management and alternative livelihood development. Working with 100 households (500 people, 250 women and girls) in 5 pilot LMMAs, local extension agents will facilitate recording of diet diaries and quantify the type and weight of food consumed, including fish species. Anthropometry measurements and blood samples will be collected to determine nutritional status and how these change based on dietary intake. After stratifying our sample, we will focus on reproductive-aged women and children as they are the most vulnerable to nutritional deficiencies. These data will allow us to evaluate food security, dietary diversity, and income security and diversity to determine ways of scaling this effort, with focus on those most vulnerable. The information will be used to test governance models to optimize the nutritional and economic benefits provided by fisheries, be shared with LMMAs, regional and national networks and the CBD/World Health Organization (WHO) joint task force to inform action and broaden the constituency of those who support marine conservation.

#### 14. Change Expected

Detail what the expected changes this work will deliver. You should identify what will change and who will benefit.

- If you are applying for Defra funding this should specifically focus on the changes expected for biodiversity conservation and its sustainable use.
- If you are applying for DFID funding you should in addition refer to how the project will contribute to reducing poverty. Q19 provides more space for elaboration on this.

(Max 250 words)

Innovative seascape-scale fisheries co-management and livelihoods diversification initiatives will integrate biodiversity conservation, poverty reduction, food security and human health improvement. Improved fisheries co-management and livelihoods diversification in and around Antongil Bay's 24 LMMAs is a scalable model for the country and region, and will result in: (i) improved compliance with fisheries and protected marine species regulations; (ii) increased abundance of fish and invertebrate species and endangered marine turtles and shark species in particular; (iii) improved dietary diversity, food security and human nutritional status; (iv) improved well-being and food security through crop and activity diversification; (v) enhanced community power through increased capacity, networking and outreach; and (vi) protection of 7,000 hectares of coral reefs. The project will quantify the impact of governance models on the nutritional value of seafood for the Antongil Bay population, and calculate the public health value of sustainable fisheries co-management, particularly for women and children who are most at risk. Results will be shared among LMMAs involved in the project, national networks (national Integrated Coastal Zone Management Committee, Madagascar Protected Areas Network Commission, Madagascar LMMAs network, Ministries of Health and Fisheries), regional networks (PCDBBA, regional Integrated Coastal Zone Management Committee), and the CBD/WHO joint task force working with the CBD Secretariat, to which Dr. Golden is a senior advisor. This will: a) facilitate health and development interventions locally; b) generalize our results globally to promote the utility of marine conservation efforts as a public health and economic intervention.

**15a. Is this a new initiative or a development of existing work (funded through any source)? Please give details (Max 200 words):**

The project develops existing collaborative efforts to increase food production (agriculture and fisheries) and income of Antongil Bay's coastal communities while contributing to the conservation of marine and terrestrial natural resources. Through this work 175 farmers have tested new gardening and rice production practices, generating an average increase of 118% (from 1500 to 3276 kg/ha) in local variety rice yield; vaccination campaigns were organized and 20 local people trained, leading to an 85% reduction in poultry mortality. A network of 24 LMMAs has been established, the ABFMP was developed, and a community-based mechanism for fishing rules enforcement has been set up. WCS-HEAL has been working in terrestrial areas of the MaMaBay land/seascape for the past ten years to identify the human health and livelihood effects of ecosystem management. Our work has directly affected 150 households with an estimated overall impact on 2,500 people.

Darwin funding will allow us to expand the reach of livelihood activities, increase compliance with marine-use policies, secure sustainable management of the fishery, and document the links between sustainable management and human health in coastal systems.

**15b. Are you aware of any other individuals/organisations/projects carrying out or applying for funding for similar work?**  Yes  No

If yes, please give details explaining similarities and differences, and explaining how your work will be additional to this work and what attempts have been/will be made to co-operate with and learn lessons from such work for mutual benefits:

Three other NGOs (Blue Ventures, World Wildlife Fund and Conservation International) are also supporting the development of LMMAs in Madagascar. WCS's strategy is distinguished from these organizations by our long-term, collaborative and site-based conservation efforts spanning two decades. Our focus on providing robust research that is directly used by communities and local governments in resource management actions, our dedication to building local capacity for resource management, and our partnership with rural development professionals to foster effective livelihoods diversification also uniquely positions us in this field. The rapid geographic expansion of LMMAs throughout the country spurred discussions among WCS and other environmental NGOs about the need for increased coordination and cooperation. As a result, Madagascar's first national LMMA forum took place in Andavadoaka in June 2012 and led to the creation of a national LMMA network, named MIHARI. This network provides opportunities for information sharing and collaboration among community members, NGOs and government agencies involved with Madagascar's LMMAs and we will duly contribute.

**15c. Are you applying for funding relating to the proposed project from other sources?**
 Yes  No

If yes, please give brief details including when you expect to hear the result. Please ensure you include the figures requested in the spreadsheet as Unconfirmed funding.

Agence Francaise de Développement (French Agency for Development - AFD). Project title: Promoting sustainable management of natural resources in Mananara-Nord Biosphere Reserve. Amount requested: £355,000 (we expect to hear result by February 2015)

**16. Value for money**

Please describe why you consider your application to be good value for money including justification of why the measures you will adopt will secure value for money?

(Max 250 words)

For the past few years WCS and GRET have partnered to integrate biodiversity conservation, agricultural development and economic and social development for the benefit of Antongil Bay's coastal communities. Previous work has allowed WCS and GRET to build partnerships within local communities and organizations, begin resource management and livelihoods

diversification efforts, establish offices with the equipment necessary to work safely and effectively in these remote locations and build the capacities of 6 field staff living permanently in the villages for at least 3 years. Further, WCS is the *only* conservation organization with its own health division. WCS-HEAL has pioneered research in understanding the food security and nutritional impacts of conservation interventions and programming, and is thus well-positioned to contribute to the success of this project. Ongoing agricultural and health interventions in the same landscape will provide for lesson sharing and interchange to strengthen our overall approach and provide justification for investing in sustainable fisheries for human livelihood benefits to encourage application at greater scale.

WCS and GRET have built trust and empowered local communities in these areas, thus laying the foundation for long-term success. However, additional work is needed to strengthen local management capacities, ensure wider participation of local people in resource management, foster greater support and involvement from government authorities, increase tangible benefits for local communities to more effectively manage local fisheries, reduce fishing effort through livelihoods diversification, and demonstrate the positive and direct impacts that LMMAs can have on biodiversity, food security, livelihoods and human health.

## 17. Ethics

Outline your approach to meeting the Darwin Initiative's key principles for research ethics as outlined in the guidance notes.

(Max 300 words)

WCS management systems ensure adherence to labour, finance, banking and registration regulations specific to each of the nearly 60 countries where we work, alongside US government regulations and donor compliance requirements. WCS Europe is a legally registered charity in England and Wales and WCS is legally registered in Madagascar, operating under MoUs with the Malagasy Government. We participate in the Conservation Initiative on Human Rights ([http://www.iucn.org/about/work/programmes/social\\_policy/sp\\_themes\\_hrande/scpl\\_cih/](http://www.iucn.org/about/work/programmes/social_policy/sp_themes_hrande/scpl_cih/)). Our Institutional Review Board (IRB) ensures that research carried out by our programs protects the rights of human subjects.

WCS strives to understand, value, and apply traditional knowledge to addressing biodiversity, resource management, and poverty alleviation challenges, contributing to local efforts to improve human wellbeing by affirming cultural identity in the face of rapid change while making explicit our shared interest in finding alternatives to dominant approaches to economic development. In Madagascar, WCS has been at the forefront of efforts to help marine resource-dependent communities, to secure management rights over their fishing grounds and protect their livelihoods. WCS health studies involving human subjects will undergo IRB review, we will obtain permits from the Malagasy Ministry of Health and our work will be reviewed by the Malagasy Committee of Ethics.

WCS has a Duty of Care policy that details obligations of employees and the institution to create an environment of safety and concern in the fulfilment of our mission, including access to medical care; insurance policies; and crisis management procedures. We are committed to building credible and independent science-based understanding of biological diversity and ecosystem integrity and their centrality to the quality of human life. WCS is a leading sponsor of scientific research, and our staff are among the world's most prolific in generating peer-reviewed publications.

## 18. Legacy

Please describe what you expect will change as a result of this project with regards to biodiversity conservation/sustainable use and poverty alleviation (for DFID funded projects). For example, what will be the long term benefits (particularly for biodiversity and poor people) of the project in the host country or region and have you identified any potential problems to achieving these benefits?

(Max 300 words)

The project will reduce nearshore habitat degradation and improve abundance of coral reef associated species and endangered species of sharks and marine turtles. The project will also sustain small-scale fisheries yields with positive outcomes for livelihoods and food security of 11,000 people in the target LMMAs, with long-term benefits thanks to restored fish stocks reaching 100,000 coastal inhabitants living around Antongil Bay.

Adoption of more sustainable practices for rice production will increase food security (the average number of months of rice self-sufficiency will increase from at least 6 to 9 months) for 250 households in 5 targeted LMMAs. Development or improvement of at least one income generating activity provides an additional regular source of income for 250 households, thus increasing security through diversity and reducing fishing effort.

The shift to more sustainable and diversified cropping systems will increase farmer resilience to climate change, while reducing erosion of watersheds and subsequent terrestrial runoff on coral reefs.

In a region where fishing complements agriculture, these changes will deliver positive and demonstrable benefits to human health and livelihoods. The long-term sustainable management of fisheries and the development of improved agricultural techniques will lead to increased dietary diversity (and corollary decreases in iron and zinc deficiencies, and low birth weight), food security and income diversity in five targeted LMMAs. This will largely arise due to more poultry consumption, greater reliance on rice and the continued consumption of sustainable fish offtake.

Lessons learned while implementing the ABFMP will help MRHP and other partners to replicate this initiative in other land- and seascapes around Madagascar.

### 19. Pathway to poverty alleviation

Please describe how your project will benefit poor people living in low-income countries. All projects funded through DFID in Round 21 must be compliant with the OECD Overseas Development Assistance criteria. Projects are therefore required to indicate how they will have a positive impact on poverty alleviation in low-income countries.

(Max 300 words)

This project shows that sustainable community-managed agriculture and fisheries leads to improved food security and nutrition, resulting in more secure livelihoods. Improved nutrition reduces morbidity and mortality, increases cognitive ability, thus strengthening human development and capital in the region. This leads to long-term poverty alleviation through enhanced human capacity and overall well-being.

Madagascar harbours five percent of the world's known biodiversity. Simultaneously, it ranks 151 of 188 countries in the 2013 Human Development Index. Over 50 percent of Malagasy people live near the coast and rely on marine and coastal ecosystems for food and revenue. While rice is the staple crop, the country is not self-sufficient and strongly relies on importation, leading to high price volatility. Human pressure on coastal ecosystems has increased dramatically and has contributed to overexploitation, deterioration of coastal ecosystems, and poorer living standards. To increase resources and economic returns from fisheries for coastal people, the project will promote improved management in 24 LMMAs, and in 5 villages with LMMAs, we will enable fishing communities to develop more stable and higher rice production and income diversification. After demonstrating the positive impact of improved practices by pilot farmers in the area, we will promote adoption of these practices by other farmers through exchange visits, trainings, and participative assessment of each crop cycle and innovation. We will also support farmer and fisher groups to improve their connection to the market and their share in added value of products.

In addition to the positive biodiversity outcomes of this project, over the years these activities will contribute to key livelihoods outcomes: 1) more stable and diversified income and reduced poverty; 2) increased food and nutrition security; 3) reduced vulnerability as a result of livelihoods diversification; 4) strengthened community organization skills; and 5) improved human development and capital.

**19a. Impact to beneficiaries**

If applying to DFID funding, please indicate the number of beneficiaries who are expected to be impacted by your project. If possible, indicate the number of women who will be impacted.

The project expects to reverse the decline in fisheries resources and consequently improve livelihoods and food security for 11,000 coastal people dependent upon Antongil Bay's resources. The project will help to ensure more sustainable fishing and farming practices that will have an overall positive impact on the marine and terrestrial environments of the Bay.

At least 250 coastal households (1350 people) will benefit from higher and more secure rice production and will be self-sufficient for rice during at least 9 months, reducing their need to catch and sell fish to purchase rice. 250 women will also benefit from an additional regular source of income. Women are traditionally the controllers of gardening and poultry assets. Thus, improving gardening and poultry production helps shift increased power and economic control to women and improve household well-being.

At the end of the project, CSA will use project results to demonstrate to other farmers of the area the positive impact of adopting more sustainable practices of rice production and cultivation of slopes: they could for example rely on pilot farmers to organise exchange visits.

The development of sustainable, well-managed fisheries and the increased productivity of poultry and rice production will lead to improved food security, improved nutritional status and reduce the rates of low birth weight and stunting for at least 100 measured households (500 people, 250 women and girls). Although we will only measure impact in 100 households, these results will be generalizable to the 11,000 inhabitants of the 24 villages managing LMMAs and over the long term to the entire landscape, affecting a population of 100,000 people, thanks to the effective protection of critical habitats for the restoration of Antongil Bay fish stocks.

**20. Exit strategy**

State whether or not the project will reach a stable and sustainable end point. If the project is not discrete, but is part of a progressive approach, give details of the exit strategy and show how relevant activities will be continued to secure the benefits from the project. Where individuals receive advanced training, for example, what will happen should that individual leave?

(Max 200 words)

Long-term sustainability is a key project driver: activities aim to improve local and self-sufficient coastal resource management over the long-term. Building local resource management capacity is a slow process, especially in communities where it is new. Fostering local stewardship in resource management increases the likelihood of success, and will improve as tangible benefits and improvements are perceived. The active engagement of local men and women in this process, especially when it involves the management of resources they care about, is crucial to increasing their commitment to the success of the LMMAs. Strengthened partnerships between communities, local authorities, and the private sector will also ensure the viability and durability of project results. The project activities focusing on securing and increasing fishery productivity and diversifying livelihoods will demonstrate to local communities that LMMAs can benefit them by increasing revenue and food security. We expect this will provide strong incentives to the communities to continue to be involved in the management of LMMAs at the end of the project.

As it may not be possible for to exit completely at the end of the project period, we will develop a timeline for slowly phasing out direct interventions as capacity is built locally.

**21. Raising awareness of the potential worth of biodiversity**

If your project contains an element of communications, knowledge sharing and/or dissemination please provide a description of your intended audience, how you intend to engage them, what the expected products/materials there will be and what you expect to achieve as a result. For example, are you expecting to directly influence policy in your host

country or is your project a community advocacy project to support better management of biodiversity?

(Max 300 words)

Madagascar is among the top fifteen countries with the largest coral reef areas in the world and these reefs support the fishing lifestyles of over 100,000 artisanal fishers. Historically, marine biodiversity and reef fisheries have received far less recognition and support from national government and the international community than other sectors (such as forestry). Through this project we will seek commitment of support and stronger involvement for local fisheries management initiatives at high governmental and decision-maker levels (especially officials from the Ministry of Fisheries) in order to ensure the long-term effectiveness of local efforts to manage fisheries and protect marine biodiversity. Results of our impact monitoring program will be used to demonstrate that the proposed approach for local fisheries management is effective for poverty alleviation, coral reef conservation and for improving human health and fisheries productivity in coastal ecosystems in Madagascar. We will document lessons learned, new tools and successes, and communicate these to local authorities, government partners, and NGOs supporting LMMAs in Madagascar and the region, in order to garner their endorsement of these methods for more widespread application throughout the country and the region.

We will empower local fishers to take responsibility for managing marine resources sustainably, through a multifaceted approach that builds knowledge, skills, motivation, and values that will, in turn, affect behaviour and attitude changes. WCS will implement outreach programs for local communities linking natural marine resources, livelihoods, and environmental health. Specifically WCS will develop a comprehensive outreach program, including radio broadcast, learning visits between LMMAs sites, exchange and learning visits for representatives of LMMA associations and fishers at the newly inaugurated WCS-managed environmental campus in Maroantsetra, production of content for the regular issues of the Malagasy language 'Dalaly' magazine, and organization of debates and networking between LMMA representatives and local authorities.

## 22. Access to project information

Please describe the project's open access plan and detail any specific costs you are seeking from Darwin to fund this.

(Max 250 words)

In Madagascar, the results from the project and products produced will be publicly disseminated through the WCS Madagascar website, the distribution of reports, peer reviewed publication, the organization of workshops, and LMMA field visits for community representatives and authorities. We will also disseminate critical knowledge generated by the project to marine conservation partners during meetings of national committees on which WCS sits (see section 14). During the course of the proposed project, lead WCS staff will participate in and make presentations at international forums (such as the International Marine Conservation Congress). These highly attended conferences will allow for the results of the project to be shared with the larger marine science and conservation community.

Specific data collected at the household level during socioeconomic surveys will remain confidential.

This project will provide data to a new global coral reef monitoring effort led by WCS and funded by the John D. and Catherine T. MacArthur Foundation. The methods for data collection and dissemination in this project will be compatible with those being used at multiple sites around the world and all of the lessons learned in Antongil Bay will be applied to fisheries monitoring on a global level.

**23. Importance of subject focus for this project**

If your project is working on an area of biodiversity or biodiversity-development linkages that has had limited attention (both in the Darwin Initiative portfolio and in conservation in general) please give details.

(Max 250 words)

Marine protected areas comprise less than 3% of the oceans. With Madagascar President Rajaonarimampianina's recent commitment to triple marine protected area coverage, the project is well-timed to promote to diverse sectors the importance of this initiative not only to conservation of globally important biodiversity, but to food security, health and development as well.

Worldwide, coral reefs support a diverse small-scale fisheries sector upon which coastal communities depend. Small-scale fisheries are an important source of income and subsistence for people worldwide, particularly in developing countries where millions of poor people live near the coast and nearly all (97%) of the world's fishers reside. In Madagascar, a recent study in several coastal villages showed that the small-scale fisheries sector employs 87% of the adult population, generates an average of 82% of all household income, and provides the sole protein source in 99% of all household meals with protein.

Despite the importance of the small-scale fisheries sector to human well-being, health and livelihoods, it has generally been marginalised through inadequate financial, institutional and scientific support relative to other sectors. In addition, MPAs and marine conservation in general have also received less support at government levels than other efforts, which has been evident in Madagascar until relatively recently. Finally, and importantly, the complementarity between improved small-scale fisheries management and improved MPA management has often been overlooked. This project brings these important issues together by integrating activities focused on MPA and fishery management, human livelihoods and human nutrition.

**24. Leverage****a) Secured**

Provide details of all funding successfully levered (and identified in the Budget) towards the costs of the project, including any income from other public bodies, private sponsorship, donations, trusts, fees or trading activity.

**Confirmed:**

The Leona M. and Harry B. Helmsley Charitable Trust. Sustainable conservation and stewardship of Madagascar's globally and locally important natural resources in three priority zones. £40,061

Wallace Foundation. £10,000

Wildlife Conservation Society internal funds. £XXXX

Gordon and Betty Moore Foundation. £12,180

United States Agency for International Development – USAID. £2,659

**b) Unsecured**

Provide details of any matched funding where an application has been submitted, or that you intend applying for during the course of the project. This could include matched funding from the private sector, charitable organisations or other public sector schemes.

Date applied for	Donor organisation	Amount	Comments
September 2014	Agence Francaise de Développement (French Agency for	£75,000	Project title: Promoting sustainable



	Development – AFD)		management of natural resources in Mananara-Nord Biosphere Reserve. This is not a competitive call for proposal and the chances to get funded are high.

## PROJECT MONITORING AND EVALUATION

### MEASURING IMPACT

#### 25. LOGICAL FRAMEWORK

Darwin projects will be required to report against their progress towards their expected outputs and outcomes if funded. This section sets out the expected outputs and outcomes of your project, how you expect to measure progress against these and how we can verify this.

The information provided here will be transposed into a logframe should your project be successful in gaining funding from the Darwin Initiative. The use of the logframe is sometimes described in terms of the Logical Framework Approach, which is about applying clear, logical thought when seeking to tackle the complex and ever-changing challenges of poverty and need. In other words, it is about sensible planning.

#### Impact

The Impact is not intended to be achieved solely by the project. This is a higher-level situation that the project will contribute towards achieving. All Darwin projects are expected to contribute to poverty alleviation and sustainable use of biodiversity and its products.

(Max 30 words)

Madagascar's artisanal fisheries are effectively managed to simultaneously optimize coral reef biodiversity protection and sustainable harvests that deliver benefits for human health and livelihoods.

#### Outcome

There can only be one Outcome for the project. The Outcome should identify what will change, and who will benefit. The Outcome should refer to how the project will contribute to reducing poverty and contribute to the sustainable use/conservation of biodiversity and its products. This should be a summary statement derived from the answer given to question 14.

(Max 30 words)

Sustainable fisheries management and livelihoods diversification in Northeastern Madagascar protects coral reefs (7,000 hectares), improves food security, livelihoods and health for 11,000 people, and becomes a model for the region.

#### Measuring outcomes - indicators

Provide detail of what you will measure to assess your progress towards achieving this outcome. You should also be able to state what the change you expect to achieve as a result of this project i.e. the difference between the existing state and the expected end state. You may require multiple indicators to measure the outcome – if you have more than 3 indicators please just insert a row(s).

Indicator 1	<p>By 2017, improved coral reef health, measured by a 20% increase in coral cover and fish biomass in <b>at least one third of Antongil Bay LMMAs</b>.</p> <p><b>Baseline:</b> the baseline will be obtained during the first month of the project through underwater reef surveys that will be conducted in Antongil Bay LMMAs.</p> <p><b>Year 1 and 2 targets:</b> as the recovery process of coral cover and fish biomass takes time, we do not plan to measure coral reef health before Year 3.</p>
Indicator 2	<p>By 2017, improved fisheries yield, measured by a 20% increase in fish and macro-invertebrate catch (especially species from the following families and groups: carangidae, lethrinidae, siganidae, nemipteridae, sphyraenidae, scaridae, mulidae, lutjanidae, serranidae and octopus) per unit of effort in 24 Antongil Bay LMMAs.</p> <p><b>Baseline:</b> In the early 2000's, mean hourly catch rates measured by WCS in Antongil Bay were just under 1 kg/hour/fisher and mean daily catch rates were 4.4 kg/day/fisher (Doukakis, P., M. Jonahson, V. Ramahery, B.J. de Dieu Randriamanantsoa, and S. Harding. 2007. Traditional Fisheries of Antongil Bay, Madagascar. <i>Western Indian Ocean Journal of Marine Science</i> 6(2):175-181). During the project first quarter we will obtain a 2015 baseline for the project.</p> <p><b>Year 1 target:</b> By 2016, improved fisheries yield, measured by a 20% increase in octopus catch (a fast growing species) per unit of effort in at least five LMMAs.</p> <p><b>Year 2 target:</b> As the project duration is 2 1/2 years, we will use only Year 1 and Year 3 targets.</p>
Indicator 3	<p>By 2017, a 50% decrease in poaching and by-catch of endangered marine species (sharks and marine turtles) in 24 Antongil Bay LMMAs.</p> <p><b>Baseline:</b> A recent study showed that the scalloped hammerhead was the most commonly encountered species identified in the Antongil Bay shark fishery (Doukakis, P., R. Hanner, M. Shivji, C. Bartholomew, D. Chapman, E. G. Wong, and G. Amato. 2011. Applying genetic techniques to study remote shark fisheries in northeastern Madagascar. <i>Mitochondrial DNA</i> 22:15-20). In cooperation with UNEP, Convention on the Conservation of Migratory Species of Wild Animals (UNEP/CMS), WCS conducted in 2012 the UNEP/CMS Dugong Questionnaire Survey in 22 villages in Antongil Bay, to contribute to a larger understanding of the presence of dugongs, sea turtles and dolphins in Madagascar and the Western Indian Ocean as well as the human perceptions and threats inherent in their existence. 115 total surveys were completed. Sea turtle sightings were very common, and most respondents mentioned that turtles were traditionally hunted, yet some said that if an opportunity arose they would typically eat or sell them (Wildlife Conservation Society, 2012. UNEP/CMS dugong questionnaire report for Antongil Bay Madagascar. Wildlife Conservation Society, unpublished report). Since these studies were not specific to LMMAs, during the first quarter of the project we will conduct a first round of fishers interviews to reveal the incidence of poaching and by-catch of sharks and marine turtles by fishers in Antongil Bay LMMAs.</p> <p><b>Year 1 target:</b> By 2017, a 25% decrease in poaching and by-catch of endangered marine species (sharks and marine turtles) in 24 Antongil Bay LMMAs.</p> <p><b>Year 2 target:</b> As the project duration is 2 1/2 years, we will use only Year 1 and Year 3 targets.</p>
Indicator 4	<p>By 2017, a 15% increase in dietary diversity, a 30% increase in food security and a 15% increase in income diversity in 100 households across the five targeted LMMAs.</p> <p><b>Baseline:</b> As these baselines do not exist we will collect baseline data in Year 1.</p> <p><b>Year 1 and Year 2 targets:</b> Given that changes in human health follow the</p>

	agricultural and marine conservation interventions, we do not think that health indicator intermediate targets are relevant.
Indicator 5	<p>By 2017, a 20% decrease in iron and zinc deficiency and a 20% decrease in low birth <b>weight</b> in 100 households across the five targeted LMMAs.</p> <p><b>Baseline:</b> Estimates based on Makira (a forested area in the Antongil Bay watershed): 10% prevalence in iron deficiency; 33% prevalence in zinc deficiency; and birth weight average estimated at 2300 grams.</p> <p><b>Year 1 and Year 2 targets:</b> Given that changes in human health follow the agricultural and marine conservation interventions, we do not think that health indicator intermediate targets are relevant.</p>
Indicator 6	<p>By 2017, a 20% increase of rice productivity in plots in 250 households applying improved practices; an 85% decrease in poultry mortality and a 20% increase in income from poultry raising and gardening in 250 households in the villages of the five targeted LMMAs.</p> <p><b>Baseline:</b> Surveys undertaken by Gret in the project area after the main cropping on the first season in 2013 showed an average yield of 1500 kg/ha in irrigated fields and 770 kg/ha in the uplands rice fields. Measurement undertaken by Gret within 22 irrigated plots testing new practices found an average yield of 1933 kg/ha on the off-season 2013, and within 42 irrigated plot, an average of 3100 kg/ha in the first season of 2014.</p> <p>Baselines do not exist on income from poultry-raising and gardening. They will be collected during year 1.</p> <p><b>Year 1 target:</b> a 20% increase of rice productivity in plots in 25 households applying improved practices; an 85% decrease in poultry mortality and a 20% increase in income from poultry raising and gardening in 50 households in the villages of the five targeted LMMAs.</p> <p><b>Year 2 target:</b> a 30% increase of rice productivity in plots in 125 households applying improved practices; an 85% decrease in poultry mortality and a 20% increase in income from poultry raising and gardening in 100 households in the villages of the five targeted LMMAs.</p>

### Verifying outcomes

Identify the source material the Darwin Initiative (and you) can use to verify the indicators provided. These are generally recorded details such as publications, surveys, project notes, reports, tapes, videos etc.

Indicator 1	Coral reef health reports.
Indicator 2 & 3	LMMAs fish landing surveys and fishers interviews.
Indicator 4	Household survey data and dietary record analysis.
Indicator 5	Anthropometry and clinical nutrition results.
Indicator 6	Rice yields surveys, poultry mortality monitoring, and poultry and gardening income surveys

### Outcome risks and important assumptions

You will need to define the important assumptions, which are critical to the realisation of the *outcome and impact* of the project. It is important at this stage to ensure that these assumptions can be monitored since if these assumptions change, it may prevent you from achieving your expected outcome. If there are more than 3 assumptions please insert a row(s).

Assumption 1	Government authorities have sufficient authority and motivation to control illegal activities and enforce the rules in Antongil Bay LMMAs.
Assumption 2	Strengthening small-scale fisheries co-management will be supported by all stakeholders from local to national levels as tangible benefits are perceived.
Assumption 3	The fishery will recover fast enough to deliver nutritional and health benefits.

	Outcomes like iron and zinc deficiency can recover quickly, but we may not see changes in stunting and low birth weight which have a longer etiology and trajectory.
Assumption 4	Local institutions and economies allow for the development of new income generating activities for poor people and the lack of infrastructure does not hinder the development of changes within supply chains.

## Outputs

Outputs are the specific, direct deliverables of the project. These will provide the conditions necessary to achieve the Outcome. The logic of the chain from Output to Outcome therefore needs to be clear. If you have more than 3 outputs insert a row(s). It is advised to have less than 6 outputs since this level of detail can be provided at the activity level.

Output 1	Nearshore fish and invertebrate abundance are increased and endangered species of sharks and marine turtles are protected through improved management capacities and engagement of communities and government in reducing overexploitation, illegal fishing and use of destructive gears in Antongil Bay.
Output 2	Livelihoods are diversified and food security is improved through the development of environmentally sensitive small-scale agriculture, economically benefitting at least 500 households across five LMMAs.
Output 3	The human health and livelihood effects in local populations are determined by analyzing linkages between expected improvements in dietary intake, nutritional status and commercial transactions and observing the role of fisheries co-management in facilitating these health effects in 100 households across five LMMAs. Madagascar is the 6 <sup>th</sup> most stunted country in the world and this output will be hugely influential for demonstrating potential impacts of fisheries management on human health. The findings are disseminated and inform management and policy decisions of LMMAs, relevant local and regional networks and decision-making bodies, and the CBD/WHO task force.

## Measuring outputs

Provide detail of what you will measure to assess your progress towards achieving these outputs. You should also be able to state what the change you expect to achieve as a result of this project i.e. the difference between the existing state and the expected end state. You may require multiple indicators to measure each output – if you have more than 3 indicators please just insert a row(s).

Output 1	
Indicator 1	By year 3, in each village the number of fishers that are active members of the LMMA associations increases from 50% to 75%
Indicator 2	By year 3, beach seines used in Antongil Bay drop from 229 to less than 100
Indicator 3	By year 3, a measured increased in compliance with LMMA restrictions

Output 2	
Indicator 1	By year 3, at least 250 households adopt environment sensitive techniques for rice production, allowing an increase of yield of at least 20 % (measured on demonstration plots)
Indicator 2	By year 3, poultry for at least 250 households benefit from regular vaccination minimising the risk of zoonotic diseases, and reducing the mortality rate by

	85%
Indicator 3	At least 250 women adopt a new income generating activity (gardening, production of smoked or dried fish)

<b>Output 3</b>	
Indicator 1	By year 3, there will be a 15% increase in dietary diversity at the household level and a 30% increase in food security through measurement of the number of food categories utilized and through adoption of regular consumption of dried and smoked fish during periods of hardship.
Indicator 2	By year 3, there will be a 20% decrease in iron and zinc deficiency as measured by nutritional status from venous blood draws. This is the most comprehensive method for understanding real health effects of changes in fishery access.
Indicator 3	By year 3, there will be a 20% decrease in low birth weight as measured by anthropometry.

### Verifying outputs

Identify the source material the Darwin Initiative (and you) can use to verify the indicators provided. These are generally recorded details such as publications, surveys, project notes, reports, tapes, videos etc.

<b>Output 1</b>	
Indicator 1	LMMA association registration books
Indicator 2	Report of the census of fishing gears in year 3
Indicator 3	Data collected using SMART software

<b>Output 2</b>	
Indicator 1	Household agricultural surveys (on yields and practices), pilot plot yield measurements carried out every cropping season
Indicator 2	Vaccination records (by project first, then progressively by village-vaccinators) carried out at every vaccination campaign
Indicator 3	Project monthly survey on a sample of women (on number and amount of sales)

<b>Output 3</b>	
Indicator 1	Household surveys that will include coping strategies indices, food security ratings, dietary and income diversity scoring, and social and economic wellbeing measures. Each of the 100 households enrolled in the health study will maintain a dietary calendar so that we can observe the ways in which food consumption changes based on our intervention. We will use a BACI (Before After Control Intervention) study design where we work both inside and outside of areas where the intervention is taking place to determine impact.

Indicator 2	Clinical visits with healthcare professionals will include blood draws. The blood will be analysed for a suite of nutritional markers to understand changes in the levels of iron and zinc deficiency within individuals over time.
Indicator 3	Clinical visits with healthcare professionals will also include anthropometric assessments to understand changes in birth weight, stunting and wasting.

### Output risks and important assumptions

You will need to define the important assumptions, which are critical to the realisation of the achievement of your outputs. It is important at this stage to ensure that these assumptions can be monitored since if these assumptions change, it may prevent you from achieving your expected outcome. If there are more than 3 assumptions please insert a row(s).

Assumption 1	Compliance with management interventions such as gear restrictions and no-take zones won't be impaired by political instability
Assumption 2	Potential natural disasters (such as hurricanes) do not impair the development of sustainable livelihoods
Assumption 3	The time over which the project occurs will allow for the realization of the observation of fishery effects and the indirect effects of fishery conservation on health and livelihoods.

### Activities

Define the tasks to be undertaken by the research team to produce the outputs. Activities should be designed in a way that their completion should be sufficient and indicators should not be necessary. Risks and assumptions should also be taken into account during project design.

Output 1	
Activity 1.1	Improve engagement and accountability of all stakeholders in ABFMP implementation by organizing annual meetings of the ABFMP Steering Committee.
Activity 1.2	Strengthen the ability of coastal communities to more effectively manage the network of 24 LMMAs through capacity building activities (formal training in administration, financial management, leadership, fisheries management and enforcement; organization of debates and networking between LMMA representatives and local authorities at an annual Antongil Bay LMMA network forum and national LMMA network forum).
Activity 1.3	Raise knowledge and awareness about existing fishing regulations, unsustainability of destructive fishing practices and benefits of LMMAs through learning visits for fishers at the newly inaugurated WCS-managed environmental campus in Maroantsetra, exchange visits to LMMA sites, production of regular issues of the Malagasy language 'Dalaly' magazine and radio broadcasts.
Activity 1.4	Organize joint community and local authority patrols to enforce fishery regulations in LMMAs, and trial the use of SMART (Spatial Monitoring and Reporting Tool - <a href="http://www.smartconservationsoftware.org">http://www.smartconservationsoftware.org</a> ) to support collection and analysis of threat data in real-time and optimize planning of enforcement patrols.
Activity 1.5	Conduct reef surveys and fish catch monitoring to assess impacts of LMMAs on coral reef health and fisheries.



<b>Output 2</b>	
Activity 2.1	Train and support a network of 50 pilot farmers on rice production. Prepare technical leaflets, organise trainings, exchange visits and cropping cycle collective assessments, and facilitate access to equipment to facilitate the adoption of tested and approved practices by 200 additional households.
Activity 2.2	Train 2 village vaccinators in each site to organise vaccination campaign and perform injections. Support the creation of a village vaccinators' network to organise the vaccines supply.
Activity 2.3	Identify vulnerable households/women and give them technical and financial support (but with a financial share form beneficiary) to develop a new income generating activity (gardening or production of smoked-fish). Implement two supply-chain studies to define a strategy to improve the commercialisation of these products, targeting the local market. Provide training and technical support (with regular visits from animators) on production, processing and/or marketing of products to at least 250 women. Organize exchange visits among women and support them to get organized to facilitate marketing.
Activity 2.4	Provide training and technical support (with regular visits from animators) on production, processing and/or marketing of products to at least 250 women. Organize exchange visits among women and support them to get organized to facilitate marketing.

<b>Output 3</b>	
Activity 3.1	In five communities adjacent to the LMMAs, train female heads of households to record their diets using kitchen scales into standardized dietary journals.
Activity 3.2	Train local health professionals to obtain blood samples from local participants to test for iron and zinc deficiency every six months. These blood samples will benefit local participants as our agreement with MSP allows us to determine infections with malaria and provide Point of Care treatment.
Activity 3.3	Conduct anthropometric assessments every 3 months to determine how growth trajectories (both stunting and wasting) are affected by the availability and access to nutritious diets.
Activity 3.4	Communicate results to LMMAs, regional and national networks and the CBD/World Health Organization (WHO) joint task force.



26. Provide a project implementation timetable that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project.

Activity	No of Months	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1 Nearshore fish and invertebrate abundance are increased and endangered species of sharks and marine turtles are protected through improved management capacities and engagement of communities and government in reducing overexploitation, illegal fishing and use of destructive gears in Antongil Bay.													
1.1 Improve engagement and accountability of all stakeholders in ABFMP implementation by organizing annual meetings of the ABFMP Steering Committee.	3		X				X				X		
1.2 Strengthen the ability of coastal communities to more effectively manage the network of 24 LMMAs through capacity building activities (formal training in administration, financial management, leadership, fisheries management and enforcement; organization of debates and networking between LMMA representatives and local authorities at an annual Antongil Bay LMMA network forum and national LMMA network forum).	10	X		X		X		X		X			
1.3 Raise knowledge and awareness about existing fishing regulations, unsustainability of destructive fishing practices and benefits of LMMAs through learning visits for fishers at the newly inaugurated WCS-managed environmental campus in Maroantsetra, exchange visits to LMMA sites, production of regular issues of the Malagasy language 'Dalaly' magazine and radio broadcasts.	15		X		X		X		X		X		
1.4 Organize joint community and local authority patrols to enforce fishery regulations in LMMAs, and trial the use of SMART (Spatial Monitoring and Reporting Tool - <a href="http://www.smartconservationsoftware.org">http://www.smartconservationsoftware.org</a> ) to support collection and analysis of threat data in real-time and optimize planning of enforcement patrols.	30	X	X	X	X	X	X	X	X	X	X		
1.5 Conduct reef surveys and fish catch monitoring to assess impacts of LMMA on coral reef health and fisheries.	6		X				X				X		
Output 2 Livelihoods are diversified and food security is improved through the development of environmentally sensitive small-scale agriculture, economically benefitting at least 500 households across five LMMAs.													
2.1 Train and support a network of 50 pilot farmers on rice production. Prepare technical leaflets, organise trainings, exchange visits and	27		X	X	X	X	X	X	X	X	X		

	cropping cycle collective assessments, and facilitate access to equipment to facilitate the adoption of tested and approved practices by 200 additional households.												
2.2	Train 2 village vaccinators in each site to organise vaccination campaign and perform injections. Support the creation of a village vaccinators network to organise the vaccines supply.	9		X			X			X			
2.3	Identify vulnerable households/women and give them technical and financial support (but with a financial share form beneficiary) to develop a new income generating activity (gardening or production of smoked-fish). Implement two supply-chain studies to define a strategy to improve the commercialisation of these products, targeting the local market. Provide training and technical support (with regular visits from animators) on production, processing and/or marketing of products to at least 250 women. Organize exchange visits among women and support them to get organized to facilitate marketing.	12	X	X			X	X					
2.4	Provide training and technical support (with regular visits from animators) on production, processing and/or marketing of products to at least 250 women. Organize exchange visits among women and support them to get organized to facilitate marketing.	24		X	X	X		X	X	X	X	X	
Output 3	The human health and livelihood effects in local populations are determined by analyzing linkages between expected improvements in dietary intake, nutritional status and commercial transactions and observing the role of fisheries co-management in facilitating these health effects in 100 households across five LMMAs.												
3.1	In five communities adjacent to the LMMAs, train female heads of households to record their diets using kitchen scales into standardized dietary journals.	4	X	X									
3.2	Train local health professionals to obtain blood samples from local participants to test for iron and zinc deficiency every six months. These blood samples will benefit local participants as our agreement with MSP allows us to determine infections with malaria and provide Point of Care treatment.	6	X	X									
3.3	Conduct anthropometric assessments every 3 months to determine how growth trajectories (both stunting and wasting) are affected by the availability and access to nutritious diets.	6			X		X		X		X		
3.4	Communicate results to LMMAs, regional and national networks and the CBD/World Health Organization (WHO) joint task force.	1					X				X	X	

**27. Project based monitoring and evaluation (M&E)**

Describe, referring to the Indicators above, how the progress of the project will be monitored and evaluated, making reference to who is responsible for the projects M&E. Darwin Initiative projects are expected to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. M&E is expected to be built into the project and not an 'add' on. It is as important to measure for negative impacts as it is for positive impact.

(Max 500 words)

A team comprising senior WCS and GRET staff will monitor project progress. The team will meet biannually to review project objectives, assumptions and risks, completed and planned activities, and discuss the roles and responsibilities of each partner. These review/planning meetings will strengthen collaboration among project partners and ensure that all partners are carrying out their roles. Using the project logical framework, detailed annual workplans will be developed at these meetings. Between coordination team meetings, progress will be monitored through activity reports, phone and Skype calls, emails and periodic site visits.

WCS's success as one of the most effective international conservation NGOs relies both on its ability to implement conservation and credibly measure and report conservation impacts over time. We will use a simplified dashboard of marine indicators to monitor the ecological and socioeconomic impacts of LMMAs, using indicators also being collected by WCS at coral reef sites globally. Our monitoring program is designed to assess whether the LMMAs achieve their conservation and poverty reduction objectives. Specifically we will monitor LMMA impacts on sessile benthic cover, resource abundance (coral reef fish and macro-invertebrates) through Underwater Visual Census. To measure trends in threats, we will use SMART to collect and analyze site-based records of threats and apprehensions standardized by number of patrols/interventions.

We will monitor and evaluate the effectiveness of the agricultural training and fisheries interventions to determine the extent of benefits accrued to human health and livelihoods. We will measure if people in LMMAs are receiving benefits related to food security and earned income from fishing through catch per unit effort (CPUE) surveys of fish landings. To measure the impact on rice yield, we will measure yield, after each cropping cycle, in 25 pilot plots (5/site) and 25 control plots, using five one-meter squares randomly selected in each plot. The number of households adopting new practices will be monitored through surveys on a sample of farmers. After each poultry vaccination campaign, the mortality of poultry will be monitored in 25 participating households and 25 control houses. To assess revenue changes, in each village a sample of 5 women will be asked to record regularly their income and expenses from gardening and poultry raising.

We will use a comprehensive household survey with individual surveys to add nuance to the disaggregated benefits received within the household, with particular focus on women and children. We will also conduct anthropometric measurements to determine improvements in growth trajectories and collect blood samples to analyse the effects on nutritional status from changes in food security and dietary diversity. The participatory approach in having households record their own dietary intake into calendars will facilitate the analysis of drivers of nutritional change. Furthermore, triangulating information between the diet calendars and the household surveys will allow for an understanding of how improvements in fisheries catch and agricultural production differentially affect income streams and food consumption (i.e. what proportion of the increased production and catch is sold vs. consumed).

## FUNDING AND BUDGET

**Please complete the separate Excel spreadsheet which provides the Budget for this application. Some of the questions earlier and below refer to the information in this spreadsheet.**

**NB:** Please state all costs by financial year (1 April to 31 March) and in GBP. **Budgets submitted in other currencies will not be accepted.** Use current prices – and include anticipated inflation, as appropriate, up to 3% per annum. The Darwin Initiative cannot agree any increase in grants once awarded.

### 28. Cost Effectiveness

Please explain how you worked out your budget and how you will provide value for money through managing a cost effective and efficient project. You should also discuss any significant assumptions you have made when working out your budget.

(max 300 words)

Budget allocations are informed by two decades on the ground in Antongil Bay. WCS has a low indirect cost, and provides much of the basic infrastructure (i.e. office space/equipment, vehicles, diving gear). Eleven of the twelve project staff live in Madagascar, thus minimizing travel cost.

Staff costs are a significant portion of the budget, given the need for appropriate technical oversight, in particular to build the capacity of stakeholders and ensure that community interventions are undertaken appropriately, and with respect to local peoples' rights and cultural sensitivities. Dr. Brenier, responsible for overall project management and reporting, will also supervise and provide technical inputs for output 1. Mr. Randriamanantsoa will lead coral reef ecological and fisheries surveys, communication with national Government partners, and will supervise the Antongil Bay seascape coordinator who, along with three WCS community mobilisation officers, will implement outputs 1 and 3 field activities. They will be trained and assisted by Dr Andrianarimisa and a Physician (TBD). Dr Andrianarimisa will lead the development and uptake of Spatial Monitoring and Reporting Tool (SMART) to increase planning efficiency and law enforcement activity reporting in the LMMAs. The physician will train local support staff and participate in anthropometric measurements and phlebotomy techniques. Dr Golden will train extension agents and enumerators in social survey methods. Ms. Vogel will supervise and provide technical inputs to output 2.

Non-staff costs are detailed in the full budget, and include a 3% annual inflation increase. WCS finance staff have considerable experience in managing large project budgets and meeting the reporting requirements. Field staff must follow sound, standardized financial practices, which are designed so that staff with limited accounting experience can follow them.

## FCO NOTIFICATIONS

Please check the box if you think that there are sensitivities that the Foreign and Commonwealth Office will need to be aware of should they want to publicise the project's success in the Darwin competition in the host country.

Please indicate whether you have contacted your Foreign Ministry or the local embassy or High Commission (or equivalent) directly to discuss security issues (see Guidance Notes) and attach details of any advice you have received from them.

**Yes (no written advice)**  **Yes, advice attached**  **No**

### CERTIFICATION

On behalf of the trustees/company\* of Wildlife Conservation Society (WCS)  
(\*delete as appropriate)

I apply for a grant of £300,000 in respect of **all expenditure** to be incurred during the lifetime of this project based on the activities and dates specified in the above application.

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.

*(This form should be signed by an individual authorised by the applicant institution to submit applications and sign contracts on their behalf.)*

- I enclose CVs for project principals and letters of support.
- Our most recent signed audited/independently verified accounts and annual report are also enclosed/can be found at:

**2014 Audit:**

<http://www.wcs.org/about-us/~media/Files/pdfs/Audited%20Financial%20Statements%202014%20WCS.pdf>

**2013 Audit:**

[http://www.wcs.org/about-us/~media/Files/pdfs/F\\_180473\\_13\\_Unsecured\\_WildlifeConservationSociety\\_Subsiaries\\_CFSS.pdf](http://www.wcs.org/about-us/~media/Files/pdfs/F_180473_13_Unsecured_WildlifeConservationSociety_Subsiaries_CFSS.pdf)

**2013 Annual Report:**

<http://www.wcs.org/files/pdfs/2013-WCS-Annual-Report.pdf>

**2012 Annual Report:**

<http://www.wcs.org/files/pdfs/2012-WCS-Annual-Report.pdf>

<b>Name (block capitals)</b>	JOE WALSTON
<b>Position in the organisation</b>	Vice President for Field Conservation; Global Conservation Program

Signed



Date:

11/24/14

**Stage 2 Application - Checklist for submission**

	Check
Have you <b>read the Guidance Notes</b> ?	X
Have you provided <b>actual start and end dates</b> for your project?	X
<b>Have you indicated whether you are applying for DFID or Defra funding. NB: you cannot apply for both</b>	X
Have you provided your <b>budget based on UK government financial years</b> i.e. 1 April – 31 March and in GBP?	X
Have you checked that your <b>budget is complete</b> , correctly adds up and that you have included the correct final total on the top page of the application?	X
Has your application been <b>signed by a suitably authorised individual</b> ? (clear electronic or scanned signatures are acceptable in the email)	X
Have you included a <b>1 page CV for all the Principals</b> identified at Question 7?	X
Have you included a <b>letter of support from the main partner(s) organisations</b> identified at Question 10?	X
Have you <b>been in contact with the FCO</b> in the project country/ies and have you included any evidence of this?	X
Have you included a signed <b>copy of the last 2 years annual report and accounts</b> for the lead organisation? An electronic link to a website is acceptable.	X
Have you <b>checked the Darwin website</b> immediately prior to submission to ensure there are no late updates?	X

Once you have answered the questions above, please submit the application, not later than midnight GMT on Monday 1 December 2014 to [Darwin-Applications@ltsi.co.uk](mailto:Darwin-Applications@ltsi.co.uk) using the application number (from your Stage 1 feedback letter) and the first few words of the project title **as the subject of your email**. If you are e-mailing supporting documentation separately please include in the subject line an indication of the number of e-mails you are sending (eg whether the e-mail is 1 of 2, 2 of 3 etc). You are not required to send a hard copy.

DATA PROTECTION ACT 1998: Applicants for grant funding must agree to any disclosure or exchange of information supplied on the application form (including the content of a declaration or undertaking) which the Department considers necessary for the administration, evaluation, monitoring and publicising of the Darwin Initiative. Application form data will also be held by contractors dealing with Darwin Initiative monitoring and evaluation. It is the responsibility of applicants to ensure that personal data can be supplied to the Department for the uses described in this paragraph. A completed application form will be taken as an agreement by the applicant and the grant/award recipient also to the following:- putting certain details (ie name, contact details and location of project work) on the Darwin Initiative and Defra websites (details relating to financial awards will not be put on the websites if requested in writing by the grant/award recipient); using personal data for the Darwin Initiative postal circulation list; and sending data to Foreign and Commonwealth Office posts outside the United Kingdom, including posts outside the European Economic Area. Confidential information relating to the project or its results and any personal data may be released on request, including under the Environmental Information Regulations, the code of Practice on Access to Government Information and the Freedom of Information Act 2000.