



Submit by Monday 5 December 2016

**DARWIN INITIATIVE APPLICATION FOR GRANT FOR ROUND 23: STAGE 2**

Please read the [Guidance](#) 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. Blank cells may render your application ineligible

**ELIGIBILITY****1. Name and address of organisation**

(NB: Notification of results will be by email to the Project Leader in Question 6)

<b>Applicant Organisation Name:</b>	Manchester Metropolitan University
<b>Address:</b>	School of Science and the Environment, Chester Street
<b>City and Postcode:</b>	Manchester M15 6BH
<b>Country:</b>	United Kingdom
<b>Email:</b>	
<b>Phone:</b>	

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

<b>3794</b>	<b>Title (max 10 words):</b> The Baka – improving health and food security and sustaining biodiversity
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**3. Project description (not exceeding 50 words)**

(max 50 words)

Working with Baka women in 10 villages in southeastern Cameroon, we will implement a family-based self-help model to improve agricultural production and nutrition. As conditionality we will provide medical help and incentivise the no-take of protected species, thereby delivering practical benefits to conservation and development in these marginalised rural communities.

**4. 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> Cameroon	<b>Country 2:</b>
<b>Country 3:</b>	<b>Country 4:</b>

**5. Project dates, and budget summary**

<b>Start date:</b> 1 April 2017	<b>End date:</b> 31 March 2020			<b>Duration:</b> 3Y	
<b>Darwin funding request (Apr – Mar)</b>	<b>2017/18</b> £134,517	<b>2018/19</b> £90,320	<b>2019/20</b> £74,270	<b>2020/2021</b> N/A	<b>Total</b> £299,107
<b>Proposed (confirmed &amp; unconfirmed) matched funding as % of total Project cost</b>					31%

**6. Partners in project. Please provide details of the partners in this project and provide a CV for the individuals listed. You may copy and paste this table if necessary.**

Details	Project Leader	Project Partner 1	Project Partner 2
Surname	Fa	Bueno Zamora	Nasi
Forename (s)	John E.	Amalia	Robert
Post held	Professor of Biodiversity and Human Development	President	Deputy Director General-Research
Organisation (if different to above)		Zerca y Lejos	Center for International Forestry Research
Department	Division of Biology and Conservation Ecology	Coordinación General	n/a
Telephone			
Email			

**7. 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). No**

Reference No	Project Leader	Title

**8a. If you answered 'NO' to Question 7 please complete Question 8a, b and c.**

**If you answered 'YES', please go to Question 9 (and delete the boxes for Q8a, 8b and 8c)**

What year was your organisation established/ incorporated/ registered?	1992
What is the legal status of your organisation?	NGO No Government No University Yes Other (explain)
How is your organisation currently funded?	(Max 100 words) The University is largely funded through tuition fees from students, plus "block" teaching and research grants provided by the UK government via HEFCE. This is standard for UK universities. Projects delivered by the University are funded through a wide range of research grants and contracts.
Have you provided the requested signed audited/independently examined accounts?	Yes

**8b. DO NOT COMPLETE IF YOU ANSWERED 'YES' TO QUESTION 7.**

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

1. Title	Aviation Environmental and Atmospheric Expert Technical Support
Value	£742,130
Duration	60 months
Role of organisation in project	Lead organisation delivering the contract
Brief summary of the aims, objectives and outcomes of the contract/award.	This was a contract awarded in response to a Department for Transport tender. This requested a single supplier to provide research, knowledge transfer and workshop organisation on the impacts of aviation-sourced pollutants on the ecosystem including climate change. The project is ongoing.
Client/ <b>independent</b> reference contact details	Department for Transport Contact is Anthony Moss, Procurement Business Partner

2. Title	Tropical forest biodiversity and carbon storage: developing a roadmap towards a long-term monitoring network in Indonesia
Value	£39,200
Duration	11 months
Role of organisation in project	Lead organisation managing the project and delivering the workshop
Brief summary of the aims, objectives and outcomes of the contract/award.	This was an application to the Newton Fund Researcher Links call. Much of the funding is for a workshop to bring together researchers with the aims of sharing best practice and producing a roadmap for development of an Indonesian forest monitoring network. Tropical forests of Indonesia are exceptionally important in conserving biodiversity and storing terrestrial carbon. The importance of understanding the changes in forests and conserving forests is paramount due to the numerous forest-dependent poorer people in Indonesia and the possibilities of obtaining international funding through carbon-financing mechanisms such as REDD+.
Client/ <b>independent</b> reference contact details	British Council Newton Fund Researcher Links project, Contact information: Joanna Collins, Senior Project Manager

3. Title	Impact of atmospheric pollutants on the current and future status of protected habitats
Value	£56,495
Duration	12 months
Role of organisation in project	Lead organisation delivering the research
Brief summary of the aims, objectives and outcomes of the contract/award.	This was a NERC fellowship that aimed to draw together knowledge from the latest, multi-disciplinary research on how atmospheric pollutants interact with protected habitats, and to explore how both current and emerging research inform policy and regulatory practice. The work addressed some of the limitations in using empirical critical loads as a regulatory tool through the complimentary use of dynamic modelling and cumulative deposition modelling. Project outcomes can be seen here: <a href="http://qtr.rcuk.ac.uk/projects?ref=NE%2FM019888%2F1">http://qtr.rcuk.ac.uk/projects?ref=NE%2FM019888%2F1</a>

Client/independent reference contact	Natural Environment Research Council grant NE/M019888/1. No single point of contact at NERC
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**8c. DO NOT COMPLETE IF YOU ANSWERED 'YES' TO QUESTION 7.**

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

**Aims (50 words)**

The School of Science & The Environment at MMU is a research-rich academic community with a well-established reputation in the fields of biology, chemistry, geography and environmental science. The aim of the School is to deliver truly excellent and impactful research and teaching in these disciplines.

**Activities (50 words)**

The academics in the School conduct undergraduate and postgraduate teaching, as well as supervising PhD students. They also deliver research projects, external contracts and consultancy work. In addition, the School engages with a range of impact, public engagement and outreach activities involving a large number of stakeholders.

**Achievements (50 words)**

The School works with a range of research institutions, industry partners, national organisations and NGOs worldwide to deliver solutions that address challenges posed in environmental change and sustainability, socio-economic, cultural and political change, health and advanced materials. Academics in the School are returned to three REF Units of Assessment.

**9. 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.**

**Lead institution and website:**

Division of Biology and Conservation Ecology (DBCE); Manchester Metropolitan University (MMU)  
(<http://www2.mmu.ac.uk/sste/>)

**Details (including roles and responsibilities and capacity to lead the project): (max 200 words)**

The DBCE operates at the interface of conservation biology, evolutionary biology and animal behaviour. DBCE members work on population assessments of birds, mammals, amphibians and plants in forests, grasslands, wetlands and other ecosystems.

DBCE collaborates with conservation and poverty alleviation organisations in developing countries. In Tanzania, it collaborates with the Ngorongoro Conservation Area Authority to develop a sustainable management strategy for multiple land use of the area, and is involved with the College of African Wildlife Management developing a wildlife management MSc to increase capacity of local wildlife managers. The group also has close ties with the Mabuwaya Foundation in the Philippines, Northern Rangelands Trust in Kenya and the Kenya Wildlife Service.

Within DBCE, Dr. Huw Lloyd is involved in a Darwin project in Ethiopia, and Prof. Fa has successfully delivered 3 Darwin grants before joining MMU. The project involves three DBCE fauna experts, and Dr. Laura O'Connor from MMU's Food and Nutrition Department who will oversee the nutritional component of our project.

Throughout the project, DBCE will act as the overall project manager, and provide necessary advice, training and support. DBCE will manage the financial, monitoring and reporting elements of the project and support all scientific monitoring and evaluation.

Have you included a Letter of Support from this institution?		Yes
<b>Partner Name and website where available:</b>	<b>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</b>	
Zerca y Lejos ( <a href="http://zercaylejos.org/?lang=en">http://zercaylejos.org/?lang=en</a> )	<p>Zerca y Lejos (ZyL), our local implementing partner, is an NGO working in Cameroon since 2001. It runs health, education and socio-economic development projects and has a track record of implementing training/business opportunities for women in rural communities and connecting livelihoods to the environment by promoting household food security.</p> <p>ZyL's in-country team is composed of international and national staff. The international team, around 4-6 persons, has a wide experience in development programmes, specifically in rural areas. In particular, the team's coordinator has extensive knowledge and experience of the country, having lived and worked in Cameroon for over 20 years. ZyL's national staff, around 120 people, includes professionals working in health, education, rural development &amp; infrastructure; these teams are multi-ethnic, including representatives of the different cultural groups found in the region, and adopt a very clear gender-based approach. ZyL's work relies on a network of collaborators including local authorities, local Baka associations, NGOs working in the same area, and the Roman Catholic Diocese of Sangmélina.</p> <p>ZyL will be responsible, alongside the project leadership at MMU, for supervising the implementation of the project on the ground and responsible for undertaking the agricultural training and health component of the project.</p>	
Have you included a Letter of Support from this institution?		Yes

<p><b>Partner Name and website where available:</b></p> <p>CIFOR (<a href="http://www.cifor.org/">http://www.cifor.org/</a>)</p>	<p><b>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</b></p> <p>CIFOR Cameroon (CIFOR-C) researchers work with and advise a range of government departments and agencies dealing with issues that impact on sustainable forest management. For example, in partnership with both government and non-government agencies, CIFOR has helped improve rural livelihoods in Lekie and Akonolinga with its research into the cultivation and marketing of Non Timber Forest Products, such as eru (<i>Gnetum africanum</i>), a vine species widely used as a vegetable for soups and stews.</p> <p>CIFOR-C is also assisting the government by presenting its studies on forest management decentralization, low impact logging practices and community forestry. In 2003, CIFOR-C helped the Ministry of Forests developing a set of Criteria &amp; Indicators for sustainable forest management. Currently, the Government and CIFOR-C are working partners in the Model Forest project – a broad alliance of NGO's, logging companies, administrative authorities and local communities working toward sustainable forest use.</p> <p>Having signed a Host Country Agreement, CIFOR-C will collaborate with the Government of Cameroon and other partners towards tackling challenges in sustainable forest management and poverty alleviation in Central Africa.</p> <p>CIFOR-C will assist the project in the identification of causal pathways between conservation and poverty reduction, and develop a theory of change and a communication strategy.</p>
Have you included a Letter of Support from this institution?	Yes

### 10. Key Project personnel

Please identify the key project personnel on this project, their role and what % of their time they will be working on the project. Please provide 1 page CVs for these staff, or a 1 page job description or Terms of Reference for roles yet to be filled. Please include more rows where necessary.

Name (First name, surname)	Role	Organisation	% time on project	1 page CV or job description attached?
John E. Fa	Project Leader	Manchester Metropolitan University (MMU)	20	CV
TBC*	In-Country Project Coordinator (ICPC)	MMU/Zerca y Lejos (ZyL)	100	ToR
TBC*	Faunal Research Assistants (FRO)	ZyL	80	ToR**
TBC*	Health Officer (HO)	ZyL	50	ToR
TBC*	Intervention Assessment Consultant (IAC)	CIFOR-C	40	ToR
TBC*	Data Analyst (DA)	MMU	40	ToR
Martin Jones	Faunal Expert	MMU	10	CV
Robyn Grant	Study Design	MMU	5	CV
Selvino de Kort	Faunal Analyst	MMU	5	CV
Bradley Cain	Faunal Analyst	MMU	5	CV
Laura O'Connor	Food and Nutrition expert	MMU	5	CV

Notes: \*We are currently conducting a tentative search for personnel to fill these posts, but we will not be able to confirm these until there is a positive funding outcome for the project. \*\*No TOR are provided for these posts here. The intention is to open the opportunity for local hunters/villagers to assist the ICPC in tasks related to faunal and hunter surveys.

### 11. Problem the project is trying to address

Please describe the problem your project is trying to address in terms of biodiversity and its relationship with poverty. For example, what are the drivers of loss of biodiversity that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems?

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 300 words)

Forests in southeastern Cameroon are rich in wildlife, but are being depleted due to human population increases, unsustainable practices, and outside commercial pressures, such as the bushmeat trade. In this region, displaced Baka Pygmies live precarious lives outside the forest while still relying on forest products for food (bushmeat, yams). These products are essential for household food security, especially since agricultural food production is often limited.

This project is a poverty alleviation and research programme that will be led by an experienced within-country partner (ZyL) with long-term involvement in poverty reduction, agricultural support and health interventions in the region. MMU staff will be responsible for the technical direction of the project with assistance from CIFOR-C. Together, we will work within 30 Baka settlements on the Djoum-Mintom road, Departement Dja et Lobo.

Our project is novel in that it moves away from the typical conservation-motivated interventions that concentrate on directly reducing the risk of wildlife depletion by providing alternative protein and income generating sources. These interventions have centred on establishing food production enterprises at the village level that have had only limited success due to uncertain ownership and lack of incentives for individual families to commit to them.

In this project, we adopt a women-led approach to promote sustainable agriculture within families in our target villages. We will encourage families to produce local foods that can address nutrient inadequacies specific to the population and improve their general health. We will achieve this by: 1) harmonising local production and consumption of seasonal foods (including wild foods), 2) generating produce surpluses that can be fairly-traded, and 3) enabling hunting systems that encourage sustainable wildlife extraction. In so doing, we will generate more inclusive processes to improve the study region's agri-food systems, and as a result reduce the impact on wildlife.

### 12. Biodiversity Conventions, Treaties and Agreements

Your project must support the objectives of one or more of the agreements listed below. Please indicate which agreement(s) will be supported and describe which objectives your project will address and how. Note: projects supporting more than one will not achieve a higher score.

<b>Convention On Biological Diversity (CBD)</b>	Yes
<b>Nagoya Protocol on Access and Benefit Sharing (ABS)</b>	Yes
<b>International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)</b>	Yes
<b>Convention on International Trade in Endangered Species (CITES)</b>	Yes
<b>Global Goals for Sustainable Development</b>	Yes

#### 12b. Biodiversity Conventions

Please detail how your project will contribute to the objectives of the agreement(s) your project is targeting and how your project will help to achieve the Global Goals for Sustainable Development (SDGs). You should refer to Articles or Programmes of Work here. Note: No additional significance will be ascribed for projects that report contributions to more than one agreement

**(Max 500 words)**

This project is fully aligned with the Convention on Biological Diversity (CBD), specifically the conservation of biological diversity and sustainable use of its components and particularly Articles 7 (identification and monitoring), 8 (in situ conservation), 12 (research and training), and 13 (public education and awareness), and is closely aligned with at least 3 Aichi Targets (AT) and its corresponding Strategic Goals. Within Strategic Goal C, to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity, our project will support AT11 (protected areas), by reducing the impact of hunting on wildlife in adjacent protected areas, and AT12 (extinction of threatened species) by focusing on stopping the offtake of endangered species, principally elephants, gorillas and chimpanzees. By encouraging the use of local varieties of cultivated plants and animals we will also support AT13 (safeguarding of genetic diversity of cultivated plants and farmed and domesticated animals).

This project will also directly feed into the Sustainable Development Goals particularly number 15 that aims to:

- Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

It will do this by helping to protect and ensure sustainable use of ecosystems, manage forests and contribute to reducing unsustainable wild meat hunting.

The project will align closely with Cameroon's National Biodiversity Strategy and Action Plan (NBSAP)<sup>1</sup> targets. The NBSAP focuses on four strategic goals – 1) Addressing the causes of biodiversity degradation/loss by reducing pressures; 2) Maintaining and improving the status of biodiversity; 3) Promoting the sustainable use of biodiversity and 4) Promoting the integration of biodiversity in sector and local level planning and development.

One additional aim of our project is to document and help revive traditional practices, folklore and knowledge on biodiversity (e.g. bans on hunting certain animal species, use of medicinal plants), which obliquely relates to the Nagoya protocol. Given our established links with the Baka communities in our study area we do not anticipate problems of access to traditional knowledge arising from this project.

**12c. Is any liaison proposed with the CBD / ABS / ITPGRFA / CITES / SDG focal point in the host country?**

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

Our intention is to build a Community of Practice that will include government bodies, such as the CBD's focal point in Cameroon (within the Ministry for Environment, Nature Protection and Sustainable Development) and representatives of the Ministry for Forestry and Wildlife, responsible for the management of the Dja Biosphere Reserve (DBR). For further details see Section 19.

**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.).

(Max 500 words – this may be a repeat from Stage 1, but you may update or refine as necessary. Tracked changes are **not** required.)

By improving the health and livelihoods of 10 representative Baka communities we will incentivise the sustainable wildlife use whilst discouraging poaching of protected species.

<sup>1</sup> Government of Cameroon (2012). National Biodiversity Strategy and Action Plan Version II. <https://www.cbd.int/doc/world/cm/cm-nbsap-v2-en.pdf>



Lessons learnt will be rolled out to other villages in the region.

**1) Understand the linkages between food and health.**

During Y1/Y2, the HO, supervised by ZyL and directed by our MMU Food and Nutrition expert, will gather, in at least 10 communities:

- a) Dietary behaviour, food and nutrient intakes from household surveys and compile a *de novo* food composition database.
- b) Nutritional status of men, women and children derived from anthropometric and medical data (including analyses of past medical records).
- c) Annual and seasonal variation in food supply and quality, and the importance of the insurance function of forest foods during 'shock' periods.

**2) Describe levels of wildlife extraction and understand their impact.**

During Y1/Y2 the ICPC and FRAs, supervised by MMU fauna staff will map and determine intensity of hunting and trade of wildlife in 10 communities from:

- a) Daily surveys of bushmeat entering villages and known markets to determine annual amounts hunted, bought and sold from different catchment areas.
- b) From individual hunter surveys, determine wildlife extraction patterns (using CPUE and MBMI<sup>2</sup>) and revenue from forest resources. We will determine forest-derived incomes, as well as factors associated with illegal exploitation of protected species by using participatory methods to investigate veracity of information.
- c) Train local capacity to interpret and use hunting information to establish, by the end of the project, a hunting monitoring system to be used by local stakeholders, and made available to national authorities. Data analyses and storage led by the project's DA.

**3) Assess changes in faunal populations and bushmeat availability.**

The ICP, supervised by MMU staff will use standardised techniques to assess the availability of bushmeat species and the impact of our project on the abundance of protected species in the region.

- a) Use camera traps (set 1km apart) at six permanently marked grids to record terrestrial small/medium to large mammals in catchment areas delimited in Method 2).
- b) Record birds, primates and any other key bushmeat species along transects between camera trap locations. Repeated on a monthly basis using Distance Sampling methods.

**4) Diversify and improve village livelihoods and food security.**

By Y2, we will promote food security and increase revenue by implementing new farming approaches. We will employ participatory methods, and elicit local knowledge to boost already established farming support systems already implemented by ZyL. We will guide and provide livelihood and food production activities, deliver technical support and training in at least 10 communities by:

- a) Increasing food production of basic crops particularly cassava, plantain, and bananas in already established family farms. Pilot with 30 women-farmers, train and test new practices.
- b) Developing new inter-family and inter-village trade network of surplus products from the 10 pilot villages.
- c) Together with the IAC develop a long-term strategy for encouraging the sustainable exploitation of wildlife, the application of practicable farming methods and improve livelihoods.

<sup>2</sup> Catch per Unit Effort (CPUE) and the Mean Body Mass Indicator (MBMI) will be used to assess indices such as 'catch per unit effort' (CPUE) that use data reported by hunters themselves, can be used to investigate exploitation levels, gain insights into the status of a harvested population, and approximate sustainability of wildlife hunting.

#### 14. Change Expected

Detail the expected changes this work will deliver. You should identify what will change and who will benefit a) in the short-term and b) in the long-term.

(Max 300 words)

Providing communities with sufficient and appropriate alternative economic benefits to offset restrictions on access to conservation areas or wildlife is fundamental<sup>3</sup>. However, most conservation-development projects centre on the provision of livelihood alternatives (for both protein and income), without conditionalities, and without securing sufficient buy-in from individual families<sup>4</sup>.

We **will not** operate large village-level protein alternative projects, but will work with individual families to help them grow more nutritious, less impactful food crops, as well as encourage trade of surplus. Throughout the project, we will measure the impact of our interventions on income, dietary diversity, food security and human nutritional status (the latter linked to ZyL medical work), whilst encouraging networking within and between participating communities. Overall, we will improve living conditions of the region's Baka.

Although our project focuses on the Baka, we will also encourage synergies between these and neighbouring Bantu communities. This is because there are clear positive and negative hunting and farming relationships between these two groups that need considering in any intervention. ZyL already implements health and agricultural support for the Bantu communities, so that jealousies are unlikely. However, our project will consolidate a body of work to allow us to better understand the theory of change for a clearly underprivileged people.

Community support for biodiversity conservation will be sought as conditionality to the incentives provided by our project. This will focus on eradicating offtakes of key protected species and attain sustainable offtakes of non-protected taxa and implement a sustainable wildlife use system based on non-protected, high birth rate species such as small duikers and large rodents. Protected species are mainly poached for external commercial markets, duikers and large rodents are hunted for subsistence and local sale. We will encourage local collaborative action to thwart commercial poaching and hunting parties in the project region.

#### 15. Pathway to poverty alleviation

Please describe how your project will benefit poor people living in low-income countries. Give details of who will benefit and the number of beneficiaries expected to be impacted by your project. The number of communities is insufficient detail – number of households should be the largest unit used. If possible, indicate the number of women who will be impacted.

(Max 300 words)

We will address Millennium Development Goal (MDG) 1 (eradicate extreme poverty and hunger), 3 (promote gender equality and empower women), and 7 (ensure environmental sustainability). Through the ZyL existing work we will also facilitate MDG 4 (reduce child mortality) and MDG 5 (improve maternal health).

**Food security:** We will have a positive impact on poverty alleviation by increasing food security (availability, access, utilization and stability of nutritious foods) in poor households. In the short-term, this will focus on ensuring the sustainable use of wildlife resources alongside the improvement of agricultural production. The targeted Baka populations acknowledge the need to increase their expertise in farming in order to provide more healthy foods for local consumption.

**Gender equality:** ZyL have already initiated several Bantu women cooperatives in the study

<sup>3</sup> Sandker M. et al. (2009). Exploring the effectiveness of integrated conservation and development interventions in a Central African forest landscape *Biodivers Conserv* **18**: 2875–2892.

<sup>4</sup> Wicander, S. & Coad, L. (2015). *Learning our Lessons: a Review of Alternative Livelihoods Projects in Central Africa*. Oxford, UK: ECI, University of Oxford and Gland, Switzerland: IUCN.

area, including the creation of micro-financing initiatives as well as providing fixed capital investments. During initial consultations with Baka women in the target villages they requested participation in similar schemes. Such programmes will empower Baka women by creating revenue-generating opportunities to contribute to family income, and allow them to generate knowledge that promotes the food security of their households.

#### **Health and nutrition links:**

Health and nutrition links: Through the existing *ZyL* health plan, Baka communities are being supported in terms of public health, primary health care and surgical interventions. Women and children, the most disadvantaged and marginalized in the area, are the main target groups in our project. We will use records generated by these programmes to analyse the relationship between nutrition and health as well as the role of wildlife as food<sup>5</sup>.

Overall we will encourage the development of pro-poor policy planning through the active participation of local and national representatives, and other interest groups, to ensure that national conservation and development policies are framed by, and responsive to, local realities.

#### **16. 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)

We are confident that *ZyL* as our local project partner will, together with the local communities, ensure an uneventful exit of our project. By collaborating with such a committed NGO, we will not only have created an unprecedented opportunity to implement a new paradigm for development linked to the conservation of biodiversity and natural resources, but also ensure that our Darwin project interventions contribute to the continued monitoring of sustainability of resources as well as the wellbeing of poor rural populations.

Our project will provide our partner organisation and local communities with a series of evidence-based practices that integrate health, agriculture and biodiversity use in a conservation-important region of the world. More specifically, our joint activities will result in greater understanding of the availability and use of wild and domestic food resources, the capacity of women to make decisions and implement actions affecting their future, and the improvement of agricultural products that will generate revenue and contribute to food security.

Although there is no assurance that the political landscape will not change, we are confident that our work will contribute to the permanence of the DBR and permit poor people to benefit from the natural resources in the region.

#### **17a. Harmonisation**

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

This is a totally new initiative. Our project will build upon over 20 years of development and health interventions with the Baka communities in the study region undertaken by our local partner, *ZyL*. By supporting and working together with *ZyL* we will be able to assist them to develop and integrate a clear environmental component to their long-standing development, health and agricultural extension work. We will also be able to assist *ZyL* in analysing existing

<sup>5</sup>Fa, J.E. et al (2015). Disentangling the relative effects of bushmeat availability on human nutrition in central Africa. *Scientific Reports*, 5: 8168 | DOI: 10.1038/srep08168.

data on human morbidity, mortality, nutrition status and agricultural activities. By doing this, we will not only be able to assist the Baka communities to achieve a more holistic integration with their environment but also create capacity within ZyL to undertake ongoing audits of their work.

**17b. Are you aware of any other individuals/organisations/projects carrying out or applying for funding for similar work? Yes**

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

There are a number of organisations currently working in southern Cameroon particularly in the DBR. These organisations, with which we have worked in the past in other projects, are fully aware of our planned work, and have expressed an interest in exchanging ideas and creating synergies to improve the knowledge base of our work in the region. Our project area does not geographically overlap with the DBR but the protection of biodiversity in this protected area is affected by hunting activities emanating from our study area.

**Centre for Research and Conservation (CRC):** Since 2001, Antwerp Zoo through its Project Grands Singes has operated a conservation-applied research and community development project for great ape conservation in non-protected forests outside the DBR. The project, located 10km north of the DBR), works with improving the livelihoods of a community of three main villages (Malen-V, Doumo-Pierre and Mimpala), within 300 km<sup>2</sup> of forest.

**African Wildlife Foundation (AWF).** This organisation has been working within the DBR, focussing on anti-poaching activities, support and training of ecoguards and monitoring of the status of wildlife in the Reserve. AWF has implemented the use of SMART for law enforcement monitoring and reporting. The main aim of these actions is the study and protection of great ape and elephant populations. Work with communities is limited to protection of wildlife.

**Zoological Society of London (ZSL).** This organisation, alike the AWF focuses on improving the protection of the Dja landscape with particular emphasis on great apes and African elephant. ZSL equip and train eco-guards (including the use of SMART), and pursuing effective prosecution of wildlife crime, and engage other groups such as local communities and private sector in conservation and protection activities. This work is closely linked to the activities of the Wildlife Wood Project which operates in timber concessions in the periphery of the reserve

**Bristol Conservation and Science Foundation (BCSF).** The project will also liaise with BCSF who have recently completed the Darwin funded “Developing a pro-poor, sustainable bushmeat harvesting model in Cameroon”. The aim of this project, in contrast to our project’s focus, was to reduce poverty amongst communities living in and around the DBR by enabling them to earn an income legally, and contribute to long-term food security whilst reducing the unregulated take of wildlife in the region. Lessons learned from the BCSF project will complement our project.

**18. Ethics**

Outline your approach to meeting the Darwin Initiative’s key principles for research ethics as outlined in the [Guidance](#).

(Max 300 words)

**Legal and ethical obligations:** MMU has a robust research policy to ensure that all research is of the highest ethical standard and the project will, as a matter of course, be submitted for approval by the University’s ethics committee. All medical interventions undertaken by ZyL are covered by the organisation’s ethics code, and the normal standards and ethics applicable to practicing doctors. Data collected by ZyL medics on the health of village participants will be analysed to detect only general patterns and will anonymise participants.

**Strong local leadership and participation:** MMU is committed to promoting local ownership by our local partner (ZyL) providing capacity-building support to enable the local partner to take the lead in the implementation of in-country activities.

**Valuing traditional knowledge:** The project is designed to build upon the traditional activities of the people of the study villages, such as growing crops. Recognising their unique knowledge and understanding of the forest and its wildlife, the project will work closely with the local people in the identification and setting of parameters in the Reciprocal Environmental Agreements.

**Rights of stakeholders and beneficiaries:** MMU recognizes that the rights, privacy, and safety of stakeholders and beneficiaries are of paramount importance and the project approach has been designed to ensure the full and active participation of all beneficiaries. Formal Free Prior and Informed Consent will be sought from the selected target communities.

**Health and safety:** All partner organisations have robust Health and Safety policies and MMU has considerable experience of safeguarding its staff and students during fieldwork in African countries.

**Independence of research:** MMU will ensure that any conflict of interest is declared and will be responsible for ensuring the independence and integrity of all research conducted.

**Research focus:** The research is designed to generate key learning on methods and approaches for the management of natural resources that contributes to both poverty reduction and sustainable conservation of biodiversity.

## 19. 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 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)

We will share project reports and learning both internally (within MMU and partner networks) as well as externally. Key external stakeholders include conservation and development agencies (including for example through project presentations at international symposia and meetings), local and national NGOs and the Cameroonian Ministry of Forestry and Fauna (MINFOF), and the general public. Additionally, specific communication and knowledge sharing activities will include:

**Community of Practice:** This network of peers will provide a learning circle for the project and a channel for communication and dissemination of project reports and findings. Representatives will be drawn from actors working at the local and national government levels (e.g. MINFOF) and organisations involved in biodiversity conservation and poverty reduction in Cameroon e.g., WWF, AWF, WCS, IUCN, CIFOR-C. In particular, we aim to create a 'dialogue and learning space' in which project partners can discuss methods and key issues with other research/conservation groups working outside the DBR e.g. Antwerp Zoo. By seeking commonalities between we will be able to provide key recommendations to complement protection activities within the DBR.

**Publications:** We aim to produce at least three high-level scientific publications covering: 1) the status of area's fauna, 2) health, nutrition and livelihoods of the resident human populations and 3) how sustainable food production systems (including wildlife) impact on poverty indicators. These will be peer reviewed, aimed at high-impact, open access journals and subsequently widely disseminated amongst partners' networks and amongst wider learning networks. We will also encourage the submission of popular press articles to national and international magazines, blogs (CIFOR, ZyL and MMU).

**Learning visits for MINFOF:** Two learning visits to the project area for MINFOF will enable policy makers to have a better understanding of the project, and thus take greater interest in its outcomes.

## 20. Capacity building

If your project will support capacity building at institutional or individual levels, please provide details of what form this will take and how this capacity will be secured for the future.

(Max 300 words)

As part of the capacity development focus of the project, at the project outset, MMU staff (fauna and food and nutrition experts), design and deliver training on biological data, nutritional, agricultural and socio-economic data collection to ICPC, HO and FRAs, and Zyl ground staff. Our plan is to increase institutional capacity within Zyl by training key members, especially Cameroonian staff, in data storage and analyses (see Activity 17a). We plan to integrate CIFOR-C members, through a in the conceptual planning at the start of the project, and understand obstacles that may inhibit stakeholders from realizing the development and conservation goals beyond the life of our project.

We plan to support the training in agriculture to a minimum of 30 Baka women within the 10 study villages (3 per village). Each village has around 60 inhabitants, around 20 physically able adult women. Participants will also be chosen for their aptitude to train other women in their village. Capacity building training of local Baka women will take place through small and local workshops in the villages and will focus on the practicalities of increasing production of local and healthy foods. Because individual women will directly implement training and instigate changes in agricultural production and food security in their families, capacity will be secured through generations and, if successful, should become self-sustaining.

Our project will open training positions for at least 2 Cameroonian and 2 other (e.g. MMU) university students at a Masters level to work within the project. MMU staff will provide academic supervision to these, while Zyl will support the students on the ground. We expect the international students to come with their own source of funding, but we will endeavour to support the Cameroonian ones.

## 21. 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 line with the DFID Open and Enhanced Access Policy, the project's outputs will be made available for the use of others and in appropriate formats such as electronic media, printed material, workshops and networking, produced to meet target audience requirements. The accompanying budget has allowed for these forms of communication methods to be utilised in the project with funding from Darwin.

Technical reports will be made freely available to international conservation organisations working in the area (in particular AWF, ZSL, CRC but also WWF, WCS, and IUCN), local NGOs, community groups, Darwin Initiative, funders and project supporters amongst others. We anticipate national and international media attention (TV, radio, newspapers) once the results of actions are publicised.

The partners will be equally responsible for sharing project information in appropriate formats, such as those used in reaching local community groups, women's groups, at community events and with officials with the international partners. All methods used will add to the body of knowledge and support communicating the model to potentially other interested parties.

**22. Match funding (co-finance)****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:**

MMU has identified in-kind matched funding valued at £136,164. This includes: the salary costs for academic staff allocated to the project (worth £53,546), namely Dr Martin Jones (@ 10%), Dr Robyn Grant (@ 5%), and Dr Selvino de Kort (@ 5%), Dr Bradley Cain (@ 5%) and Dr Laura O'Connor (@ 5%). In addition, the full Indirect Costs associated with MMU staff time on the project are offered as matched funding (totalling £82,618). The University has approved the level of matched funding.

**22b) 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

**22c) None**

If you are not intending to seek matched funding for this project, please explain why.

(max 100 words)

Not applicable

**23) Risk**

Explain how you have considered the risks and threats that may be relevant to the success of this project, including the risks of fraud or bribery.

(max 200 words)

One of the key risks to delivering the project is failure to appoint to the post at MMU and the positions in Cameroon. To mitigate this, we will widely advertise the MMU Data Analyst post at Grade 6 to make the job attractive to applicants. The jobs in Cameroon will be promoted and recruited by the partner institutions ZyL and CIFOR-C. They have already started to identify potential applicants for these posts.

CIFOR-C and ZyL have considerable experience of project work in Cameroon, which includes a well-established approach to preventing fraud and bribery. The relationship between the partners will be governed by a signed collaboration agreement. This will confirm the roles and responsibilities of partners, and it clearly set out MMU's (and Darwin's) expectation that grant expenditure by CIFOR-C and ZyL is auditable and evidenced by invoices and receipts. Working with experienced partners to deliver the project will help to mitigate the risk of fraud or bribery.

The final risk is failure of the Baka people to engage with the project. The project will build on over 20 years of development and health interventions with the Baka communities in the study region undertaken by our local partner, ZyL.

**PROJECT MONITORING AND EVALUATION**  
**MEASURING IMPACT**

**24. 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.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Hunting and agriculture are managed sustainably to improve food security and health of rural populations through the effective and sustainable management of domesticated and wild food resources. (Max 30 words)			
Outcome: (Max 30 words) Food security and health improved in Baka settlements (around 2,000 inhabitants) in southeastern Cameroon, through the sustainable use of wildlife resources, and implementation of environmentally-friendly agricultural systems. We will focus on 10 representative villages during the project to roll out lessons learnt to the others in the region.	0.1 By Yr2, at least a 10% increase in food security, 15% increase in dietary diversity in monitored households.  0.2 There is a sustainable level of hunting of resilient species in catchment areas but a decrease in number of protected (elephant, great apes) species hunted.  0.3 By Yr3, a 10% decrease in anaemia rates in Baka communities from a current 60% <sup>6</sup> , as a result of encouraging adequate nutrition.  0.4 There is a 20% increase in cassava, plantain and banana production in plots in 20 villages through the application of improved practices by Y3.  0.5 By Yr3, there is a 10% increase in income from gardening and limited bushmeat sale in 10 study villages.	0.1 Household survey data and dietary record analysis.  0.2 Hunting zone maps from hunter questionnaires and direct hunter offtake data. Bushmeat market information.  0.3 Medical records from all ZyL clinics analysed. Consumption rates of macro- and micronutrients from dietary records. Impact of parasite reduction and malaria suppression.  0.4 Surveys of agricultural yields.  0.5 Household and socioeconomic survey data.	Relevant government authorities support project interventions.  Government authorities have sufficient authority and presence in the area to control the exploitation of protected species, but allows hunting of fast-breeding taxa.  Improvement in anaemia rates result from both better nutrition from the project's intervention and lowering of disease. The latter currently being undertaken by ZyL.  Supply chains are open and supported by local institutions.  Local markets are open to new products.
Outputs: 1. Research outputs developed and shared with target audiences (local government, villagers and international development community)	1.1 Journal article of hunting intensity and hunting sustainability of different species by end of Y2 submitted to open access journal  1.2 Journal article on dietary intakes and	1.1 Data analyses and project records on hunting and faunal abundance made available to MINFOF before publication.  1.2 Draft versions of papers made available for national and international peer	System is in place to allow continuous data analyses to disseminate project learning before publications appear.  Written papers are used to disseminate results of project and used to further

<sup>6</sup>ZyL health data of Baka populations in the study region (see <http://zercaylejos.org/proyectos/health-en/?lang=en>) indicate that 78%, 79% and 60% of children (6 months – 12 years) suffer from high intestinal parasite loads, malaria and anaemia, respectively.



	<p>food sources of key nutrients prepared by end of Y2.</p> <p>1.3 Journal article on links between forest, domestic crops and general health, especially of vulnerable groups (children, aged) prepared by end of Y2.</p> <p>1.4 Journal article on changes in population numbers of large mammals and birds in the area, in relation to hunting pressure submitted by Y3.</p>	<p>review before being sent to relevant journals.</p> <p>1.3 Draft versions of papers distributed to stakeholders for review.</p> <p>1.4 Draft versions distributed to stakeholders and partners to comments and analysis of implications.</p>	<p>discussions with appropriate authorities.</p>
<p><b>2.</b> Learning opportunities created and practitioner materials made available for current use and future studies.</p>	<p>2.1 Electronic nutrient composition database of consumed foods in study area produced.</p> <p>2.2 Spatial data on wildlife extraction patterns stored in GIS shapefiles.</p> <p>2.3 Wildlife use and extraction data stored in electronic database for use by project partners.</p> <p>2.4 In Y3, practitioner workshops organised to train users of databases generated by project.</p> <p>2.5 In Y1 and Y3, baseline and post-project review workshops respectively, organised with CIFOR-C and other stakeholders.</p> <p>2.6 In Y1, student projects organised and integrated into project activities.</p>	<p>2.1 Open access nutrient composition database of foods made available from MMU server and disseminated widely to potential users.</p> <p>2.2 Copies of shapefiles stored by CIFOR-C, ZyL and made available to government bodies.</p> <p>2.3 Copies of databases open to use by all project partners.</p> <p>2.4 Workshop proceedings.</p> <p>2.5 Reports on baseline analysis in Y1, and future directions reports produced at the end of Y3.</p> <p>2.6 At least 4 Master's student projects, 2 from Cameroon resulting from research undertaken for Outputs 3-5 by 3rd of Y3.</p>	<p>Nutrient composition database supervised by the project's Food and Nutrition expert, Dr. L.O'Connor at MMU.</p> <p>CIFOR-C intervention consultant supports the project to better understand outcomes and future prospects.</p>
<p><b>3.</b> Hunting use zones maintained with hunters and meat traders across 10 communities respecting agreed quotas.</p>	<p>3.1 By Y2, 100% households in study communities become signatories of reciprocal agreement to reduce illegal hunting and participate in monitoring of wild species offtake.</p> <p>3.2 By Y2, illegal hunting and sales of protected wildlife reduced by 50%.</p> <p>3.3 During Y1-Y3 all participating hunters (a minimum of 100 out of 900)</p>	<p>3.1 List of participating families in project created for each study community.</p> <p>3.2 Reports on hunting of protected species. MINFOF intelligence reports on poaching in the region.</p> <p>3.3 Data reports, electronic databases. Graphical representation of trends. Hunting zone maps. Written accounts of hunter workshops.</p>	<p>Local research assistants employed to support data gathering.</p> <p>Hunters/traders motivated to contribute to the project.</p> <p>Conditionality of no hunting of protected species created in line with health and agricultural support provided via Output 5.</p> <p>Hunting information obtained can estimate</p>

	monitored (species hunted/sold, equipment used, hunting zones).	3.4 Analysis reports of catch per unit effort (CPUE) for each hunter of all species, and on quotas determined with hunters for resilient taxa.	level of protected species offtake. Use of indirect methods to determine veracity of reports.
3.4 By Y2, hunting quotas of hunting resilient, fast-breeding species established in conjunction with 100% participating hunters.			
4. Independent measures of population status of protected fauna available for management purposes.	4.1 Throughout Y1 and Y2, camera trapping data analysed and interpreted to determine abundance and distribution of prey and protected species.  4.2 Hunter perceptions surveys undertaken during Y1 and Y2 to determine status of fauna using traditional ecological knowledge (TEK) methods.	4.1 Faunal status survey reports made available to determine changes in fauna during project.  4.2 Reports of status of hunted and non-hunted prey species produced, including analyses of depletion zones derived.	Increase in populations of protected species can be linked to the project's activities.  Use of targeted interview techniques can verify if hunters participating in the project are taking protected species
5. Improvement of human health and livelihoods achieved through an increase in dietary intake, nutritional status, and medical interventions.	5.1 By Y3, 10% food security increases in at least 10 study villages through improvements in food availability.  5.2 By Y3 there will be a 10% drop in anaemia cases in children (<12 years) by improving protein consumption and general nutritional intake.  5.3 By Y3, at least 30 women farmers trained in agricultural improvement and farming techniques. Quality and amount of food crops produced increase by 10% of baseline.	5.1 Analyses on access to domestic and wild foods.  5.2 Reports and database of nutritional status of villagers from household surveys of food consumption and nutrient intake. Health reports from ZyL medical programme to determine link between overall health and nutrition of Baka.  5.3 Agricultural extension programme reports and manuals. Crop production records.	Food security measured as "physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life".  Baseline information on health available from ZyL medics. Ethical premises of use of persons' medical records are clear.  Agricultural extension programmes and training of women farmers will continue to be operated by ZyL.  Information of food production by families gathered at the start of the project.

**Activities** (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

#### Output 1. Research outputs

- 1.1 Assembling project resources (in-country).
- 1.2 Project launch meeting (in-country) for partners and target communities.
- 1.3 Identification and establishment of agreed parameters.
- 1.4 Establishment of Community of Practice (COP).
- 1.1 Partnership agreements between project, communities, CIFOR-C, MINFOF representatives.

- 1.2 Ongoing monitoring of data collection by communities and local partner with monthly reports.
- 1.7 Monthly reports published on website and dissemination of project newsletter.
- 1.8. Six-monthly review (data collection) of biological indicators and socio-economic surveys.
- 1.9 Six-monthly analysis of data by MMU.
- 1.10 Annual meetings of COP.
- 1.11 Six monthly project review meetings with local communities, hunters and traders and local game guards to enable feedback from beneficiaries.
- 1.12 Development of publication drafts and circulation for internal peer-review.
- 1.13 Submission of final publications to peer-reviewed journals.

### **Output 2. Learning opportunities**

- 2.1 Development of an electronic nutrient composition database of wild and domestic foods consumed in study area.
- 2.2 Collection of samples for nutrient composition database of foods
- 2.3 Preparation of nutrient composition database of foods for use in planned diet studies.
- 2.4 Spatial data on wildlife extraction rates, and areas hunted stored in GIS shapefiles and analysed (cross ref. Activity 3.4)
- 2.5 Spatial analyses of hunting areas and hotspots undertaken by MMU.

### **Output 3. Hunting use zones**

- 3.1 Focus group discussions with hunters to establish working practices (cross ref. Activities 1.4 and 1.8)
- 3.2 Hunter interviews to establish hunting volumes and intensity
- 3.3 Training of village reporters to document hunted prey volumes and frequency.
- 3.4 Monthly village reports of animals hunted and numbers.
- 3.4 Participatory mapping of hunting zones around target villages.

### **Output 4. Protected fauna**

- 4.1 Baseline survey of wildlife status from hunter interviews.
- 4.2 Capacity-building training for local members of monitoring networks.
- 4.3 Camera trapping grids operational in identified hunting zones in Activity 3.4.
- 4.4 Camera trapping data analysed by MMU to detect changes in presence and abundance large-bodied/protected analysed.

### **Output 5. Human health and livelihoods**

- 5.1 Training of household and farming survey assistants.
- 5.2 Baseline survey of home-produced foods and trade in sample households,
- 5.3 Socioeconomic surveys of sample households.
- 5.4 Baseline survey of health status in sample households
- 5.5 Nutritional assessment of sample households based on dietary recalls.
- 5.6 Baseline survey of agricultural production and activity in sample households.
- 5.7 Training of women farmers

5.8 Six monthly monitoring of agricultural production changes.

**25. 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 (Q1 starting April 2017)**

Please add/remove columns to reflect the length of your project. For each activity (add/remove rows as appropriate) indicate the number of months it will last, and shade only the quarters in which an activity will be carried out. The workplan can span multiple pages if necessary.

	No. of months	Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Output 1. Research outputs</b>																	
1.1 Assembling project resources (in-country)	0.5	■															
1.2 Project launch meeting (in-country) for partners and target Communities	0.5	■															
1.3 Identification and establishment of agreed parameters	1	■															
1.4 Establishment of Community of Practice (COP).	1	■															
2.7 Partnership agreements between project, communities, CIFOR-C, MINFOF representatives.	1	■															
2.8 Ongoing monitoring of data collection by communities and local partner with monthly reports.	3			■				■				■					
2.9 Monthly reports published on website and dissemination of project newsletter.	3			■				■				■					
1.8. Six-monthly review (data collection) of biological indicators and socio-economic surveys.	6	■		■		■		■		■		■					
1.9 Six-monthly analysis of data by MMU.	6	■		■		■		■		■		■					
1.10 Annual meetings of COP.	2				■				■					■			
1.11 Six monthly project review meetings with local communities, hunters and traders and local game guards to enable feedback from beneficiaries.		■			■		■			■				■			
1.12 Development of publication drafts and circulation for internal peer-review.	3				■				■					■			
1.13 Submission of final publications to peer-reviewed journals.	3							■				■	■				

<b>Output 2. Learning opportunities</b>																		
2.1	Development of an electronic nutrient composition database of wild and domestic foods consumed in study area.	6																
2.2	Collection of food samples for nutrient composition database of foods	12																
2.10	Preparation of the nutrient composition database of foods for use in planned diet studies.	6																
2.4	Spatial data on wildlife extraction rates, and areas hunted stored in GIS shapefiles and analysed (cross ref. Activity 3.4)	3																
2.5	Spatial analyses of hunting areas and hotspots undertaken by MMU.	6																
<b>Output 3. Hunting use zones</b>																		
3.1	Focus group discussions with hunters to establish working practices (cross ref. Activities 1.4 and 1.8)	2																
3.2	Hunter interviews to establish hunting volumes and intensity	6																
3.3	Training of village reporters to document hunted prey volumes and frequency.	3																
3.4	Monthly village reports of animals hunted and numbers	33																
3.4	Participatory mapping of hunting zones around target villages.	6																
<b>Output 4. Protected fauna</b>																		
4.1	Baseline survey of wildlife status from hunter interviews.	6																
4.2	Capacity-building training for local members of monitoring networks.	6																
4.3	Camera trapping grids operational in identified hunting zones in Activity 3.4.	33																
4.4	Camera trapping data analysed by MMU to detect changes in presence and abundance large-bodied/protected analysed.	9																
<b>Output 5. Human health and livelihoods</b>																		

5.1 Training of household and farming survey assistants.	3	■															
5.2 Baseline survey of home-produced foods and trade in sample households,	9	■	■	■													
5.3 Socioeconomic surveys of sample households.	6	■	■														
5.4 Baseline survey of health status in sample households	6																
5.5 Nutritional assessment of sample households based on dietary recalls.	30		■		■		■		■		■						
5.6 Baseline survey of agricultural production and activity in sample households.	3		■														
5.7 Training of women farmers	3		■														
5.8 Six monthly monitoring of agricultural production changes	20	■	■	■	■	■	■	■	■	■	■						

## 26. 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 project's 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)

Monitoring and evaluation will respond to the need for empirical data and analysis of the links between biodiversity conservation and poverty reduction. The monitoring and evaluation system for the project (discussed in Section 13 above) draws upon the extensive experience of the project partners working in the target area, and upon the specific expertise of MMU. At the project outset, MMU will lead in the design of a tailored M&E framework for the project, which will contain comprehensive indicators to measure the social, economic and environmental impacts of the project, and specific milestones for achievement for each indicator.

Baseline surveys at the start of the project will provide comprehensive socio-economic and biological data for 10 study communities. Socio-economic and food consumption data will be collected through household surveys, developed in partnership with local community leaders. Health (including nutrition status) data of villagers will be analysed from long-term information collected from the local partner's medical scheme. The ICPC, through biodiversity surveys using transect and camera trapping, will be responsible for gathering biological data, and data relating to local hunting will be collected via village reports. We will gather information on poaching activities from MINFOF game guard reports and other NGO actors working in the area to assess the impact of the illegal killing of protected species. Our local partner will be responsible for data triangulation and verification; drawing upon its close working relationships with the target communities during such verification exercises.

Our ICPC will be responsible for the collection and collation of all data. The recipient of this post will have been previously trained on Monitoring and Evaluation and data capture techniques, in partnership with MMU's research department. Following the baseline survey, progress against baseline indicators will be reviewed on a six-monthly basis. The ICPC will be responsible for this data collection with ZyL providing technical support where necessary. Data collected will then be passed to the DA for analyses and storage. These analyses will be done in conjunction with the PI and other project staff to enable understanding of the status of wildlife and people's wellbeing, as well as linkages between changes in food provision and health and livelihoods of the targeted villages. Findings will be shared and discussed at six-monthly reviews. Additionally, the ICPC and the FRAs will work with project participants to complete written or oral monthly reports; in partnership with the local partner. These regular reports will provide key quantitative and qualitative data about the project intervention.

Number of days planned for M&E	119 days
Total project budget for M&E	£21,753
Percentage of total project budget set aside for M&E	5%

## 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. You should also ensure you have read the 'Finance for Darwin' document and considered the implications of payment points for cashflow purposes.**

**NB:** The Darwin Initiative cannot agree any increase in grants once awarded.

### 27. Value for Money

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)

In designing this project we have considered value for money, in particular the identification of our local partner. By collaborating with ZyL our project will build upon their over 20 years' experience and learning in the target areas. Their long-term presence means that our project fits will have a clear competitive advantage given the existing strong trust-based relations with the target communities and good working relationships with local government. By taking advantage of our relationship with ZyL we obviate the need for costly and lengthy initial community engagement and trust brokering activities.

The project will form part of our project partners' broader programme of work, thus local office running costs will be minimised as they will be shared amongst several projects. The use of experienced community-based field officers serves to minimise the cost of field activities; reducing the need for costlier consultants and their associated transport costs. Moreover, our project builds upon existing social capital, namely the skills and traditional knowledge of Baka community members, especially women. Although we will supply technical training in new livelihood areas, by building on already established knowledge and skills, we will likely be able to increase the sustainability of the project. The project partners will use their close working relationships with MINFOF, to ensure that learning and research generated through the project are widely shared to stimulate replication and up-scaling of our working practices.

### 28. Capital items

If you plan to purchase capital items with Darwin funding, please indicate what you anticipate will happen to the items following project end.

(max 150 words)

Six grids of 12 requires 72 camera traps but experience informs us that 10% of traps will be lost or damaged during a project of this duration, thus we request 80 traps at £200 = total £16,000. These will remain with ZyL since there are plans for our local partner to continue with monitoring of fauna within the study area.

4x4 Vehicle, Toyota Hilux. This vehicle will be donated to ZyL in support of continuing activities started within our project. The cost of this is £25,000.

## 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) and attach details of any advice you have received from them.

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



**CERTIFICATION**

On behalf of The Manchester Metropolitan University

I apply for a grant of £299,107 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 key project personnel and letters of support.
- I enclose our most recent signed audited/independently verified accounts and annual reports

<b>Name (block capitals)</b>	MR JOHN CUNNINGHAM
<b>Position in the organisation</b>	DIRECTOR OF FINANCE

**Signed\*\***

PDF

**Date:**

05/12/2016

**If this section is incomplete or not completed correctly the entire application will be rejected. You must provide a real (not typed) signature. You may include a pdf of the signature page for security reasons if you wish. Please write PDF in the signature section above if you do so.**

**Stage 2 Application – Checklist for submission**

	<b>Check</b>
Have you <b>read the Guidance</b> ?	Yes
Have you read and can you meet the current Terms and Conditions for this fund?	Yes
Have you provided <b>actual start and end dates</b> for your project?	Yes
Have you provided your <b>budget based on UK government financial years</b> i.e. 1 April – 31 March and in GBP?	Yes
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?	Yes
Has your application been <b>signed by a suitably authorised individual</b> ? (clear electronic or scanned signatures are acceptable)	Yes
Have you included a <b>1 page CV for all the key project personnel</b> identified at Question 10?	Yes
Have you included a <b>letter of support from your key partner organisations</b> identified at Question 9?	Yes
Have you <b>been in contact with the FCO</b> in the project country/ies and have you included any evidence of this?	No
Have you included a <b>signed copy of the last 2 years annual report and accounts</b> for the lead organisation?	Yes
Have you <b>checked the Darwin website</b> immediately prior to submission to ensure there are no late updates?	Yes

Once you have answered the questions above, please submit the application, not later than 2359 GMT on Monday 5 December 2016 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.