



Submit by Tuesday 1 December 2015

DARWIN INITIATIVE APPLICATION FOR GRANT FOR ROUND 22: 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. Blank cells may render your application ineligible

ELIGIBILITY

- Name and address of organisation**

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

Applicant Organisation Name:	Charles Sturt University (CSU)
Address:	Boorooma Street
City and Postcode:	North Wagga, New South Wales 2678
Country:	Australia
Email:	
Phone:	

2. Stage 1 reference and Project title

Stage 1 Ref: 3081	Sustainable rangeland management to protect red pandas and herder livelihoods.
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3. Project description (not exceeding 50 words)

Community-based landcare program builds herder and agency capacity to achieve sustainable rangeland management and red panda conservation in eastern Bhutan. Herder livelihoods improved through better pasture and livestock management, forest regeneration, alternative energy technology, women's savings group and vegetable gardens. Research and education on red pandas galvanises community-agency conservation action.

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.

Country 1: Bhutan	Country 2:
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5. Project dates, and budget summary

Start date: 1 April 2016	End date: 31 March 2019	Duration (in years): 3 years
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Darwin funding request (FY Apr – Mar) \$1AUS=0.47GBP from XE currency converter 24/11/15	2016/17 £92,467	2017/18 £98,998	2018/19 £98,535	Total £290,000
Proposed (confirmed & unconfirmed) matched funding as % of total Project cost				37%
Are you applying for DFID or Defra funding? (Note you cannot apply for both)		DFID		

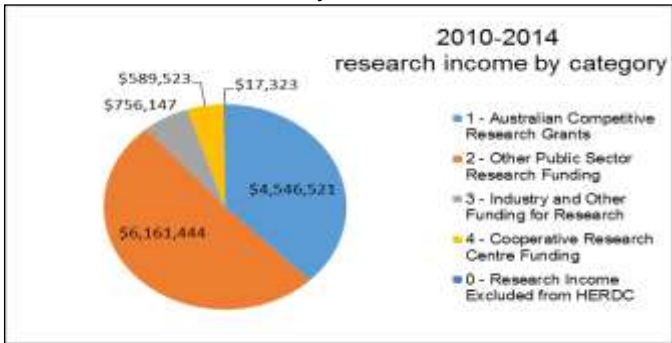
6. Partners in project. Please provide details of the partners in this project and provide a CV for the individuals listed. You may copy and paste this table if necessary.

Details	Project Leader	Project Partner 1	Project Partner 2
Surname	Millar	Samdup	Norbu
Forename (s)	Joanne	Tashi	Chencho
Post held	Senior Researcher	Director General	Director General
Organisation (if different to above)	Charles Sturt University (CSU)	Ministry of Agriculture and Forests (MOAF)	Ministry of Agriculture and Forests (MOAF)
Department	Institute for Land, Water and Society	Livestock	Forestry and Park Services
Telephone			
Email			

Details	Project Partner 3	Project Partner 4	Project Partner 5
Surname	Dorji	Bista	Poussard
Forename (s)	Dechen	Dambar	Horrie
Post held	Director	Conservation Manager	Secretariat
Organisation (if different to above)	World Wildlife Fund Bhutan	Red Panda Network (Asia Division)	Australian Landcare International
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**

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

What year was your organisation established/ incorporated/ registered?	CSU was established in 1989 through the Charles Sturt University Act, 1989 (Act No. 76, 1989). The Institute for Land Water and Society (ILWS) was created in 2005 as a business unit.
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 Business Unit of ILWS is funded from CSU core funds. Just over half of the \$12M+ research income earned by ILWS between 2010 and 2014 was from Public Sector research grants, with the other major contributor being Australian Competitive Research Grants. ILWS earned 17% of all research income earned by CSU in this time. 
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	Managing agricultural landscapes to maximise production and conservation outcomes: the case of the Regent Parrot
Value	\$547,892AUS
Duration	2008-2013
Role of organisation in project	ILWS as Chief Investigator with 3 ILWS senior ecologists and 3 PhD students undertaking separate studies.

Brief summary of the aims, objectives and outcomes of the contract/award.	<p>This study quantified the cost-benefit trade-offs in agricultural landscapes by linking landscape composition and resource availability with biodiversity conservation, the provision of ecosystem services, agricultural pests and crop yield. The project was based in the Robinvale almond production region of Victoria where researchers identified the relationships between key habitat, food resources and selected groups of birds, with an emphasis on the endangered Regent Parrot. An analysis of the costs and benefits of bird interactions in crops found that the benefits of birds far outweighed the costs. Birds like the regent parrot may inflict costs to almond growers through crop damage, but also benefit growers through removal of infected nuts left in orchards post-harvest and biological (pest) control. Five journal papers published and management recommendations to growers.</p> <p>http://www.csu.edu.au/research/ilws/research/summaries/ps/managing_agricultural_landscapes</p>
Client/ independent reference contact details (Name, e-mail, address, phone number).	<p>Damon Oliver NSW Office of Environment and Heritage 11 Farrer Street, Queanbeyan NSW</p>

2. Title	Extension approaches for scaling out livestock production in Lao PDR
Value	\$400,000AUS
Duration	2007 to 2011
Role of organisation in project	ILWS Chief Investigator, Dr Joanne Millar led the project, employing one research assistant and supervising two postgraduate students.
Brief summary of the aims, objectives and outcomes of the contract/award.	<p>The project assisted the Lao government in fostering further adoption of improved livestock production by adapting and researching extension methods and staff development approaches across five northern provinces. Over 3,000 farmers benefiting from increased fodder and livelihood impacts documented in case studies, digital stories and journal papers. Extension guidelines developed and evaluated.</p> <p>http://www.csu.edu.au/research/ilws/research/international-research/easlp-project/project-overview</p>
Client/ independent reference contact details	<p>Dr Peter Horne Country Manager Australian Centre for International Agricultural Research GPO Box 1571, Canberra, ACT, 2601</p>

3 Title	Monitoring the ecological response of Commonwealth environmental water delivered in 2013-2014 to the Murrumbidgee River
Value	\$671,801AUS
Duration	2012-2014

Role of organisation in project	ILWS Chief Investigator was Dr Skye Wassens with two research assistants. ILWS led a scientific team from NSW Office of Environment and Heritage, NSW Department of Primary Industries, Murrumbidgee CMA and University of New South Wales.
Brief summary of the aims, objectives and outcomes of the contract/award.	<p>The Murrumbidgee River system in the Murray-Darling Basin is of high economic, social and ecological importance. Although it has been highly regulated, it still has populations of endangered species such as Trout Cod and Silver perch. The mid-Murrumbidgee and the Lowbidgee wetlands are listed as nationally significant wetlands with critical habitat for waterbird breeding and endangered frogs such as the Southern Bell frog. The team developed statistical models to characterise the strength of interactions between multiple hydrological, biophysical, chemical and biological responses to environmental flows to better predict outcomes and establish long-term datasets covering a range of ecological responses under different flow conditions. The strategies developed assisted environmental watering programs in Australia.</p> <p>http://www.csu.edu.au/_data/assets/pdf_file/0003/1345053/Murrumbidgee-LTIM-Project-Progress-report-March-2015_Part-B_final.pdf</p>
Client/ independent reference contact details	Sam Roseby Commonwealth Environmental Water Office Department of the Environment GPO Box 787 Canberra ACT 2601 Australia

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)

<p>Aims (50 words)</p> <p>ILWS Aim is "to undertake internationally recognised and integrated research in social and environmental sustainability to enhance the livelihoods and lifestyles of people in rural and regional areas."</p>
<p>Activities (50 words)</p> <p>ILWS undertakes research, development and policy advice in biodiversity conservation, wetland management, aquatic science and management, climate change, fish ecology, natural resource management, regional development, rural social issues, Indigenous business and cultural heritage, eco-tourism, education, communication, and food security. We provide support for 224 researchers and disseminate research findings.</p> <p>http://www.csu.edu.au/research/ilws/home/about</p>
<p>Achievements (50 words)</p> <p>From 2009-2013, ILWS attracted \$12.668millionAUS in external research income and earned 393 in higher education research publication points. External measures include a Centre Scopus h-Index of 47, and an ERA ranking of 4 out of 5 for the discipline area of Environmental Science and Management in the National Research Assessment.</p> <p>http://www.csu.edu.au/_data/assets/pdf_file/0008/1564064/ILWS-Biennial-Report-2013-2014-August-13-electronic.pdf</p>

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.

<p>Lead institution and website: Institute for Land, Water and Society (ILWS), Charles Sturt University, Australia https://www.csu.edu.au/research/ilws/home</p>	<p>Details (including roles and responsibilities and capacity to lead the project): (max 200 words)</p> <p>ILWS has extensive experience in managing social-ecological systems research projects and partnerships across Asia and Australia involving multidisciplinary teams. Dr Joanne Millar, an experienced social scientist in international development will be responsible for overall project management and reporting. Joanne has managed six research for development projects since 2002 in Laos, Indonesia and Bhutan. She leads an ILWS research program on improving rural livelihoods and environments in developing countries. Examples include; “Balancing conservation and development in protected areas in Lao PDR”, “Overcoming constraints to community-based commercial forestry in Indonesia.” “Socio-economic outcomes of community forestry in Nepal.” “Changes in transhumant agro-pastoralism in Bhutan”</p> <p>As principal research officer, Dr Karma Tenzing will implement on-ground activities with Bhutan partners, organise stakeholder meetings and herder group training, and be responsible for monitoring, evaluation and budgeting. Karma previously managed the UNDP GEF small grants programme in Bhutan and coordinated Sustainable Livestock Development Initiatives as Chief Veterinary Officer, Bhutan. Dr Alison Matthews, CSU adjunct mammalian ecologist will assist with red panda research methodology and data analysis. ILWS business manager, Nikki Scott will assist with finance management and annual reporting. Communications and GIS staff in ILWS will facilitate open access to datasets, publications, videos and social media sites.</p>
<p>Have you included a Letter of Support from this institution?</p>	<p>Yes</p>

<p>Partner Name and website where available:</p> <p>Department of Livestock (DOL) http://www.moaf.gov.bt/agencies/departments-of-livestock/dol-about-us</p>	<p>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</p> <p>DOL is the lead agency responsible for rangeland management, livestock production, biogas technology and herder livelihoods in Bhutan. DOL manages multi-million dollar programs and has the capacity to lead this project. The Director-General, Dr Tashi Samdup has been involved in project development since August 2014 after co-supervising Karma Tenzing's PhD study on rangeland management in Merak, and visiting Australia to learn about the landcare approach. He is keen to see a win-win situation emerge from this project in terms of herder livelihoods and rangeland conservation and as a successful community approach for other areas in Bhutan.</p> <p>DOL will manage the project in country and provide research support and advice on fodder establishment and livestock improvement. Mr Naiten Wangchuk, Chief of the Livestock Production Division will coordinate fodder conservation, grazing management and the biogas/vegetable production trial with the district livestock officer. He is familiar with Merak district through his Masters research on yak herding. Naiten will work closely with Karma Tenzing to organise and host project committee meetings and stakeholder workshops. DOL is also committed to assisting with monitoring and evaluation and reporting.</p>
<p>Have you included a Letter of Support from this institution? Yes</p>	
<p>Partner Name and website where available:</p> <p>Department of Forests and Parks Services (DOFP) http://www.dofps.gov.bt</p>	<p>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</p> <p>The Department of Forest and Park Services (DOFP) is responsible for forest protection and resource management, wildlife conservation, protected areas, watershed management, social forestry, nature recreation and eco-tourism. DOFP will provide support and advice for red panda research, habitat restoration and erosion control. The Director General of DOFP appointed Mr Ratu Wangchuk, Deputy Chief of the Wildlife Conservation Division in April 2015 as our liaison person for approvals and to assist with project development.</p> <p>Mr Sonam Tobgay, chief ranger of Sakteng Wildlife Sanctuary will coordinate the red panda research activities and assist with forest regeneration. Sonam has more than 15 years of experience as a forestry officer working on international conventions, forest conservation and wildlife monitoring using camera traps, scat analysis and sightings. He will supervise park staff and a research officer from the Uygen Wangchuk Institute for Conservation and Environment who will study changes in forest ecology and management. Sonam will work closely with Merak herders in carrying out gully restoration, tree planting, tree nursery establishment, red panda monitoring and community education. He already has a sound working relationship with the herders in joint park management, tourism, school education and food security projects.</p>
<p>Have you included a Letter of Support from this institution? Yes</p>	

<p>Partner Name and website where available:</p> <p>World Wildlife Fund Bhutan http://www.wwfbhutan.org.bt</p>	<p>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</p> <p>World Wildlife Fund (WWF) is Bhutan's oldest conservation partner. WWF Bhutan supports the government and people of Bhutan in environmental conservation programs such as research and study; education and awareness; illegal wildlife trade; anti-poaching; human-wildlife conflict; sustainable livelihoods; terrestrial and freshwater ecosystems and climate change. Director of WWF Bhutan, Dechen Dorji was instrumental in establishing Sakteng Wildlife Sanctuary in 2003. Since then WWF Bhutan has implemented community based ecotourism (homestays and campsites) and forest conservation activities in Merak and Sakteng districts.</p> <p>The role of WWF Bhutan in this project will be to provide office space for the project team whilst in Thimpu, and access to GIS analysis for mapping red panda habitat and management zones. WWF Bhutan will also provide funds for public educational materials (audio-visual and print) for use in school nature clubs, village meetings and to promote outcomes throughout the life of the project. With their extensive international network, WWF Bhutan will contribute to dissemination of project information and enable the project team to engage with conservation scientists and interested parties.</p>	
Have you included a Letter of Support from this institution?		Yes
<p>Partner Name and website where available:</p> <p>Red Panda Network (RPN) http://redpandanetwork.org</p>	<p>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</p> <p>The Red Panda Network conducts community based research and education on the conservation of wild red pandas and their habitat across the Eastern Himalayas. Conservation programs are currently based in eastern Nepal, east Kachin Burma, and Arunchal Pradesh India. In eastern Nepal, RPN staff created the world's first community-based monitoring of a red panda population, called Project Punde Kundo. Local villagers are employed as Forest Guardians to monitor local community forests, educate community forest user groups (CFUG's) about red panda conservation, and work with them to achieve forest and red panda preservation goals.</p> <p>RPN Conservation Manager, Damber Bista will provide technical advice on red panda research methods, and assist with designing community education on red panda stewardship. RPN will host a study tour for Merak yak herders and agency personnel to eastern Nepal in 2017 to learn about red panda conservation in the second year. A key benefit of RPN as project partner is their ability to share information on red panda status and trends across the Himalayas. Our project will help to fill the gap in knowledge about red panda populations in Bhutan as part of the eastern Himalaya complex.</p>	
Have you included a Letter of Support from this institution?		Yes

<p>Partner Name and website where available:</p> <p>Australian Landcare International (ALI) http://alci.com.au/about-us/ http://www.landcareonline.com.au/</p>	<p>Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)</p> <p>Australian Landcare International (ALI) is a not-for-profit organisation started in 2008. The aim is to use the collective member Landcare experience to help people in other countries manage their land and water resources more sustainably. Members have been involved in Landcare in Australia at policy, program and operational levels for more than 20 years. Some have international experience in agricultural, forestry and environmental management.</p> <p>Mr Horrie Poussard from ALI has been on our project working group since June 2014. He gave a presentation at CSU to Dr Tashi Samdup and Karma Tenzing on how the landcare approach works by building landholder capacity to work together across a catchment area. Horrie has advised on project development including the scoping award, Stage 1 and 2 applications. He will advise on landcare design, capacity building activities, monitoring and evaluation. The ALI committee have committed \$1,000AUS towards establishing a community tree nursery. ALI will also disseminate information about the project through their website, newsletter and networks.</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.

Name (First name, surname)	Role	Organisation	% time on project	1 page CV or job description attached?
Joanne Millar	Project Leader	ILWS, Charles Sturt University	30	Yes
Karma Tenzing	Principal Research Officer	ILWS, Charles Sturt University	50	Yes
Alison Matthews	Mammal Ecologist Advisor	ILWS, CSU	10	Yes
Naiten Wangchuk	Livestock Coordinator	DOL, Bhutan	15	Yes
Sonam Tobgay	Chief Ranger, Sakteng Wildlife Sanctuary	DOFP, Bhutan	25	Yes
Sangay Wangchuk	Forest and Livelihoods research officer	UWICE, Bhutan	25	Yes
Dambar Bista	Red Panda Conservation Advisor	Red Panda Network, Nepal	5	Yes
Lhatu	District livestock extension	DOL, Bhutan	30	Not available

11. Problem the project is trying to address

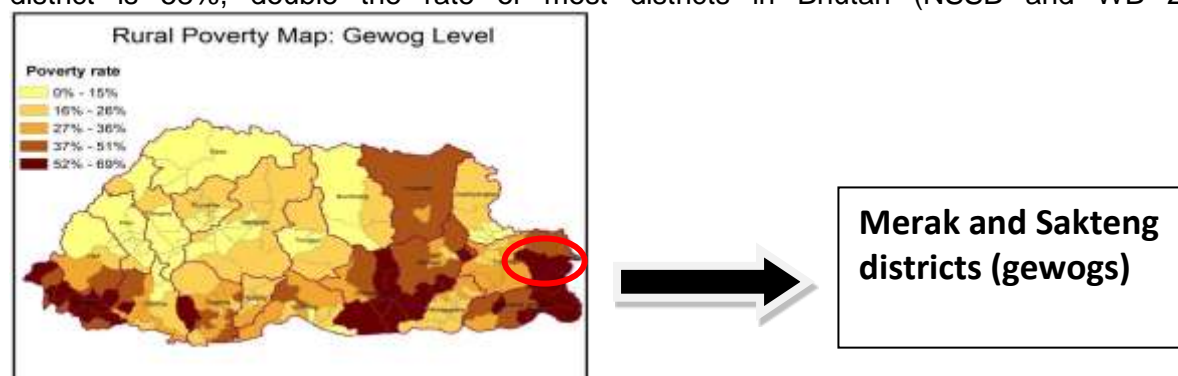
Please describe the problem your project is trying to address in terms of biodiversity and (essential for DFID projects) its relationship with poverty. For example, what are the drivers of loss of biodiversity that the project will attempt to address? Why are they relevant, for whom? How did you identify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

The project will address severe land degradation, red panda habitat loss and herder wellbeing in the winter rangelands of Sakteng Wildlife Sanctuary (SWS) in remote eastern Bhutan (2,500 to 3,500m). Over-exploitation of resources and climate change are the main drivers of pasture decline, land erosion and forest fragmentation. SWS is rich in biodiversity and home to the globally threatened red panda (<http://whc.unesco.org/en/tentativelists/5701/>). However, little is known about red panda status or habitat threats in this remote part of Bhutan (Dorji et al. 2012).

SWS is also home to 5,000 semi-nomadic Brokpa herders, a unique indigenous tribe of eastern Bhutan whose livelihoods depend on livestock raising (yaks and cattle). Brokpa herders from Merak village in SWS (population 2,000, cattle/yaks 9,000) have been caught in a vicious poverty cycle caused by decline in rangeland resources, labour, and poor access to services (UNDP 2013). To compensate, herders retain more livestock, resulting in more pressure on pastures (~5 head/ha), increased milking labour for women and lopping of trees for fodder which is labour intensive and dangerous. Extraction of bamboo and timber for building and firewood also causes forest degradation (Thapa and Nidup 2007). The poverty rate of Merak district is 58%, double the rate of most districts in Bhutan (NSSB and WB 2010).



There are five major landslides up to 3km long and 0.5 km wide (total 7.5 sq.km) within 400 ha of red panda habitat (Visit 2015). Loss of groundcover and trees combined with heavy rainfall events has caused flash floods, human fatalities and downstream damage to rice fields, buildings and roads affecting 10,000 downstream residents (UNDP 2013). The project will use the community landcare approach developed in Australia to achieve sustainable land management, red panda conservation and improvement in Brokpa livelihoods, thereby addressing a new biodiversity-development linkage in the Darwin Initiative portfolio.

Dorji, S., Rajaratnam, R. and Vernes, K. (2012). The Vulnerable Red Panda *Ailurus fulgens* in Bhutan: distribution, conservation status and management recommendations. *Oryx* Volume 46, Issue 4, pp. 536-543.

United Nations Development Program (UNDP) (2013) Country Programme Landscape Strategy COMDEKS Bhutan. Restoring and Managing Landscapes in Gamri Watershed Trashigang.

Thapa, P., and Nidup, J. (2010). Forest Related Policy Implications in Bhutan with special reference to the Brokpas. Sustainable Forest Management and Poverty Alleviation: Roles of Traditional Forest-related Knowledge. IUFRO World Series Volume 21.

National Statistics Bureau of Bhutan and World Bank (2010) Small Area Estimation of Poverty in Rural Bhutan. Technical Report jointly prepared by National Statistics Bureau of Bhutan and the World Bank. June 21, 2010.

12. Biodiversity Conventions, Treaties and Agreements

Which of the conventions supported by the Darwin Initiative will your project support? 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

12b. Biodiversity Conventions

Please detail how your project will contribute to the objectives of the convention(s), treaties and agreements 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 National Biodiversity Centre is the implementing agency for the CBD and coordinates biodiversity conservation and sustainable use programs in the country (<http://www.nbc.gov.bt/about-nbc/about-nbc>). The project will contribute to the five strategic goals in the CBD Strategic Plan for Biodiversity 2011 to 2020 and Bhutan's National Biodiversity Strategy and Action Plan 2014 national targets in the following ways;

CBD SG A: All partners will work with herders to jointly implement landcare activities that yield livelihood benefits so herders are able to engage in red panda conservation and adapt to climate change. (National Targets 1, 10, 11, 17, 19)

CBD SG B: The project aims to reduce grazing pressure and tree harvesting by providing fodder alternatives, rationalising livestock, forest regeneration and trialling biogas. (Targets 4, 7, 15)

CBD SG C: On-ground works, management zoning, research and education on red pandas will help to conserve the species and protect habitat. (Targets 5, 12, 14)

CBD SG D: Gully rehabilitation and forest regeneration will protect downstream communities and herding communities. (Targets 14, 19)

CBD SG E: Gender sensitive group training and mentoring in social and technical skills will facilitate implementation and build long term confidence in land management and biodiversity conservation. (Targets 1, 19)

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

Yes, if yes, please give details: Dr Tashi Yangzome, Director of the National Biodiversity

Centre will be out liaison contact (yangzome2011@gmail.com). NBC have agreed to 1) support our endeavours to conserve biodiversity and promote sustainable resource use in Sakteng Wildlife Sanctuary; 2) provide guidance on how we might best meet Bhutan's commitments to the CBD and; 3) include information and evidence from our project as relevant to Bhutan's National Biodiversity Strategy and Action Plan 2014.

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)

We will focus on two Merak winter settlements of 120 households (600 people) where land degradation is most severe; Cheabuling (100 households/500 people) and Sheytemi (20 households/100 people). A participatory landcare program of gender sensitive capacity building, on-ground works, action research and social learning will be implemented. Herders will form a Community Landcare Management Committee to coordinate implementation. A project steering committee will meet every 6 months to review progress and make recommendations.

The ILWS research officer with DOL and DOFP staff will run a training program in group organisation, administration and managing conflict. Training will be tailored to gender (at least 50% women), age, and poverty level to ensure effective participation (Millar, Sengdala and Stelling 2011). Regular group meetings, hands on training and two study tours will facilitate social learning about landcare and red panda conservation. Continuous participatory monitoring, evaluation and improvement in group development and learning will be conducted by the project team using individual and group interviews, surveys and participant observation (Photakoun, Millar, and Race 2010).

DOFP and DOL staff will facilitate land use planning with the group to designate zones for revegetation, red panda conservation, pasture improvement and grazing. DOFP staff and herders will progressively fence off and revegetate five landslides with bamboo and native tree species sourced from Radhi nursery (site of successful reforestation). A community tree nursery will be established in the second year to support ongoing revegetation and assist disadvantaged families. Hands on training will be provided by DOL to 120 households (at least 50% women) in sustainable rangeland management, perennial pasture development, fodder conservation and livestock management. Five (1ha) pasture trials established in the first year as intensive learning sites to ensure correct sowing depth (reason for past failures), weed control, hay curing and seed collection, gradually scaling out to 120 plots. Measurement of plant survival rates, dry matter yields, pasture composition, soil tests, changes in livestock condition and milk production recorded and analysed by DOL staff and herders during growing seasons.

Two biogas units will be built by DOL similar to successful units in downstream Radhi village, with greenhouses on top for insulation and growing vegetables. Two women's groups will be formed involving 200 women, providing access to a savings scheme. This will enable women to invest in small enterprises such as wool processing and handicrafts, growing vegetables, improved dairy processing and recycling of glass and plastics.

A baseline survey of 120 households will be carried out by ILWS and UWICE research officers to document gendered livelihood and herding systems, and red panda awareness for subsequent impact analysis (see M&E section). DOFP will conduct a baseline survey to plot red panda presence/absence using camera traps, scat detection, observation and local knowledge (Dorji et al., 2012). A forest assessment in 2016 will record habitat condition and roosting/feeding sites using transect techniques (Dorji et al. 2011). Annual red panda and forest surveys in degraded, pristine and recovering areas will involve herders, schools, WWF and RPN in monitoring and education.

Millar, J. Sengdala, B and Stelling, A. (2011). The role of livestock in changing upland livelihoods in Lao PDR: Facilitating farmer learning according to ethnicity and gender. *Journal of Mekong Societies* 7(1) pp.55-71.

Photakoun V. Millar, J. and Race, D. (2010). Evaluating capacity building methods to strengthen livestock extension outcomes in Laos. *Extension Farming Systems Journal* 5(2) 91-100.

Dorji, S., Vernes, K., and Rajaratnam, R., (2011). Habitat correlates of the Red Panda in the temperate forests of Bhutan. *PLoS One* 6(10): DOI:10.171/journal.pone.0026483

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.

- 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. Q15 provides more space for elaboration on this.

(Max 300 words)

Addressing the causes of land degradation and the link to declining herder wellbeing will benefit rangeland biodiversity, livelihoods and climate change adaptation. Environmental change in the short term will be an estimated 80% increase in groundcover and 60% reduction in soil erosion from 7.5 sq.km of landslides. This will benefit 10,000 downstream residents by avoiding flash flooding and reducing property damage by 70% from baseline surveys. Voluntary rationalising of unproductive livestock (20% of total or 500 head) and strategic grazing will enhance productivity of natural pasture by 15% in 3 years from baseline estimates. Establishing individual pasture areas for hay will benefit 120 herder families by improving milk production and condition of approximately 600 cows and calves by 25% from the baseline survey. Herder income will increase by 20% from cheese sales by 2019 from 2016 data, enabling purchase of food, school and household items. The women's saving scheme will result in at least 50% (100 women) participating initially and 70% (140 women) engaging in diversified enterprises by the end of the project, increasing income by another 20% from baseline levels.

With alternative fodder available, 70% of households (84) will reduce lopping of trees within 3 years, lessening labour and risk for family members. Planting of bamboo and native trees plus natural regeneration will increase fodder availability for red pandas by 50% within 5 years from baseline assessments. Biogas units will create interest from 60% of households in alternative energy technology to reduce firewood collection, and increase vegetable consumption by 80% in the long term. Information about red pandas will lead to a 100% increase in community awareness and capacity to co-manage rangelands sustainably within SWS. Research on red pandas will contribute to filling the knowledge gap on status and threats in eastern Bhutan for global conservation.

15. Pathway to poverty alleviation – ESSENTIAL FOR DFID PROJECTS, OPTIONAL FOR DEFRA PROJECTS

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)

The success of landcare is the capacity building of local groups to resolve collective resource and livelihood problems that are inclusive regardless of wealth level (Catacutan et al. 2009). In this project, 120 households (600 people) will be the main beneficiaries including 200 women

(average 1.5 adult females per household from census data). Most households own cattle and/or yaks and will benefit from increased livestock productivity, more disposable income, reduced labour and risk, and better nutrition from eating more fresh vegetables (local diets currently consist of rice, maize, chilli, cheese and dried vegetables). A 4WD road built in 2011 connects Cheabuling with the district centre of Trashigang, enabling herders to now sell and buy goods within a day. Hence, women will become more confident to invest in small businesses.

However, there are ten vulnerable families who experience food shortage for 3 months/year due lack of resources (livestock, land) and illness or disability. These households will be offered opportunities to be employed in the community tree nursery, waste recycling, red panda monitoring or home based wool processing and vegetable production. Risks related to their physical capacity to engage in such activities will be regularly assessed. Similarly, if herders have livestock but not enough labour to grow pasture and conserve hay, sharing arrangements will be organised. Herders with few livestock may elect to sell their hay, or produce and sell pasture seed. Elderly people in Merak village (mostly women) are also vulnerable as younger family members are often away looking after livestock, working in towns or at school. Elder loneliness and lack of care was brought to our attention in April 2015 with a request to fund activities and minders for elders. We will seek ideas from the community on how to engage elders in landcare, the savings scheme and home activities.

Catacutan, D., Neely, C., Johnson, M., Poussard, H., and Youl, R. (2009) Landcare: Local action-global progress. World Agroforestry Centre, Nairobi, Kenya.

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)

The purpose of this project is to provide a catalyst for ongoing landcare, red panda research and livelihood activities in Cheabuling/Sheytemi, with potential expansion to other critical areas in SWS and eastern Bhutan. Scaling out the landcare approach has the potential to benefit another 30,000 people in far eastern Bhutan if implemented as a program.

Significant land stabilisation, forest regeneration, pasture restoration/renovation and adoption of biogas may take up to 10-15 years. The project will lay a vital foundation for ongoing action by investing in social capital and facilitating action learning around sustainable rangeland management. The exit strategy includes the following commitments;

- 1) DOL and DOFP will continue supporting the Merak Community Landcare Management Committee with group training, technical advice, funding applications and monitoring.
- 2) DOFP, WWF and RPN will invest more in red panda research and community engagement/education, and continue to mainstream results into national and global policies and plans.
- 3) Declaration of Dungjur-ri and Yudi-ri watersheds as critical to guarantee further investment in reforestation and landslide control.
- 4) Landcare principles and practices incorporated into government policies and projects with assistance from ALI.
- 5) CSU commitment to mentor DOL and DOFP staff in participatory action research and community development.

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 new initiative. However, the project builds on a United Nations Development Program Global Environmental Facility (GEF) project from 2013-2015 facilitated by Karma Tenzing worth US\$44,250. Merak herders started addressing land degradation issues and built their confidence, capacity and interest to do more. Two gullies were fenced off, a water source fenced and piped to Cheabuling settlement, check dams installed, fuel efficient stoves provided and CGI roof material supplied to reduce regular timber usage for shingles. Two pasture fodder demonstrations failed because the seed was sown too deep, however they have been kept to show effects of exclusion on pasture yield.

https://sgp.undp.org/index.php?option=com_sgpprojects&view=projectdetail&id=21145&Itemid=205

The proposed red panda research will build on a 2008-2009 basic study funded by the Critical Ecosystem Partnership Fund and conducted by SWS rangers (Dorjee 2009). The study identified 175 sq.km of potential red panda habitat based on known preferred forest types, scat evidence, herder knowledge and a few sightings. Eighty one sq.km (46%) is in degraded winter/spring grazing and bamboo/timber collecting areas including Cheabuling/Sheytemi. Further research was recommended on red panda demography and habitat changes, and development of a red panda action plan.

Dorjee, K. (2009). Conservation and management of Red Panda *Ailurus fulgens* in SWS. WWF Bhutan and Department of Forests and Parks, Bhutan.

17b. Are you aware of any other individuals/organisations/projects carrying out or applying for funding for similar work? No

If yes, please give details explaining similarities and differences 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.

18. Ethics

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

(Max 300 words)

Ethics approval will be sought from CSU's Human and Animal Ethics Committees and the Government of Bhutan for all research activities. This process will ensure the rights, privacy and safety of all people involved in the project, including ensuring prior informed consent, confidentiality and anonymity. Herder traditional knowledge, skills and beliefs in rangeland resources and management will be respected at all times and only incorporated into activities with consent, in line with Article 8(j), Traditional Knowledge, Innovations and Practice. For example, the red panda is a good omen and deity in Brokpa culture so care will be taken to honour beliefs.

The CSU Risk Assessment process will be followed guaranteeing the health, wellbeing and safety of all staff working full or part time on the project. The project leader and team will ensure staff do not have conflicts of interests or personal convictions that could impair the integrity of the research. We are confident that the project is socially acceptable as the impetus and ideas have come from the Merak herders, and were verified by local and national agency staff. There is evidence that all the proposed works are technically feasible due to previous on-site success with gully stabilisation; nearby reforestation and biogas units; and pasture establishment and group development/savings at Sha-Gogona in central Bhutan. The red panda research will be scientifically sound following methods used in Jigme Wangchuk National Park and Nepal.

In terms of economic viability, the livestock and rangeland management strategies will be carefully managed to ensure herders are not financially disadvantaged. They will invest their labour and some cash contribution to pasture plots to ensure ownership and commitment to pasture maintenance and livestock management. Women will be mentored in building savings and managing enterprises to ensure financial viability and independence.

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 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)

A communication strategy will be developed based on the following audiences and methods;

- **Merak village:** Evening sessions to view camera trap results and research findings will be held every 6 months to raise community awareness of red panda status. Field days will be held every 3 months to view rangeland management practices and increase capacity to implement practices. On return from study tours in Nepal and Bhutan, participants will report back to the village on what they learnt using photos and videos.
- **Merak and Sakteng primary schools:** Students will learn about forest biodiversity and red panda from SWS rangers and UWICE researchers during interactive classes and forest walks. Nature club members will be involved in monitoring to stimulate hands on learning about biodiversity research.
- **Downstream and other SWS communities:** Presentations by the project team will be given at Radhi, Phongmey and Sakteng villages to create awareness of positive impacts from landcare and improve relations between Brokpas and downstream communities.
- **Regional public:** Information posters, brochures and a documentary on red panda research and landcare will be prepared with assistance from WWF, and distributed to schools, government offices and village committees. Merak herders will host visitors to view landcare works.
- **National public and policies:** The project team will produce segments for national radio, newspapers and television to create public awareness of red panda conservation in SWS. A consultative workshop will be held with Ministry of Agriculture and Forests officials to share information and make policy recommendations.
- **Conservation organisations and networks:** Red panda and social research findings will be published in open access international journals. Reports and short videos will be posted on ILWS, WWF, UWICE and RPN websites. The information will contribute to filling the knowledge gap on red pandas in Bhutan, for global conservation of this threatened Himalayan species.

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)

Capacity building in group organisation and social mobilisation will be held with herders and extension agents over the first year via workshops and practice. Herders will learn about household income and problem analysis, group savings, record keeping, leadership, conflict resolution, and drafting of group bylaws. Group management skills will be put into practice as they implement the landcare project and savings scheme. Participatory evaluation of the group process and outcomes will assist group members reflect on what they are learning and group effectiveness, so they can continuously improve. DOFP and DOL staff will be involved in this process and will continue to build group capacity into the future.

Regular group meetings, hands on training and two study tours will facilitate social learning about landcare and red panda conservation. Herders will learn by doing and by seeing success examples. Their capacity to continue landcare planning and activities will be strengthened with support from DOFP, WWF, DOL and RPN.

Training in how to establish and run a community tree nursery and biogas units (including local technicians) will give the group new skills and build capacity of disadvantaged members. Women will be trained in how to invest and manage household funds and run their own small businesses. Experienced women will mentor newcomers over time, creating self-directed groups into the future.

Staff from DOL, DOFP and UWICE will gain valuable scientific and social research skills by participating in action research with staff from ILWS, WWF and RPN. It is anticipated that one or two staff will enrol in a PhD at Charles Sturt University, which will build in-depth research knowledge and skills that they can share with their Departments. Institutional partnerships will be strengthened enabling better joint program implementation in the future.

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)

Datasets on red panda populations and habitats including changes throughout the project life will be made available to DOFP, NBC, RSPN (Royal Society for Protection of Nature, Bhutan) WWF, RPN, IUCN and other interested international organisations. Reports and papers from the ecological and social research will be readily available on MOAF, ILWS, UWICE and ResearchGate member websites. We have budgeted for £2,000 to be spent on publishing two journal papers in open access journals.

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:

CSU, DOL, DOFP and RPN are funding salaries to the value of £XXX. DOL and DOFP are contributing £XXX to field work travel and subsistence, operating costs, capital costs and M&E. WWF and ALI have committed £XXX to office support, education and the nursery. The herders are giving £X in labour to complete on-ground works.

Organisation	2016/17	2017/18	2018/19	Total
Australian Landcare International				
Charles Sturt University				
Department of Livestock Bhutan				
Department of Forests and Parks Bhutan				
World Wildlife Fund Bhutan				
Red Panda Network				
Merak Rangeland Group				
Total	£ 57,965	£ 55,195	£ 55,412	£ 168,572

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 (British Pound)	Comments
Will apply in 2016	Bhutan Trust Fund for Environment and Conservation	6000	For establishing of tree nursery.
Will apply in 2016	Bhutan Foundation	4000	Video documentary production
	Total	10,000	
	% of Darwin grant	3	

22c) None

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

(max 100 words)

PROJECT MONITORING AND EVALUATION

MEASURING IMPACT

23. 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:			
Community landcare approach enables Bhutan's semi-nomadic herders and agencies to restore and protect high altitude rangelands, wildlife habitats and watersheds, and improve livelihoods through sustainable livestock and forest management.			
Outcome: Restoration and protection of 400ha of red panda habitat, watershed and grazing areas for 120 herding households and 10,000 downstream residents leading to improved rangeland management, biodiversity, and livelihoods.	<p>0.1 7.5 sq.km of eroded gullies revegetated achieving 80% increase in groundcover, 60% reduction in soil erosion and 70% reduction in property damage for 10,000 downstream residents by 2019 from 2016 levels.</p> <p>0.2 Sales of 500 unproductive livestock (20% of total herd), 15% increase in natural pasture productivity and 50% increase in winter fodder availability leading to 25% increase in milk production for 80% of households by 2019 from 2016 baseline survey.</p> <p>0.3 Household income increases by 20% from cheese sales and/or women's enterprises for 60% of families leading to 30% increase in wellbeing satisfaction by 2019 from 2016 baseline survey.</p> <p>0.4 70% of households reduce lopping of trees with an increase in fodder</p>	<p>0.1 Photo points at strategic locations and transect walks will record visual estimates of % groundcover every 6 months over 3 years. Property damage data from local government records and annual household survey.</p> <p>0.2 Records of livestock sales by group committee. Pasture measurements of dry matter yield in winter grazing areas and fodder plots taken every two months. Milk production recorded weekly in dairy books by herders and collated monthly by DOL staff.</p> <p>0.3 Monthly records of cheese and enterprise sales kept by group committee. Income and wellbeing data recorded in annual household surveys including welfare of elders and disadvantaged families.</p> <p>0.4 Annual household surveys and on-ground habitat condition assessments.</p>	<p>Favourable climatic conditions for re-vegetation and pasture establishment. Cattle and yaks do not break through fences into gully areas.</p> <p>Committee able to keep records. DOL take accurate pasture measurements and collate milk production data.</p> <p>Yak/cattle herding continues to be the main source of livelihood and occupation for semi-nomadic yak herders in the area</p> <p>Income increases from cheese yields not price increases. Can distinguish between enterprises generated from savings scheme from other enterprises.</p> <p>Pasture hay production is enough to enable reduction in tree lopping. Bamboo plantings and regeneration has high survival rates and is not grazed by cattle, yaks or goats.</p>

	<p>availability for red pandas of 50% by 2019 from 2016 baseline assessments.</p> <p>0.5 Group capacity and motivation to manage landcare projects, welfare and conservation programs enhanced by 50% by 2019 from 2016 baseline survey.</p>	<p>0.5 Annual household survey, interviews with group committee and agency staff, observations, committee records, feedback from group training workshops.</p>	<p>Good leadership, minimal conflict and cooperative committee that works well with agency staff.</p>
<p>Outputs:</p> <p>1. Restoration of eroded gullies, regeneration and zoning of critical red panda habitat, and red panda research conducted.</p>	<p>1.1. Five gullies fenced off with 85 check dams and planted with 25,000 trees and bamboo seedlings with 80% survival rate by 2019.</p> <p>1.2. 400 ha of red panda habitat surveyed annually for condition, forage availability, presence/absence, and roosting/feeding sites, with zones established for conservation management by 2018.</p> <p>1.3. One community tree nursery established by end of 2017 employing at least 3 people from disadvantaged families.</p>	<p>1.1. Records of plantings and survival rates included in annual project reports with photos.</p> <p>1.2. Annual research reports on red panda habitat condition, sightings, scat presence, feeding and roosting sites. Video and photos presented.</p> <p>1.3. Record of materials used and employment scheme documented in annual project reports with photos.</p>	<p>Herders do not breach fenced degraded areas for illegal grazing and lopping. No flash flooding or drought that eliminates plantings.</p> <p>Good research design, implementation and co-ordination between SWS rangers, UWICE and ILWS researchers, herders, WWF and Red Panda Network.</p> <p>Community willingness to establish and manage nursery with appropriate employees. Suitable site and available water. Funds received from Bhutan Trust Fund for Environment and Conservation.</p>
<p>2. Sustainable rangeland management and pasture hay production achieved, with improved livestock management and household income.</p>	<p>2.1 Four training events for 120 households and one study tour for 25 people held in 2016 (at least 50% women) in sustainable rangeland management, perennial pasture development, fodder conservation and livestock management.</p> <p>2.2 Five (1ha) pasture trials established in 2016 producing average of 1000kg/ha of hay annually, scaling out to 120 plots by 2019.</p> <p>2.3 Voluntary sale of 500 unproductive cattle and yaks to India by 2019.</p> <p>2.4 Milk production increased by 25% and</p>	<p>2.1. Training course attendance records and participant evaluation information for each course and study tour on what they learnt and level of confidence and ability to implement.</p> <p>2.2. Cadastral survey of leased plots. Results of plant survival rates, dry matter yields, pasture composition, and soil tests included in annual project reports.</p> <p>2.3. Records of livestock sales in annual project reports.</p> <p>2.4. Records of monthly milk production and cheese sales by DOL, and change in</p>	<p>Training courses held at suitable times with at least one household representative attending including women.</p> <p>Government support for leasing plots for establishment of improved pasture.</p> <p>Environmental conditions suitable for pasture sowing with adequate weed control. Livestock do not break into pasture plots.</p> <p>Herder willingness to sell unproductive animals. Religious institutions do not hinder sales of unproductive animals.</p> <p>Cows are healthy and there is enough labour for milking and cheese making. Continued</p>

	20% increase in herder income from cheese sales by 2019 from 2016 survey.	household income from annual surveys and case studies.	strong demand and price for cheese.
3. Alternative energy technology and vegetable production piloted to reduce firewood consumption and improve family nutrition.	<p>3.1. Two biogas units fully operating in two pilot households with 40% reduction in firewood consumption and 80% increase in vegetable consumption by 2019 from baseline survey in 2016.</p> <p>3.2. Biogas units create interest from 60% of households and inspire an increase vegetable growing and consumption by 80% by 2019 from 2016 baseline survey.</p>	<p>3.1 Pilot household interview report and technical operating information in annual project reports. Demonstration video produced.</p> <p>3.2 Number of expressions of interest to purchase a biogas unit, number of vegetable gardens and daily vegetable consumption recorded in annual household surveys, and case studies.</p>	<p>Biogas technology works for high altitude areas and is available at a reasonable cost.</p> <p>Pilot herders are willing to cease dependence on traditional open mud stoves for cooking and heating, and take proper care and maintenance of biogas plants.</p> <p>Vegetables establish and grow well and people develop a taste for them.</p>
4. Competent community-based landcare group established with two women's savings groups enabling investment in small enterprises and community education.	<p>4.1 Six training events held during 2016 in group organisation and management skills for selected group members (at least 50% women) and extension staff, with 80% increase in confidence and skills by 2019.</p> <p>4.2 Two women's groups formed involving 200 women, with least 50% (100 women) participating in savings scheme by end of 2017 and 70% (140 women) engaging in diversified enterprises by 2019.</p> <p>4.3 One study tour for 10 people to eastern Nepal in 2017 to learn about red panda conservation from village communities.</p> <p>4.4 100% increase in awareness of red panda conservation by all Merak village households including schoolchildren from by 2019.</p>	<p>4.1 Group training reports for each workshop with participant evaluation of what they learnt and level of confidence to implement group activities.</p> <p>4.2 Register of women's attendance at training events and meetings. Results of individual interviews and focus group discussions in annual project reports. Register of women's enterprises with video and documented case studies on their experiences.</p> <p>4.3 Study tour report included in annual project report. Short video produced.</p> <p>4.4 Annual household surveys and school participant evaluation of conservation activities.</p>	<p>The selected group management committee has adequate gender balance and skills over time to manage landcare activities.</p> <p>Trained local extension agents and park rangers stay committed to group.</p> <p>Women have time and willingness to attend training sessions, invest savings and start new enterprises or build on existing ones.</p> <p>Security situation in eastern Nepal is safe allowing travel to and from sites.</p> <p>School teachers are willing for school children to engage in red panda conservation activities. Villagers attend film events showing camera trap results and videos and attend field walks.</p>
5. Project results and lessons learned from the landcare approach and red panda conservation disseminated.	5.1. Project results and lessons presented annually to Merak and Sakteng villages,	5.1. Information and photos in project annual reports.	At least 70% of all households and government officials at village meetings.

	<p>and downstream Radhi and Phongmey villages with local government officials.</p> <p>5.2. Information on red pandas and landcare outcomes distributed regionally and nationally every year via websites, posters, brochures, radio and TV.</p> <p>5.3. One workshop to inform senior government officials of project findings and outcomes and make policy recommendations.</p> <p>5.4. Two journal papers published in open access journals and red panda data shared with conservation organisations.</p>	<p>5.2 Information and photos in project annual reports.</p> <p>5.3 National workshop proceedings on sustainable rangeland management and Red Panda habitat conservation policy recommendations.</p> <p>5.4 Journal papers and datasets published by open access.</p>	<p>Assistance from Bhutan Foundation is forthcoming.</p> <p>Government of Bhutan adopts policy recommendations.</p> <p>Papers accepted</p>
<p>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)</p> <p>1. Restoration of eroded gullies, regeneration and zoning of critical red panda habitat, and red panda research conducted</p> <p>1.2. Conduct on-the-job training for herders (120 herders, 50% women) in sustainable land management methods and techniques based on the Landcare approach</p> <p>1.3 Conduct five land management campaigns in critical landslide areas which are successfully fenced and planted with 25,000 tree seedlings/bamboo rhizomes and 25 major and 60 small stone check dams constructed inside the gullies</p> <p>1.4. Conduct three surveys on Red Panda population and habitat condition (400 Ha) using camera traps, scat detection, sightings and roosting sites in strategic locations and at strategic times.</p> <p>1.5 Establish one community nursery with a capacity to grow 10,000 seedlings and saplings/year and employ 3 disadvantaged people as a social enterprise in 2017</p> <p>1.6 Conduct policy dialogue with DOFPS, MOA to explore the potential to declare the project site as a critical watershed.</p> <p>2. Sustainable rangeland management and pasture hay production achieved, with improved livestock management and household income.</p> <p>2.1. Conduct baseline household survey in 2016 of 120 herders to determine livestock numbers, milk/cheese production, problems, household income, firewood consumption, tree lopping, vegetable consumption and red panda awareness/knowledge.</p> <p>2.2. Organise an 8 day in-country study tour (25 herders, 50% women) to sites in other districts where successful sustainable rangeland management and leasing programs have been implemented.</p> <p>2.3. Arrange 4x3 day training program for 120 herders (50% women) on sustainable rangeland management, improved pasture development, fodder conservation and livestock</p>			

management.

2.4. Establish five (1ha) pasture trials in 2016 to demonstrate weed control, sowing technique, pasture management and hay curing in 2016 and scale out to 120 plots by 2019.

2.5. Reduce unproductive animal population by selling 500 head across the border to Arunachal Pradesh, India by end of project.

3. Alternative energy technology and vegetable production piloted to reduce firewood consumption and improve family nutrition.

3.1. Construct 2 high altitude backyard pilot biogas plants (1 in Cheabling and 1 in Sheytemi) of 6 m³ capacity for effective use of manure to reduce firewood consumption.

3.2. Construct 2 improved cattle sheds (semi-permanent) for collection of night manure for biogas production and to promote clean milk production.

3.3. Construct 2 greenhouses (polytunnel 4x6 metres) for retaining heat during winter and growing winter vegetables for improving nutritional status of semi-nomadic yak herders.

3.4. Organise training in vegetable production and supply of vegetable seeds.

4. Competent community-based landcare group established with two women's savings groups enabling investment in small enterprises, and community education.

4.1. Conduct training program in group development and management including drafting of group constitution and by-laws

4.2. Establish two women's self-help groups and savings schemes to improve access to a credit facility and enhance capacity to undertake small enterprises.

4.3. Supply home wool processing tools and equipment to needy households (4 Wool Handcarders, 4 Wool Combs and Hackles, 1 Drum Carder and 4 Yarn Ball Winders, and Carding Cloth to reduce wool processing time and drudgery for women and children, and enable continuation of traditional Brokpa cloth.

4.4. Organise a 7 day ex-country study tour for 6 herders, 1 extension agent, 1 park ranger and 1 UWICE researcher and ILWS researcher to visit successful red panda conservation and sustainable forest management projects in eastern Nepal in 2017.

4.5. Conduct red panda awareness activities in schools and villages within SWS.

5. Project results and lessons learned from the landcare approach and red panda conservation documented and disseminated.

5.1. Conduct meetings at local villages to disseminate information on project results and gain feedback from participants.

5.2. Distribute educational material to schools and government offices in the region.

5.3. Publicise project activities and results on national media.

5.4. Conduct a consultative workshop with Ministry of Agriculture and Forests officials to share lessons learned and discuss mainstreaming sustainable land management and Red Panda conservation into national and local natural resource plans and programs of the Ministry.

5.5. Conduct 3 Annual Monitoring and Planning workshops to review achievements in the past one year and plan for the following year.

5.6. Publish two peer reviewed journal articles

24. 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 2016)

Activity	No of months	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1 Restoration of eroded gullies, regeneration and zoning of critical red panda habitat, and red panda research conducted													
1.1. Organise official stakeholder workshop attended by all partner representatives to plan project activities.	1	■											
1.2. Conduct on-the-job training for herders (100 herders, 50% women) in sustainable land management methods	12		■	■			■	■					
1.3 Conduct 5 land management campaigns in critical landslide/gully areas which are successfully fenced and planted with 25,000 seedlings/bamboo rhizomes and 25 major and 59 small stone check dams constructed inside the gullies	18		■	■			■	■			■	■	
1.4 Conduct 3 annual surveys on Red Panda population and habitat condition.	12			■				■				■	
1.5 Establish one community nursery with a capacity to grow 10,000 seedlings and saplings/year managed as a social enterprise in 2017	4				■								
1.6 Conduct policy dialogue with DOFPS, MOA to discuss declaration of project site as critical watershed.	1	■			■								
Output 2 Sustainable rangeland management and pasture hay production achieved, with improved livestock management and household income.													
2.1 Conduct baseline household survey in 2016 of 120 herders	1		■										
2.2 Arrange 4x3 day training program on sustainable rangeland management, improved pasture development, fodder conservation and livestock management.				■	■	■	■						

2.3 Organise 8 day in-country study tour	1													
2.4 Establish five (1ha) pasture trials, expanding to 120 plots	2													
2.5 Reduce unproductive animals by selling them across the border to Arunachal Pradesh, India	18													
Output 3 Alternative energy technology and vegetable production piloted to reduce firewood consumption and improve family nutrition.														
3.1. Construct 2 pilot biogas units and cattle sheds.	3													
3.4 Provide training in vegetable production	1													
Output 4 Competent community-based landcare group established with two women's savings groups enabling investment in small enterprises, and community education														
4.1 Conduct training program in group development and management.	6													
4.2 Establish two women's self-help groups and savings schemes	1													
4.3 Organise a 7 day ex-country study tour to Nepal	4													
4.4 Conduct red panda awareness activities in schools and villages within SWS.														
Output 5 Project results and lessons learned from the landcare approach and red panda conservation documented and disseminated.														
5.1 Conduct meetings at local villages to disseminate information.	6													

5.2 Distribute educational material to schools and government offices in the region.	10													
5.3 Publicise project activities and results on national media.														
5.4 Conduct 3 Annual Monitoring and Planning workshops to review achievements and plan for the following year.	3													
5.5 Conduct a consultative workshop with Ministry of Agriculture and Forests officials	1													
5.6 Publish two peer reviewed journal articles	2													

25. 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)

The project leader and ILWS principal research officer will be responsible for the project's M&E. We will use a participatory and adaptive approach to monitoring and evaluation by including the whole project team and herders in regular reflective sessions and data collection. We will train DOL and DOFP staff in social research techniques. We will use a mixed method approach to social and ecological research using qualitative and quantitative data, and a variety of mediums to analyse and present findings (written, visual, aural).

A baseline survey of 120 households will be led by ILWS and UWICE research officers in June 2016 when herders are living in Merak village. The survey will be a combination of structured and open questions to gather information on livestock and livelihood systems including problems, resource use, vegetable consumption and awareness of red panda habitat and populations. This survey will be repeated annually to measure changes in livestock production, income, labour, resource use, wellbeing, vegetable consumption and red panda awareness or knowledge over time. The information gathered will alert us to any negative impacts occurring as a result of the project, and any barriers to production or livelihood change so we can try to address them. We will facilitate discussion of such issues the regular group training activities and committee/women's group meetings. Regular feedback and dialogue on challenges will enable rapid responses to project planning and implementation.

Pasture measurements, milk/cheese production records, livestock sales, biogas operations and vegetable production data will be collated by DOL staff from herders on a monthly basis in order to track seasonal and yearly changes. DOL staff and herders will be encouraged to take photos of significant changes occurring as evidence of impacts. DOFP staff will be responsible for measuring changes in groundcover, revegetation and erosion control in all five gullies using photo points and transect walks. DOFP and UWICE will conduct a baseline survey in 2016 to assess forest condition and plot red panda presence/absence using camera traps, scat detection, observation of roosting sites and local knowledge. Annual red panda and forest surveys in degraded, pristine and recovering areas will also involve herders, schools, WWF and RPN in monitoring and education.

The ILWS researcher will be responsible for developing case studies (written and video stories) on herder experiences and how women invest in household expenditure and/or enterprises as a monitoring and evaluation method. He will also be responsible for tracking development in group learning and capacity using focus group and individual interviews. For example, whilst on the study tours, participants will do a quick reflection each evening on what they have learnt and what else they would like to know to stimulate curiosity and self-directed learning. These action research methods ensure that 1) monitoring and evaluation is participatory and adaptive, 2) negative and positive impacts are captured and 3) results are used to continuously improve the project (Millar, 2009).

Total budget for M&E	£14,400
Percentage of total budget set aside for M&E	4%

Millar, J. (2009). Adapting extension approaches to cultural environments in South East Asia: experiences from Laos and Indonesia. *Extension Farming Systems Journal* 5 (1): 143-148

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.

26. 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)

This project focusses on investment in group development and herder training for 120 households to sustainably manage resources, ecological research and on-ground works that will deliver long term environmental services to biodiversity in SWS and 2,000 people in Merak village. Almost 50% of the budget will be spent on in-country operating costs to ensure effective implementation. From this operating expenditure, we expect a conservative benefit-cost ratio of 5:1 or return on investment of 4% for environmental and livelihood benefits.

Livelihood benefits will be in the form of additional fodder for 120 households (600 people) valued at \$100US/year/household, a 25% increase in milk and cheese production valued at \$400US/year/household, and a potential 20% increase in income from other small enterprises of \$100US/household/year income resulting in a total average additional income of \$500US/household for 100 households (total \$50,000US or £33,000). (Budget assumptions are in section 14 Changes Expected). Improved safety and better nutrition will also flow from the project.

Environmental service benefits in the form of watershed protection, red panda habitat improvement and more efficient energy consumption are hard to quantify but expected to be in the range of £5000 per hectare for the 400ha focus area and upper Gamri catchment (total of £2million). Hence for project investment of £290,000, there will be an estimated return of £2,033,000. The cost of not doing the restoration work is probably higher and would fall heavily on herder families, downstream residents and local government.

We have been able to leverage funds to 37% of total project cost by relying on partner organisations to do most of the on-ground work, keeping travel costs to a minimum and securing contributions from all partners. We have maintained a low capital cost with items remaining with country partners for ongoing use.

27. 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)

Four pairs of binoculars will remain with the Merak Community Landcare Management Committee group for ongoing monitoring of red pandas. The ten camera traps will become property of the SWS park office for continuing red panda research in the park. The two pilot biogas units and tree nursery equipment will remain the property of Merak Community Landcare Management Committee for demonstration and learning purposes. The wool processing equipment and iron safe will remain the property of the woman's group.

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.

No

CERTIFICATION

On behalf of the trustees/company* of
Charles Sturt University

I apply for a grant of £290,000 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 key project personnel and letters of support.
- I enclose our most recent signed audited/independently verified accounts and annual reports (if appropriate)

Name (block capitals)	MARY KELLEY
Position in the organisation	DEPUTY VICE CHANCELLOR (RESEARCH)

Signed**

PDF

Date:

25/11/15

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

	Check
Have you read the Guidance Notes ?	Yes
Have you provided actual start and end dates for your project?	Yes
Have you indicated whether you are applying for DFID or Defra funding? NB: you cannot apply for both	Yes
Have you provided your budget based on UK government financial years i.e. 1 April – 31 March and in GBP?	Yes
Have you checked that your budget is complete , correctly adds up and that you have included the correct final total on the top page of the application?	Yes
Has your application been signed by a suitably authorised individual? (clear electronic or scanned signatures are acceptable)	Yes
Have you included a 1 page CV for all the key project personnel identified at Question 10?	Yes
Have you included a letter of support from the <u>main</u> partner organisations identified at Question 9?	Yes
Have you been in contact with the FCO in the project country/ies and have you included any evidence of this?	Yes
Have you included a signed copy of the last 2 years annual report and accounts for the lead organisation?	Yes
Have you checked the Darwin website 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 Tuesday 1 December 2015 to 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.