Darwin Initiative Final Report

Darwin project information

Project Reference	19-021
Project Title	Values and Valuation: New Approaches to Conservation in Mongolia
Host country(ies)	Mongolia
Contract Holder Institution	University of Leicester (UOL)
Partner Institution(s)	Mongolian Society for Range Management (MSRM) Mongolian Academy of Agricultural Sciences (MAAS) (incorporating Mongolian State University of Agriculture and Centre for Ecosystem Studies (CES) Mongolian Nature Protection Civil Movement Coalition (MNPCM) Zoological Society of London (ZSL) (Years 2 & 3) Values for Development (VFD) (Year 3) Ministry of Environment and Green Development (MNEGD) (formerly Ministry of Nature, Environment and Tourism (MNET)
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Project Leader Name	Dr Caroline Upton
Project Website	http://www2.le.ac.uk/departments/geography/research/projects/darwin
Report Author(s) and date	Dr Caroline Upton; Professor D. Dorligsuren; Dr D. Dorjgotov; Dr N. Nyamaa; Dr N. Conaboy. 10 December 2015.

1 Project Rationale

Locations/Site Descriptions

The project is located at four sites across rural Mongolia. Livestock herding in extensive grassland areas is the main livelihood strategy at all sites, with herders being members of pre-existing herders' groups or communities (*heseg*). All sites show evidence of degradation of these grasslands, as indicated by changing composition of grassland species and varying degrees of desertification. All sites are also characterised by increasing climate variability, reflected both in temperatures and in rainfall patterns. They differ, however, in respect of their ecological and biodiversity characteristics, with sites being specifically selected to represent diverse ecological zones and thus to enable comprehensive analysis of ecosystem service values, biodiversity and livelihoods. The four main project sites are shown in Figure 1, overleaf and illustrated in photographs 1a-d below. Within each of the four main project sites shown in Figure 1 (1: Ikh Tamir district or *soum*, Arkhangai region or *aimag,* forest steppe zone; 2: Undurshireet *soum*, Tov *aimag,* steppe zone; 3: Bogd *soum*, Bayankhongor *aimag,* steppe/ desert steppe zone; 4: Ulziit *soum*, Dundgov *aimag,* desert steppe zone), the project worked with three *heseg* (herders' groups), and thus with 12 herder groups in total.

Photographs 1a-d

a) Ikh Tamir **b) Undurshireet** **c) Bogd** **d) Ulziit**

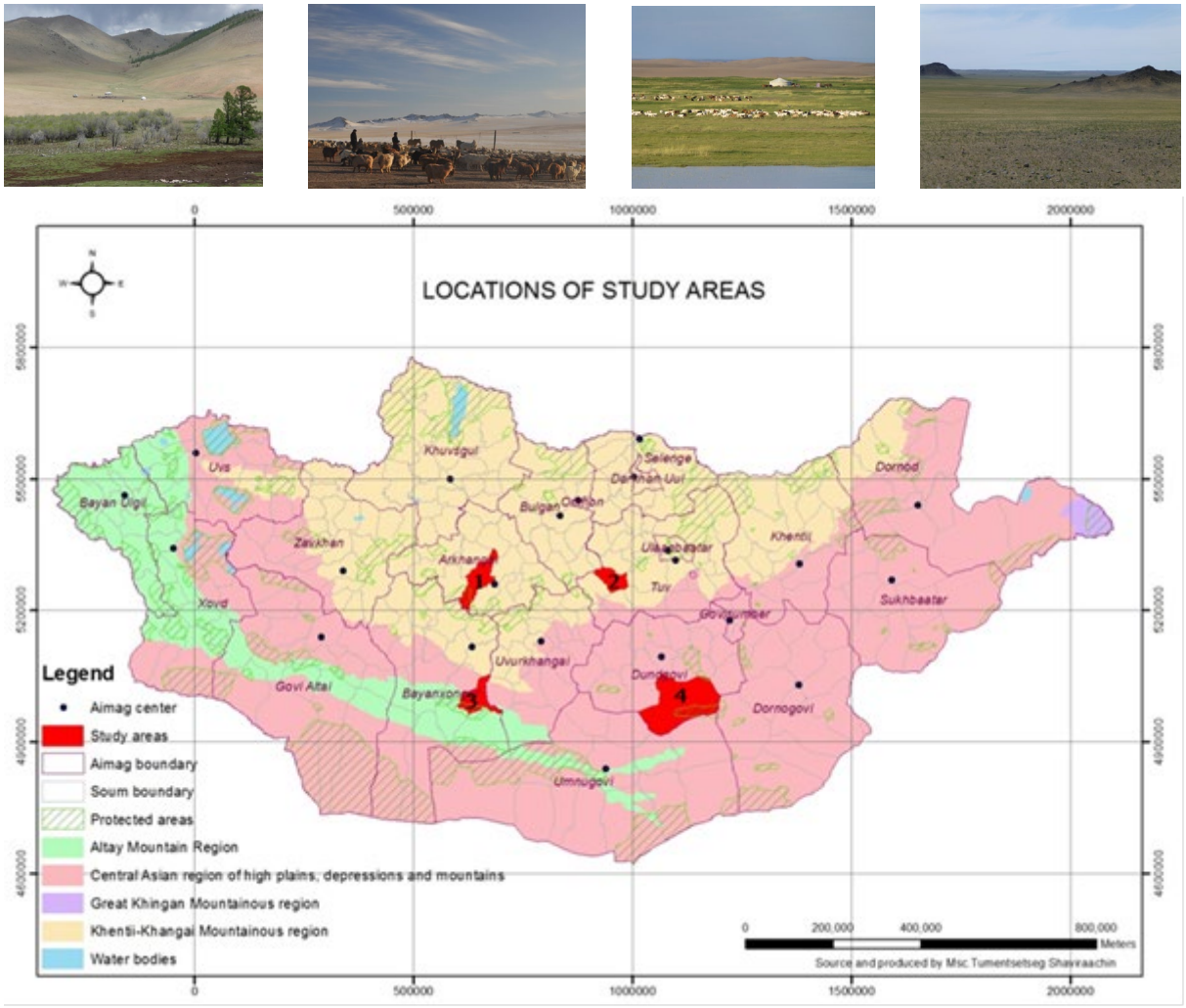

Figure 1: Mongolia, showing location of the four main project sites

Of these 12 herder groups/*heseg*, and as planned by the project team, one *heseg* at each site subsequently become involved in the pilot Plan Vivo (PV) PES scheme, namely Hongor Ovoo *heseg*, Ikh Tamir; Ikh Am *heseg*, Undurshireet; Dulaan Khairkhan *heseg*, Bogd and Dert *heseg*, Ulziit. The project thus provides a novel, integrated approach to a number of critical interlinked challenges in contemporary Mongolia, specifically pastureland degradation and associated biodiversity loss; the valuation and protection of key ecosystem services (ES) and biodiversity; herders' livelihoods and well-being; and the integration of traditional knowledge/ values into conservation planning and practice.

Specific Biodiversity Challenges

As a signatory to the major global biodiversity conventions (CBD, CITES, CMS), Mongolia is officially committed to the protection of an important biodiversity heritage, but is still struggling to meet these commitments. As reported in previous Annual Reports and set out in the original project application, the fourth CDB country report (2009) highlighted growing threats to and loss of biodiversity. These were linked to factors such as desertification and pasture degradation, a major mining boom, climate change and poorly regulated hunting and logging. In the 2009 CBD country report the effective participation and inclusion of communities, their local knowledges, values and practices in conservation practice and planning were highlighted as interlinked and critical areas where CBD commitments had yet to be realised. Mongolia's 5th National CBD Report, issued in March 2014, continued to highlight desertification, degradation of over 95% of pastureland (widely attributed to overgrazing), climate change and mining-related pollution as key threats to biodiversity. It also specifically highlighted concerns over the impact of negative changes in biodiversity on ecosystem services, including carbon storage and associated socio-economic and cultural issues, where these contribute to the overall well-being of local communities. Mongolia's new National Biodiversity Strategy and Action Plan (NBSAP), (2015-

2025) and the 5th National CBD report both reflect Aichi 2011-2020 targets and are linked to Mongolia's commitment to development of a 'Green Economy'. Critical gaps persist, however, in relation to specific strategies and tools for the assessment of biodiversity and wider ES values, and ways in which they may be incorporated effectively into national accounting (Aichi Target 2). In particular, the importance of non-economic valuation, especially of cultural services continues to be largely omitted from current policymaking and planning, despite some developments in this regard. The provision of economic incentives for conservation has been integrated into national law (in accordance with Aichi Target 3), albeit with limited enactment of these provisions to date. Aichi Target 14, related directly to the restoration and protection of key ES and their contributions to livelihoods and well-being, is highlighted as a key consideration in Mongolia's 5th National Report. However, detailed strategies for developing and implementing a comprehensive ES framing and evaluation are still in their very early stages. The carbon sequestration potential of pastureland is recognised, in relation to Aichi Target 15 and wider climate governance mechanisms, as part of future national conservation planning, but there is a lack of strategies, expertise and mechanisms for realising this potential. The project was designed to make an important contribution to addressing these multifaceted challenges.

Specific Poverty Challenges

Herders' livelihoods have been under threat in Mongolia since decollectivisation of the herding sector in the early 1990s, with increasing income inequality, higher prevalence of rural poverty and growing vulnerability of many herding households to climate change. This has been made manifest in the growing migration of herders to informal *ger* districts around the capital, Ulaanbaatar, often following loss of livestock in climate related disasters (*dzud*); in the increasing number of herding families with very small livestock herds (around 50 animals); in lack of market access and poor market prices for raw materials; and thus in marginal livelihoods for many herders. In addition to, or as an alternative to migration to Ulaanbaatar or regional urban centres, herders have variously sought to increase livestock numbers in the face of few other livelihood opportunities; have taken up informal, artisinal mining; have often become increasingly sedentary and in some cases have become involved in conflict over the best pasture resources. All of these trends not only reflect increasing livelihood challenges, but have tended to have negative impacts on pasture quality and biodiversity.

Relevance of Challenges

The above complex and interlinked challenges are thus important for herders themselves, in terms of their livelihoods and wellbeing – the latter also incorporating traditional values around nature and conservation as well as economic concerns. They are also vital for biodiversity and for conservation of Mongolia's important biodiversity heritage. They are important for policymakers and planners, as they increasingly seek to apply the ecosystem services (ES) paradigm to natural resource governance and to connect with carbon markets, whilst simultaneously trying to fulfil biodiversity commitments, especially under the CBD. Furthermore, for biodiversity conservation planning, a lack of regional baseline data is common throughout Mongolia. It is vital to address this, through the kinds of detailed, longitudinal monitoring set up under this project, in order to develop credible management plans that can be fed into the NBSAP and to facilitate enforcement of effective local and national management and offset programmes. There is now widespread acknowledgement in government and in particular the Ministry of Nature, Environment and Green Development (MNEGD) that many policies aimed at wildlife protection and amelioration of mining-related environmental impacts have not been implemented effectively. Therefore generating robust data on such topics is vital in drawing attention to the issue and encouraging effective implementation of environmental policy.

Project Actions

In order to address these challenges, through MSRM's well-established network of herder groups (*heseg*) and drawing on contemporary concerns with ES and their links to biodiversity and well-being, the team worked with 12 herders' groups in the four contrasting ecological zones to explore, map and value ecosystem services and to develop and trial pilot Payment for Ecosystem Services (PES) schemes. Of particular importance to the approach was the participatory development of locally appropriate approaches to non-economic valuation and to

evaluation of cultural services, thus facilitating recognition of customary knowledge, values and practices in conservation planning. The team has pilot tested the socio-economic and ecological viability of PES schemes, particularly in relation to the Plan Vivo (PV) standard and the voluntary carbon market, at selected case study sites in Mongolian rangelands. This is the first application of such an approach in Mongolia, whereby local communities' activities to protect local environments are encouraged through livelihood/ well-being improvement and explicitly linked to a PES scheme. This scheme has now been approved and validated, and is being implemented at three of the four original sites (Section 1), with initial benefits already being felt by herders, and with widespread acceptance and support by policy makers and planners. Through these activities the project team have provided government policymakers with important decision making tools, including trade-offs with mining and possibilities for future state funded PES schemes, based on data which incorporates traditional knowledge and values. They have further provided local communities with tangible incentives and capacity for conservation and sustainable resource use through the pilot PES schemes and provided appropriate training and capacity building in PES/ ES to policy makers academic and herders.

2 Project Achievements

2.1 Outcome

Project purpose/ Outcome*: To generate policy and practice relevant knowledge of values of ecosystem services (ES) in Mongolia and pastoral contributions therein and to test efficacy of Payment for Ecosystem Services (PES schemes), in order to enhance biodiversity and livelihoods.*

Overall, the project outcome has been achieved, as evident in relation to the two key measurable indicators and their means of verification:

Indicator 1: *Ecosystem mapping and valuations completed in diverse ecological contexts, incorporating traditional knowledges and values, and linked to associated resource management/ conservation planning*. This is clearly linked to Output 1, Activities 1.1-1.5, now completed, with evidence as specified under 2.3 below. The means of verification for this measurable project purpose/ outcome indicator are project reports, papers, management plans, and government policy documents. These therefore include the GIS SOLVES model, used during the project for spatial exploration and analysis of social values of ecosystem services of participating herder groups (**Supporting Materials, Document 1**; sample SOLVES report); reports on training workshops (**Supporting Materials, Document 2**); maps and resource management planning for the Plan Vivo herders groups, as detailed in the PDD (**Supporting Materials, Document 3, Annex 5**); a government policy briefing related to the Gobi rangelands workshop in September 2014, with a specific emphasis on the importance of pastoral mobility and other papers presented at key conferences (see **Supporting Materials, Document 4** for conference/ workshop listings, abstracts and outputs). In addition, letters from the Conservation Director of WWF Mongolia and Government officials are further evidence of the integration of project approaches and datasets into government policy and planning in relation to key policy documents such as the new 5th National CBD report and the NBSAP (**Supporting Materials, Document 5).**

Indicator 2*: PES schemes developed and implemented …*This relates to Activities 2.1-2.8 under Output 2 in particular, as specified in Section 2.3 below, and also to aspects of Output 3. Means of verification for this specific project purpose/ outcome indicator include project reports on and management plans for Payment for Ecosystem Services (PES) schemes, in this case the Plan Vivo scheme. These means of verification are encapsulated in the Plan Vivo Project Design Document (PDD), prepared by the project team (**Supporting Materials, Document 3**). This provides detailed evidence of the development of the scheme, its collaborative planning with herder groups, and specific management plans arising (in Annex 5 of the PDD). Evidence of the production of certified credits is provided through the formal validation of the scheme by Plan Vivo (PV) (http://www.planvivo.org/project-network/project-pipeline/) and the project's reporting as a highlight in PVs annual report for 2014/15 http://www.planvivo.org/docs/Annual-Report-FY-2014-2015.pdf (see p.5).

Publicity materials and calculations attached at **Supporting Materials, Document 6** show the predicted volume of certificates and sales. These are being marketed through the CLevel website (http://www.clevel.co.uk), including through the video developed with the partners specifically for this project (https://www.youtube.com/watch?v=dDgppCcjhRs&feature=youtu.be).

Marketing is also ongoing through the project team and with the stated support of the British Embassy in Ulaanbaatar who are hosting a high profile event for the Plan Vivo part of the project in January 2016 (evidence of planned Embassy event available on request). This was due to take place in late November/ early December, but with key ministers away at the Paris climate COP 21, it was decided to host this event in January 2016 instead. Other benefits have already been realised and distributed amongst participating herder groups and against agreed indicators in the PDD, as reported under Section 2.2, below.

Indicator 3*: Project methods, reports and datasets used/ cited in policy documents, resource management plans at diverse scales*. This indicator has been verified, as least in part, by sources cited against Indicator 1, notably in evidence from key conservation organisations such as WWF in Mongolia and in evidence of influence on government policy and of government support (**Supporting Materials, Document 5**). The incorporation of ZSL into the project team in Years 2 and 3 has also facilitated policy influence, in relation to the project's methods and datasets. ZSL have been working closely with the current Mongolian government on biodiversity conservation planning, for example in relation to the 5th National CBD Report and feeding into the new National Biodiversity Strategic Action Plan. These highlight the need for new approaches in relation to ES, their conservation and valuation. The Darwin project offers a valuable case study therein. In addition, ZSL have undertaken training of herder groups at project sites in survey methods, and have established good working relationships with local NGOs, especially in Undurshireet, which has led to their being invited to work closely with the group in using government extension funds (email evidence available on request). Also in Undurshireet, some project herder group members have been formally recognised as environmental activists by the Ministry of Nature, Environment and Green Development (MNEGD), linked to their involvement in the Darwin Initiative project, and accorded a clear role in resource management planning and conservation (**Supporting Materials, Document 7)**. At other sites, local groups' recognition and incorporation into local management planning is a key activity under the PDD (**Supporting Materials, Document 3,** Management Plans in Annex 5). Furthermore, ZSL has incorporated Bayankhongor and the Dulaan Khairkhan herder group in Bogd in particular into its strategy for Mongolia, given the proximity to existing ZSL work in the Gobi Altai region and the interest, knowledge and willingness to undertake conservation activities by the community in Bogd. The project workshop in June 2015 was important for participatory planning for biodiversity surveys with herder group members, and also in confirming the support of *soum* (district) governors for the project's approach and initiatives (**Supporting Materials, Document 4).** Further evidence of local/ regional support for the project's approaches and their incorporation into local environmental management policy and planning is provided through contracts agreed between herder groups and *soum* officials (sample contract presented as Annex 6 to the PDD, **Supporting Materials, Document 3**).

Overall, the project is has achieved its purpose/ outcome and means of verification are appropriate. The Plan Vivo PES scheme was always going to extend beyond the life of the Darwin Initiative funded project, with the initial PV commitment period set to run until 2019. Therefore, further evidence of the efficacy of PES schemes and their impacts on biodiversity and livelihoods will continue to be collected throughout the PES scheme, and in accordance with the detailed indicators set out in the PDD. However, within the 2012-2015 duration of the project, a novel PES scheme was developed and implemented, impacts have been measured in the final year of the project and policy and practice relevant knowledge of ES values has been generated.

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

The original application form stated that the project would contribute particularly to realisation of Mongolia's CBD commitments (especially under articles 6, 8,10,11), and as highlighted in CBD 2011-2020 Strategic Plan for Biodiversity, and also CMS where project sites included migratory species. This was to be achieved through i) providing critical insights into local knowledges and values regarding ES and biodiversity and how these may be incorporated more effectively into policy, ii) testing the prospects for market based mechanisms to contribute to conservation and livelihood goals and iii) testing the efficacy of specific PES schemes in specific, diverse ecological contexts. Furthermore, it stated that the project would contribute to understanding of previous barriers to the realisation of biodiversity conservation goals and how these could be overcome; would facilitate the inclusion of local knowledges and values in mainstream conservation planning; provide government policy makers with tools and information to develop effective PES schemes on a wider scale and provide local herding communities with tangible incentives for conservation and sustainable resource use.

The project is contributing especially to the implementation of the CBD in relation to this higher goal, as specified in Section 4.1 (below) and through integration of new approaches to conservation and sustainable use of biodiversity into policies and programmes (CBD Article 6) and the effective integration of local communities, their indigenous knowledges, values and practices in to these approaches (article 8), as realised through the Plan Vivo PES approach. It contributes to Articles 10 and 11 through promoting sustainable use of biodiversity, facilitated by appropriate incentive measures. The CBD in turn informs national targets and strategies, as articulated through the National Biodiversity Conservation Action Plan, national strategies for implementation of Aichi targets, and the associated development of the new National Biodiversity Strategic Action Plan. The project thus contributes to realisation of these related domestic targets, for example as specified in the very recently issued 5th National Report of Mongolia, and discussed further in Section 4. Key species in Mongolia's grasslands, including in project sites, also include migratory species listed under CMS; thus project activities and outcomes, especially where particular herder groups have specified actions related to conservation of migratory species, are valuable as potentially providing important new mechanisms and incentives for the conservation of such species (see PDD, Annex 5 and Section F3- **Supporting Materials, Document 3; also Document 5** for supporting letters). The pertinent indicators from the logframe include the analysis of economic/ non-economic values for key ES at study sites; development of the pilot PES scheme through Plan Vivo (PV); and post implementation monitoring against baselines. Workshops, reports and training events are also key indicators in relation to education/ capacity building and hence to embedding this approach in policy thinking. The evidence in relation to all of these indicators is discussed in Section 2.1, above and 2.3, below.

The project is contributing to poverty alleviation and well-being through providing new income sources through the pilot Plan Vivo PES scheme and sale of associated tripartite certificates; through supporting livelihood diversification and alternatives (again through PV funds, e.g. where herder groups specify non-herding activities as goals). Details are provided in the PDD, Section F2 and in the site specific management plans in Annex 5 of the PDD. The project is also contributing towards well-being through enabling recognition, valuation and incorporation of a full range of values around ES into conservation policy and planning, including non-economic valuations of cultural services. Pertinent indicators are specified for Outputs in Section 2.3 below. Further evidence is provided in **Supporting Materials** Annexes, as previously specified.

2.3 Outputs

The project set four key outputs:

- **Output 1:** ***Key Ecosystem Services (ES) at selected sites in contrasting ecological zones valued, with participation of local herding communities***
- **Output 2:** ***Pilot PES schemes developed and implemented at selected study sites, with participation of local herding communities***
- **Output 3:** ***Assessment of contributions of PES to livelihoods and conservation in different ecological contexts***

- **Output 4:** ***Education and capacity building of key stakeholders (government officials, local herders) in ES values, development, management and efficacy of PES schemes in Mongolian context.***

The outputs were achieved in all cases. Specifically:

Output 1. From a baseline lack of knowledge particularly of non-economic, cultural ES in rural Mongolia, the project has produced a detailed analysis of the nature, value and spatial distribution of key ES at sites in four different ecological zones and with 3 herding groups (*heseg*) at each site, making a total of 12 sites across Mongolia, and drawing on more than 150 households. The SOLVES GIS modelling (**Supporting Material, Document 1**) is one form of evidence of this. Other evidence is provided through the results of the ES identification and ranking and conjoint analysis exercises conducted with individual households and in group workshops at these sites (evidence and further details in workshop and conference presentations; **Supporting Materials, Document 4).** These outputs are also feeding into a number of articles in preparation (See Annex 3).

Output 2. A rangeland based PES scheme has never been implemented previously in Mongolia, to the best of the project team's knowledge. The key change is therefore that such as scheme has been developed and implemented for the first time under this project at three of the four project sites. Evidence is provided through the approved Plan Vivo Project Design Document (PDD) (**Supporting Materials, Document 3**, the listing of the project on Plan Vivo's website at (http://www.planvivo.org/project-network/project-pipeline/) and reporting in their 2014/15 annual report http://www.planvivo.org/docs/Annual-Report-FY-2014-2015.pdf and its promotion through other outlets such as CLevel and the accompanying video, as reported above.

Output 3. Baseline evaluations of socio economic and ecological/ biodiversity indicators have been completed, as summarised for Plan Vivo groups in the PDD. However, as noted by ZSL there is a wider issue of lack of pre-existing biodiversity survey data – contra the assumption of 'appropriate and sufficient data from external sources', which has necessitated ZSL to build in some additional baseline monitoring as some of the key indicators under the PV scheme (see PDD, Annex 5- **Supporting Materials, Document 3**). Further assessment of biodiversity at the sites has thus been undertaken by ZSL with participating herder groups in 2015 as part of training in camera trap and survey methods (report available on request). Assessment of contributions of the Plan Vivo scheme has been achieved through the initial post implementation phase of monitoring in August/ September 2015, and against the pertinent site specific indicators set out in the PDD, Annex 5. These are reported in greater detail under Programme Indicators in Section 4.1. Longer term evaluation will continue throughout the initial Plan Vivo commitment period, to 2019.

Output 4. This output has been realised through multiple training events at the project sites (example report included at **Supporting Materials, Documents 2**), meetings with government officials throughout the duration of the project, and the project workshop in June 2015 (**Supporting Materials, Documents 4 and 5)**.

Final local workshops for feedback and mutual learning were also held with herder groups and local officials in each of the project areas in September 2015, in conjunction with the first post PES monitoring event. Education and capacity building of key stakeholders has also proceeded through the project team's presentation at the *Building Resilience of Mongolia's Rangelands* conference in June 2015, which was attended by a number of key government and academic stakeholders (further information on the conference available at http://warnercnr.colostate.edu/annual-meetings/2-uncategorised/1158-mor2-conference; on the Darwin project team's presentation at **Supporting Materials, Document 4**). Further education and capacity building was also undertaken through a series of earlier presentations and associated policy briefings. Specifically, since March 2014, the PI has presented the Darwin work at the conference 'Science and Policy Futures in the Gobi Rangelands' (Ulaanbaatar, September 2014), to an invited audience of academics and policy makers. The PI was also interviewed for local TV on the basis of this presentation. A policy brief for government, NGOs and donors was produced and circulated on the basis of this conference (**Supporting Materials, Document 4**). The conference was also reported on local TV, through the Mongolian Eco TV Channel (Mongolian language only. Link available at

https://www.youtube.com/watch?v=ls_aSRhc8NI). An invited keynote presentation was also given by the PI at the Centre for Landscape and Climate Research, University of Leicester annual conference (October 2014). MSRM staff presented the work at the 5th Japan-Korea-China Grassland conference, Changchun China 22-24 August 2014. Education and capacity building has also been further advanced through preparation of materials for undergraduate and Master's students at the Mongolian State University of Agriculture (see letter attached, **Supporting Materials, Document 8**). Due to Dr Bradshaw's illness, these materials have just been finalised for use with classes in the 2015/16 academic year.

Further evidence of the wider impact of the project and project methodologies is provided through approaches to and consultation with the PI by staff from i) CSIRO Australia, who are working with the Mongolian Government on agricultural development; and ii) The Nature Conservancy (TNC) globally and with their Director in Mongolia, over the lessons from our project in the light of their forthcoming new ES-based biodiversity planning project in Mongolia.

3 Project Partnerships

The Mongolian Society for Range Management (MSRM) were the main in-country project partners, managers and coordinators. They worked closely with University of Leicester (UOL) as the UK lead institution, throughout the project, and with other in-country partners. The relationship between UOL and MSRM continued to develop and function effectively throughout the project, through regular visits by Dr Upton, skype meetings, e mail and exchange of data via the project dropbox site. Dr Nyamaa Nyamsuren of the Mongolian Academy of Agricultural Sciences (MAAS) in particular played a key role as the in-country environmental economist, and took on extra work in Year 3 due to the illness of the UK environmental economist, Dr Roy Bradshaw. This was as agreed with Darwin Initiative, and previously reported in the October 2014 Half Year Report and Year 3 Annual Report. Again, direct contact was managed by meetings between all partners with Dr Upton during her regular visits; plus regular e mail exchanges and discussions between Dr Upton/ Dr Bradshaw and Dr Nyamsuren. In Year 2 a new collaborator, the Zoological Society of London (ZSL), who have a team based at the National University of Mongolia (NUM), Ulaanbaatar, were brought into the project, in direct response to reviewers' recommendations from Year 1, and as discussed and agreed with Darwin Initiative. The partnership between ZSL, UOL and MSRM continued to develop in Year 3 and over summer 2015, most notably through a series of discussions and meetings between ZSL staff in Mongolia, MSRM and UOL to plan and explore fieldwork requirements, with particular attention to the Plan Vivo process, followed by joint MSRM/ ZSL fieldwork in summer 2014 and further ZSL fieldwork in 2015. ZSL have also provided substantial contribution to the Project Design Document (PDD), an integral part of the Plan Vivo process (see full PDD document at **Supporting Materials, Document 3**), through face to face, skype and e mail discussions with Dr Upton. They also took a key role in the June 2015 project workshop in Ulaanbaatar, with herder group leaders and members, local government officials and Ministry representatives. ZSL led workshop sessions to further explore local knowledges and values around biodiversity, and used this as a basis for on the ground training in survey techniques, including camera trapping, with herder group members in summer 2015.

A further new partner, Dr Andreas Wilkes of Values for Development (VFD) provided input into the project in Year 3, in relation to the Plan Vivo Technical Specification. As reported in the October 2014 Half Year Report, he has previously worked with MSRM and on carbon modelling in the region. He was able to draw on this previous work to validate and run C models for the Darwin Project sites, adjusted for local parameters, as the final stage of the Technical Specification process. He also prepared a new methodology for analysis of C sequestration in rangelands as part of the PV process, and designed to constitute a robust, low cost approach (included in full as Annex 8 of the PDD; **see Supporting Materials, Document 3**). This has been reviewed and approved by PV and thus represents an important development in enabling the extension of community-based PES schemes beyond forested environments, with important implications in the future and beyond this single project. VFD thus took on much of the Year 3 work originally allocated to Professor Undarmaa Jamsran at the Centre for Ecosystem Studies (CES), due to the latter's personal circumstances, and to the specific expertise of VFD in the carbon modelling field. This was as agreed with Darwin. VFD worked

primarily with UOL and Plan Vivo/ Bioclimate. MOUs were agreed between UOL and VFD and ZSL respectively to cover all commissioned works.

Other in-country project partners are as listed under 1) above. These key partners continued to work together and collaborate in accordance with the MOU developed and signed by all parties in Year 1, as part of project inception activities, with the variations noted above, in relation to MAAS and CES. MNPCM were able to complete their assigned work in Year 2.

Formal partnerships with other UK based institutions were with Plan Vivo/ Bioclimate, as set out in the original project proposal. This partnership was formalised through an MOU.

Thus, overall relationships between project team members have continued to be managed through a) meetings with all partners during Dr Upton's regular visits to Mongolia; b) regular email exchanges; c) shared information through project drop box site, accessible to all partners, wherein key documents; breakdowns, timelines and progress reports on particular Activities etc. are shared, d) skype calls, e) ongoing local liaison with the (small) project team through MSRM.

In summary, as set out above:

- Project partnerships with key in-country partners were based on demand stemming from the host country in terms of national biodiversity commitments and issues. MSRM, the key in-country partner, has also previously specifically stated the need for research to enhance the sustainability of community-based pasture use models and to incorporate values and PES type approaches.

- In terms of achievements, the partnerships at the core of this project have continued to function successfully, in the discharge of a range of approaches which are still relatively new and untested in the Mongolian context e.g. around assessment and valuation of ES.

- Successful functioning of project partnerships can be evidenced from project progress indicators (see Section 3). Additional evidence in terms of meeting minutes/ agendas and email exchanges can be supplied on request.

- Challenges encountered during the project, primarily in relation to illness or other personal circumstances of key partners, as outlined above, were dealt with successfully by the project team, through reallocation of workload and responsibilities and bringing in new partners as necessary and with Darwin's written approval.

The partners fully intend to keep in touch, with MSRM and UOL having already applied for further funding together (through the Darwin post project scheme); and collaborative writing ongoing between Dr Upton and Dr Nyamaa Nyamsuren and other members of the project team. The project team are also collaborating with the British Embassy in Ulaanbaatar, who have offered to host a high profile reception for the project and to publicise the Plan Vivo PES scheme in January 2016.

4 Contribution to Darwin Initiative Programme Output

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

Mongolia's fourth CDB country report (2009) highlighted growing threats to and loss of biodiversity, linked to desertification and pasture degradation, mining and climate change. Mongolia's 5th National CBD Report (2014) reiterated these issues and concerns, with reported degradation of over 95% of pastureland widely attributed to overgrazing, and linked to biodiversity loss. At the same time, herders' traditional knowledge and practices and community participation in conservation and resource management continue to be presented as key resources for realisation of national conservation goals and international commitments through CBD. The 2014 5th National Report also specifically highlighted concerns over the impact of negative changes in biodiversity on ecosystem services, including carbon storage and associated socio-economic and cultural issues, where these contribute to the overall well-being

of local communities. Mongolia has developed its new National Biodiversity Strategy and Action Plan (NBSAP, 2015), in accordance with Aichi 2011-2020 targets. What continues to be missing, however, are strategies for the assessment of biodiversity and wider ES values, and ways in which they may be incorporated effectively into national accounting (Aichi Target 2). In particular, and as noted in Aichi indicators for Target 2, although the required 'integration of biodiversity values into national and local development and poverty reduction strategies...(and) national accounting' should include social and spiritual as well as economic values, in practice non-monetary values and methods are not well developed. This is certainly true of Mongolia, where it is still the case that there is a paucity of published work on non-economic valuation of ES to date. Furthermore, although the provision of economic incentives for conservation has been integrated into national law (in accordance with Aichi Target 3), there continues to be limited enactment of these provisions. Aichi Target 14, related directly to the restoration and protection of key ES and their contributions to livelihoods and well-being, are highlighted as key considerations in Mongolia's 5th National Report, with the emphasis primarily on water and pasture resources and on ES conservation through protected areas (PAs). Again, detailed National strategies for developing and implementing a comprehensive ES framing and evaluation are yet to emerge. The carbon sequestration potential of pastureland is recognised, in relation to Aichi Target 15 and wider climate governance mechanisms, as part of future conservation planning. Aichi Target 18, which requires the respect, recognition and incorporation of traditional knowledges and practices into national conservation planning, in accordance with CBD Article 8j, is highlighted in Mongolia's 5th National CBD report as an area where little progress has been made, thus meriting enhanced attention in the future. Overall, the project 'Values and Valuation: New Approaches to Conservation in Mongolia' addresses and integrates a number of these key contemporary issues and problems, as previously reported and through:

i) Providing a much needed case study, including methodological testing and development, of the spatial and social distribution and values of key ES at study sites in Mongolia. This is of particular relevance to Aichi Targets 2, 14 and 18, and associated National planning.

ii) Providing the first trial of pilot PES schemes in rangelands in Mongolia, through Plan Vivo, thus addressing issues of participation, economic incentives, ES/ livelihoods nexus (e.g. Aichi Targets 2, 3, 4, 14, 15).

iii) Proving evidence of the socio-economic and biodiversity/ ES impacts of such schemes, and prospects for sustainable use of ES/ biodiversity (CBD Article 10).

iv) Providing and facilitating exchange of knowledge; capacity building and training to embed and enhance delivery of ES based approaches at National level, plus tools for their delivery (e.g. through PES schemes).

In relation to CMS and CITES, the protection of migratory species falls within the remit of some study areas and Plan Vivo proposals (see PDD, **Supporting Materials, Document 3**); hence contributions to realisation of this convention are also made through the above mechanisms. Dr Upton's desk based review of the IWC artificial nest scheme for Saker Falcon conservation, linked to trade under CITES and now suspended in Mongolia, provides additional context in analysis of economic incentives for conservation. This is further supported by a PhD thesis on this topic completed in 2014 by one of Dr Upton's doctoral students (available on request).

Evidence in relation to the above is as specified in Outputs under Section 3, and included in supporting materials as specified therein.

Specific activities proposed by the three Plan Vivo groups, as set out in the PDD, Annex 5 can also be linked to key biodiversity conservation accords and strategies, for example:

Table 4.1 Plan Vivo Activities in relation to key biodiversity targets

Plan Vivo group activities	CBD/ Aichi targets	NBSAP
Cooperate in groups for forest cleaning and protection.	Target 5: Habitat loss halved or reduced Target 7: Sustainable agriculture, aquaculture and forestry Target 10: Pressures on vulnerable ecosystems reduced Target 14: Ecosystems and essential services safeguarded. Target 18: Traditional knowledge respected. Target 19: Knowledge improved, shared and applied. Target 20: Financial resources mobilised.	4) Establish a research programme that improves knowledge of biodiversity and relevant threats 9) Control hunting and fishing 10) Prevent pasture deterioration through overgrazing. 14) Ensure that agriculture and forestry are carried out in ways compatible with biodiversity conservation.
Establish herders' partnership to protect local environment at each mountain pass in the herder group area.		
Protect red deer and Mongolian gazelle – through conservation measures outlined in the IUCN summary Action Plans for the target species.		
Protect bushes at Ovootiin island.		
Protection of Argali, Ibex and goitered gazelle.		
Protection of saxaul forest.		
Production of tree seedlings (native species) for reforestation.		

4.2 Project support to poverty alleviation

The project worked to support poverty alleviation directly through PES schemes (Plan Vivo), as an additional income source for herder groups, and linked directly to conservation/ sustainable use of ES/ biodiversity. Local dimensions of poverty/ well-being and indicators to capture these are specified in the PDD (**Supporting Materials, Document 3;** Sections C and F, Management Plans Annex 5). This also maps out the interlinkages between biodiversity, ES and well-being, in association with planned/ongoing activities under this pilot PES scheme. Beneficiaries of the work are participating project herder groups and their constituent households. Through training and dissemination mechanisms, notably 'PES Ambassador Herders' (e.g. members of participating *heseg* nominated by their *heseg* to take on that role; list available on request) and training of government officials/ policy makers, mechanisms have been put in place for knowledge transfer and the further replication of this approach, with due regard to any lessons learnt during the pilot phase. In addition, the identification and valuation of ES under Output 1 and its associated activities contributes to the recognition and policy integration of wider notions of well-being amongst local/ indigenous populations, whilst innovative methodologies will help to make visible non-economic values of ES. Thus both direct and indirect impacts are expected from this project. Noticeable achievements in the final year of the project are the participatory development and finalisation of herders' planned activities under PV, which link livelihoods, biodiversity, pasture management and carbon sequestration, and are based on exploration of diverse, cultural values. The finalisation and approval of the PV PDD is a notable achievement as it represents the extension of this approach to rangelands and the explicit recognition and integration of diverse, non-economic aspects of poverty/ well-being.

The project has also addressed gender equality in the following specific ways:

1) Herder groups (*heseg*) participating in the Plan Vivo process have specific internal norms and standards to ensure gender equality and to avoid exclusion on the basis of age, gender, income etc. (see PDD, p. 28). They operate a democratic leadership election process, by which women may, and have in the past been, elected as leaders.

2) The project has built on this through requiring clearly stated, transparent benefit sharing procedures in relation to any income from the sale of PV certificates, and admission of additional households to established herder groups (see PDD Sections I5 and J1, J2). As a minimum, female headed households are treated equally in distribution of benefits. Individual herder groups are also able to agree a higher proportion of benefits to be allocated to poor or female headed households.
3) Both men and women have participated in MSRM initiated training sessions throughout the project (**Supporting Materials, Document 2** for evidence from sample event).
4) The selection of PES ambassador herders and attendance at the workshop in Ulaanbaatar in June 2015 ensured both female and male representation. This was designed to ensure direct gender equality impacts from the project and to entrench gender equity within emergent PES PV schemes – and any future follow on projects (**Supporting Materials, Document 4).**

4.2.1 Programme indicators

Did the project lead to greater representation of local poor in management structures of biodiversity?

The project target species and all activities carried out relating to biodiversity management were defined from suggestions by the herder groups and therefore all actions relating to biodiversity conservation were representative of local herders. Thus, as set out in the PDD, *heseg* have set up new groups/ ways of engaging with local administration, which include poorer members. Thus overall, as part of the *heseg*, poorer herders have thus gained a greater voice in local biodiversity management structures. Evidence for this is as set out in the PDD (**Supporting Materials, Document 3;** Management Plans, Annex 5) and also as set out in Section 2.1, Indicator 3, above.

Were any management plans for biodiversity developed?

Management plans were developed for the *heseg* areas as a whole (**Supporting Materials, Document 3;** Management Plans, Annex 5 PDD), which include aspects of biodiversity and ES conservation and management. More detailed plans for biodiversity are being developed as part of the deliverables against targets set in the PDD for specific sites, and especially through ZSL's work with participating herder groups.

Were these formally accepted?

The management plans under the PDD were accepted by local government, who participated in the PDD/Plan Vivo process which produced these plans. Evidence of local government participation is given in the PDD, Annex 6 as shown in the sample contracts, and also in the June 2015 workshop materials (**Supporting Materials, Documents 3 and 4**)**.** Also, the formal recognition of group members as environmental activists in Undurshireet by the Ministry of Nature, Environment and Green Development (MNEGD) further reflects acceptance of local conservation planning (**Supporting Materials, Document 7**)**.**

Were they participatory in nature or were they 'top-down'? How well represented are the local poor and women, in any proposed management structures?

The development of the biodiversity monitoring methods, including which species to monitor and where, were developed through meetings held with the *heseg* and local administration leaders culminating in the June 2015 workshop, and included members of participating *heseg*, across gender and income scales (**Supporting Materials, Document 4**). As shown in PDD table C2.2, p.2, the participating groups are characterised by diversity in income and include female headed households in most sites. This diversity is reflected in *heseg* management structures (see Section 4.2, above). The development of the wider management plans thus also included gender and income diversity. Further evidence of this is provided through meeting/training report provided at **Supporting Materials, Document 2**.

Were there any positive gains in HH income as a result of this project?

The project has set up the Plan Vivo PES which is designed to provide positive gains in household income over the first PES commitment period (2015-2019), as explained above. Table 4.1 below, derived from the PDD, shows the expected gains in household income and, importantly, in wider aspects of wellbeing over this initial four year commitment period, and against the baseline established by the project (full socio economic database available on request).

Table 4.2 Baseline and predicted changes in wellbeing for participating *heseg* under Plan Vivo process (2015-2019)

Indicator	Site	Initial (2015)	Expected (2019)
1) **Livelihood diversification**: Percentage (%) of herder households (HH) involved in non-herding activities at start of monitoring period	i) Hongor Ovoo *heseg* (Ikh Tamir)	9.1%	30%
	ii) Ikh Am *heseg* (Undurshireet)	0%	25%
	iii) Dulaan Khairkhan *heseg* (Bogd)	22.2%	65%
2) Financial capital: % of HH with savings	i) Hongor Ovoo	18.2%	60%
	ii) Ikh Am	44.8%	75%
	iii) Dulaan Khairkhan	40%	70%
3) Household revenue: % of HH with an income >3 million tg	i) Hongor Ovoo	13.6%	40%
	ii) Ikh Am	58.6%	80%
	iii) Dulaan Khairkhan	66.7%	85%
4) Mobility: a) Mean *heseg* mobility (km pa) b) % of HH that increase mobility during monitoring period	i) Hongor Ovoo	a) 82 b) N/A	a) 92 b) 50%
	ii) Ikh Am	a) 156 b) N/A	b) 165 b) 80%
	iii) Dulaan Khairkhan	a) 89 b) N/A	a) 95 b) 60%
5) Income availability: % of HH spending >50% of their income on non-food items	i) Hongor Ovoo	27.3%	50%
	ii) Ikh Am	65.5%	80%
	iii) Dulaan Khairkhan	33.3%	65%
6) Own life evaluation: % of HH with "good" or "very good" own life evaluation score	i) Hongor Ovoo	10.6%	50%
	ii) Ikh Am	20.6%	60%
	iii) Dulaan Khairkhan	15.4%	55%

These indicators are a combination of those developed collaboratively with the herders, and key indicators used in national livelihood/ wellbeing statistics. Thus they encompass multidimensional aspects of poverty/ wellbeing. The herder groups are still in the very early stages of the initial PV commitment period, with overall increases in wellbeing not due to be realised until 2019. However, initial indications from the first PV implementation monitoring period in September 2015 showed that households were already experiencing benefits in some areas, as specified below.

How many HH saw an increase in their HH income?

Of the households who reported a change against the baseline in September 2015, 25% reported an increase in HH income, with an equal number reporting a slight decrease due to poor prices in the markets for unprocessed livestock products (N=60). Own livelihood evaluations and other financial indicators showed a similar pattern. The effects of market price fluctuations for unprocessed products are designed to become less significant under the PV process, as HH collaborate for processing of products and also diversify their livelihoods. This will provide additional cushioning, especially for poorer HH. Against other indicators, the majority (66%, N=60) of HH reported significant improvements in mobility/ seasonal pasture use and the efficacy of pasture planning as a direct result of the project and the PV process. HH also commented on better engagement and collaboration with local government through this process.

How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?

See above.

4.3 Transfer of knowledge

The project is designed to support Mongolian students in achieving formal qualifications through the agreement concluded through Mongolian Academy of Agricultural Sciences (MAAS), specifically with the School of Economics and Business (see letter at **Supporting Materials, Document 8**). Final completion of these materials was delayed by Dr Bradshaw's illness in Years 2 and 3 of the project, but a portfolio of materials has now been developed for student use in the academic year 2015-16, at both undergraduate and Masters level (sample lecture at **Supporting Materials, Document 9**). Obviously these students have yet to complete their programme, but this should lead to students having formal qualifications by 2016/17, depending on their status as undergraduate or Masters students. These will all be students from Mongolia. The exact gender ratio of students who will complete these courses is unknown, but will include both male and female students.

The project has sought to transfer knowledge in methodological approaches within the team itself- for example in relation to conjoint analysis as a method of elicitation and ranking of values, between Roy Bradshaw and Nyamaa Nyamsuren. The SOLVES modelling and methods of mapping and ranking ES has also been shared between the GIS specialist Tumee, Dr Upton and the rest of the team. Other forms of knowledge sharing have been through regular meetings and project briefings with Government officials (evidence in supporting letters at **Supporting Materials, Document 5**), through provision of key sections of the PDD in Mongolian translation and through training and presentations at the project workshop in June 2015. As previously stated the workshop involved key local and central government stakeholders, as well as herder group leaders and members. Part of the work conducted here included further exploration and confirmation of key biodiversity issues and values between herder group members and ZSL staff (**Supporting Materials, Document 4**, workshop materials) followed up in the field by ZSLs training of members in survey and camera trap techniques (report available on request). Further evidence of the take up of project methods and approaches in relation to practical conservation challenges is evident in the PDD itself and the specific activities being undertaken by the various herder groups, and in the letters at **Supporting Materials, Document 5.** Knowledge transfer has thus taken place through local, national and international platforms and through a variety of media (workshops, reports, conference presentations, video media etc).

4.4 Capacity building

i. Did any staff from developing country partners see an increase in their status nationally, regionally or internationally? For example, have they been invited to participate in any national expert committees, expert panels, have they had a promotion at work?

Staff from MSRM have presented the project work at a number of international meetings and conferences, thus enhancing their status. Young researchers in MSRM have also enhanced their status through training received through the project and participation in the project workshop and other events (**Supporting Materials, Document 4**).

ii. What gender were they?

The international presentations led by MSRM have been undertaken by D. Dulmaa, a female member of staff.

Institutions such as MSRM and the NGOs they work with at the project sites have also now been introduced to organisations such as ZSL that can provide technical support and expertise on future projects relating to wildlife and habitat monitoring. This has already led to an invitation from a key NGO at the Undurshireet site for ZSL to assist them with further conservation training and planning under a separate budget. *Heseg* members have already received training in biodiversity survey methods and participated in the monitoring process, under the Darwin Initiative project and through ZSL.

Overall, the development of the Plan Vivo project has been local, site specific and herder led, through the processes outlined in PDD, and has thus strengthened the pre-existing *heseg*

institutions and facilitated their capacity for and engagement with local administration in pasture use planning and in biodiversity monitoring and management. Feedback from the September 2015 monitoring, as highlighted in Section 4.2 above, shows these as key areas in which progress has been made. Human resources development has been supported within *heseg*, as well as within academic institutions and government departments through the comprehensive series of training events and activities with *heseg,* led by MSRM (example at **Supporting Materials, Document 2**). The PV project has also given a key example of new, innovative and sustainable conservation financing through sustainable use of pasture resources, and thus of incentive-based conservation.

University students are being trained through the materials developed to be used as part of courses at MSUA (evidence as previously referenced above).

4.5 Sustainability and Legacy

The affirmation of key priorities and needs for biodiversity conservation in the recently published 5th National Report emphasises the timeliness and importance of the project's contributions. These have been further emphasised in meetings, trainings and discussions with government ministers and policy makers as part of Output 4, for example in relation to the June 2015 workshop. Associated indicators and means of verification, as outlined above provide evidence of increasing interest in and capacity for biodiversity conservation associated with the project (**Supporting Materials, Documents 4 and 5**). The exit strategy for the project, designed to ensure its sustainability, was also closely linked to these training, capacity building and dissemination activities, through their focus on the key groups of i) government officials/ policy makers; ii) 'PES Ambassador Herders' and herder group members; iii) students at key host country academic institutions. The PES work though Plan Vivo was also designed to enhance sustainability, through herders' groups themselves and also through government policy makers, uptake of and support for this innovation. As part of the exit strategy, and in addition to briefings and consultations at the June workshop, with policymakers we are also exploring options for further embedding the Plan Vivo approach into longer term government conservation planning and funding, through linking to evolving consultations and funding streams for the expansion of the Local Protected Areas (LPAs) network. We are looking to determine whether our Plan Vivo sites may be eligible for and benefit from such a designation, and, where feasible, to further advance such an agenda during the Plan Vivo follow on phase of the project, thus linking directly to Mongolia's national conservation agenda and priorities, including under CBD. These approaches will also serve to mitigate risks in relation to carbon markets. The pilot PES/ PV schemes instituted during the project are designed to continue beyond the Darwin Initiative funded 2012-2015 project, with MSRM as the in-country coordinator, as specified in the PDD. MSRM have established commitments to and working relationships with participating herder groups, and will also have some financial support during the PV process to enable them to continue to discharged their functions as in country project coordinator (see PDD Section J2 and Annex 3). Through this, and the continuing engagement of Dr Upton, measures have been put in place to support a sustained legacy for this project. Links with other emergent initiatives, such as sustainable cashmere projects and work by key bodies such as TNC, as highlighted above, will also support long term sustainability. The initial PV commitment period will end in 2019, at which point existing herder groups will have the option to recommit for another period, and new herder groups to come into the process.

5 Lessons learned

Overall, the project management structure was suitable for the style of project. The inclusion of multiple in-country partners was quite challenging in terms of management and communication between all parties, but was necessary in order to access the range of expertise required. As noted in the Year 2 Annual Report, insisting that all partners disseminate regular progress updates against detailed work packages and timelines emerged as very important. This was emphasised in Year 3, but not always followed by all partners. Emphasising this as a key requirement in the MOU at the outset of the project may be a useful strategy for future projects. It may also have been helpful to clearly assign responsibility for chasing up any overdue progress updates/ reports to MSRM as the lead in-country partners, and hence best placed to follow this up through face to face meetings, phone calls etc. This may have avoided some delays.

Other than this, lessons learnt are primarily in relation to dealing with difficulties encountered through illness/ personal circumstances and associated incapacity of key team members. Difficulties encountered included the illness/adverse personal circumstances of Professor Undarmaa in spring/ summer 2014 and the recurrent health problems of Dr Bradshaw throughout the project. These caused some delays to aspects of the work. These issues and delays could not reasonably have been foreseen or avoided. Therefore, in terms of lessons learnt the only one is perhaps to have brought in other partners such as Values for Development (VFD) earlier in the project, although this might have been rather unfair to Professor Undarmaa and Dr Bradshaw in the circumstances. The inclusion of VFD to cover for work originally allocated to Professor Undarmaa also provided additional carbon modelling expertise within the team.

The project was based on a good understanding of underlying issues, as evidenced by numerous letters of support from policy makers and government officials and conservation organisations, both pre and post project (see **Supporting Materials, Documents 2**). The time needed to negotiate the Plan Vivo process did, however, prove longer than predicted, despite lengthy discussions between Plan Vivo and the PI during the project development phase. The extension of the Plan Vivo accreditation to rangelands and soil carbon for the first time through this project, concurrently with the issuance of a revised standard and guidelines by Plan Vivo (PV) in 2013, caused some delays on PV's side as they sought to work through the resultant practicalities and challenges in implementation. Not least, this necessitated the development of a whole new methodology for modelling and analysis of carbon sequestration in rangelands by the project team, as requested by PV in order to underpin the application of their new standard to our project. This was not something we could have anticipated needing to provide at the outset (see **Supporting Materials, Document 3,** Annex 8, for this methodology).

5.1 Monitoring and evaluation

There were no major changes in the project design or approved changes in the logframe (other than the no cost extension, as explained previously). The logframe proved a useful tool throughout the project for evaluation of progress against specific Activities, and in accordance with assigned responsibilities and detailed work packages and timelines. These detailed work packages and timelines were in turn linked to the specific measurable indicators and means of verification for each Activity, all of which were tied to the overall project purpose. As set out in the original project proposal, and included within these Activities, a variety of specific, technical monitoring activities were proposed for different aspects and at different stages of the project. These included i) monitoring against technical specifications for carbon sequestration; ii) monitoring against agreed suites of biodiversity and livelihood/ well-being indicators and participatory indicators (the latter developed with herders' groups) pre and post implementation of PES schemes. These enabled clear tracking of progress towards project goals in terms of livelihoods, biodiversity conservation and PES efficacy/ implementation, and as specified in the PDD (**Supporting Materials, Document 3**). Host country partners were closely involved in all aspects of this monitoring. Formal evaluation of the work during the project period was primarily through Darwin Initiative reviewers' feedback on the regular project reports (see also 5.2, below). Regular, informal evaluations were conducted within the project team on an ongoing basis and against indicators and timelines in the logframe and project implementation timetable. This was complemented by team face to face review and progress meetings at the beginning of each of Dr Upton's visits to Ulaanbaatar.

5.2 Actions taken in response to annual report reviews

Reviewer's responses to Annual Reports related mainly to a) requests for incorporation of additional expertise in wildlife management and biodiversity (Year 1 AR) and b) concerns over the issue of fencing and its possible impacts on biodiversity, should fencing of pasture areas be planned by herder groups as part of Plan Vivo activities (Year 1 AR). The first of these issues was addressed by bringing Zoological Society of London (ZSL) into the project from Year 2 onwards. ZSL already had staff members based in the National University of Mongolia, and a collaboration was developed with them and their local Mongolian team to address reviewers' comments. In response to b) ZSL were asked specifically to look at this issue. A 1 page statement on ZSLs recommendations was supplied with the October 2014 HY Report (included

again here at **Supporting Materials, Document 10**). This was based on their detailed review of proposed activities by herder groups at the time under the PV process. ZSL were asked to pay particular attention to any possible negative impacts, especially in relation to fencing, as well as to biodiversity benefits. As a result of this review, a subsequent desk study prepared by ZSL, further discussions with MSRM and UOL, and ZSL's participation in site visits and surveys in 2014/15, a revised list of activities pertaining to biodiversity conservation was agreed and drawn up with herder groups. These are now set out in the site specific Management Plans in the PDD (**Supporting Materials, Document 3,** Annex 5). The ZSL desk study report and outputs from site visits were also incorporated into the PDD. Care was taken in the finalisation of planned activities to focus on traditional, non-barrier based systems of pasture management, as requested by the reviewer. This is evident in the final version of the pasture management related activities in the Management Plans at Annex 5 of the PDD. These are all about restoration of mobility and better seasonal pasture use, thus realising both biodiversity and also carbon benefits, as modelled in the Technical Specification. Under the activities specifically linked to biodiversity conservation in these Management Plans, only Ikh Am *heseg*, Undurshireet *soum* (Table A5, 2a) are proposing fencing, in this case linked to protection of a 3ha area of willow saplings. ZSL have reviewed this proposal and have not expressed any concerns in relation to potential impacts on biodiversity.

6 Darwin identity

Darwin identity is promoted through the project website, the Plan Vivo PDD and through the other outputs/publications specified above, including completed and forthcoming conference presentations and existing publications. It featured prominently in the June 2015 workshop and training materials prepared in relation to this. It has already been highlighted in all training events and meetings (e.g. with local herder groups, policy makers etc.). This project has a clear Darwin identity and does not form part of a larger project. There is already some familiarity with and understanding of the Darwin Initiative in Mongolia, for example through the Steppe Forward Programme, which involved NUM and ZSL, both of whom collaborated in this project. The main project partners, MSRM, have been made aware of further Darwin funding opportunities as a result of this project, and have put in an application for post project funding in collaboration with UOL.

Darwin identity is further promoted through the project specific video designed to promote the carbon certificates arising from the Plan Vivo project https://www.youtube.com/watch?v=dDgppCcjhRs&feature=youtu.be, also to be hosted on the CLevel website at http://www.clevel.co.uk/.

7 Finance and administration

7.1 Project expenditure

The last annual report was submitted for the financial year ending 31 March 2015 (Year 3 of the project). Project expenditure has not changed since then, during the 'no cost' extension approved by Darwin Initiative. Thus for the table for 2015/16 below (since the Year 3 Annual Report) all items are zero.

The table for 2014/15 (Year 3) is also reproduced below. These figures have been audited and approved by external auditors, in accordance with Darwin Initiative requirements. The auditors' report is attached at **Supporting Materials, Document 11.**

From Annual Report 3 (1 April 2014-31 March 2015)

Project spend (indicative) since last annual report	2014/15 Grant (£)	2014/15 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
C. Upton (UOL)			0	
R. Bradshaw (UOL)			10% (total staff budget)	Reallocation of £2083 from Year 3 funds to N. Nyamaa, within staff budget, due to illness as explained in text. Remaining £917 to VFD.
GIS (UOL):				
C. Jarvis			0	
T. Shaviraachin (Researcher)			<0.1% (total staff budget)	
N. Nyamaa (MSUA)			7% (total staff budget)	Reallocation from R. Bradshaw (as agreed)
D. Dorligsuren/ MSRM			0	
J. Undarmaa (CES)			13% (total staff budget)	Reallocation within staff budget to VFD, as agreed with Darwin.
B. Bayarmaa (MNPCM)			3% (total staff budget)	(as above)
VFD				Additional salary item for VFD as agreed with Darwin, covered mainly by staff to staff costs transfer, but also some input from consumables and T and S to make up full amount.
Total Staff Costs (Year 3)				
Consultancy costs			7.6%	Includes year 3 staff costs for ZSL, plus Plan Vivo costs. Some internal reallocation from PV to cover ZSL for Year 3.
Overhead Costs			0	
Travel and subsistence (Year 3) **(Travel and subsistence -all project)**			28% **7%**	Transfer to VFD
Operating Costs			5%	
Capital items (see below)			0	
Others (see below)				
Consumables/ datasets				Transferred to VFD under staff – actually for computer modelling, so elements of consumables included.
TOTAL				

Total spend recorded above also needs to include overspend of £697.81 in Year 2, as reported, and now carried forward. **Therefore final Year 3 total = £74827.48**

Larger variations in budget lines above relate primarily to inclusion of VFD, as agreed with Darwin. A significant proportion of their costs have been covered from reallocation within staff budgets, as discussed and agreed with Darwin Initiative in email exchange with E. Young 20-23rd January, 2015. Where transfers from the T and S budget line have also been necessary, the amounts are <10% of T and S over the duration of the project, again as agreed.

Project spend (indicative) since last annual report	2015/16 Grant (£)	2015/16 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			0	
Consultancy costs			0	
Overhead Costs			0	
Travel and subsistence			0	
Operating Costs			0	
Capital items (see below)			0	
Others (see below)			0	
TOTAL			0	

Staff employed (Name and position)	Cost (£)
Since end March 2015, the following staff have continued to work on the project, but with no additional costs to Darwin Initiative	
Dr Caroline Upton (PI)	
Professor D. Dorligsuren (Director of MSRM)	
D. Dulmaa (MSRM)	
Nathan Conaboy (ZSL)	
TOTAL	

Capital items – description	Capital items – cost (£)
(None since end March 2015)	
TOTAL	

Other items – description	Other items – cost (£)
(None since end March 2015)	
TOTAL	

Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
University of Leicester (in kind staff time, overheads +travel fund)	
Mongolian Society for Range Management (MSRM) (in kind staff time, datasets, facilities)	
MNPCM (in kind, staff time, overheads)	
MAAS (in kind staff time, datasets, facilities)	
Leverhulme Grant to UOL (year 1 only, in kind – staff time, site visits datasets)	
IWC (in kind, travel, datasets, year 1 only)	
TOTAL	

Source of funding for additional work after project lifetime	Total (£)
University of Leicester REF Impact Fund (secured)	
(Applied for: Darwin Initiative Post Project funding (outcome awaited)	
TOTAL	

7.2 Value for Money

Then project represents good value for money, given that it has benefitted from substantial in kind contributions, as specified above. Through the close collaboration between project partners, the office facilities, vehicles and considerable datasets on the project sites already held by MSRM have been accessed at minimal cost to this Darwin Initiative funded project. The existing network of contacts and relations of trust between the project team and participating herder groups also ensured that the work could be completed with the greatest efficiency and in a cost effective manner. The project can also boast considerable achievements for a relatively modest budget, as specified in Section 2.

Annex 1 Project's logframe, including indicators, means of verification and assumptions.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
Sub-Goal: Mongolia's ability to meet CBD commitments (especially under articles 8, 10, 11) and as highlighted in CBD 2011-2020 Strategic Plan for Biodiversity enhanced; also CITES/ CMS where study sites include habitats of key migratory species.	Development of incentive measures for sustainable use & biodiversity conservation (through ES valuation and PES schemes in study areas). Livelihood and conservation benefits realised in study areas, (assessed through appropriate established and participatory biodiversity indicators and human well-being).	Project reports and academic papers. Government policy documents, reports e.g. end of project NRCBD. Plan Vivo reports and certification. (as above)	[redacted]
Purpose To generate policy and practice relevant knowledge of values of ES in Mongolia and pastoral contributions therein and to test efficacy of PES schemes, in order to enhance biodiversity and livelihoods.	ES mapping and valuations in diverse ecological contexts, incorporating traditional knowledge and values, and linked to associated resource management/ conservation planning. PES schemes developed and implemented, including validation, issuance of certified carbon credits for voluntary market, distribution of benefits. Project methods, reports and datasets used/ cited in policy documents, resource management plans at diverse scales.	Project reports, academic papers, local resource management plans (e.g. for herders' Pasture User Groups), Government policy documents (re conservation, livelihoods), reports e.g. end of project NRCBD. Project reports on and management plans for PES schemes. Certified carbon credits and evidence of marketing, income accrued e.g. through Plan Vivo. Government policy documents, reports e.g. end of project NRCBD. Project reports and academic papers. Government policy documents e.g. end of project NRCBD, PUG plans.	Government of Mongolia (e.g. through Ministry of Nature, Environment and Tourism [MNET]) continue to prioritise ES valuation and PES schemes in seeking to fulfil biodiversity (e.g. through CBD) obligations and livelihood goals. Buyers willing to purchase carbon credits in voluntary market. Herding communities (e.g. through Pasture User Groups) are willing to participate in ES valuation and PES schemes, and these are supported by local government administration at study sites.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Outputs (add or delete rows as necessary) 1. Key ES at selected sites in contrasting ecological zones valued, with participation of local herding communities.	Economic/ non-economic values for key ES at study sites produced; ranking and mapping of key ES completed; analysis of contributions re biodiversity, well-being reported.	Project reports and articles (including participatory/ GIS maps)	Participation of local herding communities. Access to available resource maps, surveys, socio-economic and ecological datasets provided by government officials.
2. Pilot PES schemes developed and implemented at selected study sites, with participation of local herding communities.	Appropriate technical specifications for evaluation of scheme benefits agreed; schemes validated and agreed with herders' communities; appropriate PES management and monitoring practices implemented; certificates issued on voluntary carbon market, mechanisms for profit sharing implemented.	Project reports. Plan Vivo reports, lists of validated schemes and marketing of carbon certificates on website. Community management reports from PUG groups.	Local herding communities willing to participate and cooperate with each other and thus able to secure Plan Vivo validation. Continued support from local government officials for implementation of scheme, including continued support for tenure agreements with herders' groups.
3. Assessment of contributions of PES to livelihoods & conservation in different ecological contexts.	Monitoring programmes completed using agreed technical specifications for evaluation of carbon benefits, and established and participatory biodiversity and well-being indicators.	Project reports. Plan Vivo reports, Community management reports.	Appropriate and sufficient data available from external sources, in conjunction with project surveys and technical specification, to enable baseline, interim and end of project evaluations.
4. Education and capacity building of key stakeholders (government officials, local herders) in ES values, development, management and efficacy of PES schemes in Mongolian context.	Workshops/ training events at study sites and in Ulaanbaatar, including information exchange/ training by PES ambassadors from selected PUGs. Implementation of PES schemes Valuation of ES at study sites, including development of methodology for non-economic valuation.	Government policy documents, reports e.g. end of project NRCBD; government websites and media outlets; lectures at academic institutions; project reports; training event reports.	Continued engagement and support of government, herders and other stakeholders.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Activities (details in workplan)			
0.1 Project inception and start up meeting, Ulaanbaatar			
0.2 Preliminary field visits for liaison and consultation with rural stakeholders and finalisation of case study sites			
1.1 Development and trialling of methodologies for non-economic valuation of ES			
1.2 Agree timetable, strategy and methodologies for valuation and mapping of ES with local communities			
1.3 Conduct spatial and social mapping of key ES with local communities and through collation and analysis of existing satellite/land use data (e.g. through GIS)			
1.4 Conduct ranking and valuation of key ES with local communities and through collation and analysis of existing economic data, including through GIS mapping			
1.5 Analysis and reporting on dimensions and spatial distribution of values of key ES (articles, reports)			
2.1 Undertake training needs analysis with prospective PES groups and institute necessary training			
2.2 Agree management, monitoring and land use/management rights and protocols for PES schemes, including record keeping, roles and responsibilities, distribution of benefits etc. with herder groups (e.g. PUGs), government stakeholders and amongst project team			
2.3 Develop technical specifications for validation of carbon sequestration and other community benefits			
2.4 Monitor activities and compliance			
2.5 Obtain Plan Vivo approval of validation report and project registration for carbon-based PES schemes			
2.6 Issuance of first carbon certificates on voluntary carbon market			
2.7 Analysis and reporting for all PES schemes (project reports, community PES group reports and analysis)			
2.8 Further training and capacity building for PES groups as necessary			
3.1 Develop participatory indicators for livelihoods/ well-being and key aspects of local biodiversity/ ES with local communities			
3.2 Agree suite of appropriate, established livelihood and biodiversity indicators for study sites with project team			
3.3 Conduct analysis of livelihoods/ well-being and contributions of key ES therein pre PES interventions, using established and participatory indicators			
3.4 Conduct analysis of biodiversity/ ES status using established and participatory indicators pre PES interventions			
3.5 Conduct analysis of livelihoods/ well-being and contributions of PES scheme and key ES (post PES implementation) therein, using established and participatory indicators and against pre PES baseline			
3.6 Conduct analysis of contributions of PES scheme to biodiversity/ ES status using established and participatory indicators post PES interventions and against pre PES baseline.			
3.7 Analysis and reporting (articles, project and community reports; government briefings)			
4.1 PES training with herder groups (see 2.1, 2.8 above)			
4.2 Liaison with and training of government officials (ongoing throughout project, policy briefing and end of project workshop)			
4.3 Training of PES ambassador herders			
4.4 Training of students/ future conservation managers through key academic institutions			
4.5 Wider dissemination and communication of project results (articles, newspaper reports, conference presentations etc.) including through PES ambassador herders			

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

Note: For projects that commenced after 2012 the terminology used for the logframe was changed to reflect DFID's terminology.

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year (2014-15 including no cost extension in 2015)	Actions required/planned for next period
Goal/Impact: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources. Sub goal: Mongolia's ability to meet CBD commitments (especially under articles 8,10,11) and as highlighted in CBD 2011-2020 Strategic Plan for Biodiversity enhanced; also CITES/CMS where study sites include habitats of key migratory species.		**Contributions to positive impact on biodiversity**: Specific, incentive-based mechanisms for direct positive impact on biodiversity developed through pilot PES schemes across three study sites in diverse ecological contexts. First post implementation M and E against agreed indicators as set out in PDD completed September 2015. Exploration and analysis of diverse values around biodiversity and ES completed. These inform PES mechanisms but also feed into national strategies and policies for ES-based management approaches, for example under new NBSAP and 5th National CBD Report (2014). **Contributions to positive changes in conditions of human communities associated with biodiversity:** Incentive based PES mechanisms established through the project provide an avenue to link herder communities with carbon funding, through the new PV standard, which specifically links well-being, carbon and biodiversity/ ES. For all participating herder groups, benefits are accruing through interlinked activities across these issues. First commitment period ongoing (2015-2019). The incorporation of local cultural values	Do not fill not applicable

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year (2014-15 including no cost extension in 2015)	Actions required/planned for next period
		ensures PES schemes reflect wider dimensions of well-being, linked to biodiversity and ES and to sustainable use. Equitable sharing of benefits is entrenched in the PES agreements under the PV standard.	
Purpose/Outcome To generate policy and practice relevant knowledge of values of ES in Mongolia and pastoral contributions therein and to test efficacy of PES schemes, in order to enhance biodiversity and livelihoods.	ES mapping and valuations in diverse ecological contexts, incorporating traditional knowledge and values, and linked to associated resource management/ conservation planning. PES schemes developed and implemented, including validation, issuance of certified carbon credits for voluntary market, distribution of benefits. Project methods, reports and datasets used/ cited in policy documents, resource management plans at diverse scales.	Linked to Output 1, Activities 1.1-1.5. Completed. Technical Specification and Project Design Document (PDD) for Plan Vivo PES scheme completed and approved, enabling issuance of carbon credits/ certificates. Linked primarily to Output 4 and reporting Activities under other Outputs (see below). Completed, as reported in text and under Output 4, below. Further impact work planned for January 2016, through reception at British Embassy in Ulaanbaatar.	Do not fill not applicable
Output 1. Key ES at selected sites in contrasting ecological zones valued, with participation of local herding communities.	Economic/ non-economic values for key ES at study sites produced; ranking and mapping of key ES completed; analysis of contributions re biodiversity, well-being reported.	Completed.	
Activity 1.1 Development and trialling of methodologies for non-economic valuation of ES.		Completed	
Activity 1.2. Agree timetable, strategy and methodologies for valuation and mapping of ES with local communities.		Completed	

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year (2014-15 including no cost extension in 2015)	Actions required/planned for next period
Activity 1.3 Conduct spatial and social mapping of key ES with local communities and through collation and analysis of existing satellite/land use data (e.g. through GIS).		Completed	
Activity 1.4 Conduct ranking and valuation of key ES with local communities and through collation and analysis of existing economic data, including through GIS mapping.		Completed	
Activity 1.5 Analysis and reporting on dimensions and spatial distribution of values of key ES.		Completed, with further analysis feeding into articles in preparation	
Output 2. Pilot PES schemes developed and implemented at selected study sites, with participation of local herding communities.	Appropriate technical specifications for evaluation of scheme benefits agreed; schemes validated and agreed with herders' communities; appropriate PES management and monitoring practices implemented; certificates issued on voluntary carbon market, mechanisms for profit sharing implemented.	Technical specification and Project Design Document (PDD) completed and formally approved by Plan Vivo and agreed with herding communities. These incorporate detailed agreed management and monitoring practices and profit sharing procedures. Formal validation successfully completed in accordance with Plan Vivo procedures, enabling issue of certificates on voluntary carbon market.	
Activity 2.1. Development and trialling of methodologies for non-economic valuation of ES.		Completed	
Activity 2.2. Agree management, monitoring and land use/management rights and protocols for PES schemes, including record keeping, roles and responsibilities, distribution of benefits etc. with herder groups (e.g. PUGs), government stakeholders and amongst project team.		Completed	
Activity 2.3. Develop technical specifications for validation of carbon sequestration and other community benefits.		Completed, including through development of new methodology for analysis of carbon sequestration in rangelands: 'Plan Vivo Climate Benefit Quantification Methodology: Carbon sequestration through improved grassland and natural resources management in extensively managed grasslands' (VFD). Included as Annex 8 of Project Design Document (PDD) **(Supporting Materials, Document 3).**	
Activity 2.4. Monitor activities and compliance, and report on basis of agreed technical specification (ongoing following scheme establishment).		First monitoring period completed in September 2015 in accordance with agreed schedules in PDD. Biannual monitoring, funded through sale of PV certificates, to be completed hereafter and throughout the first PV commitment period (2015-2019).	

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year (2014-15 including no cost extension in 2015)	Actions required/planned for next period
Activity 2.5. Obtain Plan Vivo approval of validation report and project registration for carbon-based PES schemes.		Validation visit completed and report submitted to PV, enabling full registration.	
Activity 2.6. Issuance of first carbon certificates on voluntary carbon market.		Ongoing following validation and registration.	
Activity 2.7 Analysis and reporting for all PES schemes (project reports, community PES group reports and analysis).		Completed. Annual and half yearly reports supplied to Darwin Initiative. Initial monitoring completed according to PDD schedule in September 2015.	
Activity 2.8. Further training and capacity building for PES groups as necessary.		Completed through training events throughout the duration of the main project (2012-2015), including through June 2015 workshop. MSRM continuing to provide ongoing support and training as necessary throughout the PV commitment period (2015-2019).	
Output 3. Assessment of contributions of PES to livelihoods & conservation in different ecological contexts.	Monitoring programmes completed using agreed technical specifications for evaluation of carbon benefits, and established and participatory biodiversity and well-being indicators.	Final technical specifications, monitoring indicators and protocols for biodiversity and well-being agreed and set out within the PDD, linked specifically to the Plan Vivo standard and designed to trigger disbursement of funds from sale of certificates to participating herder groups over the initial 4 year (2015-2019) commitment period. Baseline monitoring completed. First phase of post PES monitoring completed summer and autumn 2015, linked to agreed indicators. There are no changes in assumptions or measurement of output indicators.	
Activity 3.1. Develop participatory indicators for livelihoods/ well-being and key aspects of local biodiversity/ ES with local communities.		Completed.	
Activity 3.2. Agree suite of appropriate, established livelihood and biodiversity indicators for study sites with project team		Completed.	
Activity 3.3. Conduct analysis of livelihoods/ well-being and contributions of key ES therein pre PES interventions, using established and participatory indicators		Completed.	

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year (2014-15 including no cost extension in 2015)	Actions required/planned for next period
Activity 3.4. Conduct analysis of biodiversity/ ES status using established and participatory indicators pre PES interventions		Completed, including through ZSL training of local herders in camera trap and other survey methods.	
Activity 3.5. Conduct analyses of livelihoods/ well-being and contributions of PES scheme and key ES (post PES implementation) therein, using established and participatory indicators and against pre PES baseline		Completed for 1st stage of post PES implementation monitoring	
Activity 3.6 Conduct analyses of contributions of PES scheme to biodiversity/ ES status using established and participatory indicators post PES interventions and against pre PES baseline.		Completed for 1st stage of post PES implementation monitoring	
Activity 3.7. Analysis and reporting (articles, project and community reports; government briefings)		Completed, plus ongoing work on further articles. See Activity 4.5, below.	
Output 4. Education and capacity building of key stakeholders (government officials, local herders) in ES values, development, management and efficacy of PES schemes in Mongolian context.	Workshops/ training events at study sites and in Ulaanbaatar, including information exchange/ training by PES ambassadors from selected herder groups. Implementation of PES schemes Valuation of ES at study sites, including development of methodology for non-economic valuation.	Workshops/ training events conducted by MSRM with herder groups throughout 2012-2015. Training event/ workshop completed with government officials/ policy makers, NGOs, academic and PES Ambassador Herders, June 2015. Conference presentations throughout project (see **Supporting Materials, Document 4**). Local end of project meetings/ workshops held with participating herder groups by MSRM in September 2015, in conjunction with first post PES monitoring event. PES schemes implemented at 3 of 4 study sites Completed (see Output1, above).	
Activity 4.1 PES training with herder groups.		Completed. See Activities 2.2, 2.8 above.	
Activity 4.2 Liaison with and training of government officials (ongoing throughout project, policy briefing and end of project workshop)		Initial consultations undertaken in Year 1 and then ongoing throughout the project, including with key CBD contact in country. Training workshop completed in June 2015.	

Project summary	Measurable Indicators	Progress and Achievements in the last Financial Year (2014-15 including no cost extension in 2015)	Actions required/planned for next period
Activity 4.3 Training of PES ambassador herders (ongoing during final 12 months of project)		Discharged through MSRM training activities in Year 3. PES Ambassador Herders were also invited to the June 2015 workshop in Ulaanbaatar, including herder group leaders and at least one female and/or young herder per each participating herder group. Local end of project workshops also completed.	
Activity 4.4 Training of students/ future conservation managers through key academic institutions (development of lectures/training material & initial delivery during final year of project)		Agreement concluded with MAAS. Training materials completed, for use in 2015 onwards.	
Activity 4.5 Wider dissemination and communication of project results (articles, newspaper reports, conference presentations, local workshops/ seminars etc.) including through PES ambassador herders. (Ongoing, 6 monthly, annual and final project reports – 6M, AR and FR respectively).		Articles, presentations and briefings completed in Year 3. Further presentations completed at two major conferences in June 2015, following final integration of datasets; workshop/ conference for government officials, policymakers, key in-country academics and PES ambassador herders completed in June 2015; final meetings completed with national policy makers in summer/ autumn 2015, which generated supporting letters at **Supporting Materials, Document 5.**	

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Theme	Language	Comments
Training Measures							
1a	Number of people to submit PhD thesis						
1b	Number of PhD qualifications obtained						
2	Number of Masters qualifications obtained						
3	Number of other qualifications obtained						
4a	Number of undergraduate students receiving training	100	Mongolian	Exact mix unknown at present		Mongolian & English	Ongoing through academic year 2015-16
4b	Number of training weeks provided to undergraduate students	1					
4c	Number of postgraduate students receiving training (not 1-3 above)	50	Mongolian	Exact mix unknown at present		Mongolian & English	Ongoing through academic year 2015-16
4d	Number of training weeks for postgraduate students	1					
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(e.g., not categories 1-4 above)						
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	7 200	Mongolian	Male Male & female (depends on composition	Wildlife monitoring data collection Pasture use planning; Ecosystem services; Management	Mongolian	ZSL training Multiple training events conducted by MSRM with *heseg* members from all 12 *heseg*

Code	Description	Total	Nationality	Gender	Theme	Language	Comments
				of pre-existing herder groups (*heseg*)	and implementation of PES scheme; Nature protection; Processing & marketing of livestock products.		throughout the duration of the project,
6b	Number of training weeks not leading to formal qualification	10	Mongolian	Male & Female	(as above)	Mongolian	Multiple training events conducted by MSRM throughout project, plus 1 week by ZSL.
7	Number of types of training materials produced for use by host country(s) (describe training materials)	5			Data collection and management	Mongolian	Instruction materials for setting up camera traps and conducting wildlife assessments were delivered by ZSL. These are for use at local level within the *heseg.* Also, materials for students, MSRM PV training materials (translations of key sections of PDD)

Research Measures		Total	Nationality	Gender	Theme	Language	Comments
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (ies)	(3)			(PDD management plans were produced by 3 *heseg* for PV process)	(English and Mongolian translations)	These were produces by *heseg,* with MSRM and other members of project team through a participatory process (PDD, Annex 5). They include aspects of biodiversity conservation, with production of more detailed plans to occur throughout 1st commitment period (2015-19).
10	Number of formal documents produced to assist work related to species identification, classification and recording.	5			ZSL Data sheet for wildlife record keeping for *heseg*.	Mongolian	Standardised data sheets were produced to encourage collection of

							data for appropriate study variables.
11a	Number of papers published or accepted for publication in peer reviewed journals	2				English	Plus further four in preparation
11b	Number of papers published or accepted for publication elsewhere	3					Conference proceedings, Darwin newsletters etc.
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	3			SOLVES modelling ES services summary and rankings Socio economic survey		
12b	Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country						
13a	Number of species reference collections established and handed over to host country(s)						
13b	Number of species reference collections enhanced and handed over to host country(s)						

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	5			Darwin project findings/ PES	Mongolian and English	June 2015 workshop in Ulaanbaatar, August/ September 2015 workshops with *heseg* groups in the countryside; forthcoming British Embassy event, January 2016
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	10			Various: grassland management, ES and PES, resilience, environmental governance, conservation.		List of key conferences at **Supporting Materials, Document 4**.

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)		
21	Number of permanent educational, training, research facilities or organisation established		
22	Number of permanent field plots established		

Financial Measures		Total	Nationality	Gender	Theme	Language	Comments
23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work	£84,893					In kind contributions, as specified in Section 7.

Annex 4 Aichi Targets

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

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

Annex 5 Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. contact address, website)
Journal article	Communities, Culture and Commodification Mongolia's New Resource Politics* Dr Caroline Upton	British	British	Female	Brill, Leiden	http://booksandjournals.brillonline.com/content/journals/22105018/16/2
Book chapter	Contesting development: Pastoralism, mining and environmental politics in Mongolia* Dr Caroline Upton	British	British	Female	Routledge, London	Forthcoming. Copy attached with **Supporting Materials, Document 12**
Darwin Newsletter	Beyond Carbon? Biodiversity, Ecosystem Services and Well Being in Mongolia. MSRM/ C. Upton, January 2015	Joint Mongolian/ British	Joint Mongolian/ British	Female	Darwin Initiative	http://www.darwininitiative.org.uk/assets/uploads/2014/05/January-Darwin-Newsletter-Final-Web.pdf
Darwin Newsletter	Values and Valuations: New Approaches to Conservation	Joint Mongolian/ British	Joint Mongolian/ British	Female	Darwin Initiative	http://www.darwininitiative.org.uk/assets/uploads/2014/05/Darwin-Newletter-Issue-21-July-2012.pdf

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. contact address, website)
	in Mongolia. MSRM/ C. Upton, July 2012.					
Conference paper & proceedings	Resilience, Values and Ecosystem Services: Innovations in Rangeland Governance. Caroline Upton, D. Dulmaa, N. Nyamaa, June 2015	Joint Mongolian/ British	Joint Mongolian/ British	Female	Online	http://warnercnr.colostate.edu/docs/MOR2/2015/English3/2015BuildingResilience_of_MongolianRangelands~ENG3-6Upton_etal.pdf)
Policy briefing	Pastoral mobility must be preserved to ensure Mongolian rangeland sustainability. University of Oxford, University of Leicester, MAAS et al, 2014.	British	British	Male	University of Oxford	Attached with **Supporting Materials, Document 4**
Plan Vivo PIN	Values and Valuation: New Approaches to Conservation in Mongolia, Project Information Note (PIN).	Joint Mongolian/ British	Joint Mongolian/ British	Female	Online	http://www.planvivo.org/project-network/project-pipeline/

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. contact address, website)
Video	Mongolian Nomads Move in Climate Change CLevel/ 101 Visions	(British video company, using materials from the project team)	(British video company, using materials from the project team)	Involves both male and female	Online	https://www.youtube.com/watch?v=dDgppCcjhRs&feature=youtu.be

Links to other conference abstracts and materials available through project website http://www2.le.ac.uk/departments/geography/research/projects/darwin/values-and-valuation.

Details of other forthcoming papers available on request.

Annex 6 Darwin Contacts

Ref No	19-021
Project Title	Values and Valuation: New Approaches to Conservation in Mongolia
Project Leader Details	
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Fax/Skype	
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Partner 1	
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