Darwin Initiative: Half Year Report

(due 31 October 2011)

Project Ref. No.	**17-029**
Project Title	**Berbak to the Future: Harnessing carbon to conserve biodiversity**
Country(ies)	**Indonesia**
UK Organisation	**Zoological Society of London**
Collaborator(s)	**Department of Forestry / Berbak National Park, ERM**
Project Leader	**Laura D'Arcy/Sarah Christie**
Report date	**31 October 2011**
Report No. (HYR 1/2/3/4)	**HYR 3**
Project website	**http://www.zsl.org/conservation/regions/asia/indonesia/ (dedicated website will be live December 2012)**

1. Outline progress over the last 6 months (April – September) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up).

Progress is described against each of the planned outputs and activities listed:

Output 1 : Establishment of the institutional framework required to operate a carbon revenue-based Project

Activities 1.5 - 1.8 – Sign working agreement with forest stakeholders:

An MoU with the Ministry of Forestry (PHKA) and ZSL was signed on May 30th 2011 by Ir. Darori M.M. (Director General of PHKA) and Sarah Christie (Director of Regional Programmes) after 3 years of preparation. This is an umbrella MoU for all of ZSL's work in Indonesia and will run until 2014. It represents a huge step forward in formalising ZSL's position in Indonesia as it further legitimises ZSL's work, creating a platform for the BCI project to become a legally recognised REDD pilot project. This will in turn afford the project the authority, in conjuction with the National Park, to submit a project design documents (PDD) and establish a framework for carbon trading and REDD activities in protected areas under threat. This MoU will also cascade down through the other BCI government stakeholders allowing further MoUs to be signed increasing the security of the project and ensuring the transparency and clarity for all stakeholders which areessential for the success of such a project.

An MoU between ZSL Indonesia with Berbak National Park was signed on October 12th 2011. This agreement has facilitated the project's preparedness with the National Park for Reduction Emission from Deforestation and Degradation in Berbak National Park. This included designing a 3-year work plan and program direction to achieve the long term goal of self-financing, sustainable conservation of the area.

A presidential decree (61/11) was released in September 2011 regarding the reduction of CO_2 emission within Indonesia. The provinces of Central Kalimantan and Jambi were designated in the decree by the President of the Republic of Indonesia, Susilo Bambang Yudhoyono, to become REDD demonstration provinces for peatlands, with a critical focus on the potential application of REDD in protected areas under threat. This has pushed the BCI project to the forefront of REDD projects in Indonesia, and we are now working closely with the government of Indonesia (GOI) to create a REDD framework for peatlands and protected areas. In direct response to this and to meet with the conditions of this decree, ZSL and

Berbak National Park are now in the final stages of completing an MoU with the Directorate of Environmental Services for Conservation Areas and Protection Forest (Ministry of Forestry) to be signed on the 2nd December 2011. The MoU concerns the execution of activities in preparation for REDD+ in Berbak National Park and the listing of Berbak Carbon Initiative as one of the official REDD Demonstration Activities in Indonesia. As part of this agreement, ZSL will be working closely with the central government UN-REDD task force (UPK4) regarding the reduction of Co2 emission through the implementation of REDD in Indonesia and the establishment of funding mechanisms to allow REDD projects to do this.

Further progress is being made towards creating an institutional framework at a provincial level for the Berbak Ecosystem. ZSL has engaged in policy-focused dialogue in the province, with ZSL becoming a member of the Provincial REDD Commission. As a member of the Commission, set up by Governor Hasan Basri Agus, ZSL Indonesia will assist in drafting policies and practices aimed at strengthening the role of REDD, in Jambi, in reducing Co_2e (Carbon dioxide emission) for the province. These will be put in place to assist the province in achieving the target of reducing Co_2e in Jambi, in accordance with Presidential Regulation No. 61/2011 which includes a national level action plan to reduce emissions. This decree set the emission reduction target for Central Kalimantan and Jambi, through REDD Demonstration Activities in peatlands, at 3.67 million tons Co_2e.

In April 2011, Agus Suratno and Laura D'Arcy also attended a workshop on "Tropical Wetland Ecosystems of Indonesia: Science Needs to Address Climate Change Adaptation and Mitigation" hosted by the Centre for International Tropical Forestry Research (CIFOR) and the United States Forestry Service (USFS), where the BCI work was presented both as a paper and in poster form. As a result of this, further collaborations are being explored with CIFOR and USFS and an MoU is now being drafted with CIFOR and USFS to create a Berbak Carbon working group.

Output 2. Quantification of emission baseline values and likely rates of change in a 'business as usual' scenario.

Activity 2.4 Calculate baseline carbon stocks in above and below ground biomass

To achieve the higher of level accuracy in above and below ground carbon stock calculation as required by Tier 3 assessment and to verify the Tier 1 satellite image-based carbon accounting in Year 1: On the ground, field work has been completed using above and below ground biomass calculation using techniques and allometeric equations tailored specifically to the region by the GIZ Merang project in combination with methods approved by WinRock and in accordance with the International Panel on Climate Change Good Practice Guidelines (IPCC-GPG). These result aim to meet key elements for REDD+ implementation, in developing transparent, comparable and accurate measurements as part of the required monitoring, reporting and verification (MRV) systems. These systems guarantee that future parties involved in REDD+ implementation will effectively meet their respective climate change mitigation commitments and therefore it has been essential, as a pilot project, that these methods will be rigorously followed, to produce robust results.

ABG and BG carbon surveys have been conducted in the habitat types identified in the region of the Berbak Ecosystem: primary forest, secondary forest and swamp bush. A total of 56 sampling plots were surveyed of which 30 were located in Berbak National Park. The number of sample plots are now above the minimum number of sample plots recommended by WinRock to use allometric analysis

To calculate forest biomass accurately, peat core samples were taken to assess carbon content. The soil/peat analysis was carried out in the ISRI Soil Laboratory Bogor, as part of the CIFOR carbon flux project. The analysis result indicates that, currently, the mean value total number of carbon stocks is 75.89 C ton per-hectare. However, soil sample testing is still on-going therefore, to date, this is only an estimated stock value.

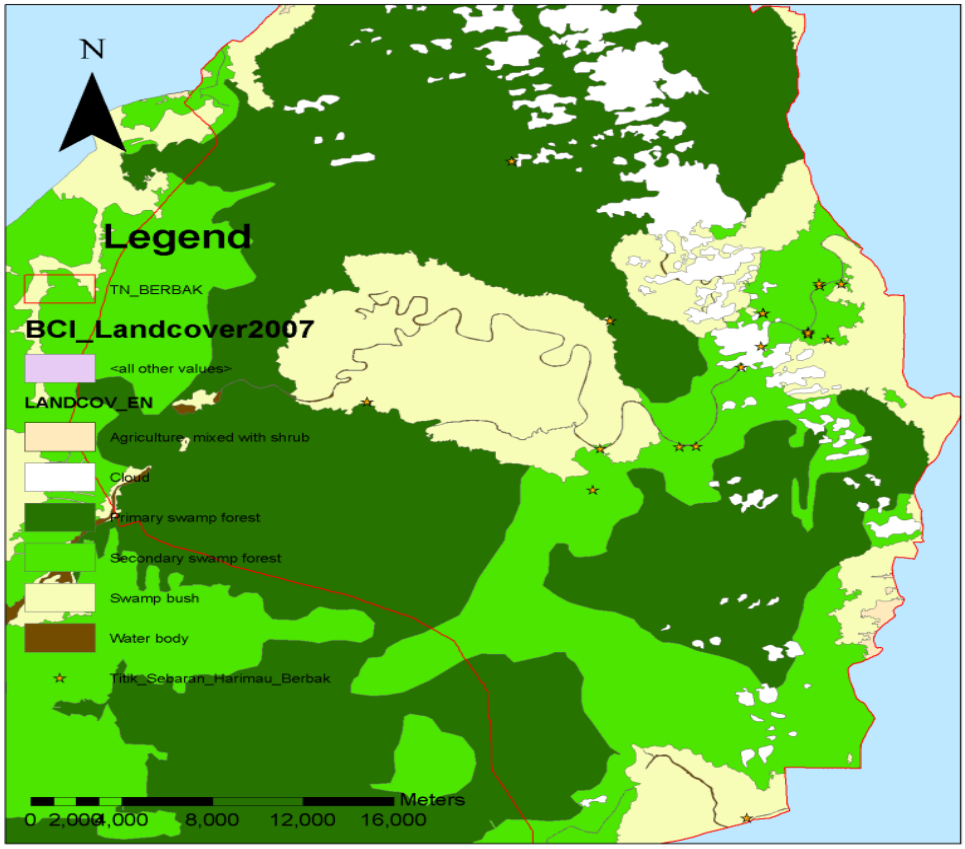
Output 3 : Quantification of co-benefit (biodiversity, community) baseline values and relationship to carbon baselines

3.1 Calculation of species richness across different forest classes

Calculation of forest classes has been conducted using a combination of GIS/remote sensing data and field surveys, to ground truth the GIS data. The field team are establishing floral species assemblages within the forest to classify further the variation in peatland forest types that can be found in other forests. Currently the team are working in the field to establish phenology and leaf litter plots. These will be surveyed monthly and will not only provide further insight into the forest's ability to support protected frugivorous species such as gibbons but will also provide more data on forest productivity and health which will, in turn providing further information on the carrying capacity of the forest for certain species.

Faunal species richness studies for potential indicator and keystone species are also on-going as are Tiger distribution field surveys. The land cover type analysis generated from 2007 SPOT 5 imagery was used to identify forest classes suitable to present a clear assessment of tiger and gibbon richness Tiger and gibbon surveys are located in three cover types: (1) primary, (2) secondary swamp forests and (3) bush. The temporal and spatial picture for tigers is now being calculated using the results from the 2007 surveys onwards to provide a clear picture of the trend in tiger populations in the forest. The method used is Capture-Mark-recaptured (CMR) within the 15 km x 15 km survey area, using Reconyx cameras. The tiger survey results have shown that most observed individuals (12 individual tigers) have been discovered in secondary forest swamp. See Map 1 below which illustrates the distribution of individual tigers in each habitat type in Berbak National Park.

MAP 1. TIGER DISTRIBUTION ACROSS HABITAT TYPE IN BERBAK NATIONAL PARK



Gibbon distribution and population surveys are ongoing using triangulation of duets and great calls to assess gibbon group location. It is essential to know where the groups are and relate this to the forest type and conditions that they are found in to determine the potential carrying capacity of the various

forest types to support gibbons within the park. This is accomplished by triangulation of the duets and great calls. Gibbon group mapping will indicate the number of groups and approximate home ranges. Preliminary results indicate that groups of gibbons can be found in three areas within the Berbak National Park: Simpang Batu Pahat Area survey identified 3 gibbon groups; Simpang Kayu area survey identified 3 gibbon groups; and Sungai Sawah Region survey also identified 3 gibbon groups. All the areas in which gibbons were encountered primary swamp forest.

Activity 3.5 Tiger density assessment

Tiger density assessment continues to be conducted using a Grid system with cameras being placed around 2.5km apart (min. 1100m, max. 2800m, mean 1737m) and left for a maximum of two months. Currently, twenty nine of thirty six grid cells have been set up using Recoynx and Cuddeback cameras. However, camera survey time has been less than expected due to camera breakages.

Ninety six grids covering Berbak National Park, have been surveys using camera traps and in turn have identified 14 individual Sumatran tiger giving a population density of 2.5 to 3 individuals per 100 km^2. The gender composition of the tigers identified consists of six female, six male and two of an unknown gender. The closed population surveys is now in its second month using Cuddeback cameras and the results will be included in the final report along with analysis of the trend in tiger population over the last five years.

Tiger movements have been monitored over the last 6 months, with Reconyx cameras being used to collect data which have been compared with the data from previous surveys carried out using DLC Covert II camera traps. Between January and August 2011, these cameras traps were installed at 7 monitoring stations, located close to the major rivers in Berbak National Park. In December cameras will be installed in the grids again but with much more rapid survey rates, of less than 3 months to provide a closed population survey to allow for population modelling, using Capture Mark recapture techniques.

Activity 3.5 Survey of current sources of income and relationship with the forest

Of the thirty two villages surrounding Berbak, 4 villages were selected, for repeated surveys in line with work in Year 3 (See Year 1 and 2 reports), to be the location of in-depth community surveys for Phase 1 community-based conservation participatory planning. The villages that were selected represented coastal villages, mainland villages and riverside village clusters determined to have strong dependency on the forest in the Berbak ecosystem in their cluster, through utilization of timber and non-timber forest products.

The results of in-depth community surveys in the first phase are summarized in the following table:

Name of Village	Number of households and population	Distance to Berbak NP forest or nearest natural forest (km)	Essential community livelihood source	Main dependence income/livelihood with natural forest resources	Other Natural Resources Management Issues
Sungai Cemara	95/545	2	Coconut and rubber small-holder plantation, marine fish,	Forest timber extraction for sea fishing gear and bird nest houses, illegal bird hunting, taking jelutung sap and honey bees in	Coastal erosion, disputes over coastal land for fishing, forest fire, Tenurial and claim conflicts between Berbak National Park and cultivation area.

				mangrove / peat swamp area	
Talago Limo	258/1013	2	Coconut and rubber small-holder plantation	Illegal forest timber extraction for commercial purpose and house construction; taking jelutung sap, honey bees and freshwater fish;	Tenurial and claim conflicts between Berbak National Park and cultivation area.
Sungai Rambut	160/570	1	Coconut and rubber small-holder plantation	Illegal forest timber extraction for commercial purpose and house construction; taking jelutung sap, honey bees and freshwater fish;	Tenurial and claim conflicts between Berbak National Park and cultivation area.
Pematang Raman	370 / 1798	7	Rubber small-holder plantation	Illegal forest timber extraction for commercial purpose and house construction; taking jelutung sap, honey bees and freshwater fish;	Tenurial dispute with one of the largest oil palm plantation concession holders.

These data provided baselines for the further needs assessments that are now being undertaken in these villages. These surveys are now complete and aimed to identify the potential economic barriers that need to be overcome to foster community stakeholder buy-in to alternative livelihood programmes that will need to be put in place to mitigate the loss of sources of income that communities rely upon that have direct and indirect negative impacts on the forest. The results are currently being analysed

Output 4 : An assessment of the viability of available strategies to mitigate environmental change

Activity 4.2 : Conduct a needs assessment for improving community livelihoods

Community livelihood assessment are being undertaken for 6 villages. The rationale for expanding the dataset from the 4 villages in the first phase of analysis was to provide a clearer picture of progression, as the 4 villages originally surveyed had all benefitted in some way in their development from either NGO assistance or government schemes. Although this makes these villages potentially more receptive to proposed schemes to improve livelihoods, 2 villages at the lowest quartile for development were also selected, to ensure applicability for future revenue disbursement in the BCI. This will also provide key insights into how to approach more outlying communities to ensure that FPIC for the REDD project are obtained through transparency and community commitment to REDD.

Community participatory methods are being undertaken alongside community- based conservation workshops in 3 different village clusters (coastal village, mainland village and riverside village), as well as further questionnaires targeted at various ages, sexes and economic classes within the communities. Fifty percent of the surveys have been completed to date and involve trained members of the local community to undertake the surveys, under guidance and supervision from ZSL community staff. These data will provide clear information on the needs of each community and a more detailed picture of their relationship to BCI natural resources, how they attribute value to the forest as a resource and income source, what pressures on the BCI PA and the discreet underlying cause of pressures. This work

will provide the next stepping stone to highlight the actors and drivers of those threats and to identify the most appropriate strategies to reduce the source of these threats to the forest, reducing the opportunities for resources depletion and deforestation and, ultimately, fostering community ownership, through empowerment, towards obtaining sustainable community income through FPIC.

Activity 10. Conduct annual assessment of biodiversity indicators

From the biodiversity data collected to date, suitable biodiversity indicators are being refined using the baseline data collected in the last 18 months. To date, camera trapping has been used to provide an overall idea of species assemblages in the National Park. Species targeted to monitor trends over time include: Gibbons, Birds (white-winged Wood Duck (*Cairina scutulata*) and hornbill) and fish, with data from the camera traps providing information on ungulates such as wild pigs. The on-going Tiger surveys are essential for monitoring such iconic wildlife species, and the presence of tigers may also enable BCI to access further funding from the Wildlife premium initiative put forward by the World Bank.

Activities 8. Train Stakeholder staff to; collect biodiversity data and (9) manage and analyse biodiversity data

Are on-going with National Park staff undertaking training and accompanying ZSL staff on a rotational basis on all field and community surveys. ZSL has also obtained funding for all National Park staff to receive training in MIST (Management Information System which it is hoped will be used Sumatra-wide to provide dynamic management of the remaining tigers at a landscape level.

As part of another grant ZSL Indonesia are devising to develop a monitoring protocol, with supporting software, for HCV areas to allow for fast, effective management of data analysis and interpretation. It is very much hoped that this work can be synergised with the work being undertaken in BCI, so that the National Park staff will be able to use this database to fulfil MRV requirements with ease. Although the development of this database will only be complete in December 2012.

Activity 11 Establish protocol for rapid community assessments and 12. Train stakeholder staff to conduct community surveys

National Park staff accompanying ZSL community liaison staff during community participatory meetings to gain training of community participatory techniques and the results that they give. However, to carry out the community attitude surveys, due to the current negative relationship between the park and some of the boundary villages, it was determine from Year 1 and Year 2 surveys so as not to bias data, that two community members (one male and one female) will be trained to undertake the annual surveys. These are trained and supervised by ZSL staff and in the future it is hoped that either National Park staff or civil society groups may continue this. This will therefore remove any sources of potential for coercion or bias and reduce potential sources of conflict between stakeholders, which could in turn effect the Free Prior Informed Consent required by REDD.

Other Progress

A proposal has been now been revised and resubmitted to The Mohamed bin Zayed Species Conservation Fund for Gharial survey:

http://www.mbzspeciesconservation.org/grant-applications/index.php?nf=1

The Wildlife conflict and crime team has now received funding from the SEGRE foundation for 5 years and Taronga zoo for 2 years to allow for a community ranger support team to increase the effectiveness of the team and allow for further community links to be built between the National Park and the surrounding communities.

2. Give details of any notable problems or unexpected developments that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

Activity 1.10 'Obtain a recognised Forestry Standard certification' is very unlikely to be achieved by the end date of this funding. Hampered by the lack of MoUs necessary to begin processing the necessary documents (PDD) for Voluntary Carbon Standard or Climate, Community and Biodiversity Alliance. It is hoped that, if further funding can be secured, this will be achieved in the next 12 months, due to the necessary developments listed in the body of this report.

Activity 1.9 'to conduct an economic feasibility study' and Activity 3.6 to 'Summarise the relationship between biodiversity values, deforestation and carbon emissions' will only be completed in part as this work is tied closely to a PhD student from the Institute of Zoology and London School of Economics. The field work of the student has been delayed, therefore, only preliminary findings on the relationship between biodiversity values, deforestation and carbon emissions will be able to be submitted at the end of this grant (April 2012). In regards to on the economic feasibility of the stud, although the desk top analysis has already presented a projected economic feasibility study of the project, the actual revised feasibility to the current economic context will not have been completed. However, once complete, this will be published either as a stand alone report or as part of a peer reviewed paper ensuring public access.

Have any of these issues been discussed with the Darwin Secretariat and if so, have changes been made to the original agreement?

None, other than approved in 2009

Discussed with the DI Secretariat:	**None in this year , in…2011…… (month/yr)**
Changes to the project schedule/workplan:	**None in this year in…2011…….(month/yr) ?**

3. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?

None

If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document.

Please note: Any <u>planned</u> modifications to your project schedule/workplan or budget should <u>not</u> be discussed in this report but raised with the Darwin Secretariat directly.

Please send your **completed form email** to Eilidh Young, Darwin Initiative M&E Programme at Darwin-Projects@ectf-ed.org.uk . The report should be between 1-2 pages maximum. **<u>Please state your project reference number in the header of your email message eg Subject: 14-075 Darwin Half Year Report</u>**