



## Darwin Initiative Annual Report



Important note:

To be completed with reference to the Reporting Guidance Notes for Project Leaders – it is expected that this report will be about 10 pages in length, excluding annexes

Submission deadline 30 April 2009

### Darwin Project Information

Project Ref Number	15/031
Project Title	Novel and practical conservation strategies following mining in Sierra Leone
Country(ies)	Sierra Leone
UK Contract Holder Institution	Centre for Ecology and Hydrology
Host country Partner Institution(s)	Environmental Foundation Africa (EFA) Fourah Bay College (FBC) Njala University (NU)
Other Partner Institution(s)	Mind the Gap
Darwin Grant Value	£164,408
Start/End dates of Project	1st Nov 2006 to 31st Oct 2009
Reporting period (1 Apr 200x to 31 Mar 200y) and annual report number (1,2,3..)	1 Apr 2008 to 31 Mar 2009 Annual report No. 3
Project Leader Name	Jan Dick
Project website	<a href="http://wiki.ceh.ac.uk/display/darwin/Darwin+Wiki">http://wiki.ceh.ac.uk/display/darwin/Darwin+Wiki</a>
Author(s) and main contributors, date	Jan Dick, Tommy Garnett, Scott Jones, A. B. Karim. Abu James Sundufu, Richard Wadsworth & Arnold Okoni-Williams

### 1. Project Background

The aim of this project is to develop practical methods for successful reclamation and conservation following mining in developing countries that both conserve biodiversity and enhance community livelihoods – rutile mining in Sierra Leone is used as the case study.

In addition the concept of 'biodiversity offsets' is being explored and discussed with the company and the country CBD focal point.

The focus of the project is to integrate current scientific information with local knowledge through a partnership between CEH (UK), NGOs, local communities, a mining company and two universities (Sierra Leone).

## **2. Project Partnerships**

### **Project partnerships:**

One of the strengths and challenges of this project is the wide range of partners from the host country and the UK, including research centres, NGOs, universities, industry in the form of the mining company (SRL) and local communities. This diversity of organisational structures and cultures initially led to some uncomfortable relations between some Sierra Leone partners and between Sierra Leone partners and UK project leader. A more formal management style was introduced following the mid term review (Hardcastle 2008) which has helped the situation. The project manager conducted a full review of the project in November 2008 and the report details the progress made in terms of project management (see Dick et al. 2008). In essence:

1. A formal service level agreement was initiated between EFA (in country manager) and the Community Liaison Officer, Jestina Jusu and this is in the process of being amended for the final 6 months of the project.
2. Communication problems between Sierra Leone and within Sierra Leone has been a major difficulty and contributed to the misunderstandings which have arisen during the first year of this project. Most of these problems have now been resolved and the purchase of two new laptop computers with email facilities for FBC and NU from additional CEH funding is helping.

The division of the project tasks has solidified such that:

- (i) EFA is responsible for in-country coordination and logistics, and as major player in the regional environmental sector has played a vital role in promoting the project in the region
- (ii) the University partners are responsible for the monitoring, analysis and reporting on the demonstration plots, they have used the plots as training opportunities both for their students and as capacity building opportunities for more senior staff (GIS and Genstat statistical course conducted in January 2009 – Wadsworth 2009).
- (iii) DARWIN community liaison officer has continued to link between the project partners and the local villagers, forming the only continual presence at the mining site;
- (iv) Mind the Gap are responsible for analysis of the social interactions and workshop delivery, they played a major role in conflict resolution both in the mining area and between project partners and
- (v) CEH is responsible for project management and researching the concepts of biodiversity offsets and ecosystem services together with project partners.

The project leader and in-country project manager met with the national CBD focal point Mr. Mansaray, Director Forestry Division and discussed the concept of biodiversity offsets in relation to the mangroves (Dick et al 2008).

## **3. Project progress**

The project progress is summaries here and the full details are contained in the partner reports. The work of the project has progressed this year against a background of sever financial restraint by SRL. The company has been hit by a series of financial problems which has resulted in major management changes within the company. Unfortunately the second dredge capsized (Appendix 1) which had an extremely adverse effect on the share price of the company. In addition there has been a change of senior personnel in the company which has resulted in a major focus on production and a much reduced rehabilitation effort. SRL effectively scaled down their rehabilitation efforts reflecting their financial position. While this is unfortunate the project has shown 'proof of concept' in the work carried out in the first year. The planting of the 2007 demonstration plots proved:

- (i) local communities can deliver sufficient compost of high enough quality to rehabilitate the degraded areas. Unfortunately the mechanisms and procedures that SRL implemented for paying the producers and inattention to quality control undermined the project such that SRL will not engage directly with villagers at this time. There is however encouraging evidence that they will engage through a third party and we are currently investigating the involvement of the local agricultural advisory service;
- (ii) the addition of compost has resulted in significant and sustained green cover of the mining spoil. Initially agricultural crops grew in 2007/08 and this year local wild herbage self seeded starting the natural regeneration process. Invertebrate populations are increasing each year proving the importance of these groups as 'soil engineers' (Sundufu 2009).

The University partners are currently preparing peer reviewed papers with the data collected during a major survey of the 2007 experiment conducted in January 2009. This data set was utilized in the capacity building statistical workshop held in February 2009 (Wadsworth 2009). Four staff received three days of training in GIS and Genstat.

During the second year annual review (Nov 2008) the lessons learnt from this project were summarized using panarchy theory to conceptualize the interaction between the social and ecological elements of the project (Dick et al. 2008) which has helped draw out clear lessons learnt. This work is currently being prepared as a peer reviewed paper.

The concept of biodiversity offsets and ecosystem services (proposed in Neilson & Wadsworth 2007) was further explored by examining the potential of the mangroves (Wadsworth 2009). This is challenging work as the financial position of the company means they do not have funds to entertain this concept at the moment. The research is however developing a very important data set of knowledge which will be used in the final workshops to raise awareness of this resource within SRL, NGO, academic and political leaders in the country.

### **3.1 Progress in carrying out project activities**

A new log-frame was agreed as part of the mid-term review.

*Output 1- Livelihood and restoration relevant business models developed and piloted in mining adjacent communities*

#### 1.1. Livelihood and restoration relevant business models developed and piloted in mining adjacent Communities

There has been no further progress on this element of the project as SRL have refused to directly engage with villagers. We have recently (Scott 2009) developed linkages with the Ministry of Agriculture and this route, at the moment, appears very promising.

#### 1.2. Undertake training needs assessment and deliver appropriate training opportunities

Last year a very successful *Skills Training for Conflict Transformation and Partnership Building* workshop was held and the skills learnt at that time proved very useful when the community Liaison Officer had to deal with villagers who had not been paid for the compost they had manufactured in good faith. The matter was resolved by the DARWIN team when SRL representatives refused to engage with the communities. The community leader's dealt with the DARWIN team in a very measured and mature manner – implementing many of the principles learnt in the workshop (Scott, 2008).

At the request of the in country partners Richard Wadsworth ran a statistical course attended by Dr A.J. Sundufu and three other staff from Njala University, unfortunately other commitments prevented staff from FBC attending for the full course. In addition an introductory "taster" course was given on the use of ESRI's ArcMap software to the same group of staff from Njala.

Presently NU's Department of Biological Sciences is teaching Genstat statistical course to Bachelor of Science Honours (Biological Sciences and Applied Ecology option) and Master of Science (Environmental Biology) students this second semester.

In addition, the project partners from FBC report that the skills and experience acquired by the technicians associated to the project, are being translated into practical sessions in relevant modules offered by students and dissertation work.

### 1.3 Monitor livelihood impacts, adapt and revise strategies as appropriate

As SRL have refused to engage with the communities there has been no progress on this element of the project.

## Output 2 - Range of appropriate interventions tested and evaluated in demonstration plots

### 2.1 Undertake GIS survey of mine spoil areas and forward estimate of areas of different types

An estimate of the bare and degraded areas has been made. Comparison with the figures used by SRL is complicated by alternative definitions of what constitutes a restored area. In particular some of the areas considered to be restored (or at least re-vegetated) by SRL using acacia and eucalyptus have such a low canopy cover as to be spectrally identical to severely degraded land. A further complication is that with the failure of the latest LANDSAT satellite there is little prospect of obtaining up-to-date satellite images (existing data is now 6 years old).

### 2.2 Develop interventions in consultation with stakeholders and establish demonstration plots

Following the problems associated with the 2007 planting SRL refused to engage with the villagers. Unfortunately the 2008 experiment which was planned was not fully implemented but was monitored by FBC. SRL can not be criticized for their stance in this matter as they paid a very large sum of money to the villagers in 2007 (\$150, 000).

### 2.3 Develop data gathering methodology for demonstrations, collect and analyse technical and economic data

Data collection protocols were devised and codified by the University partners for the collection of data on; vegetation (trees and ground flora), soil invertebrates and comparative bird invasion.

Statistical analysis of the growth of trees and abundance of invertebrates in the 2007 plots has been conducted (Sundufu 2009, Wadsworth 2009). Statistical analysis of the ground flora and avian fauna has not yet been completed.

Records of expenditure by SRL on the establishment of the experimental plots (labour and management costs, transport and material costs etc.) have been requested from SRL but it is unclear whether they will be made available in a sufficiently disaggregated state to allow meaningful analysis. Indications are that the most technically successful plots (best growth) are very expensive with the 2007 cost of compost. An alternative strategy involving the local Ministry of Agriculture is being explored.

### 2.4 Discuss results with stakeholders and revise interventions as appropriate

A village meeting was held as part of the second annual review of the project with the villagers who had not been paid (Dick et al 2008). This meeting highlighted the gulf between the company and the villagers and contributed to the realisation that a formal conceptual model

would be helpful to understand the dynamics and alternative views and objectives of the main “actors”. A panarchy analysis of the project is therefore being undertaken

### Output 3- Community / company relationships improved and consolidated

#### 3.1 Run workshops and similar events to provide forum for discussion

Due to the difficult relationships between the villagers and SRL the project team were advised not to hold a formal workshop involving both the villagers and SRL staff. A series of formal workshops at the conclusion of the project Nov 2009 is planned and as part of that exercise Scott Jones travelled in May 2009 and consulted widely before a formal plan is produced.

#### 3.2 Undertake regular monitoring through field visits and discussion with key individuals

The sites are regularly visited by the DARWIN Community Liaison Officer who has good working relationships with both the villagers and the mining company representatives. A total of 11 site visits were conducted during the year by project members not based at the mining site. The distance from Freetown and expense in travelling inhibits more frequent visits. In January 2009 a major monitoring event took place with representatives present of both Universities and CEH (see Wadsworth 2009 and Sundufu 2009).

#### 3.3 Maintain close linkages with company and confirm agreement and support for interventions in advance

The staff changes with the SRL company have continued which has made forming strong linkages difficult (there have been three General Managers and two Chief Executives so far. The introduction of regular telephone conversations between Isaac Mate (SRL staff member currently responsible for DARWIN project) and the project manager Jan Dick has greatly improved communication (notes are then posted on the wiki). Isaac Mate and the new general manager have been very supportive of the project concepts and are keen to work with the DARWIN project team. However, the problems associated with the 2007 demonstration plots have understandably made the company shy to engage directly with the villagers. There are currently encouraging moves that the company will engage with the local communities through the local ministry of agriculture – this is being actively pursued.

### Output 4- Alternative forms of biodiversity offset payment schemes identified and evaluated

#### 4.1 Prepare analytical discussion paper on options and potential

This activity was completed during the first reporting period.

#### 4.2 Conduct SWOT analysis and consensus building to identify preferred options

Initial SWOT analysis completed in first year and presented to company representatives.

#### 4.3 Make recommendations for selected options including cost effectiveness and contribution to biodiversity conservation

The mangrove option has been further investigated (Wadsworth 2009) and will be formally presented to the company at the final workshop (November 2009)

### 3.2 Progress towards Project Outputs

The project will not deliver the full outputs initially envisaged. Many lessons have been learnt by all concerned, villagers, SRL representatives and DARWIN team members (Dick et al 2009). There has however, been notable successes as indicated above i.e. successful 2007 demonstration plots, capacity building in the villages and university and further recognition of the value of the mangroves.

### 3.3 Standard Measures

The project has made good progress as acknowledged by the mid-term review. There have however been some set-backs this will not we believe disturbed the project terminally although it has made progress slower than would be hoped in some sectors, in other areas we have made more progress than anticipated e.g. much better tree survival in the plots.

#### Standard Measures

**Table 1 Project Standard Output Measures**

Code No.	Description	Year 1 Total Nov 06 Apr 07	Year 2 Total Apr 07 Mar 08	Year 3 Total Apr 08 Mar 09	Total to date	Total planned from application
Established codes						
4A	No undergraduates receiving training		2	21 students are presently being taught Genstat ; of which 3 (Applied Ecology ) are also taught EIA (with mining as one case study).  1 student (Isacc Lebbie) wrote his dissertation last year ;  1 (Florence G. Miller) is doing hers now.	25	11
4B	No training weeks provided to undergraduates students		2	10	12	19
4C	No postgraduate students receiving training		3	4	7	9
4D	No training weeks provided to postgraduate students		2	1	3	6
7	Number of training materials produced for use by host country		0	2 (Teach yourself Genstat and Introduction	2	4

Code No.	Description	Year 1 Total Nov 06 Apr 07	Year 2 Total Apr 07 Mar 08	Year 3 Total Apr 08 Mar 09  to ArcMap	Total to date	Total planned from application
8	Number of weeks spent by UK staff on project work in host country		12	7	19	23
11B	Number of papers published					2
14A	Number of conferences/seminars/workshops organised to present/disseminate findings of Darwin project work	3	2	0	5	5
14B	Number of conferences/seminars/workshops attended at which findings disseminated		2	2 Workshop on current research, Lancaster University African Reading Group – environmental issues in Sierra Leone	4	4
15A	Number of national press releases	2		0	2	2
18A	Number of national TV programmes			1 screened several times (copy lodged with Darwin Secretariate)	1	2
19A	Number of national radio interviews/features in host country				0	2
19B	Number of national radio UK			0	0	1
22	Number of permanent field plots		16	4	20	30
23	Value of resources raised form other sources		£150,000	£20,000	170'000	239,119

**Table 2 Publications**

Type *	Detail	Publishers	Available from	Cost £
(eg journals, manual, CDs)	(title, author, year)	(name, city)	(eg contact address, website)	
Report	*Second Annual Project Review Dick et al 2009		Darwin website	0
Report	*Wadsworth R.A., Sundufu A.J. & Jalloh A. March 2009. <i>The Mangrove Expedition</i> . 10 pp		Darwin Website	0
Report	*Wadsworth R.A. 2008. Report on Inspection of Mangrove Forest Adjacent to Sierra Rutile Operational Areas 5th - 6th December 2007. 19pp		Darwin Website	0
Report	*Wadsworth R.A. March 2009. Agenda and Notes of Meeting Held at Njala on 17 <sup>th</sup> February 2009 5 pp		Darwin website	0
Report	*Wadsworth R.A. March 2009. Diary of Events 25 <sup>th</sup> January to 18 <sup>th</sup> February 2009 8 pp.		Darwin website	0
Report	*Wadsworth R.A. April 2009. Analysis of Tree Growth Data to February 2009, 14pp		Darwin website	0
Report	*Sundufu A. J. June 2007. Baseline Report on Soil Macrofauna		Darwin website	
Report	*Sundufu A. J.		Darwin website	



Type *	Detail	Publishers	Available from	Cost £
(eg journals, manual, CDs)	(title, author, year)	(name, city)	(eg contact address, website)	
	February 2008. Project Overview			
Report	*Sundufu A. J. 2009. Project Monitoring Report.		Darwin website	

### **3.4 Progress towards the project purpose and outcomes**

The basic assumptions behind the design and implementation of the project remain the same. SRL remains crucial to the economic development of Sierra Leone but the method of mining remains environmentally and socially disruptive. There is tension between the company and the affected communities. The current refusal of SRL to engage with the villagers for the production of compost has undermined the project – it has been a sore lesson for the company and for many villagers and for the Darwin Team. There is however hope that an alternative strategy can be implemented using the local Agricultural Ministry.

### **3.5 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits**

The demonstration plots planted in 2007 are now supporting invertebrate and plant species which could never have grown on these locations without the project intervention. The concept of ground cover and herbs as an initial intervention rather than tree species has proven very successful and been noted by the company representatives. The restoration concept has been proven but the delivery mechanism implemented was fundamentally flawed (i.e. direct payment at the community level). An alter partnership is now being developed, facilitated by the DARWIN team, which involves different local intermediators between the company and the villagers. It is hoped that this approach will yield initial results by the end of the project and into the future. The lessons learnt in 2007 will ensure that only very small scale demonstrations are tested until a robust model is developed.

## **4. Monitoring, evaluation and lessons**

As agreed between the partners at the initial project workshop each visit to the mining site by project partners results in a written report which monitors progress.

During visits to the mining communities and the formal monitoring workshop (November 2008) feedback from the mining company and communities resulted in agreement that a formal written contact is required to facilitate future collaboration in terms of compost and seedling production. This currently being explored in conjunction with representatives of the local Ministry of Agriculture.

## **5. Actions taken in response to previous reviews (if applicable)**

## **6. Other comments on progress not covered elsewhere**

## 7. Sustainability

Representatives of the project met with the CBD focal point Mr Mansaray, Ministry of Agriculture, Forestry and Food Security and discussed the concept of bio-diversity offsets in November 2008 (Dick et al 2008). The mangroves are a priority area for the Sierra Leone government and Mr Garnett was aware of the West Africa Mangrove Initiative (WAMI) through his work with ENFORAC. The data generated in this project will be fed directly into WAMI ensuring the work conducted in this project is used in the future.

It is clear from work already completed in this project that the sand tailings which result after rutile mining can be restored. The major challenge, not yet successfully met, is to operationalise the decentralised business model. We are attempting another strategy (through local ministry) which we hope will be a successful exit strategy for this element of the project.

## 8. Dissemination

All the in country partners are members of ENFORAC and regularly update members of the project activities.-

The video explaining the project aims and progress in the first year has been shown on national TV several times.

## 9. Project Expenditure

Please expand and complete Table 3.

**Table 3 Project expenditure during the reporting period (Defra Financial Year 1 April 2008 to 31 March 2009)**

Item	Budget (please indicate which document you refer to if other than your project application or annual grant offer letter)	Expenditure	Variance
Rent, rates, heating, overheads etc			
Office costs (eg postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment (specify)			
Others (specify)			
Salaries (specify by individual)			
TOTAL			

Note: CEH has contributed additional money to this project which has been used to cover the short fall in funding hence the above table exactly matches the money requested

**10. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes**

[I agree for LTS and the Darwin Secretariat to publish the content of this section](#) (please leave this line in to indicate your agreement to use any material you provide here)

## Report of progress and achievements against Logical Framework for Financial Year: 2007/08

Project summary	Measurable Indicators	Progress and Achievements April 2008 - March 2009	Actions required/planned for next period
<p><b>Goal:</b> <i>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve</i></p> <p><i>The conservation of biological diversity,</i></p> <p><i>The sustainable use of its components, and</i></p> <p><i>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</i></p>		<p>Restoration demonstration plots established and monitored</p> <p>Communities actively engaged in restoration efforts</p> <p>Biodiversity offset options identified</p>	<p><i>(do not fill not applicable)</i></p>
<p><b>Purpose</b> Develop practicable methods for reclamation of surface mined land</p> <p>that engage communities and</p> <p>Support biodiversity conservation</p>	<p>Develop practicable methods for reclamation of surface mined land that engage communities and support biodiversity conservation</p>	<p>Communities engaged and demonstration plots established in 2007.</p> <p>Reduce planting in 2008 while new business model developed</p>	<p>Plant additional demonstration plots; empower communities and mining company representatives to work together and continue discussion on biodiversity offsets</p>
<p><b>Output 1.</b> Livelihood and restoration relevant business models developed and piloted in mining adjacent communities</p>	<p>Model adopted by local people and mining company following this project</p>	<p>Business model piloted in the first year. Implementation problems identified and strategies developed to overcome the problems (written agreements). Hopefully these will be tested in the final year of the project.</p>	

1.1	Develop business strategies with stakeholders to support interventions	Initial business model was not sufficiently structured new agreements will be tested.
1.2	Undertake Training Needs Assessment and deliver appropriate training opportunities	In addition to informal 'on the job' training courses ran on Genstat and GIS
1.3	Monitor livelihood impacts, adapt and revise strategies as appropriate	Limited activity on this activity due to the nature of the relationship between the communities and SRL
<b>Output 2.</b>	Range of appropriate interventions tested and evaluated in demonstration plots	Plots established –minimum 15 plots 0.25 ha each in each of three years 16 plots planted June 2007 and limited planting in 2008 planting; hopefully plots will be planted in 2009 (note funding for this element is from SRL)
2.1	Undertake GIS survey of mine spoil areas and forward estimate of areas of different types	Initial estimate quantified discrepancies discussed with company representatives. Unfortunately no new satellite images available.
2.2	Develop interventions in consultation with stakeholders and establish demonstration plots	Negotiations in progress with company
2.3	Develop data gathering methodology for demonstrations, collect and analyse technical and economic data	16 plots monitored January 2009
2.4	Discuss results with stakeholders and revise interventions as appropriate	Limited village level communication this year due large final workshop planned
<b>Output 3.</b>	Community / company relationships improved and consolidated	<b>Initial and final stakeholder analyses</b> Continued dialogue and empowerment of community liaison officer

3.1 Run workshops and similar events to provide forum for discussion		Workshops planned for Nov 2009.
3.2 Undertake regular monitoring through field visits and discussion with key individuals		Community development officer visits villages and plots regularly and site visits from Sierra Leone and UK partners
3.3 Maintain close linkages with company and confirm agreement and support for interventions in advance		Regular telephone conversations between project manager and focal point in mining company.
<b>Output 4.</b> Alternative forms of biodiversity offset payment schemes identified and evaluated	<b>Survey mining company and local community. Consolidate data and compare to similar initiatives.</b>	Survey reported in year 1 additional survey of favoured option this year.
4.1 Prepare analytical discussion paper on options and potential		Completed last year
4.2 Conduct SWOT analysis and consensus building to identify preferred options		Additional work done to identify preferred option. Company currently concentrating on production aware but non-committal about off set payments.
4.3 Make recommendations for selected options including cost effectiveness and contribution to biodiversity conservation		Preliminary report produced year 1 will be undated as appropriate.

## Project's full current logframe

Intervention Logic	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><i>Goal</i></p> <p>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> <li>• the conservation of biological diversity,</li> <li>• the sustainable use of its components, and</li> <li>• the fair and equitable sharing of benefits arising out of the utilisation of genetic resources</li> </ul>			
<p><i>Purpose</i></p> <p>Develop practicable methods for reclamation of surface mined land that engage communities and support biodiversity conservation</p>	<p>Successful technologies for the revegetation of mine spoil identified</p> <p>Livelihoods strengthened in adjacent communities</p> <p>Company community links consolidated</p> <p>Biodiversity offset options identified and analysed</p>	<p>16 0.25 ha plots planted and currently being monitored to identify most successful</p> <p>Communities engaged with compost and seedling production</p> <p>Project community liaison officer continuing dialogue between company and communities</p> <p>Biodiversity off set options documented</p>	<p>Mining company seriously committed to reclaiming mined area</p> <p>Local people seriously committed to delivering service to mining company</p> <p>Suitable community liaison officer recruited</p> <p>Sufficiently high quality sites exist</p>
<p><i>Output 1</i></p> <p>Livelihood and restoration relevant business models developed and piloted in mining adjacent communities</p>	<p>Model adopted by local people and mining company following this project</p>	<p>Survey of local people</p>	<p>Communities and mining representatives honest and transparent in their business dealings</p>

<b>Intervention Logic</b>	<b>Objectively Verifiable Indicators</b>	<b>Means of Verification</b>	<b>Important Assumptions</b>
1.1 Develop business strategies with stakeholders to support interventions	Analysis of methods tested	Reports and published articles	
1.2 Undertake Training Needs Assessment and deliver appropriate training opportunities	Number of people trained	Reports to Darwin	
1.3 Monitor livelihood impacts, adapt and revise strategies as appropriate	Stakeholder consultations	Reports to Darwin	
<i>Output 2</i> Range of appropriate interventions tested and evaluated in demonstration plots	Analysis of methods tested	Reports and published article	Local people deliver plants and compost of required quantity in a timely manner and company officials professional in their dealing with communities
2.1 Undertake GIS survey of mine spoil areas and forward estimate of areas of different types	Report of methods test and suitability for purpose assessed	Reports and published article	
2.2 Develop interventions in consultation with stakeholders and establish demonstration plots	Plots established – minimum 15 plots 0.25 ha each in each of three years	Photographs in reports and ground truthing by project team	
2.3 Develop data gathering methodology for demonstrations, collect and analyse technical and economic data	Analysis of data collected	Reports and published article	
2.4 Discuss results with stakeholders and revise interventions as appropriate	Survey mining company and local communities	Report outcomes in annual reports	
<i>Output 3</i> Community / company relationships improved and consolidated	Initial and final stakeholder analysis	Report to Darwin	Willingness to collaborate on both sides



<b>Intervention Logic</b>	<b>Objectively Verifiable Indicators</b>	<b>Means of Verification</b>	<b>Important Assumptions</b>
3.1 Run workshops and similar events to provide forum for discussion	Number of workshops held	Reports to Darwin with photographs	
3.2 Undertake regular monitoring through field visits and discussion with key individuals	Number of visits	Reports to Darwin with photographs	
3.3 Maintain close linkages with company and confirm agreement and support for interventions in advance	Number of contacts	Reports to Darwin	
<i>Output 4</i> Alternative forms of biodiversity offset payment schemes identified and evaluated	Study visit by expert	Reports to Darwin	Suitable high quality habitats exist in the area
4.1 Prepare analytical discussion paper on options and potential	Analysis conducted	Reports to Darwin	
4.2 Conduct SWOT analysis and consensus building to identify preferred options	SWOT analysis completed	Reports to Darwin	
4.3 Make recommendations for selected options including cost effectiveness and contribution to biodiversity conservation	Number of recommendations delivered	Reports to SRL and Darwin	

## **Annex 1 Onwards – supplementary material (optional but encouraged as evidence of project achievement)**

This may include outputs of the project, but need not necessarily include all project documentation. For example, the abstract of a conference would be adequate, as would be a summary of a thesis rather than the full document. If we feel that reviewing the full document would be useful, we will contact you again to ask for it to be submitted.

### ***Checklist for submission***

	Check
<b>Is the report less than 5MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	
<b>Is your report more than 5MB?</b> If so, please advise <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> that the report will be send by post on CD, putting the project number in the Subject line.	
<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number.	
Have you involved your partners in preparation of the report and named the main contributors	
Have you completed the Project Expenditure table fully?	
Do not include claim forms or other communications with this report.	