



Darwin Initiative Annual Report



Darwin Project Information

Project Ref Number	EIDPO 026
Project Title	Facilitating forest restoration for biodiversity recovery in Indochina
Country(ies)	Cambodia and Thailand
UK Contract Holder Institution	Royal Botanic Gardens, Kew (RBGK)
Host country Partner Institution(s)	Forestry Administration Cambodia (FA) and FORRU, Chiang Mai, Thailand (FORRU-CMU)
Darwin Grant Value	£116,443
Start/End dates of Project	1 April 2009 to 31 March 2011
Reporting period	Annual Report number 1; 1 April 2009 to 31 March 2010
Project Leader Name	Kate Hardwick and David Blakesley
Project website	
Author(s) and main contributors, date	Kate Hardwick, David Blakesley, Stephen Elliot and Nup Sothea; May 15, 2010.

1. Project Background

This is the first annual report of a Post Project which followed a Main Project (14-010) designed to assist national forestry organizations in Cambodia, China and Lao to develop plans for forest restoration research units (FORRU's), and build capacity among the staff of those organizations to develop locally appropriate techniques to restore forest ecosystems for biodiversity conservation and environmental protection (including carbon storage).

This Post Project was designed to support the Forestry Administration of Cambodia to implement their national FORRU plan, developed under the Main Project, based on the successful model developed by FORRU-CMU at Chiang Mai University, Thailand, using the 'Framework Species Method' of forest restoration (see also project 162/11/023).

Its key objectives were to establish an experimental tree nursery in on the boundary of Phnom Kulen National Park, Siem Reap Province (near the World Heritage Site of Angkor Wat) and train Forestry Administration staff through a series of workshops to carry out the following activities:

- establish a phenology trail to study the reproductive ecology of forest tree species
- undertake tree seed collection and storage
- develop effective tree propagation techniques
- establish field trial plots to compare field performance among potential framework tree species.

Training manuals, written and translated into Khmer under the Main Project were available to be used as texts for establishing FORRU-Cambodia and training staff recruited to run it. The ultimate aim of the Post Project was to establish an effective forest restoration research unit, generating original information to guide the restoration of Cambodia's unique forest ecosystems, whilst enhancing biodiversity recovery.

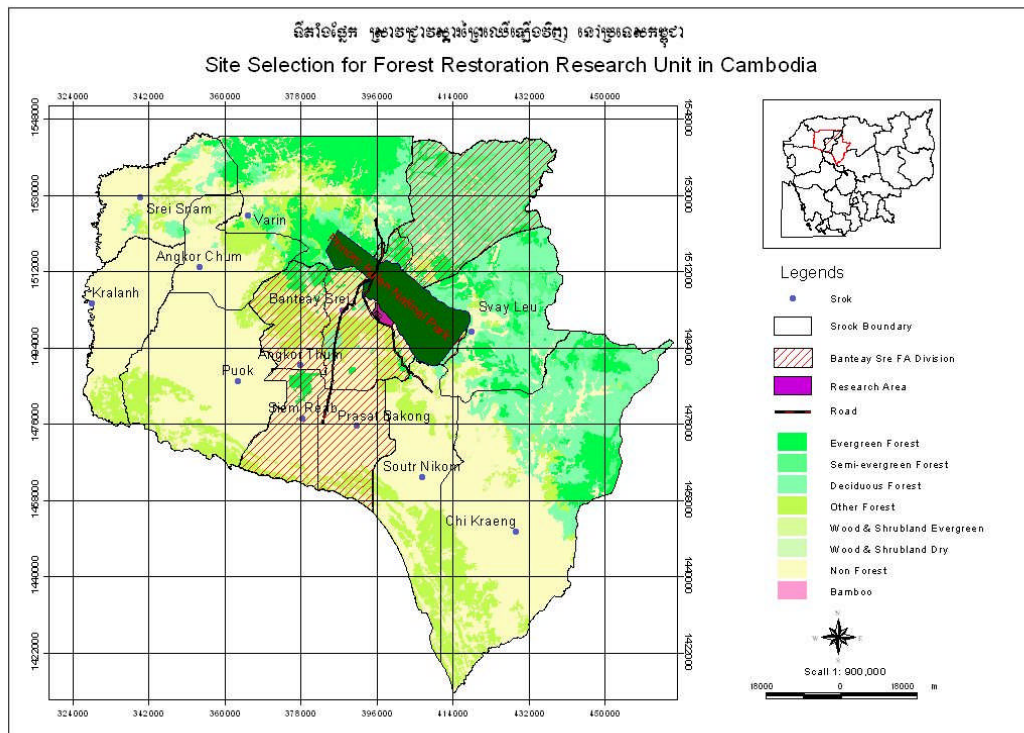


Figure 1: Location Map of the Project

The project will be carried out in Banteay Srey District, Seim Reap Province, which is located in northwestern Cambodia, on the shores of the Tonle Sap lake.

2. Project Partnerships

This project is a partnership between the Royal Botanic Gardens, Kew (RBGK), in collaboration with Wildlife Landscapes; Chiang Mai University's Forest Restoration Research Unit (FORRU-CMU); and the Forestry Administration Cambodia (FA). Project finances have been administered by George Sarkis (RBGK). In the past year, the project has been led by Drs Hardwick (RBGK) and Blakesley in the UK, Dr Elliott in Thailand (training) and Nup Sothea in Cambodia (FORRU implementation).

The original project accountant, Ruth Bartholomew, has now left Kew and has been replaced by Andrew Garrod. Otherwise there have been no changes to the senior management structure of the project over the reporting period, though there have been changes in project staff at a more junior level. Following a series of face-to-face meetings early in the project, between the UK project leaders, staff at RBGK, and Dr Elliott, relationships have since been managed by telephone, email and Skype. The partnerships are working well, and the first year ended with a successful workshop for project staff in Cambodia, jointly run by FORRU-CMU and RBGK.

CBD: One of the key aims of this project is to build capacity within the Forestry Administration Cambodia to generate new data to enable it to meet its obligations under the CBD. The aim of the project and its workshops is to enable the host institute to develop effective techniques to restore forest ecosystems by adapting the frameworks species technique to enhance biodiversity recovery (CBD Article 8(f) and Article 10(d)). The project is already fostering international technical and scientific co-operation (Article 18) between Cambodia, Thailand and the UK; and providing research and training (Article 12) leading to technology transfer (Article 16) and information exchange (Article 17).

3. Project progress

3.1 Progress in carrying out project activities

Output 1 Physical and human capacity at FORRU-Cambodia built to effective levels.

1.1 FORRU-Cambodia nursery constructed and put into use.

The original nursery plans were upgraded following additional training undertaken by the Cambodian staff in Thailand in June 2009. The upgrading prolonged nursery construction, which was then further delayed until the end of September 2009 by floods. As a consequence of this, the start of germination experiments was delayed until late September 2009, from which point further germination trials were set up as seed became available. Despite the late start, the Cambodian research team will still be able to complete 18 months of germination trials before the end of the project, as originally planned.

1.2 Training needs assessments conducted and training plans developed.

It was originally planned to hold four joint training workshops for FORRU-Cambodia staff over the two years of the project; two in Year 1 and two in Year 2. These would be run by FORRU-CMU and the Forestry Administration Cambodia, with Kew staff joining the second workshop to contribute training in seed collection and storage techniques. Two workshops were planned during the current reporting period. However, the assessment of training needs at the kick-off meeting in May established that more training would be required, so a more intensive training programme involving six training events was put in place for the first year. Due to problems with translation and the low levels of scientific training of the project staff, it was proposed to first concentrate training on 2 key senior project members so that they could undertake training of nursery/field staff in their own language. These individuals subsequently ran 'Workshop 1' for the rest of FORRU-Cambodia staff on-site in August (report included in Annex 4). Two more focussed training sessions were run in Cambodia in October and December 2009 by Dr Steve Elliott of FORRU-Thailand (see Section 6). Rather than workshop-style training for groups of trainees, Dr. Elliott worked individually with each project staff member on skills development needed to implement each project task. Finally, staff from RBGK and FORRU-CMU jointly ran a second training workshop in Cambodia on March 22-25, for FORRU-Cambodia staff as well as a wider group of FA staff.

Even though far more training sessions were provided than originally envisaged in the project proposal, these were carried out within the budget allocated and the style of focussed training on individual skills was more effective than the originally planned broader workshops. By the end of the first year, skill levels amongst the project staff were raised sufficiently so that they could act as trainers for other FA staff at the workshop in March 2010. A major outcome of that workshop was the interest shown by FA staff in establishing similar forest restoration research units in their own areas.

1.3 Identified training events delivered, monitored and impact assessed, including final skills assessment of trainees.

Details of the training programme delivered in Year 1 are as follows:

1. **Kick off meeting, Siem Reap, May 4-6th, 2009:** A preliminary meeting of FORRU-Thailand and FORRU-Cambodia staff was held at the project site in Cambodia, to assess training needs and jointly develop future plans in more detail.

Some initial training was also provided to the more senior members of the FORRU-Cambodia team, including a refresher course on the principles of forest restoration and also training in the phenology scoring system.

- 2. Training for Kim Sobon and Sour Hay in CMU, June 15-19th, 2009:** An intensive week of training in FORRU methods for two senior Cambodian project staff members, held at the FORRU-Thailand headquarters in Chiang Mai, Thailand.

The hands-on training programme was designed to allow the Cambodian staff to experience a functioning research unit and covered topics such as forest restoration principles, the identification of candidate framework species, tree nursery design and nursery techniques, tree planting, phenology and seed collection, data management and reporting. In addition, FORRU-Cambodia staff also acquired various equipment from FORRU-CMU, including Osmocote fertilizer, seedling labels, secateurs mounted on a pole, and hand-held secateurs.

- 3. J. F. Maxwell (FORRU-CMU taxonomist), training + collection, Siem Reap, July 19-31st, 2009:** J.F. Maxwell made a trip to the project site to help the Cambodian staff to identify and label trees of candidate framework species along a phenology trail for seed collection and for monthly monitoring of flowering and fruiting. Voucher specimens of 43 potential framework tree species were collected for identification and seed lots of 21 species stored until the nursery was completed. Duplicate vouchers were sent to Kew. Dr Maxwell also trained the project staff in herbarium specimen collection techniques.
- 4. 'Workshop 1' - FA-run workshop, August 21-22, 2009.** The skills and information acquired in Chiang Mai were passed on to local nursery workers, local FA staffs and relevant stakeholder in the "1st workshop" in Cambodia. See Annex 4 for further details.
- 5. Steve Elliott visit to Siem Reap, October 5-9th, 2009.**
- 6. Steve Elliott visit to Siem Reap, December 19-23rd, 2009.**
- 7. 'Workshop 2' - FORRU-CMU-, FA- and Kew-run Darwin Workshop 2, Siem Reap, March 22-25, 2010.** The training focussed on seed handling and storage, phenology scoring, nursery techniques and preparing for planting. See Annex 5 for further details.

Output 2 Research protocols developed and agreed; research plan discussed, developed and agreed amongst partners

- 2.1** Research protocols developed together with partners and appointees, written up and revised as required.

The research protocols adopted by the FORRU-Cambodia team are based on the peer reviewed, Darwin-funded book, 'Research for Restoring Tropical Forest Ecosystems: A Practical Guide', compiled by staff from FORRU-CMU and Wildlife Landscapes. The FORRU-Cambodia staff were trained in the basic protocols during their visit to Chiang Mai in June 2009 (see above) and subsequently shared them with their FA colleagues at Workshop 1 in August, where participants had the opportunity to review and revise the methodology. Data sheets in the Khmer language were drawn up for the Siem Reap research team.

- 2.2** Research plan discussed and outline developed specifying priorities and information needs.

Preliminary discussion on the research plan began at the kick-off meeting in May. The nursery was finally complete at the end of September 2009, meaning that the research programme could start in full in October. The research plan was finalised when Steve Elliott visited the Siem Reap team at the beginning of October.

- 2.3** Detailed research plan developed encompassing all proposed experiments in accordance with agreed protocols.

The Cambodian research plan was agreed broadly along the lines described in the Darwin project proposal, with finer details being adapted to suit local conditions.

Output 3 Research programme undertaken to identify candidate species, followed by nursery and phenology studies leading to field trials established.

- 3.1 Survey of indigenous forest tree species undertaken and candidate species identified, based on literature and local knowledge.

Discussions on Cambodian candidate framework species had already begun in Chiang Mai and Phnom Penh in 2005-06 during the Main Project and were continued in this Post-project during the kick-off meeting in May 2009.

- 3.2 Selection of candidate framework tree species.

A provisional list of 42 candidate species was compiled in July by FORRU-Cambodia staff with the help of Dr Maxwell (Annex 6). This list will be expanded early in the second year.

- 3.3 Phenology studies laid out, data collected, analysed and utilised, studies to continue beyond project.

The phenology trail was completed, with 250 trees of 50 species labelled by October 2009, when data collection commenced. Mr Mong Bunlim Deputy Chief of FA Triage and four forest guards, were trained in specimen collection methods and phenology scoring. Data collection started in October 2009 and will continue for 18 months until the end of the second year when the full dataset will be analysed. Sample data sheets are attached in Annex 6.

- 3.4 Nursery experiments on germination and seedling growth implemented leading to tree species propagation protocols.

By the end of March 2010, 33 species were undergoing germination trials, with seedling growth experiments in the nursery started (Annex 7). Germination trials and experiments on seedling growth will continue in Year 2. In Year 2, up to 30 species which are believed to be recalcitrant will be screened at the Millennium Seed Bank, Kew for desiccation tolerance. Up to ten orthodox species will also be investigated to improve germination.

Propagation protocols will be prepared in Year 2, when trials have been completed

- 3.5 Field trial plots laid out, established, assessed to give preliminary results and long term security assured as far as possible.

Field trial plots will be established in Year 2. A planting day is provisionally planned for 25th June 2010.

- 3.6 Initial recommendations for effective forest restoration practices developed, reviewed and disseminated.

Activity 3.6 will be undertaken in Year 2.

Project Management Activities

Steering committee

A local steering committee for the project was formed and convened in Siem Reap in May 2009 to organize project management, nursery construction and initiate staff training. The committee was able to work closely with project leaders in the UK via electronic communication. Three FA senior staff are responsible for on-site implementation: Mr. Nup Sothea (Co-ordinator), Mr. Kim Sobon (Admin and reporting) and Mr. Oun Sam Ol (Nursery management and seeds). An additional FA Senior official was added to the steering committee later as FORRU-Cambodia Team Leader, Dr. Sok Heng (Chief of Forest Wildlife and Research Development Institute). Representing FORRU-CMU on the steering committee are Dr. Stephen Elliott and Dr. Sutthathorn Chairuang斯里, who both contributed to the project kick-off meeting. Dr Elliott subsequently provided training and management input to the project in several subsequent site visits.

FORRU-Cambodia staff located and recruited

Field team –Mr Mong Bunlim Deputy Chief of FA Triage has been put in charge of phenology and seed collection. He is assisted by four other temporary local FA field staff.



Nursery work is conducted by Mr. Kann Meang, recruited specifically for this project (left).



Bunlim left and 4 assistant field staff.

3.2 Progress towards Project Outputs

The first progress report was produced in August, for the period May to July (the delay reflected early problems in project implementation described in Section 6), and nursery reports were then provided regularly throughout the year (example shown in Annex 8). Although these reports show that progress was initially slower than anticipated (see Section 6), the project is now on schedule, and it is anticipated that the project will achieve its outputs by the end of Year 2. The output indicators are still valid, most assumptions still largely hold true. The one listed assumption which has not held true is that ‘all staff remain in post’; as explained in Section 6, changes in staff and confusion over responsibilities did cause some problems early on in the project, although these have now been resolved. The training needs assessment found that the training program originally planned would not be sufficient to enable the work programme to go ahead (as explained in Section 6), so the number of training sessions was increased and adapted to address this need.

3.3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Total to date	Number planned for this reporting period	Total planned from application
Established codes						
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above)	c.35		c.35		Not specified

Code No.	Description	Year 1 Total	Year 2 Total	Total to date	Number planned for this reporting period	Total planned from application
6B	Number of training weeks to be provided	7 about 1 week each		7	2	4
8	Number of weeks to be spent by UK project staff on project work in the host country	2 woman weeks		2	2	2
11A	Number of papers to be published in peer reviewed journals	Not yet		0	0	Not specified
11B	Number of papers to be submitted to peer reviewed journals	Not yet		0	0	Not specified
13A	Number of species reference collections to be established and handed over to host country(ies)	43 reference specimens in Cambodia FA office and CMU herbarium		43	-	Not specified
15A	Number of national press releases in host country(ies)	0		0	0	Not specified
15C	Number of national press releases in UK	None		0	0	Not specified
18A	Number of national TV programmes/features in host country(ies)	None		0	0	Not specified
18C	Number of local TV programmes/features in host country(ies)	None		0	0	Not specified
21	Number of permanent educational/training/research facilities or organisations to be established and then continued after Darwin funding has ceased	The nursery is an educational facility that will continue		1	1	1
22	Number of permanent field plots to be established during the project and continued after Darwin funding has ceased	1		1	1	1
23	Value of resources raised from other sources (ie in addition to Darwin funding) for project work	£XXX from Australian Gov to fund AYAD volunteer to do training at WkSh2 £XXX from John Ellerman Foundation to cover Kew project leaders' time spent on project.		£3,550	-	Not specified

Table 2 Publications

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £

3.4 Progress towards the project purpose and outcomes

The purpose of the project is to implement a research program to generate original knowledge and develop new skills to grow and test a wide range of indigenous forest tree species for their ability to accelerate biodiversity recovery in forest restoration plantings. Progress towards the outcome of this purpose is described fully in Sections 3.1 and 3.2. As far as we are aware, all the important purpose level assumptions and measurable indicators still hold true.

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

The project is unlikely to make a major impact on biodiversity until the completion of the nursery trials, and the planting of framework species in the plots. Even then, it will take several years before the trees in the first plots close canopy, and the levels of biodiversity in the plots start to increase. It is envisaged that the framework species method will be implemented more widely in Cambodia as a result of the Darwin project, but the biodiversity benefits of this will again take a number of years to be seen.

4. Monitoring, evaluation and lessons

Originally it was planned that progress would be monitored through the production of monthly reports by FORRU-Cambodia, which have indeed been produced (example in Annex 8). However, for reasons explained in Sections 3 and 6, the number of training sessions was increased from two to six, which enabled the project leaders in the UK and Thailand to personally monitor progress in Cambodia far more effectively, and take the necessary actions to help FORRU-Cambodia achieve its targets. Many of the indicators of achievements, such as species lists and the work output of the field station are described in Section 3.

Workshop reports and feedback questionnaires/evaluations

An evaluation sheet was completed for Workshop 1 (end of Annex 3) and is in progress for Workshop 2.

Lessons

We have learnt that establishing a Forest Restoration Research Unit in Cambodia is difficult and challenging, and that the local staff, whilst extremely enthusiastic, require a much higher level of support than was anticipated at the outset. Fortunately, one of the project leaders, Dr Elliott is based at Chiang Mai University in neighbouring Thailand, and he was able to undertake the extra training sessions necessary to get the research programme underway, and to help ensure that the project outputs for the first year were achieved on schedule.

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

The submitted Logframe was reviewed by Darwin consultant Patrick Hardcastle. His suggested amendments were considered 'minor' (i.e. not warranting a change request form) in that they did not affect the projected budget, staffing or activities. Patrick Hardcastle regrouped and simplified the Outputs (all agreed) and suggested including an Output that explicitly states a participatory approach (also agreed) – this had been assumed by the project leaders but not written into the Outputs.

However two suggested amendments were not accepted by the project staff.

i) The first related to the Sub-Goal, **'To assist the Forestry Administration of Cambodia to establish an effectively functioning forest restoration research unit with well-trained staff'**. The reviewer suggested that the 'Means of Verification' should include **'Reports and evaluations of forest restoration programmes'** indicating uptake of this project's research findings. We do not expect widespread uptake of the results by the end of this project, given that the research programme will only have been under development for two years, whereas it may take five years to fully evaluate the performance of framework species. Patrick Hardcastle's suggested Sub-Goal, 'Active forest restoration programme using results of research and capacity building' was thus amended by the project team to **'Active forest restoration research programme based on capacity building'**.

Hardcastle also indicated that the project might be expected to influence national forest strategy. To expect a small two-year project setting up an experimental unit to exert such influence over national policy is extremely ambitious. Nevertheless, the second Darwin workshop attracted such interest at high levels in the FA that there are indications that such an outcome may indeed be possible. In an effort to introduce the use of framework species into a forestry strategy currently largely dependent on exotic species, we have initiated discussions with the FA on the preparation of a follow up Darwin proposal.

While we would not expect to see a complete rewrite of Cambodian forestry policy, we feel that any mention of native species in policy documents and any interest shown in the framework species method by FA policy makers would be a highly significant step towards a policy approach that values and promotes biodiversity.

ii) The suggested introduction of **'Research protocols developed and agreed; research plan discussed, developed and agreed amongst partners'** as Output 2 was accepted, as this had always been the intended approach. Hardcastle further suggested that a Means of Verification of this Output should be, **'Agreed research protocol document peer reviewed, including application'**. Assuming that this meant 'externally reviewed', this was not accepted because the broad research protocols have already been externally peer-reviewed in the book, 'Research for Restoring Tropical Forest Ecosystems: a Practical Guide', and it was felt that the present project should focus resources on reviewing the protocols with the Cambodian project staff during the Workshops. It was accepted that the Means of Verification should be, **'Report of research plan development and workshop reports'**. Similarly, that suggested change to Activity 2.1 was agreed as follows, **'Research protocols developed together with partners and appointees, written up, and revised as required'**, with the term 'reviewed' being dropped.

6. Other comments on progress not covered elsewhere

Managing this project has been challenging for all concerned, particularly in the early stages, but the FORRU-Cambodia staff have shown great enthusiasm, and the partners worked closely together to address emergent problems. A complex local management structure and communication problems as well as local staff changes initially led to confusion over how project duties would be shared amongst the staff members. This caused delays with data recording and the setting up of germination trials. By the midpoint of Year 1, the Cambodian

team had recognised these problems and were working closely with FORRU-CMU to resolve them. The project leaders in Cambodia revised the staffing structure of the project; the Director of the Forest Wildlife Research Institute, Mr. Sok Heng, assumed overall leadership of the FORRU-Cambodia Team (with Mr Nup Sothea remaining as Project Co-ordinator) and the project management team committed itself to working more closely with the field staff.

Following extra training sessions with Dr Elliott at FORRU-Cambodia in October, gaps in project implementation were identified and targeted training provided to nursery and field staff on key issues, including the project management structure, nursery techniques and phenology recording. Considerable progress was made during this process and several areas of misunderstanding resolved. Labelling of trees for the phenology study was behind schedule at that time, but the Cambodia Project Administrator, Mr. Sobon agreed to supervise the field staff to label 250 trees of 50 species by the end of October. Flooding had also hampered this, but data will still to be collected over an 18 month period, within the timeframe of the Darwin project.

In addition it was felt that a further training session would be necessary in the second half of the project year, before the seed workshop in March. This was undertaken by Dr Elliott, who visited FORRU-Cambodia in December 2009. After this visit, Dr Elliott reported that the project was back on schedule, and progressing well. In particular, labelling of trees on the phenology trail had been completed, although further tuition in phenology scoring was necessary. Dr Elliott also reported that the nursery work was going well.

For Year 2, it is planned to undertake more targeted training covering topics such as setting up field trial plot systems; statistical analysis of data; database development; and species identification.

Nursery construction was also delayed, partly due to the severe wet weather, although it was completed by the end of September 2009. As a consequence of this, the start of germination experiments was also delayed until late September.

The growth rates of the species germinated in the latter part of 2009, and possibly early in 2010 will determine whether there are sufficient trees for planting the 2 ha of experimental plots scheduled in June 2010. If there is a shortfall, it is planned to source candidate framework trees, where possible, from local forestry nurseries.

In summary, after a challenging start to the project, the extra training sessions proved decisive, and by the latter part of the year, the project was running very well and achieving its targets. The final workshop of the year, held in March 2010 was very successful.

7. Sustainability

The Deputy Director of the FA Wildlife Division was impressed with the progress of the Siem Reap unit and as a result expressed strong interest in establishing several additional FORRU units in other provinces, based on the SR model. However, this would be dependent on securing additional external funding. This was seen as an exciting development by the SR staff but highlighted the need to secure further funding. Following the meeting it was proposed to hold an additional workshop in Phnom Penh at the end of the project to reinforce the value of the work to FA officials and showcase the work of the project to Cambodia-based international conservation bodies with a view to stimulating further funding.

8. Dissemination

The dissemination activities in the first year were focussed on the Workshops, described in Section 3. The Cambodian project leader, Nup Sothea, has an internally funded position in the FA extension office and is well placed to continue disseminating information after the end of the project.

9. Project Expenditure

Table 3 Project expenditure during the reporting period (Defra Financial Year 1 April 2009 to 31 March 2010)

Item	Budget	Expenditure	Variance
Overheads			
Institutional overheads (Thailand)			
Office rental, heating etc. (Thailand)			
Maintenance (Cambodia)			
Office rental, heating etc. (Cambodia)			
Travel and subsistence			
International travel taxonomist (Thai team)			
UK national travel			
Operating costs			
Conferences, workshops and seminars (Kew)			
Conferences, workshops and seminars (Thai)			
Training needs (Cambodia)			
Fieldwork and trials (Cambodia)			
Establish/renovate infrastructure for nursery (Cambodia)			
Capital equipment			
GPS			
Digital camera			
Notebooks			
Other costs			
Herbarium materials			
Salaries			
Thailand Co-ordinator			
Thailand Co-ordinator			
Thailand Education Team			
Thailand Taxonomist			

Item	Budget	Expenditure	Variance
Cambodia coordinator			
Cambodia admin assistant			
Cambodia research assistants x 3			
Kew student			
Kew supervisor			
Wildlife landscapes Co-project Leader			
TOTAL			

The following changes were approved by LTS following submission of a change request form:

Item 1) £XXXX was transferred from the Host Country Staff Costs (Research Assistants) to the Operating Costs (Establish nursery) in Year 1, thus reducing the Year 1, Host Country budget for Research Assistants while increasing the budget for Nursery Establishment.

This change was made because the nursery cost more than original budget due to original nursery plans being upgraded following the training course that Cambodian staff undertook in Thailand. These changes, in addition to flooding, also delayed completion of Nursery, which reduced Nursery Operating and Research staff costs in Year 1.

Item 2) £XXXX of the Host Country Operating Costs (Field Work & Trials) budget was carried forward from Year 1 to Year 2, thus reducing the Host Country budget for 'Fieldwork and trials' in Year 1 and increased it in Year 2

This change was made because the entire Cambodian research budget was mistakenly allocated to Year 1 instead of being split over Years 1 and 2. In particular, establishment of planting plots could not be undertaken until seeds were germinated and seedlings produced, which will occur in Year 2

Item 3) £XXXX of the UK Staff Costs was carried forward from Year 1 to Year 2, thus allocating the budget entirely to Year 2 instead of splitting it between Years 1 and 2.

This change was made because it became apparent that the Cambodian staff required further training in selecting species for lab testing and then packing and shipping them to Kew. This training was carried out at Workshop 2, 22-35 March 2010, meaning that Kew did not receive any seeds to work on during Year 1.

The following changes were unplanned:

¹ The Travel and Subsistence budget was underspent because the taxonomist from the Thai team at FORRU-CMU (J.F. Maxwell) made only one trip to Cambodia rather than two, as had been planned, due to ill health.

² The Salaries budget was underspent partly because the FORRU-CMU taxonomist had less input than planned and partly because the second FORRU-CMU co-ordinator (Sutthathorn Chairuangsi), had less input than planned.

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)

We have photos of the nursery, project staff and Workshop 2, available from Kate Hardwick.

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2009/10

NB Minor changes have been made to the Logframe in accordance with the advice of Darwin consultant Patrick Hardcastle. PH's deletions have been indicated with struck-out text and additions have been indicated with bold text. Bold text that is struck-out or underlined indicates where project team have not accepted to or added to PH's changes.

Project summary	Measurable Indicators	Progress and Achievements April 2009 - March 2010	Actions required/planned for next period
<p><i>Goal:</i> 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.</p>		<p><i>Nothing to report at this stage</i></p>	<p><i>(do not fill not applicable)</i></p>
<p><i>Sub-goal:</i> To assist the Forestry Administration of Cambodia to establish an effectively functioning forest restoration research unit with well-trained staff.</p>	<p>Key stakeholders in Cambodia actively support FORRU-Cambodia</p> <p>The nursery and plot system itself and the datasets generated from them.</p> <p>Active forest restoration research programme using results of research and based on capacity building</p>	<p>FWS methodology was discussed at a presentation of the draft Cambodia National Forestry Strategy by Chay Chetha (Dep. Dir. of For. & Wildlife Division of FA) at the 2nd Darwin workshop (March 2010), who expressed an interest in establishing 2 more FORRUs in Cambodia.</p>	
<p><i>Purpose</i> To implement a research program to generate original knowledge and develop new skills to grow and test a wide range of indigenous forest tree species for their ability to accelerate biodiversity recovery in forest restoration plantings.</p> <p>To identify and test a suitably wide range of indigenous species for the framework approach to forest biodiversity recovery and restoration and to develop skills leading to a sustainable cohort of expertise in this.</p>	<p>Research programme implemented plan delivered and progress reported</p> <p>Knowledge and skills gained</p> <p>Staff have technical expertise to formulate and conduct research</p> <p>FORRU-Cambodia securing research grants by End of Project</p>	<p>Progress essentially as described in Outputs 1 and 2. As far as we are aware, all the important purpose level assumptions and measurable indicators still hold true.</p> <p>Reports for Workshops 1 and 2 attached.</p>	<p>(Highlight key actions planned for next period)</p> <p>Evaluation of Workshop 2 in progress.</p> <p>Workshops 3-4.</p> <p>Dissemination of initial results.</p>
<p>Output 1. 1. Project steering committee formed; FORRU-Cambodia</p>	<p>Committee established.</p>		

Project summary	Measurable Indicators	Progress and Achievements April 2009 - March 2010	Actions required/planned for next period
field station constructed. Physical and human capacity at FORRU-Cambodia built to effective levels	Field station constructed. Nursery operational and effective by month 6 Personnel acquire and utilise skills through personal training plans and identified training events	Good progress towards achieving Output 1.1. Nursery staff effectively recording data on phenology and germination.	
Activity 1.1 Steering committee formed and project management procedures defined. Activity 1.1 FORRU-Cambodia nursery constructed and put into use		The nursery has been constructed and will continue to be used throughout the project.	
Activity 1.2 Training needs assessments conducted and training plans developed		The number of training sessions was increased from two to six following assessment of needs at May '09 kick-off meeting;	
Activity 1.3 Identified training events delivered, monitored and impact assessed, including final skills assessment of trainees		Six training events were delivered, following the May '09 kick-off meeting. Participant evaluation completed for Workshop 1 and in progress for Workshop 2. Steve Elliott assessed impact of training during visits in October and December 2009. Further training sessions will be held in the second year.	
Output 2. FORRU-Cambodia field staff trained and implementing research program. Research protocols developed and agreed; research plan discussed, developed and agreed amongst partners	Training sessions held. Research programme initiated. Research protocols written up and being applied Research plan developed in a participatory way	Research plan developed, agreed and being implemented.	
Activity 2.1. Training of FORRU-Cambodia staff jointly by FA and FORRU-CMU Activity 2.1 Research protocols developed together with partners and appointees, written up, reviewed and revised as required.		Research protocols discussed during Workshop 1. Methodologies translated into Khmer and appropriate Khmer datasheets drawn up.	

Project summary	Measurable Indicators	Progress and Achievements April 2009 - March 2010	Actions required/planned for next period
Activity 2.2 Research plan discussed and outline developed specifying priorities and information needs		Research plan discussed, and protocols revised during Steve Elliott's visits in October and December 2009.	
Activity 2.3 Detailed research plan developed encompassing all proposed experiments in accordance with agreed protocols		Overall research plan remains largely as per the project proposal, with adjustments to timing of events.	
<p>Output 3. Provisional list of indigenous forest tree species; candidate framework tree species identified from literature and indigenous knowledge</p> <p>Research programme undertaken to identify candidate species, followed by nursery and phenology studies leading to field trails established</p>	<p>–List compiled</p> <p>–Species verified by FORRU-CMU</p> <p>Validated list of candidate species</p> <p>18 months of phenology studies written up</p> <p>Nursery studies on 50 species completed and written up</p> <p>Initial field plots successfully established</p> <p>Initial recommendations prepared by End of Project</p>	<p>Output achieved and revised indicators appropriate</p> <p>A provisional list of 43 candidate species compiled by FORRU-Cambodia and validated by Dr Maxwell.</p> <p>Phenological data collection started in October 2009. 18 months data will have been collected by end of project.</p> <p>By the end of March 2010, 33 species were undergoing germination trials. Germination trials and experiments on seedling growth will continue in Year 2.</p> <p>Planned for Year 2.</p>	
Activity 3.1 Survey of indigenous forest tree species undertaken and candidate species identified, based on literature and local knowledge		A provisional list of candidate framework species discussed during the May 2009 meeting organised by FORRU-Cambodia. This list has not been expanded since, although it is planned to identify more species in the second year.	
Activity 3.2 Selection of candidate framework tree species		Species validated by Dr Maxwell in July 2009.	
Activity 3.3 Phenology studies laid out, data collected, analysed and utilised, studies to continue beyond project		<p>A phenology trail was set up by Dr Maxwell during his training visit in July, and work to identify and label all the trees was completed by December. In total, 250 trees of approximately 50 species were labelled. The trees will continue to be monitored during the second year of the project.</p> <p>A member of FORRU-Cambodia staff was trained in specimen collection methods and phenology scoring. Data collection will continue until the end of the second year when the full dataset will be analysed.</p>	
Activity 3.4 Nursery experiments on germination and seedling growth implemented leading to tree species propagation protocols		Germination experiments on 33 species carried out between October 2009 and March 2010.	

Project summary	Measurable Indicators	Progress and Achievements April 2009 - March 2010	Actions required/planned for next period
Activity 3.5 Field trial plots laid out , established, assessed to give preliminary results and long term security assured as far as possible		Year 2.	
Activity 3.6 Initial recommendations for effective forest restoration practices developed, reviewed and disseminated		Year 2.	
Project management activities			
Steering committee formed, project management procedures defined and agreed, reviewed and amended as required		Complex local management structure and communication problems initially led to confusion over how project duties would be shared amongst the staff members. This caused delays in practical operations, but working with FORRU-CMU, these problems were resolved by the middle of Year 1. Project management procedures should now ensure the smooth operation of the project in the second year.	
FORRU-Cambodia staff of right profile located and recruited		Staff have been recruited, and it is hoped that there will be no further staff changes in the second year of the project.	

Annex 2 Project's full current logframe

NB Changes have been made to the logframe in accordance with the advice of Darwin consultant Patrick Hardcastle. Edited text is indicated in bold.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal:</p> <p>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.</p>			
<p>Sub-Goal: To assist the Forestry Administration of Cambodia to establish an effectively functioning forest restoration research unit with well-trained staff.</p>	<p>Key stakeholders in Cambodia actively support FORRU-Cambodia</p> <p>Active forest restoration <u>research programme based on capacity building</u></p>	<p>Forest policy, strategy and development plans</p> <p>Validated research publications</p>	<p>Policies of the Cambodian Government continues to support forest restoration</p> <p>Continued support of the project goals by FA</p> <p>High quality staff can be found for recruitment and training to run the research facility</p>
<p>Purpose To identify and test a suitably wide range of indigenous species for the framework approach to forest biodiversity recovery and restoration and to develop skills leading to a sustainable cohort of expertise in this.</p>	<p>Research plan delivered and progress reported</p> <p>Staff have technical expertise to formulate and conduct research</p> <p>FORRU-Cambodia securing research grants by End of Project</p>	<p>Workshop evaluation submitted to Darwin</p> <p>Reviewed plans and publications</p> <p>Annual and HY Darwin reports</p> <p>Success in securing research grants</p>	<p>Biodiversity conservation remains a priority in reforestation policies in Cambodia.</p> <p>FORRU-Thailand continues to receive core funding for its other facilities and can deliver training required</p> <p>Local demand for expertise and training continues</p> <p>Adequate external competitive funding opportunities continue to exist</p>
<p>Outputs</p>			
<p>1. Physical and human capacity at FORRU-Cambodia built to effective levels.</p>	<p>Nursery operational and effective by month 6</p> <p>Personnel acquire and utilise skills through personal training plans and identified training events</p>	<p>Regular visits to nursery, nursery records</p> <p>Assessment of skills acquisition through training reports, mentoring visits and assessment of research undertaken by trainees</p>	<p>All partners remain in post, and motivated towards the project</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
2. Research protocols developed and agreed; research plan discussed, developed and agreed amongst partners	<p>Research protocols written up and being applied</p> <p>Research plan developed in a participatory way</p>	<p>Report of research plan development and workshop proceedings</p>	<p>Research protocols are consistently applied</p>
3. Research programme undertaken to identify candidate species, followed by nursery and phenology studies leading to field trails established	<p>Validated list of candidate species</p> <p>Nursery studies on 50 species completed and written up</p> <p>18 months of phenology studies written up</p> <p>Initial field plots successfully established</p> <p>Initial recommendations prepared by End of Project</p>	<p>List of species and selection rationale</p> <p>Nursery study reports fully detailed and peer reviewed</p> <p>Phenology studies reported and results made available</p> <p>Field plots correctly established in accordance with protocols</p> <p>Recommendations peer reviewed and available</p>	<p>Propagation nursery and field trial sites are secure and remain dedicated to agreed purpose</p>
<p><u>Project management</u></p> <p>Steering committee formed and functioning by month 2</p> <p>Project management procedures defined and agreed by month 3</p> <p>FORRU-Cambodia staff recruited by month 3</p>	<p>Composition of Steering Committee and level of engagement</p> <p>Short document defining procedures approved by Steering Committee</p> <p>Staff of appropriate background in place</p>	<p>Minutes of meetings, reported in HY and Annual Reports</p> <p>Document, approval by SC, reported in HY and Annual Reports</p> <p>Records, report in HY/Annual report</p>	<p>Partners maintain level of interest and remain supportive</p> <p>Project can attract and retain personnel of right calibre</p> <p>Appointees continue to be motivated and active and remain in post</p>

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Activities (details in workplan)</p> <p><u>Output related activities</u></p> <p>1.1 FORRU-Cambodia nursery constructed and put into use</p> <p>1.2 Training needs assessments conducted and training plans developed</p> <p>1.3 Identified training events delivered, monitored and impact assessed, including final skills assessment of trainees</p> <p>2.1 Research protocols developed together with partners and appointees, written up, and revised as required</p> <p>2.2 Research plan discussed and outline developed specifying priorities and information needs</p> <p>2.3 Detailed research plan developed encompassing all proposed experiments in accordance with agreed protocols</p> <p>3.1 Survey of indigenous forest tree species undertaken and candidate species identified, based on literature and local knowledge</p> <p>3.2 Selection of candidate framework tree species</p> <p>3.3 Phenology studies laid out, data collected, analysed and utilised, studies to continue beyond project</p> <p>3.4 Nursery experiments on germination and seedling growth implemented leading to tree species propagation protocols</p> <p>3.5 Field trial plots laid out, established, assessed to give preliminary results and long term security assured as far as possible</p> <p>3.6 Initial recommendations for effective forest restoration practices developed, reviewed and disseminated</p> <p><u>Project management activities</u></p> <p>Steering committee formed, project management procedures defined and agreed, reviewed and amended as required</p> <p>FORRU-Cambodia staff of right profile located and recruited</p>			
<p>Monitoring activities: Kew and Wildlife Landscapes will be involved in monitoring all indicators, particularly those reported from Outputs 2 and 3. FORRU-CMU will also contribute to monitoring the outputs, and take special responsibility for Outputs 1 and 3.</p>			

- Annex 3 (attached): Report on Training Workshop 1.**
- Annex 4 (attached): Report on Training Workshop 2.**
- Annex 5 (attached): Priority candidate framework tree species**
- Annex 6 (attached): Sample phenology data sheets.**
- Annex 7 (attached): Species germinated in the nursery**
- Annex 8 (attached): Example of monthly nursery report.**

Checklist for submission

	Check
Is the report less than 5MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	✓
Is your report more than 5MB? If so, please advise Darwin-Projects@ltsi.co.uk that the report will be send by post on CD, putting the project number in the Subject line.	
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	✓
Do you have hard copies of material you want to submit with the report? 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.	