

Conservation of Biological Diversity through Improved Forest Planning Tools

**Government of Malaysia and UNDP/GEF Project
(MAL/04/G31) PIMS 1370**

Terminal Evaluation



Christian Schriver (Team Leader)
Lim Teck Wyn
September 2012

Acknowledgements

The Conservation of Biological Diversity (CBioD) project is not just a Project Document with objectives and outcomes. It is a project of a group of people working to broaden our understanding of how conservation of biodiversity can better be incorporated into landscape level planning in a production forest. During the Terminal Evaluation we have been fortunate enough to talk and interact with almost all the people who have been directly involved in this endeavour. This includes the group of people responsible for managing and administering the project, the many Malaysian and international researchers involved in carrying out the research, the foresters and planners who are the ultimate target for carrying the research towards operational standards and of course the UNDP staff providing guidance and monitoring. The Terminal Evaluation team would like to express our sincere thanks and gratitude to all these people!

Everyone met during the evaluation, whether in person or on the phone, gave up significant amounts of their valuable time and contributed greatly to facilitate the Evaluation Team's understanding of the project. This has made our task both easier and more fulfilling, and has contributed greatly to our understanding of the project's strengths and weaknesses as highlighted in this report.

We have spent much more time than originally envisioned on briefings and discussions with the individual researchers to allow us to fully appreciate the research carried out in this targeted research project and really appreciate the large amount of time each team member in the project have given us.

We have been met with an extreme openness and enthusiasm about the project and have had many candid discussions along the way. The dedication to the research and to the objective of biodiversity conservation demonstrated from all corners of the implementation team has impressed the evaluation team greatly.

The views expressed in this report are based on our understanding of the documentation reviewed and the many discussions held with the implementation team and other stakeholders. We have tried to give as fair a representation of the project as possible and apologise for any shortcomings, trusting that our comments will be taken as constructive criticism.

We note that in many ways the CBioD project is not over, and it is only the UNDP/GEF support that is coming to an end. Many of the researchers involved will continue to work either directly or indirectly with the project results and we would like to wish them every success possible in this effort.

With sincere thanks,

Christian Schriver Lim Teck Wyn
4th August, 2012

Acronyms and terms

AAC	Annual allowable cut
APR	Annual Project Report
CBioD	<i>Conservation of Biological Diversity through Improved Forest Planning Tools</i> [= abbreviated project title]
CIFOR	Centre for International Forestry Research
CTFS	Centre for Tropical Forest Science
DID	Drainage and Irrigation Department
EPU	Economic Planning Unit
FDHPM	Forestry Department Headquarters of Peninsular Malaysia
FRIM	Forest Research Institute Malaysia
GEF	Global Environment Facility
Ha	Hectares
HCVF	High Conservation Value Forest
IAP	International Advisory Panel
IRPA	Intensified Research Priority Area
ITTO	International Tropical Timber Organisation
IUCN	World Conservation Union (International Union for the Conservation of Nature)
KPU	Ministry of Primary Industries
MNS	Malaysian Nature Society
MTCC	Malaysian Timber Certification Council
MTR	Mid-term review
NGO	Non-government Organisation
NRE	Ministry of Natural Resources and Environment
NTFP	Non-timber Forest Product
PDF	Project Development Fund
PIR	Project Implementation Report
PITC	Perak Integrated Timber Complex
PRF	Permanent Reserved Forest
PSC	Project steering committee
PSFD	Perak State Forestry Department
PSU	Project Support Unit
RBA	Rapid Biodiversity Assessment
R&D	Research and development
RIL	Reduced Impact Logging
SFM	Sustainable Forest Management
SFO	State Forestry Offices
SRP	Scientific Review Panel
TE	Terminal Evaluation
TWC	Technical Working Committee
TWG	Technical Working Group (see TWC)
UNDP	United Nations Development Programme
VJR	Virgin Jungle Reserve
WWF	World Wide Fund for Nature

Contents

1. Executive summary.....	1
1.1 Overview.....	1
1.2 Key products	1
1.3 Key Issues.....	3
1.3.1 Project focus	3
1.3.2 Delay.....	3
1.3.3 Integration of project results and making them operational.....	3
1.3.4 Outcomes.....	3
1.4 Lessons learned and recommendations.....	4
2. Introduction	5
3. Methodology of the evaluation	6
4. Project concept and design.....	7
4.1 Project description and context.....	7
4.1.1 Main stakeholders.....	11
4.1.2 Results expected	11
4.2 The two projects	12
5. Project implementation	14
5.1 Rating Scales	14
5.2 Project Monitoring and Evaluation	14
5.3 Project Objectives and Adaptive Management.....	16
5.4 UNDP and Implementing Partner Implementation and Execution	17
5.5 Stakeholder Interaction and Partnership Arrangements.....	18
5.6 Project Finance.....	19
5.6.1 Effectiveness and Efficiency	22
5.7 Summary.....	23
6. Project results.....	24
6.1 Products of the Project.....	24
6.1.1 Overview of key products.....	26
6.1.2 RBA	27
6.1.3 VJR Study	29
6.1.4 Regenerative Capacity Model.....	30
6.1.5 Biodiversity Predictive Model.....	31

6.1.6	Forest Hydrology Model	31
6.1.7	Water Treatment Cost for potable water	32
6.1.8	Valuation studies.....	33
6.1.9	Non Timber Forest Products.....	35
6.1.10	Harvesting protocol.....	35
6.1.11	Planning tool	36
6.1.12	Web-based database.....	38
6.2	Relevance, Effectiveness and Efficiency	39
6.3	Project Sustainability	44
6.4	Catalytic Role	45
6.5	Impact.....	46
6.6	Country ownership	46
6.7	Mainstreaming	47
7.	Key issues and lessons	47
7.1	Project Document	48
7.1.1	Missing Problem and Strategy Analysis	48
7.1.2	Clarity of scope of work.....	48
7.2	Project Management.....	49
7.2.1	Delay	49
7.2.2	Lack of CTA.....	51
7.2.3	Project Partners	52
7.2.4	Extension of project activities.....	53
7.3	Stakeholder engagement and capacity building	54
8.	Conclusions	56
8.1	Concluding remarks and recommendations for UNDP	56
8.2	Concluding remarks and recommendations for FRIM	57
8.3	Concluding remarks and recommendations for the Forestry Department Peninsula Malaysia	58
ANNEX 1: Terms of Reference		
ANNEX 2: Programme and list of people met		
ANNEX 3: PSU analysis of 2006 log frame target fulfilment		
ANNEX 4: Publications, posters and papers in preparation		
ANNEX 5: Criteria Matrices		
ANNEX 6: English translation of Submission paper to FRIM board		
ANNEX 7: Comparison of the 2003 Project Brief and the approved LFA		
ANNEX 8: Evaluation Consultant Code of Conduct Agreement Form		

List of tables and figures

Table 1. Key products from the CBioD project	2
Table 2. Planned source of financing for the CBioD Project (by institution)	20
Table 3. Project Expenditure of the CBioD Project (USD)	20
Table 4. Project Performance Rating	24
Table 5. Functional Classes of Permanent Reserved Forest in Peninsular Malaysia (in hectares)	29
Table 6. Relevance Ranking	40
Table 7. Effectiveness rating in achieving stated targets	41
Figure 1. Project Organisation	9
Figure 2. Annual expenditure of GEF funds	21
Figure 3. Annual GEF expenditures for main budget lines	21
Figure 4. Total expenditure of GEF funds to Outcomes	22

1. Executive summary

1.1 Overview

1. Tropical forests are the most complex and diverse ecosystems on earth. In addition to having extremely rich and diverse plant and animal life, these forests also play a significant role in the socio-economic development of the countries that harbour them. The Conservation of Biological Diversity through Improved Forest Planning Tools (CBioD) Project was born as a targeted research project to develop biodiversity assessment tools and economic valuation tools and to integrate these into a computer-based forest-planning model. During the final design stage of the project and in discussions with UNDP/GEF, the final project document added considerable capacity building elements to this research with the aim of ensuring that the tools would be used by key decision makers in Malaysia.

1.2 Key products

2. The project has successfully carried out a number of research studies that in the long run can be used to help the forestry sector to incorporate biodiversity concerns into their planning. The table below gives a brief overview and description of the research carried out. The assessment of the Terminal Evaluation (TE) team is that the research was relevant and is an important contribution to the linking of ecology with economics in the production forestry.

Study	Description
Rapid Biodiversity Assessment (RBA) Tool	This tool provides an excellent field manual that describe the mechanics of the systematic data collection of eight indicative taxa that can be used to describe the biodiversity in a given area. The manual has applications far beyond forestry departments and can be used by universities, schools and NGOs as a standard tool for study and carrying out sampling using repeatable techniques.
Virgin Jungle Reserve (VJR) study	This innovative study assessed the benefits to biodiversity of having small protected areas in a landscape of selectively logged forest. Initial results indicate that the “natural forest management” silvicultural systems do not result in a decrease in species richness and that the presence of VJRs had relatively little impact on biodiversity of the larger landscape. This was a conclusion somewhat contrary to what had been expected.
Forest Regenerative Capacity Model	This model provides an excellent overview of the longer term consequences of various logging practices in terms of the regeneration of timber species. The model provides a strong case for better and more detailed management of individual species in the logging planning systems.

Model for predicting biodiversity using different sampling techniques	This model is the first of its kind for Malaysia and has the potential to be used as the basis for future models that can be applied by forest managers.
Hydrology /watershed study	The study, which was based on 30 years of streamflow data from the Department of Irrigation and Drainage, showed that sediment in rivers increase with increased logging and calculated the relative impact of selective logging in catchment areas.
Water treatment cost for potable water	This spreadsheet model demonstrates how conservation of virgin jungle in water catchment areas significantly decreases the treatment cost compared to that of non-forested water catchment areas and that selectively logging of forests do not significantly increase the treatments costs of water from the catchment.
Recreational study (passive use, new parks, travel cost study)	Findings from these studies show that willingness to pay (calculated for Kuala Lumpur and the State of Selangor) for protecting biodiversity from losses due to poaching and logging was higher than the timber revenue received from logging of the forests. The other study gave good directions for how the public values park features which is key information when planning for a park.
Non-Timber Forest Products (NTFP) study	The study suggests that available information in the literature is sufficient for crude estimation of the current value of forests as a source of NTFPs, but not for reliable projections of future values or the relative values of NTFPs from virgin vs. logged forests
Forest Harvesting Protocol – tree selection	This study revises the harvesting protocol used by the forestry department and proposes a comprehensive pre-felling inventory that would assist in maintaining the vertical structure of the forest and ensure that the proportion of key commercial species does not decrease in the long run.
Web-based database	The project has developed a web-based database in order to make the various data sets from the project accessible.
Forest Harvest Planning Tool	A simplified optimisation model has been generated allowing inputs from data that can be derived from the hydrology model, a spatial biodiversity model and information from the forest department inventory. By adjusting various parameters, the model allows the calculation of annual allowable cut under different scenarios and distributes the harvesting areas over the landscape while preserving a number of areas to act as biodiversity refuges.

Table 1. Key products from the CBioD project

1.3 Key Issues

1.3.1 Project focus

3. A main issue in the project is that implementation has focused on research, whereas the project document had equal focus on research and capacity building. Capacity building, to the extent foreseen in the Project Document has therefore not taken place. However, the Board of Forest Research Institute of Malaysia (FRIM) has allocated funds for a one year continuation of project-initiated activities in order to focus on making the research operational and incorporated into the standard operating procedures of the Forestry Department.

1.3.2 Delay

4. The project is behind schedule. Most of the capacity building foreseen in the project document has not been implemented yet. This is partly due to much of the research also facing delays and only being finalised towards the very end of the project. The project team is currently working on the documentation of the research and making it operational and implementing it with the Forestry Department.

1.3.3 Integration of project results and making them operational

5. The project idea was to integrate ecological and economic data into a forest planning optimization model. This has only been partially achieved. The forest planning model developed has only in part integrated results from the many high-quality research studies undertaken. The studies themselves therefore stand out as a series of worthwhile individual studies rather than as an integrated package that can be operationalised by the target agencies. The various models and manuals produced have not yet been made operational. Substantial information is there, but it has yet to connect to operational procedures and practices of the Forestry Department or the State Economic Planning Unit.

1.3.4 Outcomes

6. The following four outcomes were envisaged in the project document:

Outcome 1: Forest planners in Perak incorporate tools to measure impacts on biodiversity in their forest management planning;

Outcome 2: Forest planners in Perak utilize tools for full valuation of goods and services in their forest management planning and operations;

Outcome 3: Forest planners in Perak integrate ecological and economic tools in forest planning decisions at a landscape level; and

Outcome 4: Capacity exists to apply methods developed by the project in tropical forest management operations.

7. For outcome 1, the indicator was “In determining [annual allowable cut] AAC for 2011-16, Perak SFO utilise tools and methods developed by the project”. Tools and knowledge necessary to make the adjustments to current management practices were made but had yet to be adopted by the Forestry Department (resulting in a 3/6 rating).
8. For outcome 2, the indicator was “In determining AAC for 2011-16, Perak SFO utilizes methods developed by the project so as to maximize non-timber values, while still achieving timber harvest objectives”. A substantial array of methods had been prepared and SFO staff had received some training, however the annual allowable cut for 2011-16 had not been influenced on any project tools or results (3/6 rating).
9. For outcome 3, the indicator was “The timber harvesting plans for Perak during 2011-16 anticipate timber values per hectare of at least 95% of the baseline value, whilst the extent and distribution of set-asides ensures that the diversity of habitat units represented in them is at least 1.5x”. There had been no integration of ecological and economic tools in forest planning in Perak (1/6 rating).
10. For outcome 4, the indicator was “By the end of the project, at least two other SFOs in Malaysia and two in other countries are using tools and methods developed through the project.” This target has not been reached (1/6 rating), however the TE take note that the target was extremely ambitious given the duration and constraints of the project.

1.4 Lessons learned and recommendations

11. The project has accumulated a number of lessons, most of them arising from the issues that the project has been dealing with. A key lesson from this project is that if a project operates as both a “Research” and a “Capacity Building” project then adequate resources has to be allocated to each of these two very different functions. The CBioD project operated with staff consisting of excellent researchers but the project did not reach its capacity building outcomes as none of the staff had specific expertise in Capacity Building.
12. The main recommendation to GEF-UNDP is to consider carefully whether it should continue engaging in “Research Projects” as this lies outside the normal domain of its expertise. If GEF-UNDP should want to engage in more Research Project then careful consideration should be given to implementation modalities given the delays seen in this project.
13. FRIM and the Forestry Department Peninsular Malaysia are not institutionally linked other than belonging to the same Ministry. It is therefore recommended that the Forestry Department and FRIM explore other ways to synergise fully on a daily basis

for the implementation of projects such as the CBioD.

14. The main recommendations for the Project Team is to use the one year additional funding from FRIM to i) finalise, document and publicise the research carried out, ii) package the relevant research and modules to a coherent Perak Tool Set and iii) capacity build the Forestry Department and other relevant institutions to utilize the Tool Set.

2. Introduction

15. The overall purpose of this GEF evaluation is two-fold. The first aspect is to promote accountability for the achievement of GEF objectives through the assessment of results, effectiveness, processes, and performance of the partners involved in GEF activities. The second aspect is to promote learning, feedback and knowledge sharing on results and lessons learned for decision making on policies, strategies, programme management and projects.
16. The key issues addressed in this Terminal Evaluation (TE) include an assessment of overall performance related to project objectives, outcomes and outputs. These are rated using the quantitative rating scales provided by the UNDP-GEF guidance¹. A qualitative assessment of project results and 'products' is also included. In addition, the TE assesses implementation arrangements and project design, also using the rating scales provided.
17. The TE reviews the management of the project and the clarity of roles, coordination and responsibilities of the various agencies/institutions involved including the role of UNDP. It also assesses the level and appropriateness of stakeholder participation in the project. Finally, the TE identifies and describes the main successes, challenges and lessons learned from the project.
18. The focus of the TE is on: Project Delivery such as institutional arrangements, outcomes, partnerships, risk management, monitoring and evaluation; project implementation such as administration, oversight by UNDP and Project Steering Committee (PSC) and execution by the Forest Research Institute of Malaysia (FRIM) and Forestry Department of Peninsular Malaysia (FDPM); project finances such as disbursement, budgeting procedures, and coordination mechanisms.

¹UNDP (2012). *Guidance for conducting terminal evaluations of UNDP-supported, GEF-financed projects*. Evaluation Office, United Nations Development Programme.

3. Methodology of the evaluation

19. The evaluation team consisted of Mr. Christian Schriver, Team Leader, and Mr. Lim Teck Wyn. Both evaluators are very familiar with the forestry sector of Malaysia. The team leader has lived for over 12 years in Malaysia and Mr Lim is a Malaysian.
20. The evaluation was conducted in a highly participatory manner with extensive consultation and discussions with the key stakeholders, mainly the CBioD Project Support Unit (PSU), the research staff and UNDP. Additional stakeholders consulted included the Forestry Department Peninsular Malaysia (FDPM), The Malaysian Timber Certification Council (MTCC) and selected members from Perak State Forestry Department and the concessionaire (PITC). The Chair of the PSC (former Deputy Secretary of the Ministry of Natural Resources and Environment -NRE) has not been consulted as she has since retired. However, it was noted that the project has had a consistent chair representation throughout the project and that detailed minutes have been kept from the PSC meetings.
21. The Project Support Unit (PSU) had made an excellent programme that included several workshops allowing for interaction with different stakeholders as well as allocated extensive time meeting the individual project staff and researchers. Substantial time was allocated to presentations of the various 'products' or 'tools' coming out of the project as the TE team felt it was important to fully appreciate the research work and resulting findings and tools.
22. Individual and group stakeholder consultations have been supplemented by studying project related documents. These included activity reports, papers related to the research, meeting minutes, manuals, guidelines, computer programmes and models produced.
23. A planned field trip to Perak to consult with the logging concessionaire, the State Planning Unit and the State forestry department was cancelled in consultation with the TE team. There were difficulties in the timing of the field trip and as the TE mission progressed, it became apparent that the projects involvement of these stakeholders was somewhat less than what had been expected from studying the Project Document. However, brief discussions were held with most of these stakeholders during a workshop session in Kuala Lumpur where key stakeholders (including several from Perak) participated in a presentation on project tools.
24. The TE team has sought to be straight forward and open in regards to observations and findings as the evaluation progressed. This means that most findings have been thoroughly discussed with the relevant stakeholders who have been equally forthright about the strengths and weaknesses of the project. The evaluation has

therefore been generally characterized by mutual respect, open and frank discussions and sharing of views, including agreement to disagree on occasions. This TE report however, remains the evaluation of the TE team who take responsibility for any errors or oversights.

25. Annex 1 provides the Terms of Reference for the Terminal Evaluation and Annex 2 include the mission programme and people met and consulted during the mission.

4. Project concept and design

26. The Conservation of Biological Diversity (CBioD) project was conceived in the year 2000 and then developed over a long period up to 2006 when the final project document was approved. While the Project officially started in 2006, project staff only started work in April 2007.
27. It was important to the TE team to hear directly from project staff how they had interpreted the project document to gauge their understanding and perception of the goals and direction of the project. The common understanding and story explained to the TE team by most of the project team members was that the project set out to improve decision making in production forests. This would be done by looking on the one hand at changes to ecology from forestry production such as biodiversity, stream run off, sedimentation rates and such. This data would then be combined with economic data such as sedimentation costs, costs of changes to Non Timber Forest Products, costs of changes to stream flow (flooding), costs to loss of biodiversity (perception of the public) and so forth. The ecological research and the economic research would then be combined into a decision optimization model that would allow decision makers to strike an appropriate balance between timber values and other forest values (biodiversity, recreation, sedimentation protection, flood protection, etc.).

4.1 Project description and context

28. The front-page description in the project document states that “This project will develop tools and generate knowledge needed to ensure that forestry production systems are planned and managed in a manner, which will contribute to biodiversity conservation or the sustainable use of its components against the baseline scenario. These tools will be developed and disseminated for broader application to Strategic Priority # 2 on Mainstreaming Biodiversity in Production Landscapes and Sectors...”
29. The CBioD project was thus designed to improve the maintenance of biodiversity and other values in tropical forest landscapes otherwise managed primarily for timber. The Project Document further states:

30. “The baseline scenario for this project is that forest planning in tropical regions will continue to depend upon expensive, time and data intensive biodiversity assessment and valuation methods. As a consequence biodiversity values (including biodiversity of global significance) will not be incorporated into developmental decision-making in an efficient manner.”
31. The project would produce information, more cost effective methods and decision-guidance tools assuming that this would produce better decisions. The International Advisory Panel (IAP) established to guide the project as well as the Mid Term Evaluation mission questioned this assumption. They both recommended to develop and implement a more structured capacity-building plan to enhance the value of the project. The first IAP mission states “The CBioD Project team may wish to consider production of a written capacity building strategy, so that all the capacity-building activities are more focused and directed. Ideally there should be a transition plan showing how this project and its outputs will flow through into larger scale implementation”. IAP 2 mission states among others that “Research products can then be tailored to these (... the users) requirements so that demand for and then use of the products is ensured”. Likewise the MTE states that “Research, tools and plans are not ends but means. Effective conservation, as the ultimate goal, should be made more explicit in project processes and outcomes”.
32. The Project organization, as planned for in the project document, is illustrated below in Figure 1 below.

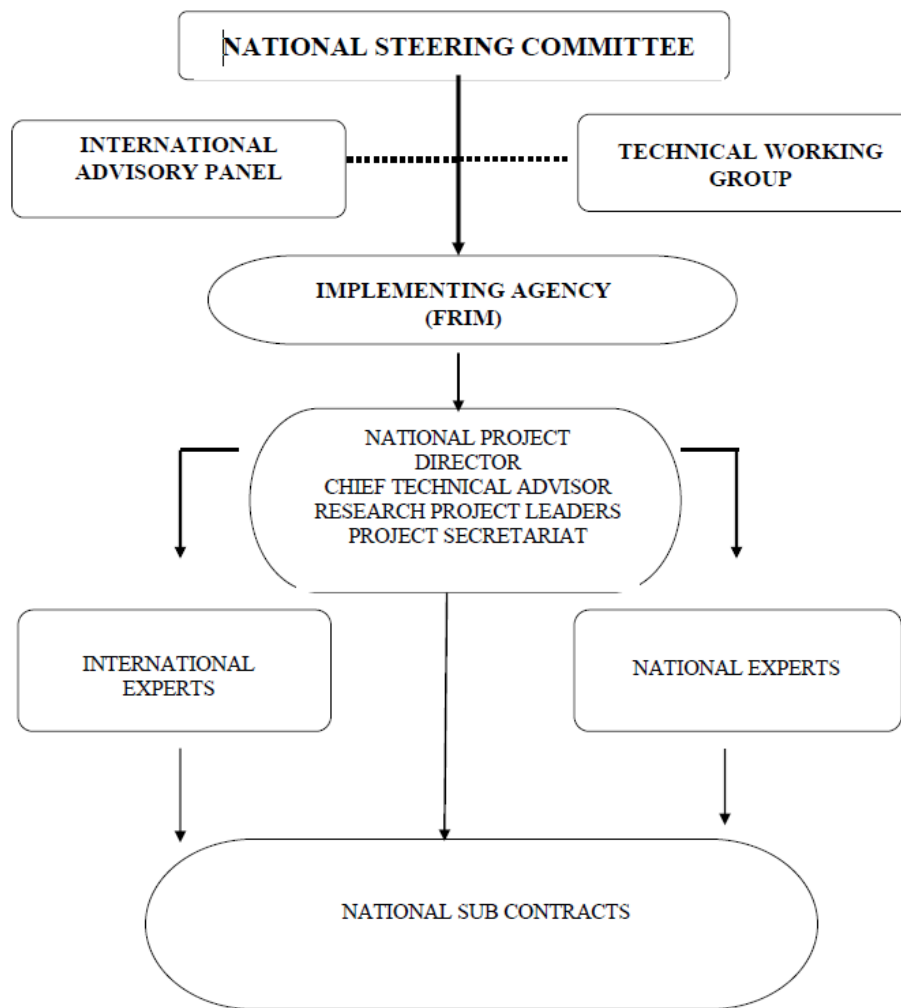


Figure 1. Project Organisation

33. The National Steering Committee is referred to as the Project Steering Committee (PSC), was headed by the Deputy Secretary General of the Ministry of Natural Resources and Environment. The Forestry Research Institute of Malaysia (FRIM) was the implementing agency and the National Project Director was the Director of the Forestry and Environment Division of FRIM. The Project Document had foreseen a “Chief Technical Advisor” but this was later changed to a “Project Manager” who was hired from one of FRIM’s staff. The Project Manager left within the first year and the Project Communications Officer was subsequently appointed Assistant Project Manager/Communications officer to help the National Project Director managing and guiding the project. FRIM provided a core team of researchers who were supplemented by consultants and supported by the International Researchers from Duke and Berkeley Universities. An International Advisory Panel (IAP) was established to ensure the quality of the research of the project. This panel met twice during project implementation. A mid-term review was also undertaken in August 2009. In addition, a Technical Working Group (TWG) was established with

participation of the project researchers, staff and the Forestry Department, a representative from Malaysian Timber Certification Council, NGOs, Universities, Orang Asli (indigenous people) Affairs Department, Perak Integrated Timber Complex Sdn Bhd (PITC) and Department of Wildlife and National Parks. The TWG met twice per year. In addition, a Project Management Group consisting of the NPD, Assistant Project Manager and the Researchers met once a month.

34. The project's principle field site is the Temenggor Forest Reserve's within the PITC concession area in the State of Perak, about eight hours drive north of Kuala Lumpur. The Forestry Department Headquarters of Peninsular Malaysia (FDPM HQ), Perak State Forestry Department (PSFD) and the Perak State Economic Planning Unit (UPEN) are considered the key local stakeholders that were targeted to adopt and apply the project outputs.

35. The Project Goal, i.e. the longer-term objective that the project would significantly contribute was "To conserve forest biodiversity in production landscapes". This goal was to be supported by the four outcomes and 9 outputs. The four outcomes are listed below:

Outcome 1: Forest planners in Perak incorporate tools to measure impacts on biodiversity in their forest management planning

Outcome 2: Forest planners in Perak utilize tools for full valuation of goods and services in their forest management planning and operations

Outcome 3: Forest planners in Perak integrate ecological and economic tools in forest planning decisions at a landscape level

Outcome 4: Capacity exists to apply methods developed by the project in tropical forest management operations.

36. The baseline scenario for the project was that current expensive, time- and data-intensive biodiversity assessment and valuation methods would not be incorporated into developmental decision-making in an efficient manner. Consequently, inadequate valuation of biodiversity in developmental decision-making would continue to result in inefficient allocation of forest resources to conservation.

37. At the site level the baseline scenario was that forest resources in Perak (particularly the PITC forest concession) would continue to be managed according to conventional forestry management practices in Malaysia. This would mean that biodiversity assessment activities would be limited to the existing 10-yearly timber-focused National Forest Inventory and concession-level timber surveys undertaken by timber concessionaires, i.e. very little. The assumption was that easier methods to assess biodiversity and capture other values of the forest would lead to more informed decisions on allocation between production and conservation.

38. The LFA adequately lists a number of baseline values for which a series of indicators and targets are established. As project reporting has not strictly followed the indicators and targets, the PSU has during the TE presented an analysis of how the project has responded to the targets in the LFA. We assume this analysis will form part of the final report of the project but for completeness, we include the PSU analysis as Annex 3 to this report.

4.1.1 Main stakeholders

39. The main stakeholders to the project are identified as:

- Perak Integrated Timber Complex (PITC). PITC host the field project and are willing to trial test new approaches and methods.
- Perak State Forestry Department (PSFD). Hosts PITC.
- The Forestry Department Headquarters of Peninsular Malaysia (FDHPM). If satisfied with the new tools and methods they would consider their wider application.
- Based on consultation with and approval from its stakeholders the Malaysian Timber Certification Council (MTCC) has the potential to adopt new tools and methods in its Malaysian Timber Certification Scheme subject to the approval of its stakeholders and the MTCC Board.
- The Forest Research Institute Malaysia (FRIM) has direct interest in the project as it is fully in line with its mission to plan and implement research for the development of the forestry sector and conservation of forest resources.
- Similarly, the international collaborators have direct interests in providing their technical services towards the joint-development of the new tools and methods.

40. Other than the above primary stakeholders; various additional entities participated in the stakeholders consultations held by the project.

4.1.2 Results expected

41. The CBioD Project Document identifies a number of outcomes and outputs. The deliverables agreed upon by the project team are summarized below (from section 1.5 of the inception report).

42. “At the end of the CBioD Project the tools listed below are to be available for relevant government agencies, notably FRIM, the Forestry Department and MTCC and the industry notably PITC. Together with GEF OP3 projects, they will also have a better understanding of the impacts of their interventions of the forest ecosystem especially on its sustainability and biodiversity.

- I. *Computerised system and database for recording and managing biodiversity*
- II. *Efficient statistical methods for estimating biodiversity from small samples*
- III. *Improved methods for assessing biodiversity*
- IV. *Improved understanding of the overall impacts of logging on biodiversity*

- V. *Models that relate economic values associated with biodiversity to ecological and socioeconomic factors that influence them*
- VI. *Improved models for predicting biodiversity taking into account logging systems and locations*
- VII. *Employ harvesting protocols and technology that would conserve or protect biodiversity*
- VIII. *Improved forest planning model for allocation of lands between protection and production taking into consideration biodiversity and economic benefits and costs*
- IX. *Increased skills and capacity of local counterparts in all aspects of the research*
- X. *Dissemination of the tools and methods to other countries*

43. The project deliverables, and their relevance and current status are discussed in greater detail in the following sections.

4.2 The two projects

44. The LFA table given in the Project Document lists the four “Outcomes” above, yet the PSU and researchers interviewed during the mission persistently referred to four “Immediate Objectives” that were not included in the LFA in the Project Document. The TE team therefore had to investigate this in further detail to see where the different terminology came from.

45. In 2003, a draft Project Brief with an almost exclusive emphasis on research albeit with some dissemination, was finalized and submitted for GEF financing. Over the following years, until its final approval in 2006, a number of changes were made to the project. The main change was an increased focus on capacity building, where various institutions, in particular Perak Forestry Department were now expected to perform better based on the project research results and tools. This capacity building addition was made without increasing the existing budget so funds would presumably be taken from funds otherwise allocated to research. According to project staff spoken to, these changes were made in order make it a more “GEF-able” Project Document. We received many comments to this effect in discussion with researchers and PSU and as comments to the draft TE report. Below are just two of such comments received from different project staff:

- Quote 1: “What was initially a targeted research project with clear objectives (testing of hypothesis for possible implementation, if proven feasible), was re-worded to fit GEF’s usual language for development projects where ‘outcomes’ has to be implemented”
- Quote 2: “Overall, the main points that have been raised are centred on that the LFA focused on capacity building while the project focused on the development of the tools.”

46. The numerous statements from project staff such as these indicate that although the staff was aware of the changes to the 2003 project brief, they have not taken ownership of these changes. The changes have thus mainly been viewed as cosmetic.²
47. The differences between the Project Brief and the Project Document included a terminology change from four “Objectives” to four related “Outcomes”. However, these changes represented more than just a cosmetic shift. All the four outcomes in the Project Document focus on capacity building as much as on research. In contrast, the 2003 project brief focused on research and only mentioned capacity building in regards to “dissemination of knowledge”. A detailed presentation on the differences to the 2003 Project Brief and the final and approved LFA is shown in Annex 7.
48. The Project Brief was maintained as an annex to the Project Document. It was an elaborate 123-page proposal with very detailed descriptions of the various activities to be carried out, as well as detailed terms-of-reference for researchers. It was these Activity descriptions that the project referred to, to guide implementation.
49. It is evident that it is the four original objectives rather than the four approved outcomes that have guided the project in its implementation. All project progress reports to the Project Steering Committee where explicitly written against the objectives from the 2003 brief rather than outcomes listed in the 2006 LFA. Although the UNDP/GEF Project Implementation Report (PIR) headings do include the LFA Outcomes, it is notable that there is a general lack of reference to any capacity building in the progress reported despite capacity building being the main focus of the Outcomes.
50. We noted that none of the project parties (UNDP, Mid Term Review, Project Steering Committee, International Advisory Panel, Project Support Unit, Project Management Group) raised a big red flag or offered clear direction for resolving the issue. Nevertheless, the issue has been alluded to on several occasions. For instance, the Mid Term Evaluation did casually state that: *“At least two versions of the UNDP/GEF project document and logframe exist due to the revisions during the inception phase. The MTE used the revised version of the UNDP/GEF project document (produced after the inception report) for their assessment and the numbering of the logframe outputs etc. follow that logframe. There is some variation in language and emphasis amongst*

² According to UNDP, although the four objectives in the project brief and four outcomes in the project documents are worded differently, they are essentially talking about the same intended outcomes. As pointed out, the latter include a capacity development element, and this was because of the fact that those who were involved realized that there is no point in developing tools if no one can/is using them. It was not simply to satisfy the GEF.

project documents – when in doubt as to the purpose and role of a given output the MTR refer firstly to the detailed accounts given in the annexes to the original project document (noting that these annexes have not been updated to fit the amended logframe)." As a result, the project continued to pursue the objectives, outputs and detailed activity descriptions from the 2003 Project Brief.

5. Project implementation

5.1 Rating Scales

51. The following sections include ratings on the project implementation for outcomes, effectiveness, efficiency, M&E and execution on a scale of 1-6, as follows:

- 6: Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency;
- 5: Satisfactory (S): There were only minor shortcomings
- 4: Moderately Satisfactory (MS): there were moderate shortcomings
- 3: Moderately Unsatisfactory (MU): the project had significant shortcomings
- 2: Unsatisfactory (U): there were major shortcomings in the achievement of project objectives in terms of relevance, effectiveness, or efficiency
- 1: Highly Unsatisfactory (HU): The project had severe shortcomings

52. In addition, sustainability of the benefits of the project are rated on a scale of 1-4, relevance of the project on a scale of 1-2 and the impact of the project on a scale of 1-3. Other aspects of the project, such as adaptive management, stakeholder engagement and project finance are assessed qualitatively and are not rated or scored since scoring for these aspects is not required by UNDP-GEF.

5.2 Project Monitoring and Evaluation

53. The TE has looked at two levels of the monitoring - content and a context. At the context level is the institutional set up of the monitoring system and the performance of the system. At this level the monitoring system worked well. The project had an extensive monitoring and evaluation (M&E) plan that included controls at multiple management levels within FRIM, the universities, UNDP, the Technical Working Committee (TWC), the Project Steering Committee (PSC) as well as the Independent Advisory Panel (IAP), the mid-term evaluation and the present terminal evaluation. These elements made up the M&E plan to monitor results and track progress. The LFA in the project document included explicit information on the baseline, SMART indicators and data-analysis system. The project budget allocated adequate funding for the mid-term review and terminal evaluation.

54. Based on an evaluation of documentation and interviews with the project executants, the evaluation team carried out an M&E assessment that came to the

following conclusions:

1. The M&E plan at the start of the project articulated the baseline conditions, methodology and roles and responsibilities well enough. The M&E plan was well conceived and even provided for a scientific review panel (SRP) to provide an extra level of oversight. The M&E plan was articulated sufficient to monitor results and track progress toward achieving the objective of the project.
2. The M&E plan was sufficiently budgeted and funded. Although funding constraints led to an amalgamation of the SRP and the IAP, the evaluation team does not feel that this had a significant impact on the overall M&E plan.
3. The indicators from the LFA in the project document were formulated in a clear manner and should have been adequate for monitoring the effectiveness of the progress and performance of the project.
4. The project complied with the progress and financial reporting schedules, with meetings at all levels being held in a timely manner including management meetings, PSC meetings, IAP meetings, the MTR and the present Terminal Evaluation. The progress and financial reports had sufficient detail to enable evaluation to be carried out by the members of the various teams, committees and panels.
5. The monitoring and evaluation reports produced by the IAP and the MTR were generally well written and there is evidence that these reports were discussed in detail with the project team. However, none of the M&E components made adequate reference to the LFA in the Project Document and as a result, there were major shortcomings in the tracking of the progress of the project to meet the outcomes specified in the LFA. The findings of the two IAP reports (2008 and 2011) and the MTR report all made valuable observations on the progress of the project. However, there were shortcomings in the effectiveness of these reports in steering the course of the project, in particular, the important recommendations of the MTR and the IAP with regards to developing a capacity-building plan were not adequately taken up by the project team.
6. The project had major shortcomings in terms of the extent to which follow-up actions were made and management adapted in response to the monitoring reports. Several key recommendations of the IAP and MTR were not acted upon although a written management response has been made to the main recommendations of the MTR. In particular, there was insufficient follow-up to the recommendations of the IAP and the MTR to increase emphasis on capacity building. In addition, the IAP and the MTR both pointed out the importance of the biodiversity assessment methodology (RBA) taking due consideration of the

presence of rare and threatened species – which was an issue that the RBA did not address.

7. Several key discrepancies between the project team's reports and the IAP and MTR reports were not identified by the PSC or addressed. In particular, the PSC did not steer the project in the direction of capacity building in order to achieve the outcomes specified in the project document despite this flagged as an issue by both the IAP and the MTR.
 8. Several changes to project implementation were made as a result of the MTR recommendations for instance the design of one of the economic surveys.
55. The design of the M&E, e.g. indicators and targets in the LFA, as well as the institutional set up of mechanisms at entry was Satisfactory (S), with a rather extensive array of review mechanisms including the PSU, UNDP, PSC, TWG, IAP, MTR and ETR. However, there were specific issues associated with the incorporation of findings of the M&E system into the project implementation that were unsatisfactory (U) as well as lack of reporting against the targets of the LFA which were also unsatisfactory. This lack of reporting against targets and outcomes were found both in the PIR reporting and in the progress reports submitted to the PSC. Consequently, the focus on capacity building contained in the Project Document continued to take a back-seat to the research, despite several concerns being raised to this effect along the way. Due to the failure of the project management to adequately incorporate the feedback from the M&E into the project implementation and the lack of clear reporting on the indicators and targets established in the LFA, the evaluation team rates the monitoring and evaluation of the project monitoring overall as Unsatisfactory (U).

5.3 Project Objectives and Adaptive Management

56. The evaluation team notes that there were changes in the development objective of the project during implementation. The objective stated in the project document is: "To remove scientific barriers to mainstreaming biodiversity conservation into tropical forest management decision making". The objective presented by the project team during the TE was: "Develop a practical dynamic spatial forest planning tool based on sound ecological and economic research that will allow planners to optimally manage forest ecosystems for the sustainability of multiple good and services" (Opening Meeting of Terminal Evaluation and at Stakeholders workshops during the mission). The project team did not explain the change in the objective or the approval process. However, the new objective focused on the development of a specific tool with less emphasis on capacity building. This represents a fundamental shift in emphasis. A review of the PSC minutes indicates that the change in objective was not articulated in writing for consideration or approval by the PSC which should

have been done for the change to take formal effect.³

57. Adaptive management is an important practice that UNDP encourages. Despite the changes in the project document from the four objectives to the four outcomes, very little adaptive management was undertaken to rework the activities in the project brief to ensure that they were consistent with the new and approved logical framework of the project. The project management did not appear to appreciate the need to completely overhaul the activities in the project brief to bring them in line with the new outputs and outcomes of the revised logical framework. This should have been done during the Inception Period from where it rather seems that the existing activities (designed for other Objectives) were sought fitted to the Outcomes. The lack of adaptive management in this regard can be seen as a root cause of the failure of the project to fully achieve the four outcomes specified in the project document.

5.4 UNDP and Implementing Partner Implementation and Execution

58. The evaluation team assessed the quality of the oversight and support for the project by UNDP as the GEF implementing agency through the consideration of (1) whether there was an appropriate focus on outcomes, (2) whether there was adequate support to the implementing partner and project team, (3) whether there was candor and realism in annual reporting and (4) the responsiveness of UNDP to managing significant implementation problems. Overall, UNDP gave adequate support to FRIM and the project team in terms of quality and timely support and regularly attended PSC and other key project meetings and workshops. In addition, UNDP has emphasized and supported the project in being a national implementation project by FRIM, and left as many decisions as possible to FRIM. For instance, the decision to make do without Project Manager and instead use the project Communication Officer as Assistant Project Manager was left at the discretion of FRIM. However, it is noted that UNDP did not use its presence at project meetings to draw the project's focus on the four outcomes stated in the project document and allowed the continued use of the outdated "immediate objective" terminology. It was noted that UNDP staff responsible for the project had changed 4 times during project execution which undoubtedly caused a degree of disruption in terms of continuity of the UNDP staff.

59. The quality of execution by the implementing partner (FRIM) was assessed through the consideration of the same key criteria (listed above). The evaluation team found

³ The Project Management response was that these three sentences were just different "interpretations" of the same point and the focus of the project was not severely affected. The TE team agree that variation in the stated objective would not have been consequential had the project outcomes and outputs remained unchanged and clear to all.

that the implementing partner did not give an appropriate focus on results or timeliness which has led to the project's inability to fully achieve the four intended outcomes within the project period. This is a finding of the MTR that the project did not give an over-arching emphasis on achieving the capacity building outcomes. Page 14 of MTE states "Research, tools and plans are not ends but means. Effective conservation, as the ultimate goal, should be made more explicit in project processes and outcomes". The IAP effectively also supports increased effort on capacity building when recommending a dissemination plan developed through increased engagement with stakeholders to fully understand their needs.⁴ Inputs and processes were not adequately focused on achieving the specific outputs by specified deadlines. This contributed to none of the four project outcomes having been fully met by the time of the TE. The issue of government ownership was partially addressed already from the design stage. FRIM is a government agency and has from the earliest days dating back to 2000, steered the development of this project. FRIM has recently reaffirmed its sense of ownership to the project in allocating funds for its continuation for one year beyond the GEF grant. The ownership of the forestry department to tools and results from the project remains to be seen. Ownership by the Perak State Economic Planning Unit also seems to be absent, with no sign of uptake of any of the tools or the results of the project.

60. Overall, the evaluation team rates the implementation/execution of the project by UNDP, FRIM and overall as 3/6 or Moderately Unsatisfactory (MU) due to there being significant shortcomings in the effectiveness and efficiency in achievement of project outcomes.

5.5 Stakeholder Interaction and Partnership Arrangements

61. The project involved interaction with many stakeholders at various stages throughout the project. Several planned interactions were set out in the Project Document. Fundamentally, there was the partnership agreements with the ITTO (which provided co-funding for this project) as well as with the University of California at Berkeley and Duke University that were both heavily engaged in the implementation of the project. There were several issues associated with the effectiveness of these partnership arrangements which will be discussed in more detail in section 7.2.3 (below). At a high level was the participation on the Project Steering Committee (PSC) by the Ministry of Natural Resources and Environment (Chair); FRIM; the Economic Planning Unit of the Prime Minister's Department; the Peninsular Malaysia Forestry Department Headquarters; the Perak State Forestry

⁴ The response from the Project Management to this was that they were aware that the outcomes stated in the LFA were "highly overambitious" and they had attempted to get the second IAP meeting to agree to endorse changes. There were no changes to the LFA endorsed by IAP nor MTE or PSC save for the approved Inception report.

Department; the State Economic Development Corporation of Perak; and Orang Asli Association (local communities). The majority of these stakeholders did participate in the PSC meetings with the exception of the local communities who were instead represented by the Orang Asli Development Department. Almost all the PSC meetings were chaired at the highest level by the Deputy Secretary General throughout the project.

62. The Project Document provides for interactions with nine stakeholders in a Technical Working Group which met twice a year. Similarly, the Project Document provides for an Inception Workshop involving stakeholders, which were carried out according to plan.
63. The Project Document also provides for interactions with stakeholders in the IAP and lists 15 individuals from various institutions (three local) as potential members of the IAP. In practice, the IAP had two missions, one in 2008 and one in 2011, with only two individuals involved in the first review and only four individuals (three new) involved in the second review.
64. The project included partnership arrangements with key stakeholders in Perak. The project document made specific reference to the planned capacity building with Perak State Forestry Department and Perak Integrated Timber Complex Sdn Bhd. When it came to implementation, the capacity building with the state-level stakeholders fell short of the outcomes envisaged in the project document. The project did manage to convene a meeting in an attempt to establish a state-level implementation committee headed by the Perak State Economic Planning Unit (UPEN). However, no minutes of this meeting were made available to the TE team and no terms-of-reference were drawn up and it is unlikely that the committee will continue beyond the single meeting held. Similar meetings were held in Pahang and Terengganu, likely with the same result. Overall, the project has sought to engage stakeholders but has not been very effective in this endeavour.

5.6 Project Finance

65. The project was financed by cash and in-kind contributions from five institutions, totalling USD5.76 million (see Table 2). The project support unit estimates that the actual in kind contribution of FRIM and PITC was more than what had been planned but there has been no formal estimation of the actual contribution. By June 2012 the project had spent USD2,049,089 (91%) of the UNDP-GEF grant, with progressively larger expenditures being incurred each year (see Figure 2Table 3).

Institution	Million USD
UNDP-GEF (cash)	2.26
FRIM (in kind) *	2.31
FRIM (cash)**	0.08
International Tropical Timber Organisation (cash)	0.53
University of Miami, UC Berkley & Duke University (in-kind)	0.53
Perak Integrated Timber Complex (in-kind)****	0.05
Total Amount	5.76

Table 2. Planned source of financing for the CBioD Project (by institution)

Notes to table:

*The project support unit noted that FRIM actually contributed more than this (inflation, salary increments, usage of field staff and other staff and facilities) but no formal revised estimate of FRIM's actual in-kind contribution has been made.

**FRIM ended up contributing USD 0.11 million, with another USD 0.03 allocated for the extension phase

***PITC estimated that they ended up contributing far more than this but no formal revision of the actual in-kind contribution was made. The project support unit noted that PITC had provided camp infrastructure worth at least RM100,000.

66. Expenditure was accounted for along seven budget lines – four outcomes, one project support staff and the two universities, Berkely and Duke. Annual financial audits were carried out (except for 2008) with the major findings being that the project was well managed, with strong financial controls.

Outcome/Institution	Budget	Actual
FRIM Outcome 1	375,850	389,987
FRIM Outcome 2	80,840	99,816
FRIM Outcome 3	5,450	17,668
FRIM Outcome 4	323,221	130,219
FRIM Project Support	587,739	505,771
Berkely & Duke (outcom1,2,3)	887,900	913,185
Total	2,261,000	2,056,646*

Table 3. Project Expenditure of the CBioD Project (USD)

* There were gains and losses of -3,511 making up for the difference to figure reported paragraph 65.

67. Figure 2 below shows how expenses increased over time, peaking in 2011. This late peak in expenditure indicate that the project at this point in time is making an 'extra' effort to speed up project delivery. A further analysis of project expenditure to budget lines (Figure 3) indicates the main input delay was in delivery of the international inputs. Although this could merely have been a delay in invoicing, we understand that this input distribution largely reflects project implementation.

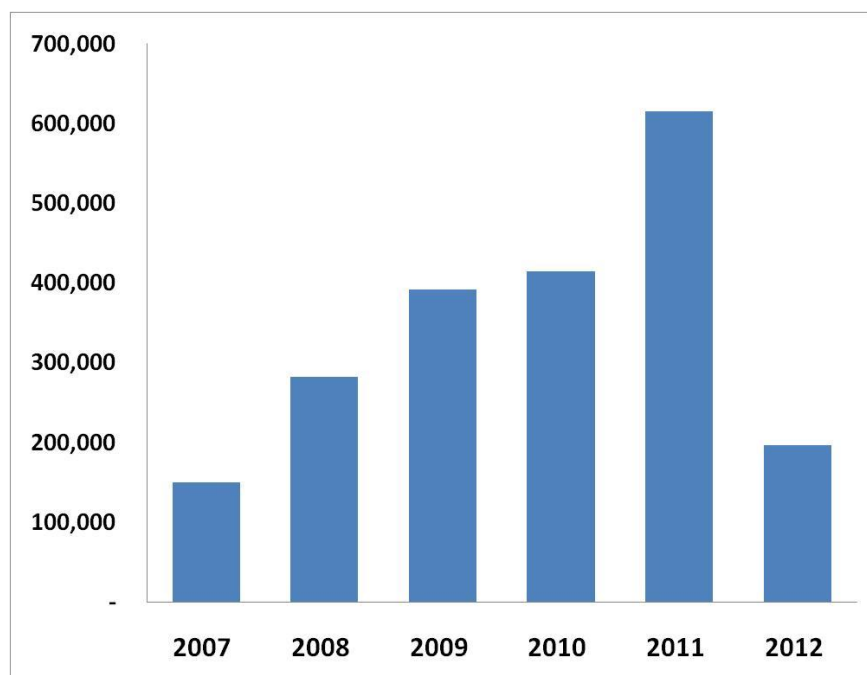


Figure 2. Annual expenditure of GEF funds

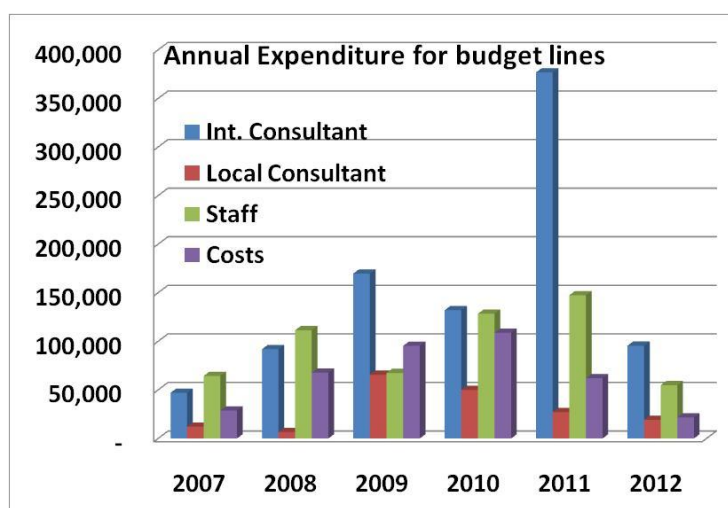


Figure 3. Annual GEF expenditures for main budget lines

68. The project budget suffered from the devaluation of the US dollar. FRIM demonstrated ownership by providing additional funds to make up the foreign exchange shortfall (estimated at around RM290,000 by the MTR). UNDP was flexible in allowing budget neutral reallocation of expenses between activities and periods, while FRIM was required to spend its budgeted funds within the set period. This difference in flexibility means that the project had to leave unspent money in each period under the UNDP allocation. This in turn caused “aging” (unspent money sitting for a long period after having been issued). This aging was exacerbated by the necessity of having enough funds, and a safety margin, for each month for operations that occasionally had to be rescheduled, or incurred unforeseen costs.

69. There was a substantial reallocation of funds from Outcome 3 and 4 to Outcome 1 and 2. The TE team noted that such budget neutral reallocation is an example of adaptive management and is not in-itself an area of concern. However, the under-spending on Outcome 4 reflects the low emphasis placed on the critical components related to dissemination and capacity building which is an area of concern for the TE team. The under spending shown in outcome 3 may in part be due to miss-reporting on the international inputs to the outcome.

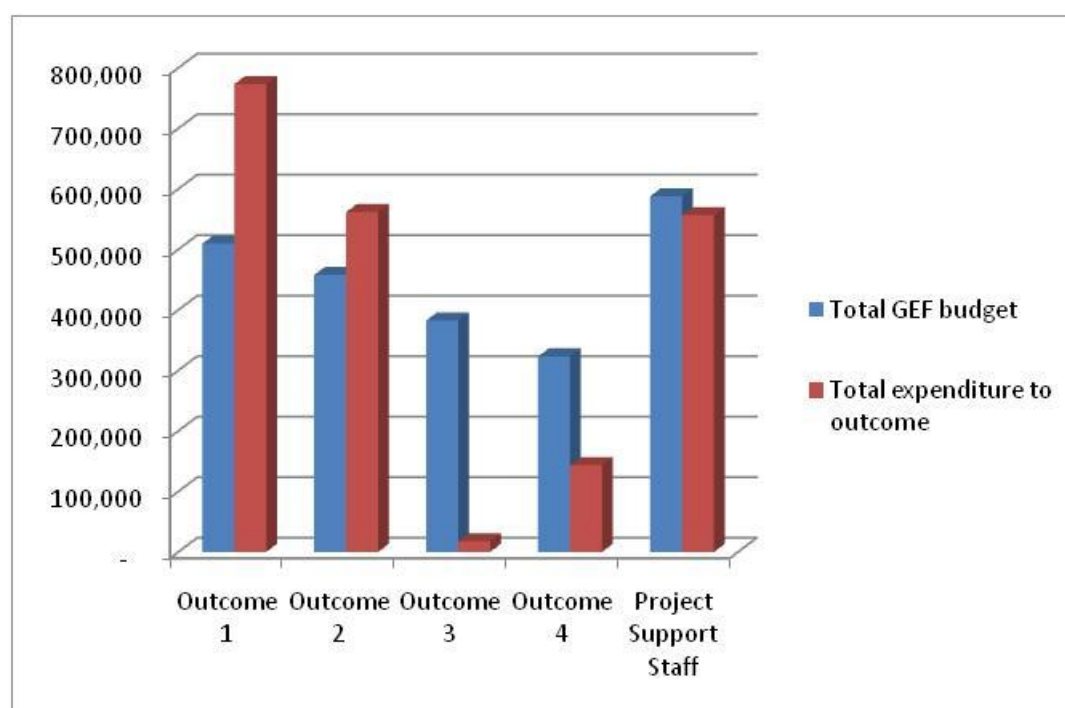


Figure 4. Total expenditure of GEF funds to Outcomes

5.6.1 Effectiveness and Efficiency

70. Effectiveness refers to whether project funds have been spent on the right activities, whereas efficiency refers to how the funds have been disbursed and used for activities.
71. It is difficult to assess the effectiveness of budget allocations. The large contribution in kind by FRIM, mainly salaries of the National Researchers, can be said to be an effective allocation of international and National funds utilizing the fact that FRIM has the manpower and GEF the liquid funds. Furthermore, there appears to be a good relationship of the distribution of funds to FRIM staff (in kind but estimated at approximately USD 2.2 million) and international staff (USD 900,000). Collaboration between the researchers and the international staff has likely resulted in significant capacity building for research and an expanded international network and exposure

which will benefit FRIM in the longer term.

72. Assessing effectiveness could also be measured on allocation of funds to the Project Support Unit – i.e. has an appropriate amount been allocated for Project Management? However, the budget line for allocation to the Project Support Unit also included considerable amount expenditure to field staff which explains the relative large allocation to “Project Support Staff” shown in Figure 4. It has in other words not been possible to assess the effectiveness of this. However, there are no indications that the budget has not been allocated and used effectively.
73. Efficiency of budget expenditure may relate to disbursement mechanisms. The project has operated an account whereby UNDP has transferred USD 100,000 to FRIM according to a budget presented. Once 80% of the amount has been spent, FRIM will prepare accounts for this to UNDP and a budget for the next transfer of USD 100,000. This system has worked well although the project on a few occasions have had cash-flow restraints due to delayed financial reporting from the FRIM accountants as accounts are often closed 1.5 months after the month reported for. However, the PSU has not perceived this as a major problem.
74. Overall, the financial operations appear to be sensible and well managed. The financial management procedures employed by the project were demonstrated (by annual audits) to comply with the FRIM and Malaysian Government procedures, the UNDP financial reporting procedures as well as the financial reporting requirement of co-founder ITTO. The “aging” of UNDP funds aided the project to work by providing necessary safety margins and flexibility noting that the actual costs have largely been met by FRIM.

5.7 Summary

75. The UNDP Country Office and the UNDP Regional Technical Advisor have consistently rated the project performance as satisfactory (Project Implementation Reports 2008-2011). However, based on the assessments above, the TE team assess the overall project performance as moderately unsatisfactory (3/6). Ratings for each criterion are included in the table below:

Criteria	Rating	Comments
Monitoring and Evaluation	3/6	Moderately Unsatisfactory
Overall quality of M&E	2/6	Unsatisfactory (U)
M&E design at project start up	5/6	Satisfactory (S)
M&E plan implementation	2/6	Unsatisfactory (U)
IA & EA Execution	3/6	Moderately Unsatisfactory
Overall quality of project implementation/execution	3/6	Moderately Unsatisfactory (MU)

Implementing Agency execution	3/6	Moderately Unsatisfactory (MU)
Executing Agency execution	3/6	Moderately Unsatisfactory (MU)
Outcomes	3/6	Moderately Unsatisfactory (MU)
Overall quality of project outcomes	3/6	Moderately Unsatisfactory (MU)
Relevance	2/2	Relevant (R)
Effectiveness	3/6	Moderately Unsatisfactory (MU)
Efficiency	4/6	Moderately Satisfactory (MS)
Sustainability	2/4	Moderately Unlikely (MU)
Overall likelihood of risks to sustainability	2/4	Moderately Unlikely (MU)
Financial resources	2/4	Moderately Unlikely (MU)
Socio-economic	1/4	Unlikely (U)
Institutional framework and governance	2/4	Moderately Unlikely (MU)
Environmental	3/4	Moderately Likely (ML)
Impact	1/3	Negligible (N)
Environmental status improvement	1/3	Negligible (N)
Environmental stress reduction	1/3	Negligible (N)
Progress towards stress/status change	1/3	Negligible (N)
Overall Project Results	3/6	Moderately Unsatisfactory (U)

Table 4. Project Performance Rating

76. The Project Management responded that the overall project results rating was “very subjective and questionable” and that the format and criteria of the UNDP scoring table is not entirely relevant and fails to capture the successes of a research project that has made numerous innovations and scientific discoveries. The TE team acknowledges this comment and as a consequence the next section will focus on the products that the project has produced.

6. Project results

6.1 Products of the Project

77. The project document refers several times to the project as a “Targeted Research Project”. It has therefore been important for the TE to have detailed discussions with the project team to fully appreciate the research products coming out of the project. In general, the TE finds the studies to be relevant. However, with the exception of a few incidental taxonomic and descriptive papers, none of the tools developed under the project have yet been published in peer reviewed journals as explicitly called for in the Project Document. The project document states that the IAP “*will pay particular attention to the research team’s success in publishing results in peer-reviewed international journals and other outlets that have a high degree of quality control. Peer review is the most important means of ensuring the quality of the research*” (Page 17 of 54). The project document further states that “*Publication in high-quality, refereed outlets will provide UNDP and GEF with a verifiable, quantifiable indicator that the tools developed under the project—that is, the improved methods for assessing and valuing biodiversity and incorporating information generated by such methods into forest planning processes—are indeed improvements compared to existing tools*” (Page 18 of 54). There can therefore be

little doubt as to the expectations in the Project Document. Nevertheless, a senior researcher in the project wrote to the TE team claiming that they were of the opinion that *“Peer-reviewed journals was not part of the expected output”*. This indicates that project management was not clear in communicating the expectations of the project to the researchers.

78. The project design included two visits by an IAP to review the project methodology and from these visits, we can see that some of the study designs have been assessed and discussed with the IAP. However, most of the research studies had not been finalized at the time of the IAP visits so we do not have the final assessment of this peer review mechanism. Peer review by other GEF project teams was included as an indicator of success in the 2003 logical framework analysis (Annex III of the Project Brief). The indicator for Output 2.1 is given as “Favourable peer review by at least 50% of relevant GEF OP3 project teams on the model by mid Year 4.” The model has not yet been submitted for peer review by such teams.
79. The Project has published a book “Of ants, water and man”, 6-7 newsletters and the RBA Manual. In addition, the project has published four papers in peer-reviewed journals and has submitted several more papers for publication (see Annex 4 for a full listing). However, the papers published to date focus on matters of purely academic interest such as the discovery of new species. At the time of the TE none of the published papers represented completed research outputs of the project and none have directly contributed to the achievement of any of the outcomes of the project.⁵
80. The response from the Project Management to this issue is that there has been extensive peer review through presentations at stakeholder workshops, at the Technical Working Group and at the IAP (forums which included highly respected local and international researchers. The researchers pointed out that the various stakeholders discussed, refined and generally accepted and approved the methodologies and results presented in these forums. In addition, the researchers noted that there had been limited time for the peer review publication process as results were only coming out towards the end of the project and from the fact that the peer review publication process is a long and tedious process. In addition, Project Management felt that many of the current studies are ‘snap shots’ that can only be validated when tested extensively in an operational context.

⁵ A member of the project team referred to a relevant publication by Morlon et al. (2008. A general framework for distance-decay relationships in ecological communities. *Ecol. Let.* 11: 904-917.) which was reported to support Activity 1.1.5 in looking at biodiversity indices. The TE team felt that this publication could not be attributed to the project efforts.

81. The researchers highlighted the fact that there were unforeseen delays in the implementation of the project as well as fieldwork schedules; hence, results were obtained late in the project phase. The researchers highlighted the fact that the RBA Manual was produced as a result of consultations with stakeholders and hands-on testing. TE team fully concur with the importance of involving the stakeholders and end users but such consultation does not constitute a peer review in a scientific sense.

6.1.1 Overview of key products

82. The project have carried out a number of studies from which several 'products' have been produced in the form of manuals, methods, results and models. The key products of the project are listed below:

- Rapid Biodiversity Assessment (RBA) Tool
- Virgin Jungle Reserve (VJR) study
- Forest Regenerative Capacity Model
- Model for predicting biodiversity using different sampling techniques
- Economic Valuation studies
- Hydrology /watershed study
- Water treatment cost for potable water
- Recreational study (passive use, new parks, travel cost study)
- Non-Timber Forest Products (NTFP) study
- Forest Harvesting Protocol – tree selection
- Forest Harvest Planning Tool
- Web-based database.

83. All the studies were found to be relevant and being potentially beneficial to improved management of biodiversity in production forestry. The project produced several "products" that collectively have been branded "The Perak Tool Set". However, the evaluation team found that the various project components have not been adequately integrated into a coherent set that can be used to achieve the project outcomes and were rather 'stand alone' studies. There is no description or overview and consolidation of the Perak Tool Set.

84. The project has made limited progress towards achieving the capacity building outcomes specified in the project document, as also raised by the IAP and MTR reviews as well as by the PSC. While most of the project studies are nearing completion, implementation by the forestry departments and the state planning units has not yet been achieved. Fortunately, FRIM has decided to finance a further 12 months phase of project activities that will focus on implementation. A more detailed description of the content of this phase can be found in the approved application for funding to the FRIM board presented in annex 6.

6.1.2 RBA

85. One of the assumptions of the project was that biodiversity was not incorporated into “developmental decision making” as current methods for assessment of biodiversity were too expensive (PD, page 4 of 54). Activity 1.4.1 was therefore designed to “Use the lessons learnt from the development of efficient statistical methods for estimating biodiversity from small samples, as well as the development of improved methods for assessing biodiversity and the biodiversity assessment on a landscape level and produce manuals for information dissemination and the training activities under Output 4.” Consequently, the project has produced a Rapid Biodiversity Assessment (RBA) “manual”, which focused on the mechanics of the sampling biodiversity using eight taxa groups. There were extensive discussions on the selection of taxa as well as the number of taxa before the project team settled on the eight. We have earlier noted that the IAP felt that the project should have included rare and endangered species in this RBA. A field manual for collection of the eight taxa was produced after extensive research and field testing. Training in the use of the manual had also been carried out. The field manual is excellent as it is simple, with easy and straightforward descriptions of sampling methodologies and very good illustrations of equipment, techniques, recording sheets etc. The TE feels that this manual has great potential for use beyond original intent, for instance, for sampling, teaching and awareness creation by NGOs, universities and schools. The manual would benefit from being translated into Bahasa Melayu to allow for wider use.
86. Sampling eight taxa is of course not enough to get a picture of the biodiversity in a given area or landscape. The project is therefore currently working on a document entitled RBA “guideline”, looking at the context of the biodiversity sampling. This will be a key document for the end user to show how to analyse incoming data from sampling teams. The TE team had the opportunity to see an early draft of the guideline which is still far from finalised. Although perhaps too early to pass judgment on the guideline, we felt that the final version would improve if more attention was paid to referencing to the context of the sampling (why do it) and on how to interpret data in a forest management context answering the question “so what”. The guideline could also be improved by addressing the issue of costing and time required to collect adequate biodiversity data on a per ha or compartment basis. The current recommendation from the Project is that the RBA should be carried out in all compartments. This is a tall order for the Forestry Department so the guideline would have to provide very strong arguments for this recommendation. The guideline should also consider if less resource intensive methods could yield sufficient results by conducting a sensitivity analysis looking at various sampling intensities both in terms of number of taxa sampled as well as the intensity on a per-hectare basis. Finally, the guideline may consider providing the

user with details on how to carry out a summary analysis of the combination of the eight focal taxa to draw cohesive practical conclusions. The users need to know the 'bigger picture' in order to convince that the operational benefits will be well worth the effort.

87. The project management team refer to the Project Document, which state that the main output of this study is to come up with "Manuals, including data sets and software that explain how to implement the ecological assessment methods developed in the activities under Outputs 1.1-1.3". The project team state that they believe that this was achieved through the production of the RBA Manual. However, the "RBA Manual" purely addresses the mechanics of sampling techniques and does not address the bigger questions of sampling design, sampling intensity and interpreting the results in a forest management context. It is therefore commendable and crucial that the Project has taken upon itself to produce the detailed guideline. The project team expects this to be completed before the end of 2012.
88. In the opinion of the TE team, the success of the RBA system will rely very much on the guideline currently being produced. The suggestions for improvements to the draft mentioned above will provide key details that are very much required by the Forestry Department. Indeed, many of these practical questions were raised by the Forestry Department as a key consideration in determining whether the RBA tool would be adopted. How much do we need to sample? What is the minimum sampling needed? How are results interpreted in an operational context? To what extent can the sampling be carried out under the existing inventory programmes (such as the NFI)? These are all key questions and the project team will benefit from detailed discussions with the forestry department as work progresses on the guideline to fully appreciate the operational concerns that the guideline needs to address.
89. Several relevant comments of the IAP regarding the RBA tool have not been addressed. In particular, the 2008 IAP report queried "Will a biodiversity index be weighted to take account of relative importance of a single taxon or a few taxa? This could be an acid test of the methodology."⁶ A similar comment was made by the MTR who stated that "If the goal is to ensure the maximum species within a limited landscape the problem is then to ensure that globally rare, endangered and

⁶ This comment was made with reference to frugivores (the study site is of global importance for Plain Pouched Hornbills). The frugivore group was subsequently removed from the RBA and the researchers felt that the comment was not relevant to the RBA analysis as a whole. The TE team disagree with this interpretation and feel that the development of a biodiversity index is a comment that is relevant to all taxa groups, not just frugivore.

vulnerable species and communities gain full representation in contrast to widespread, non-threatened and weedy communities” (MTR p. 20-21). The MTR further questioned whether suitable data collections were being planned to address this. The written management response to the MTR did reply to this point. In the RBA documents reviewed by the TE, the project team has not used a prioritized or weighted index and instead uses the generic Shanon Index which lumps all species together regardless of their conservation status or range. The TE team note that rare and threatened species are of particular concern for biodiversity conservation and agrees with the 2008 IAP that the RBA tools developed would have benefitted from also focusing on these species.

6.1.3 VJR Study

90. The Permanent Reserved Forests in Peninsular Malaysia is divided into a number of functional forestry classes for production, and protection (Table 5). One of these protection classes are the Virgin Jungle Reserves of which there were 3,802 ha gazetted in 2008.

Table 5 Functional Classes of Permanent Reserved Forest in Peninsular Malaysia (in hectares)

Functional class	1993	2008
a) Timber production forest [default class]	3,753,555	4,127,104
b) Soil protection forest	21,230	176,765
c) Soil reclamation forest	0	2285
d) Flood control forest	0	0
e) Water catchment forest	848,692	488,682
f) Forest sanctuary for wild life	40,025	9856
g) Virgin jungle reserved forest	9229	3802
h) Amenity forest	2222	4070
i) Education forest	6064	10,197
j) Research forest	5256	3807
k) Forest for federal purposes	12,222	0
l) State park	n/a	95,524
Total protection forest	944,940	792,896
Total permanent reserved forest	4,698,495	4,920,000

(Source: Draft Master List of Protected Areas in Malaysia, WWF Malaysia, 2008)

91. Activity 1.3.1 was designed to “Establish biodiversity assessment plots in 4-5 Virgin Jungle Reserves (VJR) of varying size in Peninsular Malaysia, in adjacent logged forests, and in similar logged forests more distant from the VJRs, and use the estimates of biodiversity from these plots to determine the impact of local refugia on recovery of biodiversity in logged forests. The taxa to be assessed will be selected on the basis of their economic importance, their importance to ecosystem function and stability, their response to ecosystem change or disturbance, and the availability of efficient survey methods and local expertise. At the very least, they will include

trees, birds, butterflies, bats and small mammals. Given that areas adjacent to VJRs were logged decades ago, these assessments will provide information on biodiversity recovery over a medium to long-term time scale.”

92. The VJR study has been completed and one paper looking at four taxa groups has been submitted for publication and is presently under peer review. The results are apparently contrary to what was expected by the project team and the RBA carried out even indicates that biodiversity “increases” after logging. No analysis has been carried out as to why this is the case and no assessment has been made of the specific impact of logging on rare or threatened species. The simple conclusion that biodiversity “increases” did not take account of whether the total species diversity represented an introduction of common and invasive species or involved a reduction in any sensitive species. Work has yet to be carried out on how the results of the VJR study should be interpreted in an operational sense. However, the Evaluation Team finds that the results provide a good justification for continuing selective natural forest management as opposed to timber plantations which involve the clearance of all natural vegetation and thus would almost certainly show a significant decline in diversity of all taxa. The results of the study have not fed into the ‘planning tool’ so this tool continues to operate on the assumption that VJRs are important refuges of biodiversity - in spite of the results from the VJR study.
93. The results of the VJR study indicate a flaw in the assumption of the study that logged over forest experienced a significant decline in diversity. The project brief notes the theory as follows: *“Most major taxonomic groups show a definite relationship between the number of species surviving in a site and the site area. This species-area relationship applies to scales from one meter square up to a continent. The implication is that small conserved areas do not support a large enough representation of the species in a larger forest to be of much benefit in re-establishing the natural diversity of a larger contiguous harvested area.”* This theory assumes that the natural diversity is affected by harvesting. The project did not provide any literature that indicated such a decline occurred under the natural forest management silviculture systems in place in Peninsular Malaysia. The TE team finds that such as literature review may have improved the preparation of the study.

6.1.4 Regenerative Capacity Model

94. The project team has developed a very relevant model for forestry decision makers in choosing harvesting regime with a view to long term species composition and harvest volume. It is a small computer model where the user can enter a number of “what if’s” in regards to harvesting regimes based on which the model will project the long term development of harvestable timber of the various species. It is a valuable model that certainly demonstrates the long term effects of today’s

management decisions in regards to harvesting regimes. The model has not yet been submitted for publication in a peer-reviewed journal and may as such still be in need of public scientific validation⁷. The model has not been produced in a format that allows it to feed into other project components e.g. the planning tool or the harvesting protocol and it is unclear how this important and relevant tool will feed into the planning and decision making of the Forestry Department.

6.1.5 Biodiversity Predictive Model

95. The evaluation team found that this was a relevant study but noted it was a stand-alone study like many of the studies. The closing report for Activity 3.1.1 (“Develop statistical models that relate measures of biodiversity and forest community type to forest characteristics”) concludes that the model developed have only limited chance of being used in any operational sense:

"As a result, there is little reconciliation between the research data used for the study and the data from management activity, which in turns might reduce the practicality of the model and the likelihood of the developed tool from this Activity to be adopted. In summary, the nature of the consultation needs to be changed towards more tool/output oriented with slight touches on methodology behind the development, and further efforts should be put on more consultation to reconcile the difference between datasets."

6.1.6 Forest Hydrology Model

96. Activity 2.1.2 aimed “To compile data necessary for constructing a landscape-level, statistical model that predicts the economic consequences of changes in hydrological functions caused by changes in forest cover, and to construct a “benchmark” version of such a model.” This study is the first in Peninsular Malaysia to take many years of data from hydrological monitoring stations from the Department of Irrigation and Drainage and relate it to forest cover of the catchment. In total 100,000 daily observations on stream flow were compiled from 34 catchments over the period from 1971- 2003 with a smaller data set on suspended sediment. The result was a tool that could predict hydrological impacts of changes in forest cover both in terms of discharge (stream flow) and changes to suspended sediment. The user would supply data on total catchment area, forest cover (only natural forests) in the catchment, rainfall and temperature. The status of the forests could also be supplied as input, e.g. proportion of Virgin forest and such. Based on this user input, the tool will predict the average annual discharge measured in cubic meters per second and the suspended sediment in metric tons per day. The tool is presented as a

⁷ The Project Management has made numerous references to the validation achieved by the IAP and the TWG as well as others and states that in many cases it would have been impractical to wait for peer review publication which could have stalled the project.

powerpoint presentation with built in spreadsheet functions for data input. This means that the tool in principle could be used to compare scenarios for different forest management plans.

97. The TE team fully supports the notion that foresters should consider any externalities resulting from their production like other production facilities have to (e.g. factories). To do this, foresters would need to know more about their off-site impacts than they do today and this is what the tool is attempting to address. However, sediment production and annual runoff are not figures that are typically part of a forest management plan and the average forester has only limited understanding of hydrology and sedimentation. The 23 slide powerpoint presentation that is built around the tool would have been more useful if it had explained what the issues are that the tool is trying to address. The output from the tool are figures such as “61.78651 cubic meters per second” (stream flow) and 428.57389 metric tons per day (sediment). It is questionable how a forest management planner are going to use such figures in his planning, even if it is two plans that are compared to each other. The tool provides no explanation for analysis of results, for estimating any high or low values or otherwise.
98. It is unclear who is actually going to use the model and for what purpose. The study was not linked to the harvesting protocol which explicitly did not look at reducing the impact of logging on stream sedimentation. Neither was the study linked with the RBA⁸, even though one of the eight taxa groups is explicitly related to stream invertebrates known to be good indicators of water quality (although the taxa chosen to indicate water quality are actually indicators of organic pollution rather than sedimentation). Aspects of the hydrology and sedimentation calculations feed into the planning model.

6.1.7 Water Treatment Cost for potable water

99. The project succeeded in obtaining treatment costs over time from water treatment works in Perak. This is an important study and probably the first of its kind in Malaysia that relates increase in sediment as a result of land use to the cost of treating the water by removing the sediment. Although a relevant study and an interesting little model/tool developed, the overall purpose of the activities originally designed was to look at total watershed values. Water treatment cost is just one of these values. Other cost increases for increased sediment loads are fish production (of particular importance to local people such as Orang Asli), dredging cost for

⁸ According to the Project Team the hydrology study was never intended to be linked to the harvesting protocol or the RBA due to the characteristics of the datasets employed. It could not be linked to the RBA because DID does not have monitoring stations in the locations where the RBA studies were conducted. For the same reason, it could not be linked to the harvesting protocol.

navigation, costs to coral reefs, damage to local gravity feed water supply systems (typically also an Orang Asli issue), sedimentation of hydropower reservoirs and tear of turbines of additional sediment, decrease of navigation, increase in flooding etc. After the scoping work to determine what can reasonably be collected, the team came up with a narrower list of reduced sedimentation of water supplies and harbours, reduced risk of drought to municipal supplies, and reduced risk of flood damage. However, most of these studies did not fully materialise. The economics team said they attempted to quantify these various other costs of increased sedimentation and compiled substantial data on many of these costs, but in the end they found that the data were “inadequate for conducting reliable valuation research” and therefore they did not make their way into the planning model. In view of the potential to look at total watershed values the project only succeeded in scratching a small corner and failed to make any meaningful improvements in the decision making framework of the Perak State Economic Planning Unit. The TE team does, however, acknowledge that the project faced many unforeseen difficulties in obtaining key data from stakeholders despite repeated and diligent attempts by the project management.

100. It is not at all clear who is going to use the model developed. Nevertheless, the costs captured for water treatment, even if it was only possible to get the figures from water treatment plants in a single state, will contribute to overall understanding of the cost of sedimentation related to different types of land use. In this, the study was successful and valuable.

6.1.8 Valuation studies

101. Based on a survey of 1,261 households in Kuala Lumpur and Selangor the valuation studies looked at:
 - i. Passive-use benefits of protecting Belum-Temenggor forest against logging and poaching (choice experiments)
 - ii. Recreational value of day trips to existing forest recreation sites (econometric analysis of trips made to approximately 130 sites)
 - iii. Value of attributes of a hypothetical new forest park (choice experiments)
102. The studies were the first to combine rural and urban sampling in their study design. These were all relevant studies and looked at some key values of protection forests/parks.
103. The passive use value study concluded that “Average household in Kuala Lumpur and Selangor is willing to pay more to protect Belum-Temenggor against logging than to protect it against poaching, and is willing to pay a small premium if it is protected against both threats”. This is of course an important piece of information when

discussing conservation although the issue naturally remains how to capture such values.

104. The recreational use value based on day trips were in the order of RM5 – RM25 per household per trip over and above the travel costs. Finally the study on value of on-site services revealed useful information in regards to key success attributed when establishing recreational opportunities in Forest Parks. This latter study included a small spreadsheet model for park valuation.
105. Some assumptions of the questionnaire survey appear flawed, in particular, selective logging is assumed to have a highly negative impact on species diversity, with the baseline scenario assuming that “in 20 years, all of the species that would be impacted by selective logging and poaching will become extinct within the forested area”. The existing literature and the ecological studies under this project provide no basis that selective logging has resulted or will result in the extinction of any species, casting doubt on the basis for the core assumption of this study.
106. The survey asked respondents about a range of impacts for specified groups of species (by showing illustrations of such species), ranging from no extinctions to full extinction (of the indicated species)⁹. The respondents were surveyed on their willingness to pay to avoid extinctions in different scenarios. At the end of the project a senior member of the economic team justified this approach by suggesting that “if ecological research shows that no species will go extinct, then we simply use results from that scenario”. This response indicates that the economic team had not examined the literature related to ecological impacts of logging prior to the study, simply assuming that logging would cause species extinction. In fact, the existing literature and the results of the studies under this project showed that under current (SMS) selective logging methods no species will go extinct.
107. The economic team decided to change the outputs from the studies to a voluminous study report designed mainly for researchers based on the correct assumption that the Forestry Department or the any State Economic Planning Unit would not engage in carrying out such studies themselves. It is unclear how the information and conclusions from these studies have been used in the Perak State Economic Planning Unit or even to what extent it has been discussed with the Unit and the Perak Forestry Department.

⁹ Incidentally, the illustrations mistakenly included species not found in Belum-Temenggor such as the Javan Rhinoceros and the Asiatic Black Bear.

6.1.9 Non Timber Forest Products.

108. A larger study on Non Timber Forest Products was planned as Activity 2.1.1 with the objective to “To collect data necessary for assessing alternate methods for estimating the current value of the forest as a source of NTFPs and for assessing models that predict changes in this value as the national economy develops or as incomes and relative prices change.” This would have been a valuable study that could be used by decision makers in evaluating the non-timber portion of the opportunity cost of clearing natural forest for other uses. However, this activity was downscaled to a quick desk review due to funding constraints. The NTFP study was produced as a stand-alone desk study that has not contributed to the other tools of the project. There was potential for integrating the economic values of NTFPs into the planning tool but this was not done.

6.1.10 Harvesting protocol

109. Logging in dry inland forest reserves in Peninsular Malaysia has followed a number of silvicultural prescriptions developed over the last 100 years or so. In the hill forests, the main prescriptions follow a programme known as the Selective Management System (SMS) which involves a bi-cyclic regime of harvesting trees above a set diameter limit every 30 years. Diameter limits are set for dipterocarps and for non-dipterocarps and certain species are prohibited from harvesting but beyond that there are very little species-level prescriptions and most large trees are felled. Given this context, the project developed a revised harvesting protocol that set out to improve the conservation of biodiversity in production forests by maintaining the vertical structure of harvested areas. The assumption of the study was that changes to the vertical structure of the harvested area would have negative impacts on biodiversity. Activity 1.3.4 was therefore to “Establish biodiversity assessment plots in parts of the PITC concession where logging methods aim at maintaining the vertical and canopy structure of the forest through the selection of specific trees of different species and sizes in particular locations. In addition to being willing to leave unlogged areas of varying sizes (see Activity 1.3.2), PITC is experimenting with the application of different logging methods. Analysis of the “low impact” assessment plots before and after logging and comparison to the results for plots logged using standard methods will provide a test of the hypothesis that biodiversity is less impacted if the three-dimensional structure of the forest is maintained.”
110. The initial findings of the study, using the RBA method before and after logging, suggest that there was no significant benefit to biodiversity of the proposed protocol. However, the harvesting protocol may be highly relevant to managing long term commercial tree species composition in compartments. The findings indicated that the existing harvesting protocol (SMS) resulted in significant decline in the

proportion of key commercial species. The harvesting protocol was not explicitly referenced or linked into other studies/tools from project (yield model/planning tool/RBA) although there seems to be particular possibilities for synergy between the recommendations from this protocol, which is based on 100% inventory, and the model on Regenerative Capacity. Specific deficiencies in the protocol were that it does not take into account roads and skid trails; did not reduce overall damage (when volume extracted is controlled); does not include economic data such as marginal cost compared to existing system and additional commercial benefits in better management of long term commercial species composition. However, in discussion the TE team was made to understand that such information was now being gathered and documented before the final presentation of the protocol to the Forestry Department. Additional benefits from the protocol included the fact that a 100% pre-felling inventory can improve contours and thus allow for better planning and control of skid trails and timber harvesting and may potentially also highlight the location of rare timber species and other species to be protected.

6.1.11 Planning tool

111. Activity 3.2.1 was “To develop a computer-based forest-planning model that will assist forest planners in practical decision-making, especially decisions about the allocation of forests between production and protection categories.” The tool would integrate ecological and economic data and thus create a holistic basis for improved decision-making. The idea of this tool is very relevant and potentially useful. However, the tool appears to be far from finalised and has likely been simplified considerably since its first conception. For instance, the team states that the tool can incorporate data from the RBA, yet such data has not been incorporated in the model version being demonstrated. The tool has not been subjected to any peer review. The second IAP reviewed the initial ambitions of the planning tool and had the following remarks:
112. “The framework in the development of the tool is sound and with the use of research-based inputs, the planning tool promises to be an important contribution in improving forest management in Malaysia and in other tropical forests, within the region and outside. The challenge to the team now is how to bring together the results of the various components ... and supplement these with secondary information to provide a reasonable set of relationships that could drive the model.”
113. It is clear that the IAP, like many of the researchers was assuming that the many and worthwhile studies undertaken by the project would somehow be integrated into the planning model. Yet, only a couple of the research based ecological inputs have found its way to the model namely the hydrological model and the sediment model. We understand that there were constraints in identifying programmers to

develop the model which may have contributed to decisions to simplify its structure as the model development only started very late in the project period.

114. The underlying assumptions are not clear to the user and the model thus appears to be a 'black box' where the user really do not know what is going on inside. The accompanying guide for the tool focus on how to format data input.¹⁰ In particular, the numerous assumptions in terms of the effect of timber harvesting on biodiversity and on water quality and quantity are not presented in the user interface although an avid user may find the hydrology and sediment calculations in the stand alone hydrology tool.
115. The project team stated that the planning tool is for landscape level decisions and assists decision-making alongside other components of the project which allow for stand-level decisions. However it is not clear how the tool builds on the many other project studies other than hydrology model.
116. The planning tool has a flawed primary assumption that protected forests (such as VJRs) surrounded by logged forest are ecologically isolated. The project brief notes that "The detail on logging status and years since logging is needed to enable the model to predict biodiversity not only in protected areas but also in production forests, and to enable these predictions will take into account not only the area of protected forests but also the characteristics of neighbouring forests: the "sea" surrounding the "islands." Under the natural forest management silvicultural systems in place in Peninsular Malaysia, there is very little if any evidence for this assumption. However, the assumption is valid if one considers logging as clearfelling for instance in converting natural forest for plantation forestry.
117. However, the planning tool does not consider plantation forestry. This is a significant shortcoming of the model because plantations are becoming increasingly popular in the production forest reserves of Peninsular Malaysia in general and in Perak in particular where the state forestry department plans 100,000 hectares of plantations to be established inside forest reserves. The project had a specific focus on natural forest management on the faulty assumption that plantation forestry was not an option. Perhaps this was a reasonable assumption when the project was originally conceived in year 2000 but things have changed considerably since then. There has been an on-going trend of conversion of natural forest to plantations and

¹⁰ The project team noted that during the regional seminar and the final stakeholder consultation, they had explicitly informed the stakeholders that the main basis of the planning tool was optimization – the meaning and implications of which were explained on both occasions. The project team stated: "So, we believe that the planning tool is not a "black box" to the stakeholder as long as they understand the ideas of optimization... if the end user requires to see the source code for the program, it is possible as well."

other land use for many years and it is a significant shortcoming that the project did not address the production of timber from conversion areas or plantations. The impact of forest conversion on biodiversity and sedimentation is likely to be far greater than that of natural forest management and the fact that the planning tool assumes the entire forest management unit will remain under natural forest management is a shortcoming that seriously undermines the effectiveness of the tool to take into account the impact of logging.

118. The Project Management stated that reference to forest clearance and conversion of natural forest were “beyond the scope of the project” and requested that reference to this issue be removed from the TE report. The TE team acknowledges that the Project Management was operating under a framework and a paradigm that looked solely at so-called “natural forest management”. However, the TE team feels that the conversion issue is fundamentally crucial to determining the effectiveness of conservation of forest biodiversity.
119. The project team did not make explicit reference as to how the tool was supposed to fit into existing forestry department or UPEN planning tools, structures and processes – these key stakeholders are expected to ‘just use it’ in determining the AAC. The trial outputs of the tool (for Temenggor Forest Reserve) used as an example of how the tool works indicated a highly fluctuating AAC when biodiversity safeguards parameters were increased. Such fluctuation is unlikely to be acceptable to intended users and as a result, decision makers would quickly downgrade the biodiversity safeguards.
120. The tool does not incorporate any economic data related to the ecological or hydrological costs associated with increased production of timber. The estimation of the economic costs associated with these factors and the incorporation of these costs into decision-making was one of the pivot points of the project and the failure of the planning tool to attempt to balance these costs with timber revenue is a severe departure from this.

6.1.12 Web-based database

121. The objective of Activity 1.1.1 was to “To develop the data storage and reporting system that will be the foundation for ecological and planning models constructed during the project”. This system was intended to be installed at FRIM and at the Forestry Department Perak and other project partners. The project compiled various data sets collected from the study site on a web-based database that was hosted in FRIM. It has not yet been installed at any of the other project partner sites. The database is not linked to the Malaysia’s National Biodiversity Clearing House Mechanism (CHM) which is also hosted in FRIM. The CHM is set up as a portal “to provide a mechanism for the efficient exchange of information on biological diversity

in Malaysia between involved persons and institutions”. In addition, the service is specifically intended to “facilitate international access to information on the status of biodiversity studies and biodiversity management in Malaysia”. The TE team finds that it was a missed opportunity not to see how the CBioD project could benefit from the CHM, which aims to “collate information from a variety of different sources, provide easy access to and make available for public circulation, information, databases and other relevant material, provided by the various stakeholders.” (<http://www.chm.frim.gov.my/>).

122. The project brief states that the database was intended to have been “mirrored at the Perak Forestry Department, and at the sites of other project partners, if necessary”. The justification for this mirroring was stated as to “provide reliability through redundancy and will allow us to draw upon the systems expertise at each location, especially with regard to installing and maintaining the GIS software.” This mirror has not been provided and is perhaps an example of the lack of full engagement with the Perak Forestry Department.

6.2 Relevance, Effectiveness and Efficiency

123. The evaluation team assessed the relevance, effectiveness and efficiency of the project according the criteria matrix presented in Annex 5. Based on these criteria, the relevance of the project was rated as Relevant (R) (2/2). The table below show the evaluation based on the criteria.

Table 6. Relevance Ranking

Criteria	TE Evaluation	Rating (x/2)
Is the project relevant to UNCBD and other international convention objectives?	Yes, the project is relevant to CBD and to the objectives of the ITTO.	2
Is the project relevant to the GEF biodiversity focal area?	Yes, the project is relevant to the GEF focal area.	2
Is the project addressing the needs of target beneficiaries at the local and regional levels?	The needs of the target beneficiaries have not been explicitly defined. However the project research has been found to be relevant to the expected beneficiaries (i.e. Perak State Forestry Department and the State Planning Unit and the Forestry Department headquarters.)	2
Is the project internally coherent in its design?	The project is coherent in its design but we note that between 2003 and 2006 there was an addition of capacity building elements without additional budget allocation.	2
How is the project relevant with respect to other donor-supported activities?	The project is highly relevant and intended to add important elements to several other donor-supported biodiversity conservation projects.	2
Does the project provide relevant lessons and experiences for other similar projects in the future?	Yes, there are several relevant lessons and experiences (see Section 7 of this report).	2

124. The effectiveness of the project was rated against the project outcomes and outputs and is rated overall as Moderately Unsatisfactory (MU) (3/6). Please see the rating table below for details where effectiveness in achieving the targets is rated.

Table 7. Effectiveness rating in achieving stated targets

Result	Target (End of Project)	TE Comments	Rating (x/6)
Outcome 1: Forest planners in Perak incorporate tools to measure impacts on biodiversity in their forest management planning	1. In determining AAC for 2011-16, Perak SFO utilize tools and methods developed by the project	Tools and knowledge necessary to make the adjustments to current management practices (e.g. AAC) were made but never finalised sufficiently for use by the Forestry Department	3/6
Output 1.1: Efficient statistical methods for estimating biodiversity from small samples.	1.1.1 By the end of the project, methods are available which measure alpha diversity with a standard error of only 50% and do not increase the cost of pre-felling inventories; with other methods yielding estimates with standard errors of 30% or below at no more than twice the cost of conventional pre-felling inventories.	A model to calculate alpha diversity, its mean and standard error is available (ref. 1.1.4). However, it does not address the standard error of 50% / 30% required. The costs have not been sufficiently documented yet.	4/6
Output 1.2: Logging prescriptions that reduce impact on biodiversity	1.2.1 In Year 5, PITC applies modified logging protocols that increase logging costs per cubic meter by no more than 10% compared to existing protocols and result (one year after logging) in: a. Species richness increases by 0.5x% b. Simpson's diversity index shows no statistically significant change c. Standard deviation of CCA scores shows no statistically significant change	A harvesting protocol was developed and tested. However, the limited testing showed no significant impact on biodiversity. Nevertheless the protocol with its 100% inventory proved to be an important method for managing long term commercial species.	3/6
Output 1.3: Manuals and software that provide assistance and guidance in implementing biodiversity-friendly forest planning and harvesting.	1.3.1 By the end of the project, Perak SFO and at least 1 other SFO in Malaysia are using the manuals and software in their planning procedures.	A number of tools have been produced that may have value for biodiversity-friendly forest planning and harvesting. None of these tools have been operationally applied by the forest department.	2/6
Output 1.4: Staff of Perak SFO and at least one other SFO trained in application of methods to measure biodiversity and in implementation of biodiversity-friendly forest planning and harvesting	1.4.1 By the end of Year 4, managers and planners of Perak SFO and at least two other SFOs trained in use of tools and methods developed by the project	Approximately 25 staff from forestry department (including Sabah and Sarawak) were trained in using and further developing the RBA Manual (2011). For experimental harvesting training was conducted for about 15 persons from forestry department (2010) in selecting trees for harvesting. Personnel from Gerik	5/6

Result	Target (End of Project)	TE Comments	Rating (x/6)
		district office were also involved in verifying selected trees as well as tagging trees to be harvested.	
Outcome 2: Forest planners in Perak utilize tools for full valuation of goods and services in their forest management planning and operations	2.1 In determining AAC for 2011-16, Perak SFO utilizes methods developed by the project so as to maximize non-timber values, while still achieving timber harvest objectives.	AAC for 2011-16 has not been adjusted based on any project tools or results. This is partially due to the delays in the production of the planning tools some of which was beyond the project control. The models to assist in this were produced but capacity not built for their use	3/6
Output 2.1: Feasible methods for estimating non-extractive values of tropical rainforests.	2.1.1 By the end of Year 3, "benchmark" models relating non-extractive values to forest characteristics and socioeconomic conditions are developed 2.1.2 By the end of Year 4, a range of simpler models that require less data, but whose precision vs. cost tradeoff is well understood, are developed.	A desk study on the valuation of NTFPs has been completed. A hydrological model has been developed for predicting stream flow (floods) from changing land use as well as resulting sediment loads. In addition a model has been made showing costs of water treatment versus land use changes. Finally the project generated passive and recreational values of forests and parks.	5/6
Output 2.2: Manuals and software that provide assistance and guidance in full valuation of goods and services	2.2.1 By the end of the project, Perak SFO and at least 2 other states in Malaysia use manuals and software developed by the project, as well as PITC	A number of tools have been produced for valuation of goods and services. However, none of these tools have been operationally applied by the forest department	2/6
Output 2.3: Staff of Perak SFO and at least one other SFO trained in full valuation of goods and services	2.3.1 By the end of Year 4, managers and planners of Perak SFO and at least two other SFOs trained in use of tools and methods developed by the project	Not completed as there were great delays in obtaining data to complete the models, hence no training has been carried out.	1/6
Outcome 3: Forest planners in Perak integrate ecological and economic tools in forest planning decisions at a landscape level	3.1 The timber harvesting plans for Perak during 2011-16 anticipate timber values per hectare of at least 95% of the baseline value, whilst the extent and distribution of set-asides ensures that the diversity of habitat units represented in them is at least 1.5x.	AAC for 2011-16 has not been adjusted based on any project tools or results. This is partially due to the delays in the production of the planning tools some of which was beyond the project control.	1/6
Output 3.1: Models for predicting biodiversity within and between forest community types, taking into account logging status and location	3.1.1 By the end of Year 4, a model that predicts the regeneration of forests, and changes in biodiversity after logging is developed for major forest types in Perak.	The model has been developed but has not yet been applied.	3/6

Result	Target (End of Project)	TE Comments	Rating (x/6)
	3.1.2 By the end of Year 5, this model is applied by Perak SFO and has been adapted and used by at least 2 other Malaysian states.		
Output 3.2: Models for predicting impacts on biodiversity and associated economic costs and benefits	3.2.1 By the end of Year 4, a “benchmark” version of model developed. 3.2.2 By the end of Year 5, a simpler version is used by Perak SFO on trial basis and has been being adapted and is being used by at least 2 other Malaysian states.	A benchmark model with limited features has been developed. However, it has not been pilot tested with full complement of data. It has not yet been used by intended users.	2/6
Output 3.3: Staff of Perak SFO trained in application of models that integrate ecological and economic tools in forest planning decisions at a landscape level	3.3.1 By the end of Year 4, managers and planners of Perak SFO trained in use of tools and methods developed by the project	Training on the use of the models have not yet taken place.	2/6
Outcome 4: Capacity exists to apply methods developed by the project in tropical forest management operations.	4.1 By the end of the project, at least two other SFOs in Malaysia and two in other countries are using tools and methods developed through the project.	The target has not been reached. There has been no replication yet. The TE take note that the target is extremely ambitious given the duration and constraints of the project	1/6
Output 4.1: Revised Malaysian criteria and indicators of sustainable forest management incorporate procedures developed by the project as standard requirements	4.1.1 By the end of the project the Malaysian Timber Certification Council (MTCC) has revised, or is in the process of revising Malaysian criteria and indicators which incorporate tools and methods developed through the project in the assessment of sustainable forest management	MTCC has been continuously consulted. However, the Tool Set must first be adopted by JPSM before it is brought to MTCC stakeholder meetings for revision. MTCC is awaiting this development. The TE team notes that the target would in any case have been difficult to achieve within the project life time, given the cycle of criteria development within MTCC.	2/6
Output 4.2: ITTO criteria and indicators incorporate procedures developed by the project as standard requirements	4.2.1 By the end of the project, ITTO has revised, or is in the process of revising indicators for Criterion 5 which incorporate tools and methods developed through the project in the assessment of conservation of biodiversity in sustainable forest management	The project reports that the tool will enhance the new ITTO-IUCN guideline article 9. TE has not been able to confirm this.	3/6

125. With reference to the criteria in Annex 5, the efficiency of the project was rated as overall Moderately Satisfactory (MS) (4/6). Project support was provided in a timely and generally efficient manner with the institutional arrangements being efficient and adequate. Meetings were held on a regular basis and reports produced in a timely manner for efficient project management. The partnership arrangements for the project have been generally efficient with good participation from the university researchers, ITTO and stakeholders (particularly MTCC). However there does not appear to have been an efficient partnership with key beneficiaries, i.e. the Forestry Department Peninsular Malaysia, the Perak State Forestry Department, PICT and the Perak State Economic Planning Unit. The project made efficient use of local capacity (both from FRIM and from local consultants) in implementation.

6.3 Project Sustainability

126. The project was based in FRIM which has a long-term mandate to continue research into aspects closely related to the project outcomes. However, FRIM is a separate agency from the key target agencies of the project: the Perak State Forestry Department and the Perak State Economic Planning Unit. Given this scenario, the evaluation team assessed the likelihood of sustainability of outcomes at project termination and rated it as overall Moderately Unlikely (MU) (2/4), there being significant risks that the outcomes of the project would not be sustained. While the benefits from some outcomes, such as the use of the RBA Manual, were likely to be sustained, in particular as it has potential for much wider use than its original purpose, most of the outcomes faced significant risks to their adoption and use by the state forestry departments and economic planning units.

127. There are financial risks that jeopardise the sustainability of project outcomes because the Forestry Department has not yet allocated any resources to adopt or continue to develop and support any of the project tools. This is somewhat mitigated by the allocation of RM100,000 by FRIM for a one-year extension. Part of this extension is to pursue the setting up of a CBioD Resource Centre, which is envisioned to be transferred to the Forestry Department and maintained there. The TE team has not taken this into consideration in its rating of sustainability as we cannot rate on what may materialize one year down the road. The financial sustainability of the project in the mid to long term therefore has to be rated as Moderately Unlikely (MU) (2/4).

128. There are significant socio-economic risks to the sustainability of the benefits of the project. There is a severe risk that the present level of stakeholder ownership (including ownership by the state government and the forestry department) will be insufficient to allow for the project benefits to be sustained. The various key stakeholders do not see it is in their interest to support the products of the project and we heard continued scepticism from the key beneficiaries about the project tools which they are far from adopting.¹¹ Therefore, the socio-economic sustainability of the project is rated Unlikely (UL) (1/4). However, the TE team acknowledges that to a large extent this rating pre-judges the work of the Resource Centre that is in the process of being set up by FRIM. The adoption of the tool by the forestry department will be highly dependent of the success of the additional initiative.
129. The institutional framework and governance structures and processes within which the project operates include a heavy reliance on foreign and local experts that are outside the state forest planning framework. FRIM itself is not part of the Forestry Department. The required know-how does not appear to be in place at the level of the Perak UPEN or the forestry department. This deficiency at the state level poses substantial risks that key outcomes will not carry on at the state level after project closure, although some outputs and activities may carry on. This risk is therefore rated Moderately Unlikely (MU) (2/4).
130. There are also moderate environmental risks to the sustainability of any benefits that may have been gained to the biodiversity or water-quality related to the implementation of the trial protocol. These risks are that part of Temenggor Forest Reserve will be cleared for timber plantations. Thus the environmental dimension of project sustainability is rated as “Moderately Likely” (ML) (3/4). As with the socio-economic risks, the TE team acknowledges that this rating pre-judges the work of the Resource Centre.

6.4 Catalytic Role

131. The evaluation team assessed the extent of the catalytic or replication effect of the project. The team found that the project had carried out extensive research towards the development of new approaches to biodiversity assessment. However, by and large these approaches had yet to

¹¹To this statement the project team suggests that the reservations among the stakeholders are due to a lack of understanding: “We have continuously briefed the stakeholders about the Perak Tool Sets. But due to constant changes in persons who attend the consultation, we felt that the stakeholders do not full grasp the nature of the tools”.

be published and thus at the time of the TE it was premature to evaluate whether significant actions had been taken to build on these achievements other than in the local context in which they were developed. Certainly the replication to other GEF projects, regions and States within Malaysia foreseen in the project document has not materialized although there has been some regional dissemination. Attempts were made to disseminate the RBA techniques and the planning tool nationally and internationally but these had yet to be taken up anywhere else.

132. It is noted that the project at the time of evaluation was in the process of securing a high level meeting with the forestry department's key planning committee to propose some of the project's tools for adoption. The outcome of this meeting will likely be reported in the Project Completion Report.

6.5 Impact

133. The evaluation team considered the impact of the project based on the GEF criteria: verifiable improvements in ecological status; verifiable reductions in stress on ecological systems; through specified process indicators, that progress is being made towards achievement of stress reduction and/or ecological improvement. Based on these criteria the impact of the project was negligible due to the following factors:

- There were no verifiable improvements in ecological status of forests in Malaysia as a result of the project;
- There were no verifiable reductions in stress on ecological systems as a result of the project;
- None of the process indicators specified in the project document indicated that progress was being made towards achievement of stress reduction or ecological improvement.
- There are no changes in the way Perak UPEN and State forestry department make decisions in production forest and biodiversity management.

134. These criteria, as determined in the UNDP GEF guideline, only results in a rating of 1/3 (N), i.e. a negligible impact. To this the Project Management note that these UNDP GEF criteria are new to the project and feels that they may be unfair as such ecological impact were not planned for as it was a research project.

6.6 Country ownership

135. The project fits within the biodiversity priorities highlighted in Malaysia's National Forestry Policy 1992, National Conservation Strategy 1993 and National Policy on Biological Diversity 1998. However, none of the outputs of

the project have been adopted into national legislation, strategies, policies, legal codes, sectoral plans or development plans. Relevant country representatives (FRIM, forestry department and NGOs) were actively involved in the project identification, planning and review. However, the engagement of the forestry department in project implementation was lacking. The Government of Malaysia (via FRIM) made a substantial financial and in-kind commitment to the project and have extended this commitment by agreeing to fund an additional RM100,000 to the project to extend activities for another year. There have been no federal, agency or state level decisions to modify the regulatory framework or any planning or decision making changes to practices as a result of the project.

6.7 Mainstreaming

136. The evaluation team found that the project was not designed to mainstreaming other UNDP priorities such as poverty alleviation, improved governance, prevention and recovery from natural disasters and women's empowerment. The Project Document made no explicit or indirect reference to the UNDP Country Programme Action Plan (and the evaluation plan that is part of CPAP). The project team did evaluate several aspects of forest management that had effects on local populations (in terms of water quality, new parks, and willingness to pay for conservation of biodiversity). The project also carried out a study to evaluate the importance of NTFPs for local communities. The evaluation team found that the project did not conflict with the agreed priorities in the UNDP country programme document or the CPAP. The project did not make any explicit reference to gender issues but it is noted that there was a good balance of men and women working on the project, with women playing many key roles in the project. There is also a reported intention that publications from the economic analysis will include analysis of gender effects on forest values.

7. Key issues and lessons

137. The CBioD project has had a number of issues and indeed still has a number of challenges to face during its final months and in the extension of project activities provided for by FRIM. Below we provide an outline of some of the key issues the project has/is facing and where possible we will draw out any systemic lessons that may be relevant for future GEF projects.
138. The issues have been grouped into three headings related to the Project Document, the Project Management and the Engagement of Stakeholders.

7.1 Project Document

7.1.1 Missing Problem and Strategy Analysis

139. The project document (including its many annexes) is an elaborate 304 page document. Yet the project document does not elaborate on the issues and problems that the project sets out to address. Rather a few assumptions are stated in a one-page chapter on “Situation Analysis”. This makes it difficult to fully understand and appreciate what problems the project has set out to address. The lack of a detailed problem analysis means that the project document quickly jumps to discussing the possible “solutions” in the form of research needs that the project seeks to address. This may have made sense at the birth of the project idea as it was born as a research project and research is often simply about expanding our knowledge and understanding of the world. However, when the project shifted its scope from being a research project to becoming a capacity building project (see Annex 7 comparing the 2003 and the 2006 version of the project) the project design team should have carried out a detailed analysis of the capacity problems at systemic, institutional and individual level that the project set out to address. Such a detailed analysis, would have allowed the project team to make a conscious strategy choice for what goals to pursue and how to pursue the goal within the given budget. As it is, there is little or no analysis or presentation of the existing decision making framework, capacity or planning systems employed in the Forestry Department at federal and State level, nor of the decision making and planning system used by the State Economic Unit (UPEN). The project document simply assumes that the tools produced by the project will improve forest management decision-making once they have been disseminated.

140. **Lesson one** from the project is thus for all UNDP/GEF project documents to be required to include a detailed problem/objectives analysis based on which a strategy analysis can be made for how the long and short term objectives can be reached.

7.1.2 Clarity of scope of work

141. The project document was developed over a six-year period from 2000 to 2006. This long duration might have had its advantages as ideas have time to mature and develop over an extended analysis phase.

142. It is natural that the focus and scope of a project will change along the way and it is a good idea for a project to keep track of the changes such that ‘good ideas’ are not lost. In this case the project team has continued to refer to the “immediate objectives” stated in the 2003 project brief after they

were, in fact, replaced by the “outcomes” in the 2006 project document. One contributing reason for the continued reference to the 2003 document is the fact that this document contained very detailed descriptions of the project research activities. The 2006 LFA matrix did not list any activities as it was presumably expected that detailed activities be fleshed-out at the inception stage and throughout the project implementation in its pursuit of the outcomes stated. Fluidity in terms of activity details is normal design strategy for many projects and is a good idea as it allows the project management to adapt to changing environment as project progresses.

143. In this case however, the project formulation team decided to reference the project brief (which had become Annex 1 in the Project Document) in the key Section I of the Strategic Results Framework and GEF increment. In Part I of this section on Incremental Cost Analysis it simply refers to annex 1 for further details: *“For further details please refer to pp. 16-28 of the Project Brief in Annex 1 and pp.18-29 of the Project Executive Summary in Annex II.”* The TE team has seen several versions of the Project Brief so the page numbering is unclear. However, in both versions the pages 18-28 contains sections on the Development Objective and the four Objectives that formed key parts of the original proposal. We believe that the continued referencing in the project document and the detailed activity descriptions may have caused Project Management to maintain focus on the project brief leading the “two project situation” described in Chapter 4.2.

144. **Lesson two:** A project document needs to be abundantly clear on operational issues and should not simply refer to annexes for key matters such as the Strategic Results Framework and GEF increment. A project document should not rely on former versions of the project document/project brief for details. Operationally the project document should be able to stand alone to avoid any confusion.

7.2 Project Management

7.2.1 Delay

145. At the time of writing, the project has less than two months left before it closes. Yet the project is still far from finished. Most of the studies are not yet finalised, analysed, published or made operational for the end user. The capacity building elements of the project has involved a degree of dissemination and some training but there has not been a structured approach to capacity building at systemic, institutional and individual levels.

146. The TE Team noted that there was an overly optimistic ambition for how

fast a project can proceed and noted that the project ran into many time-delaying obstacles. Accessing proprietary spatial and economic data from government institutions and departments in Malaysia is well known to take copious amounts of time, especially if that data is considered in any way restricted or sensitive from a security or political perspective. The issue of delay has been brought up on many occasions in the project as far back as to the first IAP as well as in several Project Steering Committee meetings. However, firm action to rectify the delay was not taken early enough. The response from most of the project team to the delays have in part been that “research cannot be rushed”, i.e. that there is a learning process inherent in research that will cause continual adjustments which may often cause delays. The TE team has been encouraged to *“consider more carefully: the consequences of meeting deadlines regardless of impacts on the quality of the research.”* Most of the project team expressed that delays in a project like this should be acceptable as it would not be advisable to make recommendations based on poor and rushed research. As one researcher phrased it, the TE report should highlight *“the importance and the required effort and time needed to develop the tools before it can be implemented in Malaysia and abroad. The science and the technology will have to be dealt first before it can be taken to the next level”* and further noted that *“Poor-quality research is of little value: it makes no scientific contribution, and it provides a weak foundation for formulating policy recommendations and developing practical tools”*.

147. Perhaps because of the stringent focus on research quality there does not seem to have been a sufficient sense of urgency among most members of the project team, including the international support team, to finalise the project. Aside from the reasons offered by the research team, the TE team identified a few additional factors that may have had an influence on the delays:

148. A typical project is characterised by having a goal, a beginning, some resources and an end. This definition is suitable for most projects assisted by a number of experts (i.e. as differentiated from ‘researchers’) for its implementation. Experts are familiar with the concept that a project ends and the development intervention therefore has to be tied up and finalized before ending day as there is no day after the ending day, project staff will leave and pursue other projects. However, the CBioD project is not a conventional donor project with conventional donor project staff. The CBioD has been referred to as a “targeted research project” (project document page 7). The project made limited use of professional consultants/experts for its

implementation but relied on researchers from FRIM and the universities for its execution. Most of these project participants hold secure research jobs and will not actually change their position when the project is over. The project research results become an input to the existing work programme of the researcher, in contrast to “consultant/expert-implemented” projects where the consultant becomes the input to the project. To the researcher there is not the same sense of a “project ending”. At the end of the project, the researcher will still be there, they will still be doing their research, of which some will be a continuation of research carried out under the project. When the TE team queried project researchers on issues related to their research or on areas where several studies would benefit from closer interaction, the reply has typically been that the suggestion was a good idea that will be incorporated in the next version of the tool or in future analysis. For instance the TE team queried the international support team on a serious issue with the “Planning Tool” the reply was *“I would be happy to incorporate this as JSPM moves to adopt the tool. I expect many requests and tweaks as they work to adopt the tool”*. The scientist who wrote this certainly does not perceive his contributions to the project ending at the official closing date of the project.

149. **Lesson three:** Projects engaging scientists or researchers commissioned on open-ended research projects need contracts which specify explicit deliverables to be completed by specified deadlines and agreed up-front. Alternatively, ‘targeted research’ project should be designed with a more open ended timeline and payments being on an output basis.

7.2.2 Lack of CTA

150. The Project Document calls for a Chief Technical Advisor to lead the project. However upon start up the project management did not feel that there were adequate funds for this. Instead, a Project Manager was hired from among the FRIM staff. This project manager left the project due to various disagreements, including poor remuneration, and the project decided to replace him with an assistant project manager who would, at the same time, be the project communication officer. The assumption was that the Project Director together with the assistant project manager would be able to handle the duties of a CTA.
151. There were several implications arising from this management arrangement. In the first place, the Project Director was not full time on the project, already leading an important FRIM division, and has therefore not had exclusive focus on the project.

152. The lack of a CTA appears to have contributed to several failures in the coordination of the various strands of the project. Instead of a cohesive whole, the project stands out as a series of individual research studies although each study was worthwhile and important in its own right. The project management has not managed to pull together all the studies so they can be applied by the target beneficiaries under a unified framework. The MTR also pointed out that the project could have benefitted from inputs of a conservation biologist or a similar applied-scientist to better align the studies into an operational framework, as did the second IAP. Most researchers in the project state that they had expected the Planning Model to be the unifying tool that pulled the studies together. This was probably a little optimistic although TE team certainly feels that the Planning Model could have integrated much more of the results from the other studies and tools developed. A full-time experienced Chief Technical Advisor would probably have given the project a much better focus and the studies would likely have been better integrated towards achieving the project's objectives. In addition, it is likely that an experienced Project CTA could have avoided the serious project delays observed.

153. **Lesson Four:** A project of this size and complexity needs an experienced full-time project CTA to keep the objectives in focus and to pull together the individual project components.

7.2.3 Project Partners

154. The project has from the beginning been working with several external partners. The key partners in terms of project execution were the Duke and Berkley Universities. Each of these universities was given a contract for close to half a million US dollars with contract specifications as that of a partnership stating that "FRIM and the University shall be responsible for carrying out the Project... in accordance with the project document". The arrangement with the two universities has no doubt brought a lot of benefits to the project in terms of capacity building for local researchers working with their foreign partners. However, from a project management point of view, this arrangement reduced the project management's control over the inputs from the universities. This reduced control may have been a factor which contributed to the perception of a fragmented project.

155. **Lesson Five:** A project needs to have all lines of reporting to converge on a single project manager that has the overall responsibility and authority to ensure that everybody is pulling in the same direction towards a common objective.

7.2.4 Extension of project activities

156. The TE team is very pleased to note that the PSU has managed to obtain additional funds from the FRIM board (RM 100,000) to continue the work of the project, and in particular to establish a One Stop Resource Center to continue the work of the CBioD. According to the PSU, the expectation is that the Resource Centre after one year will be taken over by the Forestry Department whom is intended to have been capacitated to continue this work by then. The full translated submission is attached as Annex 7 but the overall scope is listed as:

“...Therefore, the establishment of the One-Stop Resource Center CBioD (CBioD Resource Centre) is critical in ensuring the aspects of process improvement and technology transfer to the Forestry Department of Peninsular Malaysia can be carried out smoothly. The One-Stop Resource Centre will serve to collect information necessary as preparation before it can be fully implemented. As a start, the collection of information will conduct pilot efforts in four states; ie. Perak, Pahang, Kelantan and Terengganu. The One-Stop Resource Centre CBioD is proposed for a period of 12 months starting from September 2012 to August 2013.

The One-Stop Resource Centre will work with the four proposed pilot-states on the following activities:

- i. **Improvement of forest planning tools (planning tools)***
 - a. Continue to conduct consultations with stakeholders on the front-end and back-end forest planning tools and stakeholders feedback documentation,*
 - b. Improving front-end (graphic user interface, objective, the constant and output) landscape level forest planning tools as needed, and back-end (data module, the biodiversity module, economic modules and optimization module) to improve the modelling process and the accuracy of the output produced,*
 - c. To conduct the test and verification session of the landscape level (state) of the forest planning tools.*
- ii. **Technology transfer of the landscape level forest planning tools for stakeholders agency:***
 - a. Consultation session with JPSM relating to the location and the transfer of technology from FRIM to JPSM*
 - b. Creating a CBioD server in JPSM and integrating the research planning tool amongst the JPSM network,*
 - c. Provide series of training to officials responsible in JPSM related to back-end planning tools and operations.*
- iii. **Collecting information required in the pilot planning state:***

- a. *Consultation sessions with the stakeholders agencies in improving the ability to use the Perak Biodiversity Tool Sets,*
- b. *Assisting stakeholders agencies to collect and to process data they required for simulation of the forest planning tool,*
- c. *Establish a website for CBioD Local Resource Center and continuously update the website and user manual,*
- d. *Provide training on the use of Perak Biodiversity Tool Sets for the stakeholders agencies,*
- e. *To produce Standard Operating Procedure – (SOP) for Perak Biodiversity Tool Sets usage.”*

157. The focus of the extension of activities is thus to improve and finalise the tools developed under the project and propagate them to four states while providing training for the end users and to incorporate the tools as Standard Operating Procedures in the Forestry Department(s).

158. This is a very ambitious and commendable task and indeed also a very necessary task to carry the project to its potential success and sustainability. The TE team wished the PSU every luck in this endeavour.

159. **Lesson six:** Research projects with a capacity building component that are undertaken by a scientific institution should consider establishing a specific capacity building centre to ensure that capacity building is adequately addressed. Such a capacity building centre should be established from the onset of the project so that capacity building can be a continual process to complement research throughout the duration of the project.

7.3 Stakeholder engagement and capacity building

160. It appears that the project has pushed its capacity building efforts towards the end of the project, and even beyond the end of the project with the one-year FRIM extension provided. An earlier and more rigorous stakeholder engagement could have enhanced both the project's capacity building efforts as well as the quality of the tools produced by the project. For instance, most of the tools developed have not included a cost-benefit analysis (short and long term) and cost was indeed the first question from the Forestry Department in evaluating the usefulness of the tools. The Rapid Biodiversity Assessment (RBA) tool is a case in point. The Forestry Department is looking for information on how much it costs in manpower and other resources to carry out an RBA in a typical forest reserve. The Forestry Department is also asking questions as to how extensively they will have to apply the tool, in particular if an assessment of less than all compartments in a forest reserve could deliver adequate results. Although the project team have provided preliminary answers, they have yet to

produce clearly documented recommendations on this. In another case in regard to the Harvesting Protocol, the Forestry Department wants to know what the additional costs are to carry out a full inventory to support this protocol, any additional costs or benefits of logging according to the protocol, and indeed also what the monetary benefits are for the improved control of future stands. These costs and long term benefits have not yet been documented. Cost and practicalities are key questions from the forestry department.

161. One of the key lessons is therefore that the development of the planning tools should have involved the users (Forestry Department) more intensively from the beginning of the project design stage, to fully understand their operational needs in the tropical forest management (see also earlier discussions on the lack of problem analysis). Only through a thorough understanding and appreciation of how the Forestry Department and State Economic Planning Unit conduct their long and short term planning could the project have been expected to design appropriate tools and systems for capacity building at systemic, institutional and individual level.
162. The limited structured capacity building performance of the project is also a result of the project design. Aside from the Assistant Project Manager and support staff, the project team consists of scientists, yet a large part of the project is about capacity building. The TE team appreciates that the tools would have to be identified/developed first and that scientists are explicitly needed for developing the knowledge to base the capacity building on. Nevertheless, identifying, analysing, designing and implementing capacity building activities at the systemic level (creating an enabling environment), at the institutional level (examining amongst others the functions of the organization) and the individual level (personal capacity) requires a skill set that scientists have not necessarily been trained in. It is a skill that is acquired over years of working with capacity building projects.
163. Given the emphasis on capacity building, it would have been appropriate if the project had been given the resources necessary to fulfil these ambitions. Staying with the original project idea to employ a Chief Technical Advisor, it would have been appropriate to select a candidate with both a natural resource/conservation biology/forestry background as well as with extensive experience with capacity building. However, as noted above, the terms of references for the CTA were not revised from the 2003 Project Brief and thus the TOR for the CTA in the project document does not make any reference to capacity building.

164. **Lesson seven:** Projects with a key capacity-building component should ensure that project staff includes individuals capable of undertaking capacity building. It cannot be automatically assumed that specialist researchers or scientists are able to engage effectively in capacity building.

8. Conclusions

165. Any targeted research project involving multiple research institutions as well as a number of operational units naturally faces many challenges. In the case of CBioD there have been project management challenges in regards to limited funds to engage an experienced CTA, there have been challenges in controlling inputs and research outputs guiding them towards specific conservation goals and there have been challenges in designing research studies that are unequivocal in their results. The biggest of challenge was and still is to transform the many and very relevant research studies into practical conservation action. FRIM has provided one more year to do just this and it is therefore still too early to pass any judgment on the final outcome.

166. It is an overall conclusion that dedicated researchers have carried out a great number of studies that contribute to our overall body of knowledge in regards to forestry and biodiversity. Not all the studies came up with the results expected but the results were still of great interest and importance. An example of this is the finding from the VJR study, as well as from one of the smaller studies where the RBA was applied before and after logging. From these studies, it appears that current selective logging methods in Peninsular Malaysia do not significantly have an adverse effect on biodiversity as seen from the changes in alpha-diversity of the eight taxa studied. Although this conclusion needs to be qualified, as there are many yet unknown factors related to rare and/or localized endemic species, it is still a conclusion that makes for a strong case for continued Natural Forest Management Systems as opposed to clear felling for timber plantations. This conclusion is supported by many other studies that show that biodiversity can indeed thrive also in secondary forests and even in 'degraded' forests.

8.1 Concluding remarks and recommendations for UNDP

167. The project was labelled a targeted research project which is not the standard type of development intervention for UNDP/GEF. It is recommended that UNDP consider carefully if they should continue supporting this type of project. The very nature of research appears from this project not to lend itself to strict deadlines as normal projects must adhere to. Mixing open ended research with capacity building exacerbated the

delays such that neither was fully finalised by the end of the project. If UNDP continues targeted research projects then they should consider separating it from normal implementation project modalities and rather allocate the money on a grant basis with less emphasis on the project timeline, rather on the research results and money allocated not on an input basis but on an outcome basis.

8.2 Concluding remarks and recommendations for FRIM

168. The project has experienced a number of delays in obtaining key data from the Forestry Department and other agencies. Furthermore, according to project staff, it has been difficult engaging with the Forestry Department due to rapid staff rotations. It was an impression from the TE team that many of the researchers perhaps did not fully understand the conditions and frameworks of the Forestry Department Staff. For instance, the TE team was puzzled that researchers did not know basic 'rule of thumb' figures on logging costs, costs of skid trails and such. All this indicates that FRIM and the Forestry Department need to institutionalize closer linkages with each other regarding the research undertaken by FRIM. This will strengthen the outcome of the research given that forestry department indeed is FRIM's main client and in principle the main end user of any applied forest management research emanating from FRIM.

169. During the extension provided by FRIM the project team need to engage in three key activities:

Finalise the research:

170. The project need to finalise, document and publish its research. At the time of the Terminal Evaluation much of the research was not yet completely finalized in analysis and presentation. Analysis, write-up and publication is so important for the many good studies under the project that it should remain a focus for the study team until it is complete.

Finalise the "Perak Tool Set":

171. The project need to finalise the "Perak Tool Set". This entails operationalised the studies, tools and methods and to package and describe an overall tool kit. "Packaging" means to present the overall tool kit and provide detailed description of the individual tools and the value they have in biodiversity management/conservation. This is a different process from the 'publication' process described in recommendation 1 above. This 'tool kit' need to address itself to managers and need to be explicit in addressing the concerns that managers will have before applying the different tools.

Capacity build:

172. Once the tools are finalized, the Perak Tool Set described and developed, the project need to engage with stakeholders to initiate capacity building and discuss how the tools can best be operationalised into recipient organizational structures in JPSM and Perak State Development Corporation & EPU. The project is suggesting a “one stop resource centre” but makes no mention of how this centre is going to operate over the long term. Will the Centre be incorporated into Forestry Department – JPSM -Structure? Will it remain with FRIM? Will it be a permanent centre or just a temporary centre to capacity build JPSM and other relevant institutions? Part of the capacity building required is to take the longer term view on the Perak Tool and consider longer term implementation implications.

8.3 Concluding remarks and recommendations for the Forestry Department Peninsula Malaysia

173. The same recommendation given to FRIM, i.e. to move towards a closer client/research relationship goes for the Forestry Department. For instance, in spite of briefings along the way, participation in regional and local seminars, participation in the Technical Working Committee the researchers are only confronted with key questions from the Forestry Department on cost and resource use at the very end of the studies. This indicates that there has not been as close a dialogue on the development of the tools as there could have been.
174. The CBioD project should have been implemented with the Forestry Department as an almost 50/50 partnership. Had this happened from the beginning then the tools and critical research information from the project would have stood a much better chance of becoming operational.
175. FRIM and the Forestry Department Peninsular Malaysia are not institutionally linked other than belonging to the same Ministry. It is therefore recommended that the Forestry Department and FRIM explore other ways to synergise fully on a daily basis for the implementation of projects such as the CBioD.

ANNEX 1: Terms of Reference

ANNEX 2: Programme and list of people met

List of People met

Project Staff	
Ms Gan Pek Chuan	UNDP Malaysia
Dr. Shamsudin Ibrahim	National Project Director, FRIM
Dr. Abdul Rahman bin Kassim	Researcher, FRIM
Dr. Samsudin bin Musa	Researcher, FRIM
Dr. Ismariah binti Ahmad	Researcher, FRIM
Dr. Christine Dawn Fletcher	Researcher, FRIM
Ms. Nur ZatiAkma binti Mustafa	Researcher, FRIM
Ms. Jay Radha Veerasamy	Assistant Project Manager/Communications officer
Ms. Farahnina binti Ahmad Salludin	Project Support Unit
Ezleen Ahmad Tarmizi	Project Support Unit
Dr. Larry Lam	Researcher
Dr. Matthew D. Potts	Researcher, Berkley University
Dr. Jeffrey Vincent	Researcher, Duke University
Dr. Jeff Bennet	International Advisory Panel
Other stakeholders	
Dato' Dr Abdul Razak Mohd Ali	Director General, FRIM
Y.Bhg. Dato' Prof. Dr. Hj. Abd. Rahman B. Hj. Abd. Rahim	Director General, Peninsular Malaysia Forestry Department, JPSM
Dato' Masran B. Md. Salleh	Deputy Director General, Peninsular Malaysia Forestry Department, JPSM
Mr. Samsu Anuar B. Nawawi	HQ, JPSM
Tn. Hj. Mohd Nasir b. Abu Hassan	Director, Silviculture and Forest Biodiversity Conservation Division, JPSM
Hj. Abdul Khadim	Pahang Forestry Department
En. Ahmad Suqairy Alias	Assistant Director, Perak State Economic Planning Unit
En. Mior Karim	General Manager, PITC
En. Akmal Mohamed Isa	Perak ITC
Nordiyana Mohd Ridzwan	Ministry of Science, Technology and Innovation. National Biotechnology Division
Mr. Tan Hao Jin	WWF Malaysia
Tn. Hj. Zainuddin Bin AbShukor	Director, Protected Area Division, Department of Wildlife and National Parks
En. Ishak Muhamad	Department of Wildlife and National Parks, Perak
Ms. Or Oi Ching	TRAFFIC Southeast Asia –Regional Office
Tn. Hj Wan Mohd Suhaimi Bin Wan Aziz	Golden Pharos Berhad, KL
Dr. Mohd. Hizamri Bin Mohd Yasin	Deputy Director, Perak Forestry Department
En. Muhamad Abdullah	Senior Assistant Director, Forest Biodiversity

	Division, JPSM
En Hamidi B. Abdul Halim	Senior Assistant Director, Forest Management Division, JPSM
Cik Hasni B. Abd Pattah	Assistant Director, Forest Biodiversity Conservation Division, JPSM
Pn. Zulnaidah Bt. Abd Manan	Assistant Director I, Forest Economics Section, JPSM
En. Harry Yong	Assistant Director II, International Affairs Section, JPSM
En. Helmy Tariq B. Othman	Assistant Director II, Forest Economics Section, JPSM
En Mohd Jinis B. Abdullah	Senior Assistant Director, International Affairs Division, JPSM
Mr. Yong Teng Koon	Senior Manager, Forest Management. Malaysian Timber Certification Council
Mr. Tan Chin Tong	Malaysian Nature Society
Ms Gan Pek Chuan	UNDP Malaysia
Mr. Hari Ramalu Ragavan	UNDP Malaysia
Mr. Chang Yii Tan	Director, PE Research
Mr. Joseph D'Cruz	UNDP – Regional Office

MISSION SCHEDULE**June – July 2012**

Date / Time	Itinerary	Venue	Attending
23rd May			
1030	TE briefing with TEE	UNDP Office	GPC
11th June			
1130	TE opening meeting PSU present overview - review of management set up - review of budget - review of project monitoring set up - presentation on progress of project - review of IAP comments - review on communication processes UNDP- TOR, reporting format TE- short briefing on general approach of the evaluation Q&A	PSU Meeting Room	TE, GPC, NPD, PSU, ARK, CF, SM, IA, LTY
1230	Lunch with Team	Canteen	ALL TE, GPC, DG, TKPP, NPD, PSU, ARK, CF, SM, IA, LTY, IH
1430	Courtesy call to DG of FRIM	DG's office	TE, GPC, NPD, PSU, ARK, CF, SM, IA, LTY
1500	General Briefing by Researchers -presentation by Immediate objectives ARK,LTY,	Licuala	TE, GPC, NPD, PSU, ARK, CF, SM, IA, LTY
1730	End		
12th June			
0900	General Briefing by Researchers -presentation by Immediate objectives IA, APM	TBI	TE, GPC, NPD, APM, SM, ARK, IA, CF, LTY
1230	Lunch		
1400	Detailed briefing by Researchers		TEE, NPD, APM, SM, ARK, CF, LTY
1700	END		
13th June – Hotel meeting			

0930	Gather at Hotel		
1000	Meet JPSM HQ	Hotel	TEE, GPC, NPD, APM, SM, ARK, CF, LTY
1230	Lunch with ETR & JPSM & MTCC	Hotel	TEE, GPC, NPD, APM, SM, ARK, CF, LTY
1400	Meet MTCC	Hotel	TEE, GPC, NPD, APM, SM, ARK, CF, LTY
1500	Detailed briefing by Researchers	Hotel	IA, TEE, GPC, NPD, APM, SM, ARK, CF, LTY
1630	End & High Tea	Hotel	TEE, GPC, NPD, APM, SM, ARK, CF, LTY
14th June			
0800	Skype Meet with Prof. Jeffrey Vincent	PSU Meeting Room	TE, GPC, NPD, APM, SM, ARK, CF, LTY
0900	Skype Meet with Prof Matthew Potts	PSU Meeting Room	TE, GPC, NPD, APM, SM, ARK, CF, LTY
1000	Skype with Prof. Jeffrey Bennett	PSU Meeting Room	TE, GPC, NPD, APM, SM, ARK, CF, LTY
1100	Meet with CBioD Team Leaders	PSU Meeting Room	TE, SM, ARK, CF, LTY
1230	Lunch		
1430	Meet with CBioD Management	PSU Meeting Room	TE, NPD, APM
15th June			
0900	Stakeholders Consultation and presentation of tools	Licuala / Auditorium	ALL, PSC, TWC Members
1200	Lunch		
27th July	Closing meeting	FRIM	TE, GPC, NPD, APM, SM, ARK, CF, LTY
28th July	Meeting UNDP	UNDP office	GPC
10th July			
0900	Closing Meeting - Presentation of the draft evaluation report by TE	FRIM meeting room	TE, DG, MNRE, EPU, GPC, NPD, APM, SM, ARK, CF, LTY
17 July	Meeting with UNDP	UNDP office	GPC, Hari Ramalu
25 July	Skype meeting with Joesph De Cruz		

Abbreviation

TE Terminal Evaluation Evaluators
GPC Gan Pek Chuan

DG	Director General (FRIM)
TKPO	Deputy Director General –Operations (FRIM)
TKPP	Deputy Director General – Research (FRIM)
NPD	National Project Director
APM	Assistant Project Manager
PSU	Project Support Unit
ARK	Dr Abdul Rahman Kassim
CF	Dr Christine Fletcher
SM	Dr. Samsudin Musa
IA	Dr Ismariah Ahmad
LTY	Dr. Lam TY
PITC	Perak ITC
PSC	Project Steering Committee
TWC	Technical Working Committee

ANNEX 3: PSU analysis of 2006 log frame target fulfilment

As a result of the discussions on the 2003/2006 documents the PSU decided to show how the 2006 document had been fulfilled. The analysis is shown in below table below received from the PSU. The TE brings it here for completeness sake.

ANNEX 4: Publications, posters and papers in preparation

- Ahmad Dzamir, Dzulkifly. (2009). Stingless Bees. Poster prepared for Conservation of Biological Diversity (CBioD) Project National Workshop, 10–11th August 2009, FRIM.
- Ahmad Fitri, Z., Abd Rahman, K., Aminudin, A. A., Serafina Christine, D. F., Shamsudin, I. (2009). Rapid Biodiversity Assessment Of Tree Species: An Overview Of Methodology. Poster Prepared For Conservation Of Biological Diversity (CbiOD) Project National Workshop, 10–11th August 2009, FRIM.
- Butod, E.(2009). Dung Beetle Study. Poster prepared for Conservation of Biological Diversity (CBioD) Project National Workshop, 10–11th August 2009, FRIM.
- Butod, Elizabeth, Hannah M.W. Salim, Rhett D. Harrison, Christine Fletcher, Shamsuddin Ibrahim, Abdul Rahman Kassim, and Matthew D. Potts. (in prep.) Dung Beetle Diversity in Hill Dipterocarp Forests of Peninsular Malaysia.
- C.L. (2010). Paper presented at The Association for Tropical Biology & Conservation (ATBC) International Conference 2010, 19-23 July 2010, Bali, Indonesia.
- Che Salmah Md Rawi & Madziatul Rosemahanie Madrus. (2009). Rapid Biodiversity Assessment Using Aquatic Macro invertebrates. Poster Prepared For Conservation Of Biological Diversity (CbiOD) Project National Workshop, 10–11th August 2009, FRIM.
- Dzulkipli, Ahmad Dzamir, Hannah M. W. Salim, Rhett D. Harrison, Christine Fletcher, Abdul Rahman Kassim, and Matthew D. Potts. (in prep.). Checklist of stingless bees of the hill dipterocarp forests of Peninsular Malaysia.
- Fatin Naazneen Ramly & Rosli Ramli.(2009). Method of capturing understory bird. Poster Prepared For Conservation Of Biological Diversity (CbiOD) Project National Workshop, 10–11th August 2009, FRIM.
- Fletcher, S. C., Harisson, R. D, Shamsuddin Musa. (2008). Developing a rapid biodiversity assessment tool for tropical forest management. Paper presented at The Association for Tropical Biology & Conservation (ATBC) International Conference 2008, 23-26 April, Kuching, Malaysia
- Fletcher, S. C., Harisson, R. D., Potts, M., Abdul Rahman, K., Nur-Zati, A.M. & Joann Gonzaga A.D. (2008). Collapsible light trap. Poster presented at The Association for Tropical Biology & Conservation (ATBC) International Conference 2008, 23-26 April, Kuching, Malaysia
- Gonzaga A.D., Fletcher, S. C., Harisson, R. D., Abdul Rahman, K., Potts, M. (2009). Rapid Biodiversity Assessment Protocol for Moth. Paper presented at The Association for Tropical Biology & Conservation (ATBC) International Conference 2009, 12-15 February, Chiang Mai, Thailand.
- Jaitrong, W. & Nur-Zati A. Mustafa. A. (2010). New Species of the Ant Genus *Aenictus* (Hymenoptera: Formicidae: Aenictinae) from Malay Peninsula. *Sociobiology*, Vol. 56 No. 2.
- Jaitrong, Weeyawatet Nur-Zati, A.M. 2010. A New Species of the Ant Genus *Aenictus* (Hymenoptera: Formicidae: Aenictinae) from the Malay Peninsula. *Sociobiology*.
- Joann C. L. (2010). Insectivorous bat assemblages in relation to spatial aspects of Virgin Jungle Reserves (VJR) in Peninsular Malaysia. M.Sc. Thesis. Faculty of Science, University Malaya.142p.

- Joann C. L., Fletcher, C. D., Salim, H. M. W., Abdul Rahman K., Harrison, R. D. and Potts, M. D. (2011). Insectivorous bat assemblage in the hill dipterocarp forest of Temengor Forest Reserve, Peninsular Malaysia. *Malayan Nature Journal*, 63(3), 569-576.
- Joann C. L., Fletcher, C. D., Salim, H. M. W., Abdul Rahman K., Harrison, R. D. and Potts, M. D. (in review). The diversity of insectivorous bats in an upper hill dipterocarp forest of Temenggor Forest Reserve, Peninsular Malaysia. *ActaChiropterologica*.
- Joann Christine Luruthusamy. (2009). An unbecoming villant - the real bat story. Online article: <http://www.cbiod.org/the-unbecoming-villant-the-r/>
- Joann, C.L. and Fletcher, C.D. (2009). Bat Diversity Assessment. Poster prepared for Conservation of Biological Diversity (CBioD) Project National Workshop, 10–11th August 2009, FRIM.
- Joann, C.L., & Fletcher, C.D. (2009). Distribution of insectivorous bats within a Hill Dipterocarp Forest. The Association of Tropical Biology and Conservation (ATBC) Asia-Pacific Chapter Annual Conference 12 – 15 February 2009, Chiang Mai, Thailand.
- Joann, C.L., & Fletcher, C.D. (2010) Size effect of Virgin jungle reserves on insectivorous bat assemblages in Peninsular Malaysia. Poster presented at The Association for Tropical Biology & Conservation (ATBC) International Conference 2010, 19-23 July 2010, Bali, Indonesia.
- Luruthusamy, Joann C., Christine D. Fletcher, Matthew D. Potts, Hannah M.W. Salim, Lam Tzeng Yih, Shamsuddin Ibrahim, Abdul Rahman Kassim. (in prep.). The role of Virgin Jungle Reserves and the effects of spatial diversity on the community of insectivorous bats in Peninsular Malaysia.
- Nur-Zati A. Mustafa, Hannah M.W. Salim, Christine D. Fletcher, Abdul Rahman Kassim, and Matthew D. Potts. (2011) Taxonomic and Functional Diversity of Ants (Hymenoptera: Formicidae) in an Upper Hill Dipterocarp Forest in Peninsular Malaysia. *Raffles Bulletin of Zoology*. 59(2): 181–194.
- Nur-Zati, A. M. (2009). Ant biodiversity. FRIM-UNDP-GEF-ITTO National Workshop. UNDP-GEF ITTO Conservation of Biodiversity through Improved Planning Tools Project. FRIM, Selangor 10 Ogos 2009. [Poster]
- Nur-Zati, A. M. & G.T. Lim. (2008). Ant diversity at the Temenggor Forest Reserve, Perak, Malaysia. P. 75 in Kamaruzaman, S., Wong M.Y., Jugah, K., Ganesan, V. and Zainal Abidin, M.A. 7th MAPPS International Conference on Plant Protection in the Tropics: Update on GAP in IPM, Kuala Lumpur, 27-29 Ogos 2008. [Poster]
- Nur-Zati, A. M. & G.T. Lim. (2008). Assessing ant (Hymenoptera: Formicidae) Diversity in a Lowland Dipterocarp Forest using Five Selected Sampling Methods. Pp. 27 di dalam Towards Sustainable Land-Use in Tropical Asia. 2nd Annual Meeting of Association for Tropical Biology and Conservation, Asia Pacific Chapter Conference 2008, Kuching, 23-26 April 2008. [Poster]
- Nur-Zati, A. M., Harisson R.D., Lim, G.T. & Idris A.B. (2009). Effect of Topography, Elevation and Forest Structure on Ant Community in a Hill Dipterocarp Forest. Pp. 73 in Abstract book of "Assessing and Restoring Biodiversity in a Human Dominated Landscape". Association for Tropical Biology and Conservation -

- Asia Pacific Chapter 3rd Annual Meeting. Association for Tropical Biology and Conservation-Asia Pacific Chapter. Chiang Mai, Thailand [Oral presentation].
- Nur-Zati, A. M., Idris A.B., Kirton, L.G., & Potts, M.D. (2010). Forest Size Effects on Ant Community Structure. Pp. 265 di dalam Abstract book of Association of Tropical Biology and Conservation Annual Meeting 2010. Association for Tropical Biology and Conservation. Bali, Indonesia [Poster]
- Nur-Zati, A.M. & Idris, A.B. (2009). Kepelbagaian Semut (Hymenoptera: Formicidae) di Hutan Dipterocarp Tanah Pamah Terpilih di Semenanjung Malaysia. Pp. 127-130. In Penyelidikan Siswazah: Meneroka Perbatasan Ilmu. Proceedings of Kolokium Siswazah ke-9. 'Fakulti Sains dan Teknologi, UKM. Universiti Kebangsaan Malaysia, Bangi [Oral presentation].
- Nur-Zati, A.M. & Idris, A.B.(2010). Ants Community Structure in Relation to the Topography Variation. Pp. 336-338. In Penyelidikan Terkehadapan Sains dan Teknoogi UKM-UNRI. Proceedings of Seminar UKM-UNRI ke-6.Universiti Kebangsaan Malaysia, Bangi [Poster].
- Nur-Zati, A.M. & Idris, A.B.(2010). Impact of VJR sizes on Ant Community. Pp. 128-130. In Penyelidikan Terkehadapan Sains dan Teknoogi UKM-UNRI. Proceedings of Seminar UKM-UNRI ke-6.Universiti Kebangsaan Malaysia, Bangi [Oral presentation].
- Potts, M.D. (2008), Sustaining diversity in production forest: The necessity of being interdisciplinary. Paper presented at The Association for Tropical Biology & Conservation (ATBC) International Conference 2008, 23-26 April, Kuching, Malaysia
- Potts, Matthew D., Lam Tzeng Yih, Hannah M.W. Salim, Shamsuddin Ibrahim, Abdul Rahman Kassim, Christine D. Fletcher, Joann C. Luruthusamy, Nur-Zati A. Mustafa, Elizabeth Butod, Ahmad Dzamir Dzulkiply. (in prep.) The habitat association of multiple taxa to Virgin Jungle Reserves and surrounding secondary forests. *Biodiversity and Conservation*.
- Potts, Matthew D., Lam Tzeng Yih, Hannah M.W. Salim, Shamsuddin Ibrahim, Abdul Rahman Kassim. (in prep.) Estimating biodiversity from small samples in tropical moist forests. *Forest Ecology and Management*.
- Salim, H.M.W., Ahmad Dzamir Dzulkiply, R.D. Harrison, C.D. Fledtcher, Abdul Rahman Kassim, M.D. Potts. (2012). Stingless bee (Hymenoptera: Apidae: Meliponini) diversity in dipterocarp forest reserves in Peninsular Malaysia. *The Raffles Bulletin of Zoology*, 60(1): 213-219.

ANNEX 5: Criteria Matrices

Evaluative Criteria	Questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of the UNCBD and GEF focal areas, and to the environment and development priorities at the local, regional and national levels for biodiversity conservation in Peninsular Malaysia's dry inland forest ecosystems?				
Is the project relevant to UNCBD and other international convention objectives?	<ul style="list-style-type: none"> How does the project support the objectives of the UNCBD? Does the project support other international conventions? 	<ul style="list-style-type: none"> UNCBD priorities and areas of work incorporated in project design Level of implementation of UNCBD in Malaysia and contribution of the project Priorities and areas of work of other conventions incorporated in project design Extent to which the project is actually implemented in line with incremental cost argument 	Project documents National policies: on Biodiversity, Forestry, National Physical Plan, Environment, etc.	Document analysis Interviews with project team, UNDP and other stakeholders
Is the project relevant to the GEF biodiversity focal area?	How does the project support the GEF biodiversity focal area and strategic priorities?	Existence of a clear relationship between the project objectives and outcomes and the GEF biodiversity focal area	Project documents GEF focal area strategy documents and other documents (GEF website)	Document analysis Interviews with UNDP and project team
Is the project addressing the needs of target beneficiaries at the local and regional levels?	<ul style="list-style-type: none"> How does the project support the needs of relevant stakeholders? Has the implementation of the project been inclusive of all relevant stakeholders? Were local beneficiaries and stakeholders adequately involved in project design and implementation? 	<ul style="list-style-type: none"> Strength of the link between expected results from the project and the needs of relevant stakeholders Degree of involvement and inclusiveness of stakeholders in project design and implementation 	<ul style="list-style-type: none"> Project partners and stakeholders Needs assessment studies Project documents 	<ul style="list-style-type: none"> Document analysis Interviews with relevant stakeholders
Is the project internally coherent in its design?	<ul style="list-style-type: none"> Are there logical linkages between expected results of the project (log frame) and the project design (in terms of project components, choice of partners, structure, delivery mechanism, scope, budget, use of resources, etc.)? Is the length of the project sufficient to achieve project outcomes? 	<ul style="list-style-type: none"> Level of coherence between project expected results and project design logic Level of coherence between project design and project implementation approach 	<ul style="list-style-type: none"> Program and project documents Key project stakeholders 	<ul style="list-style-type: none"> Document analysis Interviews with key stakeholders
How is the project relevant with respect to other donor-supported activities?	<ul style="list-style-type: none"> Does the GEF funding support activities and objectives not addressed by other donors? How do GEF-funds help to fill gaps (or give additional stimulus) that are necessary but are not covered by other donors? Is there coordination and complementarity between donors? 	Degree to which program was coherent and complementary to other donor programming nationally and regionally	<ul style="list-style-type: none"> Documents from other donor-supported activities Other donor representatives Project documents 	<ul style="list-style-type: none"> Document analysis Interviews with project partners and other relevant stakeholders
Does the project provide relevant lessons and experiences for other	Has the experience of the project provided relevant lessons for other future projects	Existence and relevance of the lessons provided for other projects	Data collected throughout the evaluation	Data analysis

Terminal Evaluation. Conservation of Biological Diversity through Improved Forest Planning Tools

Evaluative Criteria	Questions	Indicators	Sources	Methodology
similar projects in the future?	targeted at similar objectives?			
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?				
Has the project been effective in achieving the expected outcomes and objectives?	Have the expected outcomes (1-4) been achieved?	Use the indicators for outcomes 1-4 from the project document log frame	<ul style="list-style-type: none"> • Project Implementation Reports (PIR) • Closing Technical Reports of each activity • Project team and relevant stakeholders 	<ul style="list-style-type: none"> • Document analysis • Interviews with project team • Interviews with relevant stakeholders
How is risk and risk mitigation being managed?	<ul style="list-style-type: none"> • How well are risks, assumptions and impact drivers being managed? • What was the quality of risk mitigation strategies developed? Were these sufficient? • Were there clear strategies for risk mitigation related with long-term sustainability of the project? 	<ul style="list-style-type: none"> • Completeness of risk identification and assumptions during project planning and design • Quality of existing information systems in place to identify emerging risks and other issues • Quality of risk mitigation strategies developed and followed 	<ul style="list-style-type: none"> • Project documents • UNDP, project team and relevant stakeholders 	<ul style="list-style-type: none"> • Document analysis • Interviews
What lessons can be drawn regarding effectiveness for other similar projects in the future?	<ul style="list-style-type: none"> • What lessons have been learned from the project regarding the achievement of outcomes? • What changes could have been made (if any) to the design of the project in order to improve the achievement of the project's expected results? 	Existence of lessons	Data collected through evaluation	Data analysis
Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?				
Was project support provided in an efficient manner?	<ul style="list-style-type: none"> • Was adaptive management used or needed to ensure efficient resource use? • Were the project logical framework and work plans and any changes made to them used as management tools during implementation? • Were the accounting and financial systems in place adequate for project management and did they produce accurate and timely financial information? • Were progress reports produced accurately and in a timely manner? <p>Did progress reports respond to reporting requirements and adapt when requirements changed?</p> <ul style="list-style-type: none"> • Was project implementation as cost-effective as originally proposed (planned vs. actual expenditure)? • Did the leveraging of funds (co-financing) happen as planned? • Were financial resources 	<p>Availability and quality of financial and progress reports</p> <ul style="list-style-type: none"> • Timeliness and adequacy of reporting provided • Level of discrepancy between planned and utilized financial expenditures • Planned vs. actual funds leveraged • Cost in view of results achieved compared to costs of similar projects from other organizations • Adequacy of project choices in view of existing context, infrastructure and cost • Quality of results-based management reporting (progress reporting, monitoring and evaluation) • Occurrence of change in project design/implementation approach (i.e. 	<ul style="list-style-type: none"> • Project documents and evaluations • UNDP staff • Project team 	<ul style="list-style-type: none"> • Document analysis • Interviews

Terminal Evaluation. Conservation of Biological Diversity through Improved Forest Planning Tools

Evaluative Criteria	Questions	Indicators	Sources	Methodology
	utilized efficiently? Could financial resources have been used more efficiently? • Was procurement carried out in a manner making efficient use of project resources? • Was management focused on achieving results?	restructuring) when needed to improve project efficiency • Cost associated with delivery mechanism and management structure compared to alternatives		
How efficient were partnership arrangements for the project?	• To what extent were partnerships/linkages between institutions/organization encouraged and supported? • Which partnerships/linkages were facilitated? Which ones can be considered sustainable? • What was the level of efficiency of cooperation and collaboration arrangements? • Which methods were successful or not and why?	• Specific activities conducted to support the development of cooperative arrangements between partners • Examples of supported partnerships • Evidence that particular partnerships/linkages will be sustained • Types/quality of partnership cooperation methods utilized	• Project documents and evaluations • Project partners and relevant stakeholders	• Document analysis • Interviews
Did the project efficiently utilize local capacity in implementation?	• Was an appropriate balance struck between utilization of international expertise as well as local capacity? • Did the project take into account local capacity in design and implementation of the project?	• Proportion of expertise utilized from international experts compared to national experts • Number/quality of analyses done to assess local capacity potential and absorptive capacity	• Project documents and evaluations • UNDP staff • Beneficiaries	• Document analysis • Interviews
What lessons can be drawn regarding efficiency for other similar projects?	• What lessons can be learnt from the project regarding efficiency? • How could the project have been more efficiently carried out in terms of management structures, procedures, partnership arrangements? • What changes (if any) could have been made to improve efficiency?		• Data collected through evaluation	• Data analysis
Results: What were the positive and negative, foreseen and unforeseen changes to and effects produced by the project?				
What were the results of the project?	• What were the project's direct project outputs? • What were the project's short to medium-term outcomes? • What were the project's longer term impacts? • What were the project's global environmental benefits? • What were the project's replication effects and other local effects?	Use indicators from the logframe in the project document.	• Project documents and evaluations • UNDP staff • Beneficiaries	• Document analysis • Interviews
Sustainability: what is the likely ability of the project to continue to deliver benefits for an extended period of time after completion?				
What is the likely sustainability of the project?	• Is it likely that the project will continue to deliver benefits that are sustainable environmentally? • Is it likely that the project will continue to deliver benefits that are sustainable financially? • Is it likely that the project will continue to deliver benefits that are sustainable socially?		• Project documents and evaluations • UNDP staff • Beneficiaries	• Document analysis • Interviews

ANNEX 6: English translation of Submission paper to FRIM board



MFRDB

LEMBAGA PENYELIDIKAN DAN PEMBANGUNAN PERHUTANAN MALAYSIA

Malaysian Forestry Research and Development Board

Institut Penyelidikan Perhutanan Malaysia (FRIM), 52109 Kepong, Selangor Darul Ehsan

Tel: 603-62797000 Fax: 603-62731314

THIS IS AN ENGLISH TRANSLATION OF THE
ORIGINAL DOCUMENT WRITTEN IN BAHASA
MELAYU

MALAYISAN FORESTRY RESEARCH AND DEVELOPMENT BOARD
(MFRDB) NO. Xx/xxx

Agenda No.: xx

APPLICATION FOR ESTABLISHMENT OF CBioD UNDP-GEF - ITTO
ONE-STOP RESOURCE CENTRE PROJECT AT FRIM

1.0 PURPOSE

This paper aims to inform the Board on the application to established CBioD One-Stop Resource Centre Project in FRIM as a continuation of CBioD which will be expired in August 2012.

2.0 BACKGROUND

- 2.1 CBioD Project under the sponsorship of UNDP-GEF, ITTO and the Government of Malaysia has developed a Perak Biodiversity Tool Set through research for 5years starting in 2007. This tool set includes four main components: (i) Rapid Biodiversity Assessment Manual, (ii) Software for Tree Selection for Cutting (Tree Selection Tool), (iii) Benchmark Model and (iv) the Forest Management Landscape level Software (Forest Landscape Planning Tools).
- 2.2 Perak Biodiversity Tool Sets (PBTS) has a huge potential as a comprehensive used tool for productive forest management planning in Malaysia. PBTS production ensures a more transparent and effective manner of practical forest planning and management processes. This

set has also been proposed to be used as a compulsory criterion in the process of forest certification as appropriate, with its emphasis on biodiversity conservation elements that have been outlined in the MC&I.

- 2.3 However, the Perak Biodiversity Tool Sets still need to be updated. These planning tools needed to be further improved from time to time to meet the current needs of forest management.
- 2.4 Therefore, the establishment of a CBioD One-Stop Resource Center (CBioD Resource Center) is critical in ensuring the aspects of process improvement and technology transfer to the Forestry Department of Peninsular Malaysia can be carried out smoothly. One-Stop Resource Center will serve to collect information necessary as preparation for its full implementation. As a start, the collection of information will conduct pilot efforts in four states; i.e. Perak, Pahang, Kelantan and Terengganu. CBioD One-Stop Resource Center is proposed for a period of 12 months starting from September 2012 to August 2013.
- 2.5 CBioD One-Stop Resource Center will conduct the main function of the intended four pilot-state with the following activities:
 - i) Improvement of forest planning tools
 - a. Continue to conduct consultations with stakeholders on the front-end and back-end forest planning tools and stakeholders feedback documentation,
 - b. Improving front-end (graphic user interface, objective, the output and constant) landscape level forest planning tools as needed, and back-end (data module, the biodiversity module, economic modules and optimization module) of the modelling process and the accuracy of the output produced,
 - c. To conduct a test and verification session of forest planning tools at the landscape level (state).
 - ii) Technology transfer of the forest planning tools at a landscape level for stakeholders agency:
 - a. Consultation session with JPSM relating location and transfer of technology from FRIM to JPSM,

- b. Creating a CBioD server in JPSM and integrating the research planning tools amongst the JPSM network,
 - c. Provide series of training to JPSM officials' responsible relating back-end planning tools and operations.
 - iii) Collecting planning information required in the pilot state:
 - a. Consultation sessions with the stakeholders agencies in increasing the ability to use the Perak Biodiversity Tool Sets,
 - b. Assisting stakeholders agencies to collect and to process data required for simulation using the forest planning tool,
 - c. Establish a website for CBioD One-Stop Resource Center and continuously update the website and user manual,
 - d. Provide training on the use of Perak Biodiversity Tool Sets for the stakeholders agencies,
 - e. To produce Standard Operating Procedure (SOP) for Perak Biodiversity Tool Sets utilization.
- 2.6 For these purposes, THREE persons are needed as full-time support staff for CBioD One-Stop Resource Center. This includes two contract employees and a consultant for a period of 12 months to implement the planned activities (Appendix1). Terms of reference (TOR) for appointment of consultants is as described in Appendix2. Therefore, the allocation of RM100,000 from the Board is requested. The breakdown of the allocation is shown in Appendix 3.

3.0 PROPOSAL

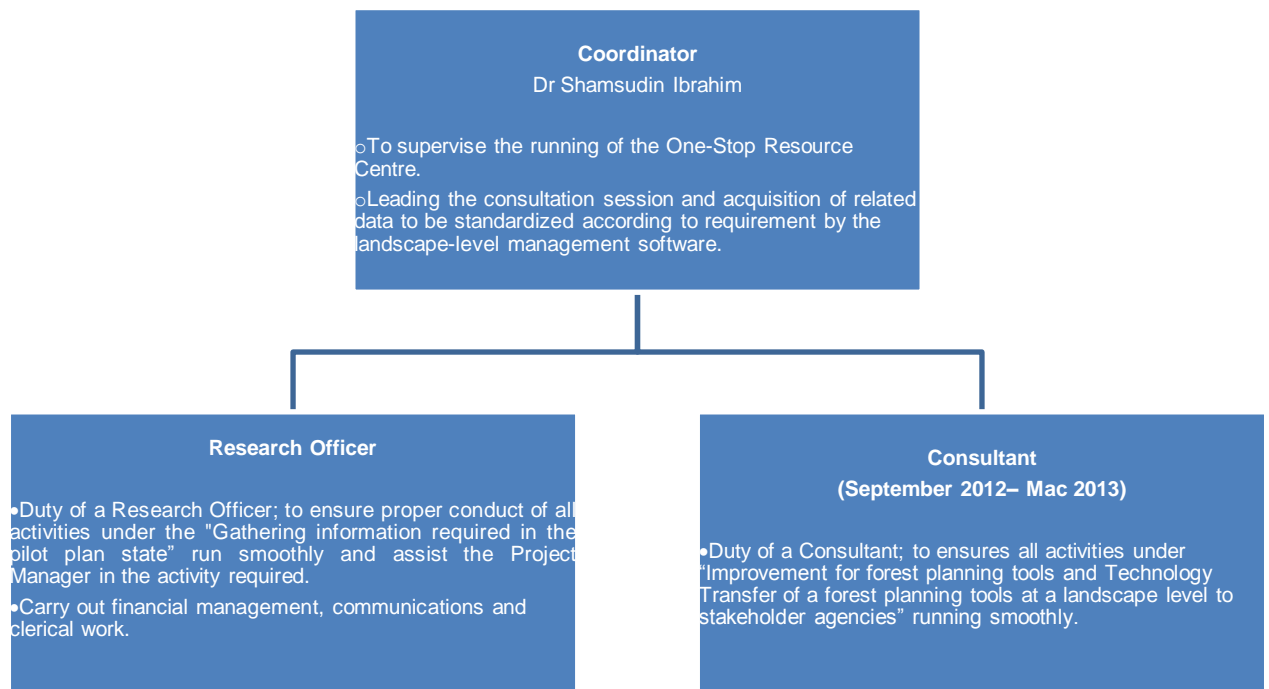
Members of the Board are requested to consider the establishment of CBioD One-Stop Resource Centre in FRIM and financial allocation of RM100,000.00. The allocation is for salary costs of 2 officers, administrative consultant fees, travel, cost of organizing the training and office equipment (Appendix 3).

4.0 CONCLUSION

Being taken for discussion and action as in paragraph 3.0 above.

Appendix 1

a. CBioD LocalResource Centerproject organization chart



b. Milage Chart for CBioD One-Stop Research Centre Project.

2012	September	:	Establish a one-stop resource center includes staff appointments.
	October – December	:	Consultation session with the Forestry Department of Peninsular Malaysia in the final stages of development of the planning tool.
2013	January – February	:	Technology transfer from FRIM to the Forestry Department of Peninsular Malaysia.
	March – July	:	Series of training with the Forestry Department of Peninsular Malaysia
	August	:	Final report.

Appendix 2

Terms of Reference for the consultant

The main tasks of the consultant under the CBioD One-Stop Resource Center project are as follows:

1. Improvement of forest planning tools
 - a. Continue to conduct consultations with stakeholders on the front-end and back-end planning tools, and documentation of forest stakeholder feedback,
 - b. Improving front-end (graphic user interface, objective, constants and output) landscape level forest planning tools as needed, and back-end (data module, biodiversity module, economic modules and the optimization module) of the modelling process and the accuracy of the output produced,
 - c. To conduct a testing and verification session of the forest planning tools at a landscape level (state)
2. Technology transfer for the landscape level forest planning tools to the stakeholder agencies:
 - a. Consultation session with JPSM relating location and technology transfer process from FRIM to JPSM
 - b. Create CBioD server in JPSM and the integration of planning tool between the JPSM network,
 - c. Provide training for JPSM officials responsible relating to the back-end planning tools and operations.

Appendix 3

Proposed allocation

No.	Particular	Rate /month	Unit	Total (RM)	Note
1	Research Officer (Jusa C)	-	-	-	Salary paid by the Board
2	Research Officer (Q41-P1T6)	4,000	12	48,000	
3	Consultant	40,000	1	40,000	To be paid as a <i>one-off</i> payment according to agreement in TOR.
4	Training and Transport	1000	10	10,000	
5	Office Equipment	200	10	2,000	
Grand Total				100,000	

ANNEX 7: Comparison of the 2003 Project Brief and the approved LFA

<u>2003 Project Brief</u> Project Objectives, Outputs, Activities and Expected Results" (2003: 22-44)	<u>2006 Project Document</u> Logical Framework Analysis (2006: 25-31)	Main Changes
Immediate Objective 1: Tools for ecological assessment of biodiversity in tropical forests are improved and disseminated	Outcome 1: Forest planners in Perak incorporate tools to measure impacts on biodiversity in their forest management planning	1. Switch to focus on capacity building in Perak 2. Switch to look at impact on bioD 3. Allows for use of generic tools
Output 1.1: Efficient statistical methods for estimating biodiversity from small samples	Output 1.1: Efficient statistical methods for estimating biodiversity from small samples	Unchanged
Output 1.2: Improved methods for assessing biodiversity within and between forest community types		Deleted
Output 1.3: Assessing biodiversity on a landscape level and improved understanding of the impacts of logging on biodiversity in logged forests and in adjacent or enclosed unlogged forests.	Output 1.2: Logging prescriptions that reduce impact on biodiversity	Changed substantially: Switched focus to developing operational prescriptions to reduce impact on biodiversity
Output 1.4: Manuals, including data sets and software, that explain how to implement the ecological assessment methods developed in the activities under Outputs 1.1-1.3	Output 1.3: Manuals and software that provide assistance and guidance in implementing biodiversity-friendly forest planning and harvesting	Changed slightly
	Output 1.4: Staff of Perak SFO and at least one other SFO trained in application of methods to measure biodiversity and in implementation of biodiversity-friendly forest planning and harvesting	New output introduced
Immediate Objective 2: Tools for economic valuation of goods and services associated with biodiversity in tropical forests are improved and disseminated	Outcome 2: Forest planners in Perak utilize tools for full valuation of goods and services in their forest management planning and operations	One output deleted Two new outputs One output changed slightly
Output 2.1: Data and models necessary for testing the accuracy and precision of: (i) alternate data collection procedures, and (ii) alternate model specifications (e.g., approximations that require fewer and cheaper data inputs).		Deleted output
	Output 2.1: Feasible methods for estimating non-extractive values of tropical rainforests.	New output
Output 2.2: Manuals, including data sets and software, that explain how to implement the valuation methods developed in Activities 2.1.1-2.1.4 and provide information on the degree of accuracy and precision that is sacrificed if the methods are based on less and lower quality data and simplified models.	Output 2.2: Manuals and software that provide assistance and guidance in full valuation of goods and services	Output simplified
	Output 2.3: Staff of Perak SFO and at least one other SFO trained in full valuation of goods and services	New output
Immediate Objective 3: Tools for integrating ecological and economic aspects of biodiversity into forest planning decisions at a landscape level are improved and disseminated	Outcome 3: Forest planners in Perak integrate ecological and economic tools in forest planning decisions at a landscape level	One output unchanged One output changed slightly One new output
Output 3.1: Improved models for predicting biodiversity within and between forest community types, taking into account logging status and location	Output 3.1: Improved models for predicting biodiversity within and between forest community types, taking into account logging status and location	Unchanged
Output 3.2: Improved forest planning model for predicting the impacts on biodiversity, and associated economic benefits and costs, of different allocations of forests in Perak between production and protection categories	Output 3.2: Models for predicting impacts on biodiversity and associated economic costs and benefits	Changed slightly
	Output 3.3: Staff of Perak SFO trained in application of models that integrate ecological and economic tools in forest planning decisions at a landscape level	New output
Immediate Objective 4: Enhance and disseminate knowledge as well as build capacity with view of replicating improved forest planning procedures	Outcome 4: Capacity exists to apply methods developed by the project in tropical forest management operations.	Output changed substantially: split into two new outputs which are more specific
Output 4.1: Enhance and disseminate knowledge biodiversity conservation through improved planning procedures		Output changed substantially: split into two new outputs
	Output 4.1: Revised Malaysian criteria and indicators of sustainable forest management incorporate procedures developed by the project as standard requirements	New output
	Output 4.2: ITTO criteria and indicators incorporate procedures developed by the project as standard requirements	New output

ANNEX 8: Evaluation Consultant Code of Conduct Agreement Form

Evaluation Consultant Code of Conduct Agreement Form

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Christian ^Shriver

Name of Consultancy Organisation (where relevant): CS Consulting & Management Sdn Bhd

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at (place) Kuala Lumpur on (date) 10 July 2012

Signature: 

Evaluation Consultant Code of Conduct Agreement Form

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Lim Teck Wyn

Name of Consultancy Organisation (*where relevant*): CS Consulting & Management Sdn Bhd

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at (*place*) Kuala Lumpur on (*date*) 10 July 2012

Signature: 