



INTERMEDIATE REPORT No. 3 - Technical & Financial Parts

Contract reference no: ASI/B7-301/98/679-015

Project Title: New Educational Tools for sustainable Management of Peatlands in the Humid Tropics/  
"PEATWISE"

Name of Beneficiary: Wageningen University, c/o Alterra-ILRI, P.O. Box 47, 6700 AA Wageningen, The Netherlands

Period covered by this Interim Report: 24 April 2005 - 22 April 2006

Due date of this Interim Report: 23 April 2006



PEATWISE is a joint project of:

- Wageningen University and Research Centre, Wageningen, The Netherlands
- University of Leicester, Leicester, United Kingdom
- University of Malaysia Sarawak, Sarawak, Malaysia
- University of Palangka Raya, Palangka Raya, Central Kalimantan, Indonesia.

PEATWISE project is co-sponsored by the EU Asia-link programme, the Department of Science and Knowledge Transfer of the Netherlands' Ministry for Agriculture, Nature and Food Quality and the participating universities.

## Contents

Executive Summary.....	v
I. Introduction.....	1
I.1 Project Outline .....	1
I.2 Main achievements and constraints.....	4
II. Description of Activities Conducted in the 3rd Year.....	5
II.1 Curriculum accreditation.....	5
II.2 Curriculum development .....	5
Unit .....	8
Core document.....	8
Case study .....	8
II.3 Distance learning .....	8
II.4 Marketing of the curriculum .....	10
II.5 Training of lectures and trainers .....	12
II.6 Test and evaluation.....	12
III. Proposed Activities Extension Period .....	13
III.1 Curriculum development .....	13
III.2 Marketing of the curriculum .....	13
III.3 Training of lecturers and trainers.....	14
III.4 Test and evaluation.....	14
III.5 Quality assurance .....	14
III.6 Symposium.....	15
III.7 Reporting and article writing.....	15
III.8 Curriculum maintenance .....	15
III.9 Follow-up activities.....	15
IV. Links with other projects/programmes .....	17
V. Assessment of the project .....	19
VI. Financial Issues. ....	21
Annex A Project team .....	23
Annex B Financial Claim 3rd Year (period 24 April 2005 – 22 April 2006) .....	25



## Executive Summary

This is the Intermediate Report No. 3 of the PEATWISE project, covering the period April 2005 - April 2006. The PEATWISE project addresses issues of sustainable land management, with particular reference to tropical peatlands, through the development of a new university curriculum by a multilateral network of south-east Asian and European Universities. The PEATWISE project is a joint undertaking of the University of Leicester, UK, University of Malaysia Sarawak, Malaysia, University of Palangka Raya, Indonesia and Wageningen University and Research Centre, The Netherlands. The overall objective of the PEATWISE project is to develop a curriculum on the sustainable development of peatlands by the introduction of innovative educational methods and tools, in order to promote the wise use of the resource and to enhance sustainable economic development, particularly in the areas of Sarawak, Malaysia and Central Kalimantan, Indonesia.

The PEATWISE project started in April 2003 and originally ran for 3 years. As the implementation phase was delayed, an extension of the project till December 2006 has been requested and agreed upon by the EU. The project is divided in three phases:

- Inception (May - September 2003);
- Development (November 2003 - December 2005);
- Implementation (January - December 2006).

This report describes the activities undertaken during the third year of the project implementation (April 2005 - April 2006), covering the second phase: development of curriculum. The main activities during this reporting period were:

- Activity 2 Curriculum development of the six training modules, including distance learning activities
- Activity 3 Marketing and implementing the curriculum

The total budget of the project is EUR 426.633 with an EU-contribution EUR 300.000. The expenditure incurred by the project up to 22 April 2006 is:

<b>Expenditure</b>	<b>Total expenditure (EUR)</b>	<b>Total eligible costs (EUR)</b>	<b>EU-contribution (70,32%) (EUR)</b>
Year 1 (24 April 2003 – 22 April 2004)	120.586	88.792	62.439
Year 2 (24 April 2004 – 22 April 2005)	161.846	100.817	70.895
Year 3 (24 April 2005 – 22 April 2006)	93.024	77.461	54.471
<b>Total</b>	<b>375.456</b>	<b>267.070</b>	<b>187.804</b>

Based on the total available budget and the expenditure up to the date of reporting (period 24 April 2003 – 22 April 2006) a budget for the extension period has been prepared. The proposed budget for the extension period is EUR 124.388 with an EU-contribution of EUR 87.470 (70.32%).



## **I. Introduction**

### **I.1 Project Outline**

This Intermediate Report No. 3 of the project “*New Educational Tools for Sustainable Management of Peatlands in the Humid Tropics/ PEATWISE*” covers the period April 2005 - April 2006. The PEATWISE project addresses issues of sustainable land management, with particular reference to tropical peatlands, through the development of a new university curriculum by a multilateral network of south-east Asian and European Universities. The PEATWISE project is a joint undertaking of the University of Leicester, UK, University of Malaysia Sarawak, Malaysia, University of Palangka Raya, Palangka Raya, Indonesia and Wageningen University and Research Centre, The Netherlands. The PEATWISE project is co-sponsored by the EU Asia-link programme, the Department of Science and Knowledge Transfer of the Netherlands’ Ministry for Agriculture, Nature and Food Quality and the 4 participating universities.

The overall objective of the PEATWISE project is to develop a curriculum on the sustainable development of peatlands by the introduction of innovative educational methods and tools, in order to promote the wise use of the resource and to enhance sustainable economic development, particularly in the areas of Sarawak, Malaysia and Central Kalimantan, Indonesia.

The overall objective is translated in seven project objectives:

- Upgrading of skills and expertise of students and university staff at the University of Malaysia Sarawak and the University of Palangka Raya;
- Promotion of regional scientific co-operation, by the development of a common curriculum, the pooling of specific expertise from the contributing institutions of higher education, the mutual recognition of study programmes and diplomas and the possible exchange of study credits;
- Promotion of networking between (two) European universities, i.e. Wageningen University and Research Centre, The Netherlands and the University of Leicester, U.K., and two South East Asian universities, i.e. University of Malaysia Sarawak and the University of Palangka Raya, Kalimantan, Indonesia;
- Development of innovative educational methods and tools, such as distance education and digital education support systems, and the introduction of innovative knowledge and experience exchange facilities, such as video-conferencing and Internet-based seminars and workshops;
- Reduction of the barriers to Malaysian and Indonesian students, enabling them to follow (part of their) study programs abroad, either in the region or in Europe;
- Strengthening of the country's institutional capacity to identify and implement “*wise use*” strategies for tropical peatlands;
- Sustainable agricultural and forestry development and the simultaneous conservation of ecosystems.

In the overall logical framework of the PEATWISE project, the project objectives have been translated in the expected outputs and corresponding activities (Table 1).

Table 1 Overall logical framework of the PEATWISE Project

	<b>Intervention Logic</b>	<b>Objectively verifiable indicators of achievement</b>	<b>Sources and means of Verification</b>	<b>Assumptions</b>
<b>Overall objectives</b>	Strengthening of the country's institutional capacity to identify and implement "wise use" strategies for tropical peatlands	More comprehensive legislation and development plans for sustainable development and management of peatlands	<ul style="list-style-type: none"> <li>• Surveys and research</li> <li>• Independent local and international soil and water scientists (advisory work and scientific publications)</li> <li>• Agricultural and Forestry organisations (through feedback to stakeholders)</li> </ul>	Ongoing commitment of the Malaysian and Indonesian governments to enhance sustainable land development and protection of biodiversity and ecosystems
<b>Project purpose</b>	Development of curriculum on the sustainable development of peatlands by the introduction of innovative education methods and tools	<ul style="list-style-type: none"> <li>• Detailed and int. acknowledged curriculum</li> <li>• Students numbers</li> <li>• University staff numbers</li> <li>• Study material, Distance Learning modules</li> <li>• Infrastructure for internet-based communication / conferencing</li> </ul>	<ul style="list-style-type: none"> <li>• Int. Universities (acknowledgement of curriculum and student exchange)</li> <li>• University's students administration</li> <li>• University's annual programmes, individual work plans of staff, task descriptions</li> <li>• Inventory (written and digital material)</li> <li>• Inventory of infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• The market needs do not dramatically deteriorate</li> <li>• Student's access to higher education does not deteriorate</li> <li>• Work conditions for university staff do not deteriorate</li> <li>• Financial situation of universities does not deteriorate</li> </ul>
<b>Expected results</b>	<ul style="list-style-type: none"> <li>• Improved skills and expertise of students and university staff</li> <li>• Regional scientific co-operation</li> <li>• Networking European-SE Asian universities</li> <li>• Lower barriers SE Asian students to follow study programs</li> <li>• study programs abroad</li> <li>• Innovative educational methods and tools</li> <li>• Internet-based communication / conferencing</li> </ul>	<ul style="list-style-type: none"> <li>• International reputation of staff, students</li> <li>• (scientific publications)</li> <li>• Common curriculum, pooling of expertise, mutual recognition of study programmes</li> <li>• and diplomas, exchange of study credits</li> <li>• Number of staff and information exchange</li> <li>• Ratio of foreign students</li> <li>• Study material, including Distance Learning modules</li> <li>• Infrastructure for internet-based communication / conferencing</li> </ul>	<ul style="list-style-type: none"> <li>• Number of scholarships offered</li> <li>• Number of invitations for guest lecturing, workshops, conferences, etc.</li> <li>• Scientific journals and conference papers</li> <li>• Institutionalised (official) protocols</li> <li>• MoU, number of expert missions, number of documents exchanged, etc.</li> <li>• University's students administration</li> <li>• Inventory of written and digital material</li> <li>• Inventory of infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• International scholarship programmes continue</li> <li>• University's attitude towards regional co-operation does not change, regional</li> <li>• Political situation does not deteriorate</li> <li>• Universities in Europe and Asia will continue to promote networking</li> <li>• International political relations do not deteriorate, scholarships programmes will continue</li> </ul>

Activities	Means:		
<b>Phase 1 - Inception</b>			
1(b) Assessment of market needs, required expertise profiles, required volume of expertise	(Local) personnel, telecommunication, transport, specialists able to give "best professional guesses"	Questionnaires, inception report	Willingness of stakeholders to co-operate
1(c) Inventory existing curricula and courses	(Local) personnel, educational institutes	University guides, annual reports, etc.	Willingness of ext. institutions to co-operate
1(d) Inv. existing educational infrastructure, etc.	Personnel, telecommunication facilities	University annual reports, Inception report	Adequate university administration
1(e) Synthesis Workshop, set-up of detailed work plans	Personnel, reproduction facilities, telecom.	Inception report	
1(f) for Phase 2, detailed logical framework	Personnel, admin. and communication facilities, workshop rooms.		
<b>Phase 2 - Development</b>			
2(a) Establishment Working groups	Personnel, telecommunication / video-conferencing		
2(b) Curriculum Accreditation	Working group (personnel), telecom.		
2(b) Mutual recognition of study programmes	Working group (personnel), telecom.		
2(c, f) Information & Communication Technology	Working group, computer hardware and software, training		
2(d) Ecology	Staff, research facilities (study/training)		
2(d) Hydrology	Staff, research facilities (study/training)		
2(d) Agriculture and Forestry	Staff, research facilities (study/training)		
2(d) GIS and Remote Sensing	Staff, research facilities study/training)		
2(e) Experimental /field course	Staff, training material, transport		
2(f) Distance Learning	Working group (personnel), study, training, equipment, supplies, and telecom. facilities		
2(g) Financial compensations. Mid-term review	Working group (personnel), telecom. Personnel (external), admin. and communication facilities, rooms		
<b>Phase 3 – Implementation</b>			
3(a) Marketing of the curriculum	(Local) personnel, telecom. facilities, transport		
3(b) Training of lecturers and trainers	Personnel, training facilities		
3(c) Tests and evaluations	Personnel, administrative and communication facilities		
3(e) Symposium, reporting and article writing	Personnel, admin. and communication facilities, workshop rooms		
3(f) Curriculum maintenance	Advisory Committees, ICT facilities		

The PEATWISE project started in April 2003 and originally was intended to run for 3 years. As there were some delays in the project execution, an extension of the project to the end of December 2006 was requested and agreed up on by the EU. The project is divided in three phases:

- Inception (May - September 2003)
- Development (November 2003 - December 2005)
- Implementation (January – December 2006).

## **I.2 Main achievements and constraints**

This report describes the activities undertaken during the third year of the project's implementation (April 2005 - April 2006).

The main achievements during this reporting period were:

- Activity 2 Curriculum development of the six training modules, including distance learning activities
- Activity 3 Marketing and implementing the curriculum

These activities are discussed in detail in Chapter II.

## II. Description of Activities Conducted in the 3rd Year

### II.1 Curriculum accreditation

At UNPAR, the post-graduate programme that is being developed by the project is still under (Indonesian) accreditation. Last year, it was assigned the “Level C”, which means that the programme is still not accredited. It is expected that the “Level B” can be achieved in the coming year(s). This level will allow for providing masters courses that are acknowledged within Indonesia. However, the “Level A” is required for an international programme.

At UNIMAS, the Post-graduate diploma course in peatland management has already endorsement by the University Senate as a Post-graduate Diploma program in 2004.

### II.2 Curriculum development

The module development is an activity that is jointly undertaken by the four partners: for each module one partner has taken the lead, but all partners contribute to the development (Table 2).

Table 2 Working groups for the module development

Activity	Leading	UNIMAS	UNIPAR	UNILEI	WUR
1. Curriculum accreditation and pr		Ted	Suwido	David	Ron
2. Module 1 - Ecology	UNILEI/Susan Page	Siti Rubiah	Sehat	David	Henk R.
3. Module 2 -Water	WUR/Herco Jansen	Lau Wan	Adi, Sulmin	David	
4. Module 3 Land use	UNPAR/Yustinus	Sulaiman		Sue	Henk W.
5. Module 4 Human dimension		Ted		Sue H.	Henk H
6. Module 5 GIS	UNIMAS/Gabriel Tonga		Suwido, Kumpiady	Andy M.	
7. Module 6 Project and field	WUR/Ron van Lammeren	Norhadi	Komang		Henk R.
8. ICT	UNIMAS/Murtedza		Jagau	Sue Richard	
9. Distance learning	WUR/Ron van Lammeren	Fitri	Tampung		Ron, Herco
10. Project management	UNILEI/Susan Page				
	WUR/Henk Ritzema	SCAB			

The initial versions of the course modules will be in the form of PowerPoint presentations (Table 3), which will be further developed into a full fledge course material for both class room and distance learning. Module development will continue and modified based on the experiences obtained during the on-going test programme. Examples of these PowerPoint formats of the lectures can be downloaded from the peatwise-website ([www.peatwise.alterra.nl](http://www.peatwise.alterra.nl) under learning modules - short course).

Table 3 Progress with the module development

<b>Module</b>	<b>Achieved per 31/12/2005</b>
1. Ecology, Natural Resources and Environment	80% PowerPoint materials completed
2. Water Resources and Hydrology	85% PowerPoint materials completed
3. Soil Resources and Land Use	60% PowerPoint materials completed
4. Human Dimensions and Resource Economics	90% PowerPoint materials completed
5. GIS & Remote Sensing	85% PowerPoint materials completed

During the reporting year, the emphasis was on the development of the course modules for the post-graduate diploma course that started at UNIMAS in January 2006. Constraint in resource persons was noted for three areas:

- Peat hydrology processes and modelling
- Remote Sensing
- Additional case studies for issues/problems related to peatland development apart from case studies for Sarawak.

Although two of UNIMAS teaching staff have been sent for a short (one month) training/exposure to the state-of-the-art development in these two disciplines at the University of Wageningen, the level of skills acquired by these staff is still considered as relatively inadequate for a high quality delivery (as their background PhD education are not exactly in these respective disciplines).

Measures to address the aforementioned problem include:

- Outsourcing additional resource persons. Peat hydrology teaching was complemented by Henk Ritzema (Alterra, WUR), Dr Tie (Agrosol) and Mr Alan Tan (DID); remote sensing was complemented by Danny de Roo (Wageningen University), and Indonesian case studies for peatland development was delivered by Dr Adi Jaya and Dr Sulistiyanto (both from Universitas Palangka Raya).
- Engaging UNIMAS staff from other Faculties; this was not done as these staff were heavily committed to other teaching assignments.
- Exposure of UNIMAS staff to Indonesian case studies; a training-of-trainer workshop will be arranged at Universitas Palangka Raya for this purpose.

The University of Leicester team have been working on the Module on Ecology, plus an additional Module on Environmental Risk Assessment. Progress is well advanced on these activities and is summarized below.

Module 1 – Ecology comprises 6 Learning Units (each the equivalent of 10 UK higher education credits = 18 credits under the European Credit Transfer System (ECTS)).

The learning units and progress towards completion are outlined below:

***Unit 1 Introduction to Ecology & Biodiversity***

- Content: Definitions; what is biodiversity; community dynamics; ecosystem dynamics & nutrient cycling; principles of eco-hydrology; restoration of biodiversity.
- Progress: Most of this material has been written.

***Unit 2 Historical and Geological Contexts***

- Content: Evolution of the biosphere; Cambrian radiation of life; continental drift; climatic fluctuations, cycles, events; extinctions and radiations; patterns of biodiversity.
- Progress: Half of this material has been written, remainder to be completed in 3 months.

**Unit 3 Measurement of Biodiversity**

- Content: Estimating population size; practical sampling concepts; species richness; measures of heterogeneity & evenness; comparing niche breadth and overlap.
- Progress: All of this material has been written.

**Unit 4 Scales**

- Content: Within-species; between-species; gradients – latitude and other scales; habitat fragmentation as a threat to biodiversity.
- Progress: All of this material has been written.

**Units 5 & 6 Case Studies in Biodiversity Conservation**

- Content: Theories in conservation biology; international laws & treaties; case studies: species response to climate change; populations endangered by trade, over-exploitation, conflict with man; impact of alien species; re-introduction of formerly extinct species; impact of wildlife diseases; species constrained by space.
- Progress: Most materials written, but case studies still being developed. Several case studies will be illustrated using short films specifically commissioned for this project.

An example of how the materials have been produced is presented for Unit 1:

- Stage one: Literature review in which relevant text books and research papers were collated. For each topic, one or more core documents was prepared accompanied by a number of contemporary case studies. These took the form of word documents. An overview of these is shown in the Table 4.
- Stage two: Documents in this raw form are clearly not suitable for delivering in a distance learning mode. The second stage required these documents to be adapted to a format that could be delivered electronically and, preferably, on-line (see section below on Distance Learning).

In addition, the University of Leicester team are developing a unit entitled **Environmental Risk Assessment and Management**. It was originally envisaged that this would form a unit in the Ecology module, but as the module developed, it became clear that ERA would be best presented as a separate module, carrying a minimum of 18 ECTS (final credit weighting still to be determined).

Content:

Unit 1	Introduction
Unit 2	Scientific foundations of ERA
Unit 3	Contaminant fate in ecosystems
Unit 4	Human risk assessment
Unit 5	Preliminary problem formulation
Unit 6	Implementing risk analysis.

Progress: About two thirds of the materials for this module have been written.

Table 4 A brief synopsis of materials prepared on nutrient cycling and biodiversity

Unit	Core document	Case study
Nutrient cycling	Key concepts	Iron limitation in the Southern ocean Eutrophication in Chesapeake Bay Subsequent core documents
	Phosphorus cycle Nitrogen cycle Soil and its development	Earth worms and termites
	Erosion and fluvial processes	The river Tana Water and sewage treatment
	Agriculture - sustainable land use	Continuous cropping experiments Human alteration of the nitrogen cycle Legumes in west African cropping systems Nutrient cycling in irrigated rice systems
	Nutrient cycling in tropical forests	Sarawak nutrient gradient study Phosphorus cycling in tropical dry forests Phosphorus cycling in floodplain forest (Orinoco river) and in Hawaiian montane soils
	Patterns of biodiversity	Global gradients in biodiversity
Species area curves Island biogeography		Coros model Experimental mangrove "islands" The recolonisation of Krakatau
Applications of ETIB (Equilibrium Theory of Island Biogeography) to conservation		The Northern spotted owl Caribbean butterflies Use of corridors by butterflies Madagascar herpetofauna Changes on Singapore

### II.3 Distance learning

The University of Leicester's main tool for delivering this kind of material is Blackboard <https://blackboard.le.ac.uk/entry.html>. Blackboard allows tutors to make teaching resources available online and to monitor their use. Additional tools allow for on line assessment, communication between students and staff and course feedback. Peatwise staff at the University of Leicester have trialled two approaches to delivering course materials using Blackboard:

- Units of Module 1 were presented as a series of web pages. This allows teaching material to be broken down into digestible chunks, to be presented in an attractive way and for students to navigate easily through material as they see fit. Links with additional resources (external websites) are also provided
- The unit on nutrient cycling was presented using "Breeze" presentations. This allows students less freedom to navigate during their first encounter with the material but does offer some choice to students and is (at this stage) more interactive than the web page format. Breeze is a multi media presenter that works in conjunction with PowerPoint.

Students use the Breeze presenter to view (at their own pace) PowerPoint presentations accompanied by notes. There is an additional facility to add an audio accompaniment if desired. Supporting documents can be added as attachments. Video clips and animations can be incorporated into presentations and a quizmaster allows a certain amount of interactivity.

The module's structure is based on the assumption that students come to study environmental sciences from a range of backgrounds. The first presentation begins at a very basic level but allows students to move through quickly to the next stage if they feel confident enough to do so. This is achieved through a series of self assessment tests. At key points in the presentation students are asked to answer a series of questions to which they receive feedback. Subsequently they are offered a choice to find out more about a particular subject area (say the nitrogen cycle) or to move on to the next stage if they feel this is appropriate.

During a trial using Leicester University, MSc students both units were supported using an on line discussion forum relating to applied topics within each subject area. Tutors moderated these, although they did not form part of any assessment. Feedback from students who used the two modules is still to be obtained. The trial materials are still seen by the Peatwise staff as being in a draft format and there is still further development work to be done. Areas for consideration are as follows:

- Breeze presentations should be written for at least the whole of the nutrient cycling unit.
- Self assessment tests need to be written for all of the core presentations.
- Summative assessment tests should be written for the module as a whole. Whilst these need not form part of any formal assessment they would allow tutors to monitor the progress of genuinely remote students and to update teaching materials where necessary. They would also allow students to assess their own understanding.
- Other methods of assessment need to be developed. These could include both minor assignments - the main purpose of which might be to engage remote students with the course materials and to allow tutors to monitor students' progress. The formalised assessment of students' contributions to discussion boards should also be considered. Larger (written) course assignments should be set.
- The use of an audio accompaniment should be considered for Breeze presentations.
- The interrelation of these materials with other modules should be considered. If appropriate, links between presentations or other materials in other units could be added. Additional materials, for example a glossary to cover all subject areas, might be considered.
- Flexible delivery must be possible. The most suitable way for arranging the various materials available to the Peatwise project will allow teaching materials and assessment tools to be assembled quickly and in a variety of ways to permit their use by a wide range of courses and students.

At Alterra-ILRI, the following distance-learning activities are conducted:

- The development of a web-based decision-support system. The decision-support system will be used in the module Peatland Hydrology and Water Management. Student will use it to assess the impact various land-use options have on subsidence, CO<sub>2</sub>-release, ect. In the extension phase, a demo of the decision-support system will be released on the Peatwise-website ([www.peatwise.alterra.nl](http://www.peatwise.alterra.nl) under learning modules – decision support system).
- E-learning package for the subjects “agricultural land drainage” and “groundwater” are developed.

- The internet-based exercises on GIS and Remote sensing are adapted so that they can be used in the course module on GIS and RS.

At UNIMAS, the course materials for most of the modules are not completely ready, thus the next stage, i.e. turning into packages of on-line courseware for distant learning mode cannot be accomplished. This problem is compounded by the fact that the person assigned to implement this task is currently on her study leave in UK (London). Measures to address the aforementioned problem include:

- Declare this component of Peatwise project as an unaccomplished task that requires a new phase of Asia-Link support.
- Engaging partner institution, namely Leicester University (UNILEI), to assist in the technicalities of developing and managing course delivery via distance learning during the next phase. The UNIMAS personnel assigned to this task will have completed her PhD study by then and will be directly involved with UNILEI in this initiative.

At UNPAR, computer facilities were upgraded during the reporting period. Activities on distance learning will be initiated during the extension phase.

#### **II.4 Marketing of the curriculum**

At UNIMAS, the Programme was advertised in late December 2005 (Figure 1). Altogether there were 21 applications received and 17 were found qualified (meeting the minimum entry requirement). Offer letters were issued to the 17 successful candidates. The PEATWISE academic programme was officially launched at UNIMAS on 15 January 2006. However, when the first lecture commenced (started with Module 7: GIS and Remote Sensing for Peatland Management), only eight students turned up and registered. As the course proceeded to the next modules (Module 1: Ecology, Natural Resources and the Environment, and Module 2: Water Resource and Hydrology of Peatland Catchment) only seven students remained in class.

Through enquiries, it was found that the reasons for their not accepting the offer, and also for dropping-out were:


- a) A few of those who initially expressed their interest to enrol in the Programme found that they are not actually in the position to be relieved from their current duties, even during weekends.
- b) Others realised that they are not in the position to 'sacrifice' their weekends.
- c) These candidates also resent the possibility of having to attend classes other than on weekends (they were informed of the possibility of conducting classes on Thursdays and Fridays in cases where a particular resource person will have to conduct classes straight from Thursday/Friday through weekend).
- d) One of the candidates was interested to register only for the first module (Module 7).

Measures to address the aforementioned problems include:

- i) Gathering all interested candidates and negotiate for the most acceptable mode of offer (e.g. strictly on weekends, Saturdays or Sundays only, alternate weekends etc.). This was not done due to time constraint.
- ii) Offering through distance learning mode. This was **not** done as the course materials have yet to be packaged for distance learning mode and placed on-line.
- iii) Through a combined mode i.e. (i) and (ii).

The programme (6 modules) is scheduled to complete in a maximum period of 12 months (including 3 months allocated for research exercise).

Figure 1 Advertisement of the Post-graduate programme at UNIMAS published in the local newspapers.



**Special Post-graduate Diploma Programme  
at UNIMAS**

A **European Union** funded education project undertaken by a **consortium of South-east Asian and European universities** is inviting applications for a **tuition-fee-free** Post-graduate Diploma in Peatland Management to be conducted at Universiti Malaysia Sarawak. This education programme is based on a curriculum that incorporates up-to-date research results and management tools useful for enhancing skills and expertise needed to promote the wise use of natural resources, especially of peatlands.

This Program comprises three modules of 26 credit hours. Courses include Ecology, Natural Resources and the Environment; Water Resources and Hydrology of Peatland Catchments; Peat Soils and Land Use; Human Dimensions and Resource Economics in Peatland Management; GIS and Remote Sensing; and Interdisciplinary Research Methodologies.

The candidates for this Programme must possess:

- A bachelor of science or agriculture or engineering degree with a minimum CGPA of 2.5 or an equivalent second Class Honours from a recognised University, or
- A bachelor of science or agriculture or engineering degree with at least two years of full-time relevant working or professional experience, or
  - Other equivalent qualifications approved by the Senate.

The course will run on a **flexi-time mode** (most lectures will be during weekends) over a period of one year or less. Lectures will be conducted in English and the resource persons will be from Unimas and partner institutions. Application forms can be obtained from Dekan, Pusat Pengajian Siswazah, Universiti Malaysia Sarawak, 94300 Kota Samarahan, or from the Unimas website <http://www.unimas.my>. The closing date for submission of application forms is **8 January 2006**. For further enquiries about this program please write to Dr Harwant Singh at [terratee@frst.unimas.my](mailto:terratee@frst.unimas.my).

## **II.5 Training of lectures and trainers**

As mentioned in section II.2, Wageningen UR assisted UNIMAS with the implementation of the modules on GIS & RS and Hydrology and Water Management. Mr. Danny de Roo, MGI student of Wageningen UR, visited UNIMAS in the period November 2005 – February 2006. Under the guidance of Dr. Ir. Ron van Lammeren, Danny de Roo assisted Dr. Harwant Singh with the updating and modification of the exercises on GIS and RS from Wageningen to incorporate local-specific information. Danny also assisted with the implementation of the course. Henk Ritzema, also for Alterra-ILRI, visited UNIMAS in March to assist Dr. Lau Seng with the development and implementation on the module Hydrology and Water Management. From Wageningen, Herco Jansen assisted backstopping for the model development.

## **II.6 Test and evaluation**

Each module of the post-graduate course conducted at UNIMAS was evaluated. The results of these evaluations will be processed in the extension period.

### III. Proposed Activities Extension Period

The partner met in Can Tho Vietnam during the RESTORPEAT Annual Workshop and agreed upon the programme for the extension period (Table 5). The proposed activities are discussed in this chapter.

Table 5 Plan of activities during the extension period (23 April – 22 December 2006).

<b>PEATWISE Project – Activities Year 3:</b>				
<b>Year &amp; month</b>	<b>Activity number</b>	<b>Activity</b>	<b>Location (city)</b>	<b>Leading partner</b>
2006				
Jan – Dec	2 (d)	Curriculum development	Kuching and Palangka Raya	All
Jan	3	Start of Phase 3: Implementation		
Jan – Dec	3 (a)	Marketing of the curriculum	South East Asia	UNIMAS, UNPAR
March – June	3 (b)	Training of lecturers and trainers	Kuching and Palangka Raya	UNIMAS, UNPAR, WUR, UNILEI
Jan – Dec	3 (c)	Tests and evaluations	Kuching and Palangka Raya	UNIMAS, UNPAR
Jan – Dec	3 (d)	Quality assurance	Kuching and Palangka Raya	UNIMAS, UNPAR, WUR, UNILEI
Sep	3 (e)	Symposium	Kuching or Palangka Raya	UNIMAS, UNPAR, WUR, UNILEI
Sep – Dec	3 (e)	Reporting and article writing	Kuching, Palangka Raya, Wageningen, Leicester	UNIMAS, UNPAR, WUR, UNILEI
Cont	3 (f)	Curriculum maintenance	Kuching and Palangka Raya	UNIMAS, UNPAR

#### III.1 Curriculum development

The initial versions of the course modules are in the form of PowerPoint presentations. In future, these presentations will be further developed into a full fledged course material for both class room and distance learning. Module development will continue and modified based on the experiences obtained during the on-going test programme.

#### III.2 Marketing of the curriculum

The website (<http://www.peatwise.alterra.nl/>) will be further developed so that it can be used to advertise the course modules, both for classroom programmes at UNPAR and UNIMAS as well as distance learning. Distance learning and e-learning tools will be further developed based on the materials (& experiences) provided by WUR and UNILEI. For this purpose WUR & UNILEI project Staff will visit both Palangka Raya and Kuching. The website will also provide a forum for discussion and feedback on issues related to educational and research needs by stakeholders.

The project will prepare a paper and presentation for the IPTRID/ICID International Workshop “*Monitoring and Evaluation of Capacity Development Programmes*” to be held during the 57<sup>th</sup> International Executive Council meeting of the International commission on Irrigation and Drainage (ICID) on 14 September 2006 in Kuala Lumpur, Malaysia.

Finally a symposium will be organised In September 2006, a symposium will be organised in Kuching and/or Palangka Raya to present the finding of the project, including the test and evaluation of the try-out programme currently organised at UNIMAS and UNPAR (see Chapter III.5).

### **III.3 Training of lecturers and trainers**

The introduction of new, innovative educational methods and tools, such as distance learning modules and/or internet-based education support systems, requires also new, additional didactical and technical skills for lecturers and university support staff. Tailor-made courses will be organised for lecturers and trainers of the universities of the Malaysia Sarawak University and the Palangka Raya University (“train-the-trainers”).

University support staff will also be trained to assist them with the introduction of specific technical infrastructure, required for distance learning, video-conferencing, internet-based meetings and seminars, etc.

The train-the-trainers courses will be a joint effort of the University of Leicester and the Wageningen University and Research Centre: Guest lecturers from WUR and UNLEI will visit UNIMAS and UNPAR to (i) assist with the finalization of the curriculum development; (ii) present lectures and (iii) train local staff members.

### **III.4 Test and evaluation**

Workshops to test the draft curricula were already organised in 2005 and currently the complete one-year programme is conducted at UNIMAS and other try-out will be organised at UNPAR. ‘Developmental testing’ not only involves students but the courses are open and have attracted post-graduate students already working in peatland management and development. The ongoing training activities are evaluated and the results will be presented in the final symposium and other workshops, e.g. the IPTRID/ICID International Workshop “*Monitoring and Evaluation of Capacity Development Programmes*” (see Chapter III.2).

### **III.5 Quality assurance**

To ensure that the PEATWISE academic programme can be efficiently implemented, the following measures are essential:

- Appointment of a Technical Manager to operate/manage the Programme
- Development of Programme Management Guidelines, addressing issues such as programme marketing, academic committee, resource persons, academic infrastructure, fee schedule, etc.

### **III.6 Symposium**

In September 2006, a symposium will be organised in Kuching and/or Palangka Raya to present the finding of the project, including the test and evaluation of the try-out programme currently organised at UNIMAS and UNPAR. The main objective of the symposium is to exchange experiences in education capacity-building between the four PEATWISE partners and other involved in similar activities.

### **III.7 Reporting and article writing**

Already during the development phase various reports, papers and posters were prepared and presented both at the local scene in Sarawak and Palangka Raya as well as to an international audience, e.g. to the other partners of the STRAPEAT and RESTORPEAT project, the international peat society (see Chapter II.7). Other papers and presentations are foreseen for this year, i.e. at the final symposium (Chapter III.5) and the IPRID/ICID Workshop in Kuala Lumpur (Chapter III.1)

### **III.8 Curriculum maintenance**

The curriculum accreditation process is rather lengthy, having to go through various institutional and ministerial authorities/committees. At UNIMAS, the process has been initiated; this could not have started earlier as the process required the outcome of the market survey and thus this indicative structure of the course content. UNIMAS expects to obtain a decision/approval by the Ministry of Education before the project ends in December 2006. A similar process has been initiated at UNPAR.

### **III.9 Follow-up activities**

Marketing and updating the curriculum especially for distance learning activities is a lengthy process that requires a lot of attention and skills. These activities, among others, will continue after the project ends in December 2006. As it is foreseen that this required additional inputs and support, the project partners are currently exploring the options to prepare a proposal for a follow-up project under the EU Asia-link – 2006 -Call for Proposals.



#### IV. Links with other projects/programmes

The PEATWISE partners are participating in a number of projects on research and knowledge dissemination on tropical peatland in Southeast Asia (Table 6). The knowledge generated in these projects is used to develop the six PEATWISE learning modules. In particular, the cooperation with the RESTROPEAT (the follow-up/continuation of the Strapeat) project is important, as the PEATWISE project is an initiative of four of Restorpeat partners to disseminate the knowledge and experiences obtained in the Restorpeat/Strapeat Projects.

Table 6 Projects on tropical peatlands in which the PEATWISE partners are participating.

Project	Strategies for implementing sustainable management of peatlands in Borneo / STRAPEAT
Country	Indonesia & Malaysia
Location	Borneo
Period	2001-2004
Client/donor	EU, INCO-DEV
Executing Agency	Alterra-ILRI (NL), University of Leicester (UK), University of Palangka Raya (Ind.), UNIMAS (Mal) and 8 research organizations from UK, Germany, Indonesia and Malaysia
Type of project/work	Formulation of strategies for implementing improved sustainable management of tropical peatlands and strengthen developing country research and institutional capability
Website	<a href="http://www.strapeat.alterra.nl">www.strapeat.alterra.nl</a>
Project	Restoration of tropical peatlands / RESTORPEAT
Country	Indonesia, Malaysia and Vietnam
Location	South east Asia
Period	2004-2007
Client/donor	EU, INCO-DEV
Executing Agency	Alterra-ILRI (NL), University of Leicester (UK), University of Palangka Raya (Ind.), UNIMAS (Mal), <b>Can Tho University</b> , Vietnam, 8 research organizations from UK, Germany, Indonesia and Malaysia and the private company <b>VAPO Oy</b> , Finland.
Type of project/work	The RESTORPEAT project is a continuation of the <u>STRAPEAT</u> project.
Website	The RESTORPEAT aim is to promote sustainable use of renewable natural resources. <a href="http://www.restorpeat.alterra.wur.nl">www.restorpeat.alterra.wur.nl</a>
Project	Asia-Europe Collaboration in knowledge and research on integrated water resources management (IWRM)" / AIRCO
Country	Indonesia, Malaysia and UK
Location	Sumatra and East Kalimantan
Period	2005-2008
Client/donor	EU, Asia-Link
Executing Agency	Alterra-ILRI (NL), University of Leicester (UK), University of Jambi, Sumatra (Ind.), Mulawarman University, East Kalimantan (Ind.).
Type of project/work	To promote and support the technical proficiency of Indonesian University staff on integrated water resources management (IWRM) at the river basin scale, with particular emphasis on coastal peat land and mangrove conservation with their important functional roles in the regulation of river basin hydrology..
Website	<a href="http://www.air-co.org">www.air-co.org</a>

Project	Promoting the river basin and ecosystem approach for sustainable management of SE Asian lowland peat swamp forest: case study Air Hitam Laut River Basin, Jambi Province
Country	Indonesia
Location	Berak National Park, Sumatra
Period	2003-2004
Client/donor	Partners for Water, Government of The Netherlands
Executing Agency	Alterra, Wetlands International, Delft Hydraulics, LEI, Arcadis, IAC, local Ministries and Universities
Type of project/work	Development of an enhanced baseline for policy and decision-making for integrated management of peat swamp river basins in the tropics, in particular the Berak National Park.
Website	<a href="http://www.waterfoodecosystems.nl">www.waterfoodecosystems.nl</a>

Project	Water, nutrient and biodiversity dynamics in the coastal zone of East Kalimantan
Country	Indonesia
Location	Berau Delta, East Kalimantan
Period	NWO-WOTRO
Client/donor	NWO-WOTRO, The Netherlands
Executing Agency	Alterra and Mulawarman University
Type of project/work	Development of a co-operative research programme between Indonesia and The Netherlands for collection and evaluation of biotic and a-biotic information in order to eventually formulate and implement strategies for wise use of coastal zones in Asia, in particular the Berau Delta.
Website	<a href="http://www.nwo.nl">www.nwo.nl</a>

Project	Research into Drainage and Water Management Guidelines for Agricultural Development in Coastal Peat Swamps of Sarawak/CPSS
Country	Malaysia
Location	Central Sarawak
Period	2001-2002
Client/donor	Government of Sarawak
Executing Agency	PS Konsultant, Kuching, Sarawak and Alterra-ILRI, WUR
Type of project/work	Development of water management guidelines for the agricultural development in the coastal lowlands of Sarawak, Malaysia
Website	<a href="http://www.ilri.nl/projects">www.ilri.nl/projects</a>

Project	Keys for securing carbon in tropical peat/KEYTROP
Country	Indonesia
Location	Central Kalimantan
Period	2004-2005
Client/donor	Government of Finland
Executing Agency	University of Helsinki (Fin), University of Palangka Raya (Ind), Ministry of Science and Technology (Ind), Alterra (NL), University of Nottingham (UK)
Type of project/work	Role of tropical peat allocated carbon in the global carbon balance, formulation of tools for implementing sustainable management and strengthening of local research capacity
Website	<a href="http://www.helsinki.fi">http://www.helsinki.fi</a>

## **V. Assessment of the project**

The initial impacts of the project so far are in line with the expected results as formulated in the Logical Framework (Table 1) and included:

- Partners have informed each other of their mutual ambitions and cooperation between the partners has frequently taken place during the implementation phase, i.e. workshops were organised at UNIMAS, UNPAR and UNLEI (Intermediate Report No. 2) and a collaborate research programme was conducted at WUR in which project staff from both UNPAR and UNIMAS participated (Intermediate Report No. 2). Next to the PEATWISE project, the partners have started various actions for new activities, i.e. project proposals for other Asia-Link projects: RESTORPEAT, Air-CO (Chapter IV) and specific support actions for the sixth framework programme. All these activities are enhancing the partner's knowledge and role in sustainable management of tropical peatlands.
- Stakeholders in both Sarawak and Central Kalimantan have been actively involved in the curriculum development (Intermediate Report No. 2). Their response was so good that UNIMAS started their post-graduate diploma peatland management programme in January 2006 (Chapter II.2).
- At various occasions, the Peatwise partners participated in Conferences and Workshops in Sarawak, Kalimantan but also internationally to promote international and regional co-operation and networking.



## VI. Financial Issues.

The total budget of the project is EUR 426.633 with an EU-contribution EUR 300.000. The expenditure incurred by the project up to 22 April 2006 is:

The project completed the claim for the 3<sup>rd</sup> year (Annex B) and submitted it for auditing. The audit is expected to be completed in January 2007.

The total eligible costs during the reporting period is EUR 77.461 and for the total project period up to 22 April 2006 is EUR 267.069 (Table 7).

Table 7 Expenditure of the project up to 22 April 2006 (for details see Annex B).

<b>Expenditure</b>	<b>Total expenditure (EUR)</b>	<b>Total eligible costs (EUR)</b>	<b>EU-contribution (70,32%) (EUR)</b>
Year 1 (24 April 2003 – 22 April 2004)	120.586	88.792	62.439
Year 2 (24 April 2004 – 22 April 2005)	161.846	100.817	70.895
Year 3 (24 April 2005 – 22 April 2006)	93.024	77.461	54.471
<b>Total</b>	<b>375.456</b>	<b>267.070</b>	<b>187.804</b>

Based on the total available budget and the expenditure up to the date of reporting (period 24 April 2003 – 22 April 2006) a budget for the extension period has been prepared. The proposed budget for the extension period is EUR 124.388 (Table 8) with an EU-contribution of EUR 87.470 (70.32%).

Table 8 Proposed budget for the extension period (23 April – 22 December 2006)

## Annex A Project team

Project Partners	Co-ordinator
Wageningen University and Research Centre (WUR) Alterra-ILRI P.O. Box 47 6700 AA Wageningen The Netherlands	Ir. H.P. Ritzema Tel: + 31 317 495 583 Fax: + 31 317 495 590 E-mail: <a href="mailto:henk.ritzema@wur.nl">henk.ritzema@wur.nl</a>
University of Leicester (UNILEI) Department of Geography Bennett Building University Road Leicester LE1 7 RH United Kingdom	Dr. Susan Page Tel: + 44 116 252 5493 Fax: + 44 116 252 5408 E-mail: <a href="mailto:sep5@leicester.ac.uk">sep5@leicester.ac.uk</a>
University Malaysia Sarawak (UNIMAS) Faculty of Resource Science & Technology 94300 Kota Samarahan Sarawak Malaysia	Prof. Dr. Murtedza Mohamed Tel: + 60 82 671 000 Fax: + 60 82 672 303 E-mail: <a href="mailto:ted@frst.unimas.my">ted@frst.unimas.my</a>
University of Palangka Raya (UNPAR) Centre for International Co-operation in Sustainable Management of Tropical Peat Jalan Yos Sudarso Palangka Raya 73112 Indonesia	Ir. Suwido H. Limin MS Tel: + 62 536 36 880 Fax: + 62 536 21 002 E-mail: <a href="mailto:Suwido@palangkaraya.wasantara.net.id">Suwido@palangkaraya.wasantara.net.id</a>

<b>PeatWise - Project Team</b>		
<b>Name</b>	<b>Function/Activity</b>	<b>E-mail</b>
<b>University of Sarawak, Kota Samarahan, Sarawak, Malaysia:</b>		
• Prof. Dr. Murtedza Mohamed	Co-ordinator, Curr. Acc., Module 4	<a href="mailto:ted@frst.UNIMAS.my">ted@frst.UNIMAS.my</a>
• Mrs. Fitri Suraya Mohamad	Distance learning & ICT	<a href="mailto:mfritri@calm.UNIMAS.my">mfritri@calm.UNIMAS.my</a>
• Prof. Wan Sulaiman Wan Harun	Module 3	<a href="mailto:whwsulaiman@frst.UNIMAS.my">whwsulaiman@frst.UNIMAS.my</a>
• Dr. Gabriel Tonga	Module 4	<a href="mailto:gtnoweg@calm.UNIMAS.my">gtnoweg@calm.UNIMAS.my</a>
• Siti Rubiah	Module 2	
<b>University of Palangka Raya, Central Kalimantan, Indonesia:</b>		
• Ir. Suwido H. Limin MS	Co-ordinator	<a href="mailto:Suwido@palangkaraya.wasantara.net.id">Suwido@palangkaraya.wasantara.net.id</a>
• Adi Jaya	Module 2, 3	<a href="mailto:lgxaj1@nottingham.ac.uk">lgxaj1@nottingham.ac.uk</a>
• Yusurum Jagau		<a href="mailto:jagau@lycos.com">jagau@lycos.com</a>
• Kumpiady Widen	Module 4	<a href="mailto:widen@telkom.net">widen@telkom.net</a> & <a href="mailto:dayak32@hotmail.com">dayak32@hotmail.com</a>
• Komang Gde Suastika	Module 5	<a href="mailto:Komang_gs@yahoo.com">Komang_gs@yahoo.com</a>
• Sehat Jaya	Module 1	<a href="mailto:sjayatuah@yahoo.com">sjayatuah@yahoo.com</a>
• Sulmin Gumiri	Module 2, 3	<a href="mailto:sulmingumiri@yahoo.com">sulmingumiri@yahoo.com</a>
• Yustinus Sulistiyanto	Module 3	<a href="mailto:sulistiyanto@palangkaraya.wasantara.net.id">sulistiyanto@palangkaraya.wasantara.net.id</a>
<b>University of Leicester, Leicester, UK:</b>		
• Dr. Susan Page	Co-ordinator, Module 3, 4 & 6, ICT	<a href="mailto:sep5@leicester.ac.uk">sep5@leicester.ac.uk</a>
• Dr. David Harper	Curr. Acc., Module 1 & 2	<a href="mailto:dmh@le.ac.uk">dmh@le.ac.uk</a>
• Dr. Andrew Millington	Module 5	
• Dr. Richard Mobbs	Distance learning	
• Rupert Simms	Module 1	<a href="mailto:rms21@le.ac.uk">rms21@le.ac.uk</a>
<b>Wageningen University and Research Centre, Wageningen, The Netherlands:</b>		
• ir. H.P. Ritzema	Project co-ordinator	<a href="mailto:henk.ritzema@wur.nl">henk.ritzema@wur.nl</a>
• ir. H.C. Jansen	Module 2	<a href="mailto:herco.jansen@wur.nl">herco.jansen@wur.nl</a>
• dr. ir. J.H. Wösten	Module 3	<a href="mailto:henk.wosten@wur.nl">henk.wosten@wur.nl</a>
• dr.ir. R.J.A. van Lammeren	Curr. Acc., Module 5 and ICT	<a href="mailto:ron.vanLammeren@wur.nl">ron.vanLammeren@wur.nl</a>

## **Annex B Financial Claim 3rd Year (period 24 April 2005 – 22 April 2006)**

- Financial claim – total/All partners
- Financial claim – UNILEI
- Financial claim – UNIMAS
- Financial claim – UNPAR
- Financial claim – WUR/Alterra
- Total Project Expenditure over the period 23 April 2003 – 22 April 2006