



NEW EDUCATIONAL TOOLS FOR SUSTAINABLE MANAGEMENT OF PEATLANDS IN THE HUMID TROPICS: THE *PEATWISE* PROJECT

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Abstract

About one quarter of the world's tropical peatlands (11 million hectares) occur in Borneo. These peatlands have global ecological significance, being some of the largest remaining areas of lowland rainforest in SE Asia that provide the habitat of many endangered species. In addition, they are large stores of carbon and water and also have an important regional economic role, providing forest products and land for settlement and agricultural development. Owing to a lack of awareness and understanding about sustainable land management practices, however, many peatland development projects fail, resulting in serious environmental degradation and impoverishment of local communities.

The PEATWISE project addresses issues of sustainable land management, with particular reference to tropical peatlands, through the development of new university curricula by a multilateral network of South East Asian and European universities. Using innovative educational tools, it will produce and make available course materials and training modules that incorporate up-to-date research results and advice on the wise use of natural resources, thus improving academic provision, enhancing skills and expertise, contributing to the sustainable use of natural resources and improving socio-economic conditions across the peat-covered lowlands of Borneo.

In this presentation a description is given how the PeatWise partners cooperate to develop and introduce training modules that fit within their own curricula within the three-year PeatWise project.

Keywords: Integrated land and water resources management of tropical peatlands, human resources development, curriculum development

Introduction

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 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 four participating universities. The overall objective of the Peatwise project is to develop a curriculum on the sustainable management 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 projects will disseminate up-to-date knowledge and information obtained in numerous research projects and activities that have been and are being conducted in Borneo, among others KALTROP (Rieley and Page, 1997), EUTROP, DARTROP, STRAPEAT (Wösten and Rieley, 2004), CIMTROP, Coastal Peat Swamp Study (DID 2002).

The Peatwise project started in April 2003 and will run for 3 years. The project is divided into three phases:

- Inception (3 months);
- Development (21 months);
- Implementation (12 months).

In phase 1 the project was established, an identification of the market needs in both Indonesia and Malaysia was conducted and an inventory of the existing curricula and education infrastructure at the four universities was made. The inception phase was concluded with a workshop in Kuching on 1 October 2003 during which a first assessment of the market needs was made and based on this the topics for the curriculum development were agreed upon. Furthermore the work plan for the other two phases was discussed and finalized (Peatwise 2003).

In phase 2, which is currently running, six learning modules are being developed that focused on the sustainable development of tropical peatlands, i.e. modules on:

- Ecology and natural sciences;
- Water resources and hydrology;
- Integrated Land Evaluation (Soil and land use);
- Human dimensions and resource economics;
- GIS and Remote Sensing;
- Field course and research projects.

These modules will be at postgraduate level and fit into the road to an MSc diploma. The development of the modules will also include the introduction of innovative educational methods and tools, for example distance learning and will for each University targeted towards their own student population. In phase 3 the modules will be introduced and their introduction will be monitored and evaluated.

Assessment of the training needs in Sarawak and Central Kalimantan

During the inception phase of the project, both the University of Sarawak and the University of Palangka Raya conducted a market survey to assess the need for a formal training programme on the sustainable management of tropical peatlands. The survey was targeted towards the following groups:

- Local government institutions such as Forestry, Agricultural, Regional Planning, the Environmental Impact Agencies and municipalities;
- High level staff of the Universities such as Vice Rector, Dean of all Faculties, Head of school/department, and;

- Informal local leaders.

The questionnaires addressed the following issues:

- The need for a post-graduate training programme on the sustainable management of tropical peatlands;
- Relevance of topics and modules;
- Gap between existing and required knowledge and skills;
- Market needs and career opportunities.

The response was good: In Sarawak, 14 of the 39 questionnaires were returned and in Palangka Raya 70 reactions were received. In Palangka Raya a ½-day workshop was organised to discuss the results of the survey and to formulate the need for educational programmes. The workshop was attended by 30 participants from the University of Palangka Raya and delegations from several Regencies in Central Kalimantan and the Palangka Raya Municipality.

The recommendations evolving the surveys and the workshop are:

- All respondents as well as the participants of the workshop agreed that the need to improve human resources is high and that the programme should have the master level;
- Most respondents agreed to focus a curriculum for the sustainable development of peatland but also stressed that the project results should contribute to more “*general*” programmes not specific on peatland;
- There is a general agreement on the subjects to be treated in the modules;
- For dissemination of knowledge, a wide range of methods should be applied: “*blended*” education, a combination between “*classical*” classroom lecturers and “*distance learning*” with hard copies of materials is recommended. Several constraints to e-learning, however, are foreseen, i.e. the current culture of learning and maintenance of hardware systems (including electricity);
- All respondents and participants of the workshop recommended a study load of 10 - 20 weeks for the overall curriculum;
- Three times three career opportunities that beneficiaries of the course may obtain were identified:
 - Career: (i) Continuation of study at MSc or PhD level; (ii) Lecturer, researcher, designer and planner (in company), and; (iii) Policy implementer (government employee);
 - Discipline: (i) Environmental management; (ii) Resource planning, and; (iii) Specific ecological studies;
 - Employment: (i) Universities, including research institutes; (ii) Local Government, and; (iii) Private companies, including consultants.

Framework for Curriculum Development

During the workshop a brainstorm session was held to formulate the framework for the curriculum development. It was agreed that the framework should include the following aspects:

1. The entire package should be at post-graduate level and fit into the road to an MSc diploma. The modules can also be offered as short courses. Upon successful completion of a module, certificates, specifying the contents and credits, will be awarded;
2. The objectives of modules are to impart knowledge, skills and attitudes;
3. Learning outcome: Competence in the subjects of the module should be geared towards knowledge and skills for a sustainable management of tropical peatlands;
4. The appropriate blend of educational methods /learning style will be considered (Figure 1) depending on the target groups that can vary between the partner universities.

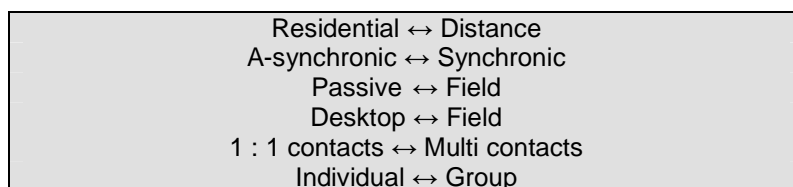


Figure 1 Modes for educational methods, learning style and delivery systems

- The introduction of the module will be generic gradually focussing on the subject. The main text will be written in a generic way, examples related to the management of tropical peat will be added e.g. in boxes. The general line of thinking is as follows:

Natural resource management → general land use → tropical lowlands → tropical peatland

- Modules will be broken up into appropriately sized learning units;
- Innovations will focus on (i) Interdisciplinary e.g. eco-hydrology; (ii) primary research results will be incorporated in the modules, and (iii) blended learning, i.e. combination of contact and distance learning will introduced;
- The degree of ITC-use is to be studied in terms of effectiveness and appropriateness and will evolves as follows:

No ICT/hardcopy → cd-rom → digital courses/local server → internet based materials → distance learning

- The modules will be embedding/regularised within the existing academic system of the four Universities (Figure 2), and;

Partner	Duration of relevant courses (years)				
	BSc	Post-graduate	MSc Certificate	S1 BSc	S2 MSc
UNILEI	3	1	1		
UNPAR				4	2
UNIMAS	3 (4)	1 ½ - 2			
WUR	3		2		

Figure 2 Existing academic systems of the four participating universities.

- To safeguard continuation after the projects ends, the development and corresponding introduction of the modules will be based on the available resources, e.g. logistics like transportation, teaching facilities, running costs (maintenance) and costs for licenses (software).

Module development

Based on the framework presented in the previous section, six learning modules focused on the sustainable development of tropical peatlands will be developed, i.e.

Module	Leading Partner	Credits (ECTS)
1 Ecology and natural sciences	UNILEI	14
2 Water resources and hydrology	WUR	16
3 Integrated Land Evaluation (Soil and land use)	UNPAR	12
4 Human dimensions and resource economics	UNIMAS	14
5 GIS and Remote Sensing	WUR	12
6 Field course and research projects	UNIMAS	20

For the development of each module a leading partner has been appointed. Furthermore, the “*credit awards*” or approximate study load of each module has been indicated in ECTS (European Credit Transfer System). At present this is only an indication, final credits will depend on how the module fits in the curriculum of each university.

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- Wageningen University and Research Centre, Wageningen, The Netherlands
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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 four participating universities. Additional information can be obtained from the Peatwise website (www.peatwise.alterra.nl). The website has a public domain to disseminate information to all interested parties, and a restricted domain for communication between the project partners. All relevant project documents, including the questionnaires and learning modules will be made available on the website.

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