

HIGHER EDUCATION LIBRARIES IN PARTNERSHIP (HELP) PROJECT



PART 3: E-LEARNING FEASIBILITY STUDY

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WALES HIGHER EDUCATION LIBRARIES FORUM

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1. INTRODUCTION

1.1 Main HELP Project

The E-Learning Feasibility Study was one of two feasibility studies undertaken as part of the HELP Project. The HELP Project proposal identified the development of the e-learning agenda as a key objective of the project with the exact nature of the feasibility studies being determined by the outcome of the Collaboration Review.

UWIC and Glamorgan met the criteria of being two WHELF institutions already actively engaged with e-learning and were willing to be both part of the main HELP Project and of the feasibility study.

The process of compiling the Collaboration Review and the final report both influenced the study. The e-learning agenda permeates throughout the Collaboration Review, for example it can improve resource discovery and access to Wales' resources, it can generate increased benefits to collaborative purchasing of e-resources and it engages with issues of collaborative collection management which could lead to deep-resource sharing.

The Steering Group of the Feasibility Study linked such strategic imperatives into the process of the project.

1.2 E-learning at Glamorgan and UWIC

Both Glamorgan and UWIC are actively pursuing e-learning initiatives. Both institutions use Blackboard as their virtual learning environment (VLE), but they have adopted different models of implementation.

Glamorgan have developed E-College Wales (ECW) which is one of the largest e-learning projects in Europe with funding support from the European Social Fund.

E-College Wales offers a range of online business courses, developed by Glamorgan's Business School and by a centralised, cross Department e-learning team.

This targeted approach contrasts with UWIC which has adopted a model whereby all academic schools can deliver modules through Blackboard. This varies from Schools with approximately 50% of modules on Blackboard to others with 5%. The development of e-learning at UWIC is led by the Learning and Teaching Support Unit, with technical support provided by Information Services Division.

1.3 Proposed Merger

After the HELP Project started, the Governors of Glamorgan and UWIC agreed there was a prima facie case for merger of the two institutions. This was as a result of the Welsh Assembly proposals for reconfiguration and collaboration of higher education in Wales.

The main HELP Project Steering Group, and in particular the E-Learning Feasibility Study Steering Group, needed to be fully cognisant of this context in which the project was developing. All staff involved ensured that the e-learning feasibility study was not distracted by the merger discussions and used as a mechanism for looking at merger issues for the two institutions. At no time did any staff from outside of the project apply any pressure on the project team.

Consequently, the discussion not to merge had no impact upon the project.

1.4 Role of Trinity College Carmarthen

At an early main HELP Project Steering Group meeting it was agreed that it would be beneficial to have another institution represented on the E-Learning Feasibility Study Steering Group. Elinor Le Bourdon from Trinity College Carmarthen agreed to be a member.

It was intended that Elinor's role on the Group would be to ensure that Glamorgan-UWIC merger issues did not dominate, to assist with the consideration of Welsh Language issues and of the scalability/applicability of project findings to other higher education institutions in Wales.

Unfortunately, due to organisational change at Trinity College, Elinor was unable to attend many Steering Group meetings and subsequently left Trinity College.

Due to the timing of Elinor's departure, she was not replaced on the Steering Group and her role was assumed by all other members of the Steering Group.

2. DEVELOPMENT OF THE PORTAL

2.1 Methodology

A project plan was distributed prior to the initial meeting of the feasibility study steering group and the methodology is based on the headings outlined in the project plan.

Definition of Subject, Course and Research Focus

It was agreed at the first steering group meeting on 2nd June 2003 that the starting point for the development of the portal would be to identify the subject, course and research focus. A provisional decision was made

before the first steering group meeting that Environmental Sciences should be the chosen subject area on the basis that it seemed to be the only area that was common to all three institutions. This decision was confirmed at the first meeting. Each institution provided information on their own courses within the subject area of Environmental Sciences and experiences with previous electronic resources and e-learning projects were shared. Appropriate academic staff were identified in the area of Environmental Sciences and liaison took place with designated academic staff before end of June 2003 in order to identify subject, course and research interests. Elinor Le Bourdon (Trinity College) identified the countryside and leisure as being important research interests from a Welsh perspective.

Definition of User Requirements

Liaison also took place with designated academic staff in each institution to identify user requirements for the portal from the point of view of both staff and students. Consultation took place with Dr Robert Morgan and Dr Andrew Geens at Glamorgan and with Peter Redding at UWIC. Reports detailing subject, course and research focus, definition of user requirements, definition of existing resources and identification of potential resources were distributed.

Definition of Existing Resources

Members of the steering group from each institution produced lists of existing resources for their institutions for the purposes of identifying resources unique to each institution and identifying resources common to all institutions.

Identification of Potential Resources

By the end of June 2003, the group identified potential resources to support e-learning in the environmental sciences. Academic staff were consulted in order to assess feasibility and user requirements. The steering group agreed that it was important to include examples of electronic short loan material e.g. digitised book chapters/journal articles/dissertations and examination papers. The need to think about the relationship of the portal to other initiatives such as the RDN and JISC Resource Guides was also agreed.

Identification of Existing Systems

The relationship of the portal to existing systems such as VLEs, Library Systems, reading list software, Library Catalogues needed to be analysed in detail and the issue of where to host the portal was addressed i.e. on Glamorgan's server or via an ISP.

Procurement of Appropriate Hardware and Software

At this stage, no procurement of hardware and software has taken place as, for the time being, the portal is being hosted on Glamorgan's server.

The costs for hosting a web site on a commercial company's web server were explored. Most companies will charge an annual fee, plus a nominal charge for assigning a unique URL for the site. Such fees are quite modest, e.g. £200 p.a.

The current URL is: <http://www.glam.ac.uk/findit/esp>.

It was clear from the outset that the portal would need to be more than a mere collection of static HTML pages. A database based approach for managing content was seen as desirable, as it would enable efficient management of records, plus affording the potential to deliver individual records to multiple sections of the publicly viewable portal. It was agreed that a content management system (CMS) was required, albeit on a more modest scale to some of the commercially available systems.

A number of open source software systems were looked at, and after consulting with local IT experts at Glamorgan, Movable Type (<http://www.movabletype.org>) was selected. Though this is software has been designed primarily for web logs it could easily be customised to manage content for the purposes of the portal. Moreover, Glamorgan had some local expertise with this package which was considered useful if any support issues arose.

Moveable Type, once being setup, has several benefits that were considered useful for the purposes of this project:

- ◆ Records can be created for the database, without needing any technical skills in webpage creation.
- ◆ The portal is updated in real time
- ◆ Cascading Style Sheets (CSS) are used to configure page layout. This is useful for creating accessible pages and maintaining a standard design across the site
- ◆ Built-in search engine
- ◆ E-mail notification feature for informing subscribers about newly added records

System Design and Implementation

Wayne Morris (Glamorgan) set up an initial portal for discussion, hosted on Glamorgan's server and Wayne Morris and Wendy Smith (together with academic staff at both Glamorgan and UWIC further developed the content with the addition of reading lists and the development of a subject tree in order to assign keywords to each of the resources.

Some consideration was given to the structure of the portal. It was concluded that it would be useful to have a number of alternative ways of retrieving the same information. Users were expected to have different approaches to searching. With this in mind, data within the portal can be searched by the following options:

- ◆ Search Engine : indexes keywords from each record
- ◆ Resources by Type : browse for records by format
- ◆ Resources by Subject : browse for records by subject
- ◆ Resources by Module : browse for records by reading list.

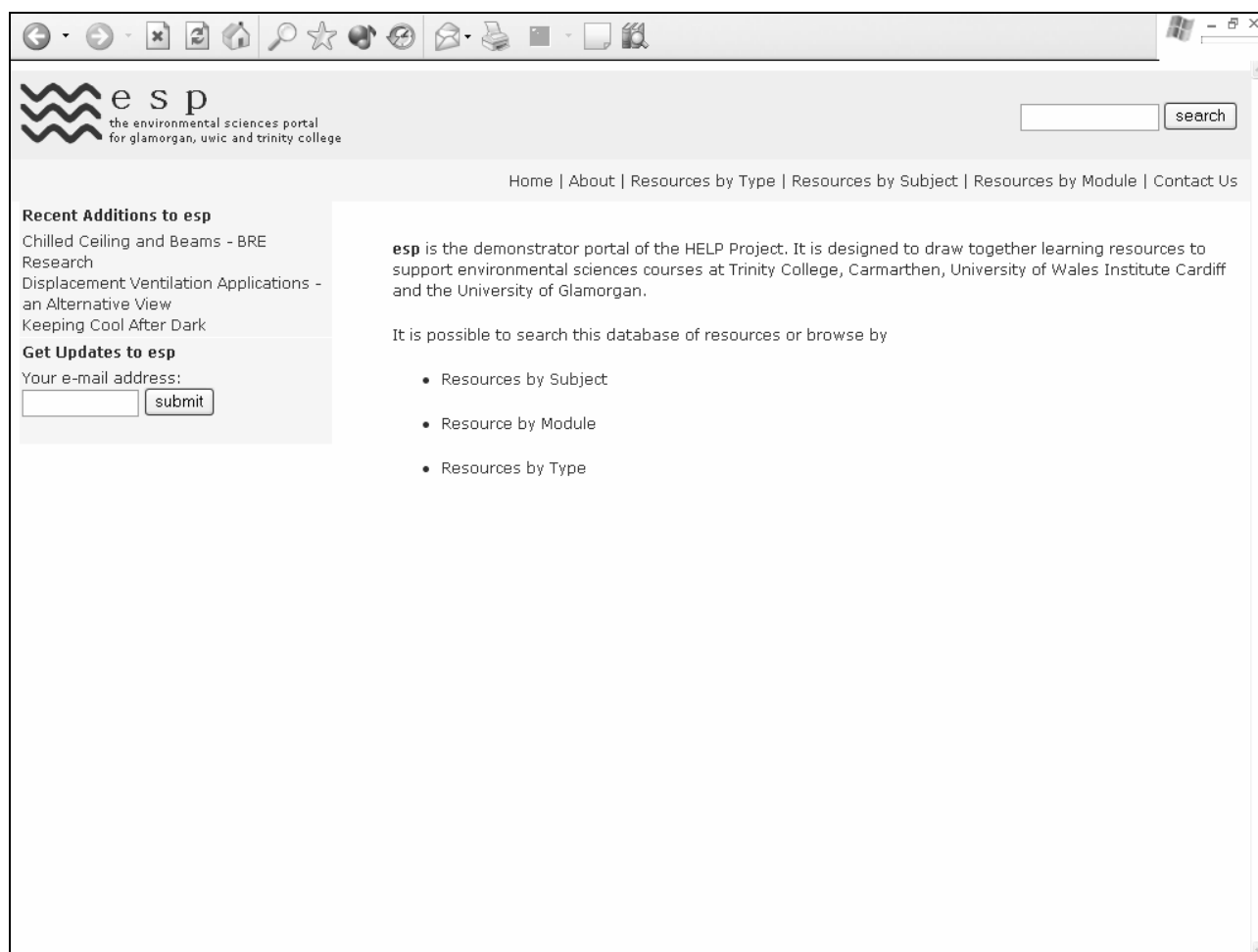


Figure 1. esp home page, showing range of links to resource categories. A search feature and ability to request e-mail alerts is also available.

As mentioned elsewhere in this report, recommended reading is very much an important feature of students' search strategies. For this reason, it was important to include some form of reading list search within the portal. Not only could students then browse the portal directly for sources recommended by their lecturers but it opens the possibility of linking to the portal from VLEs.

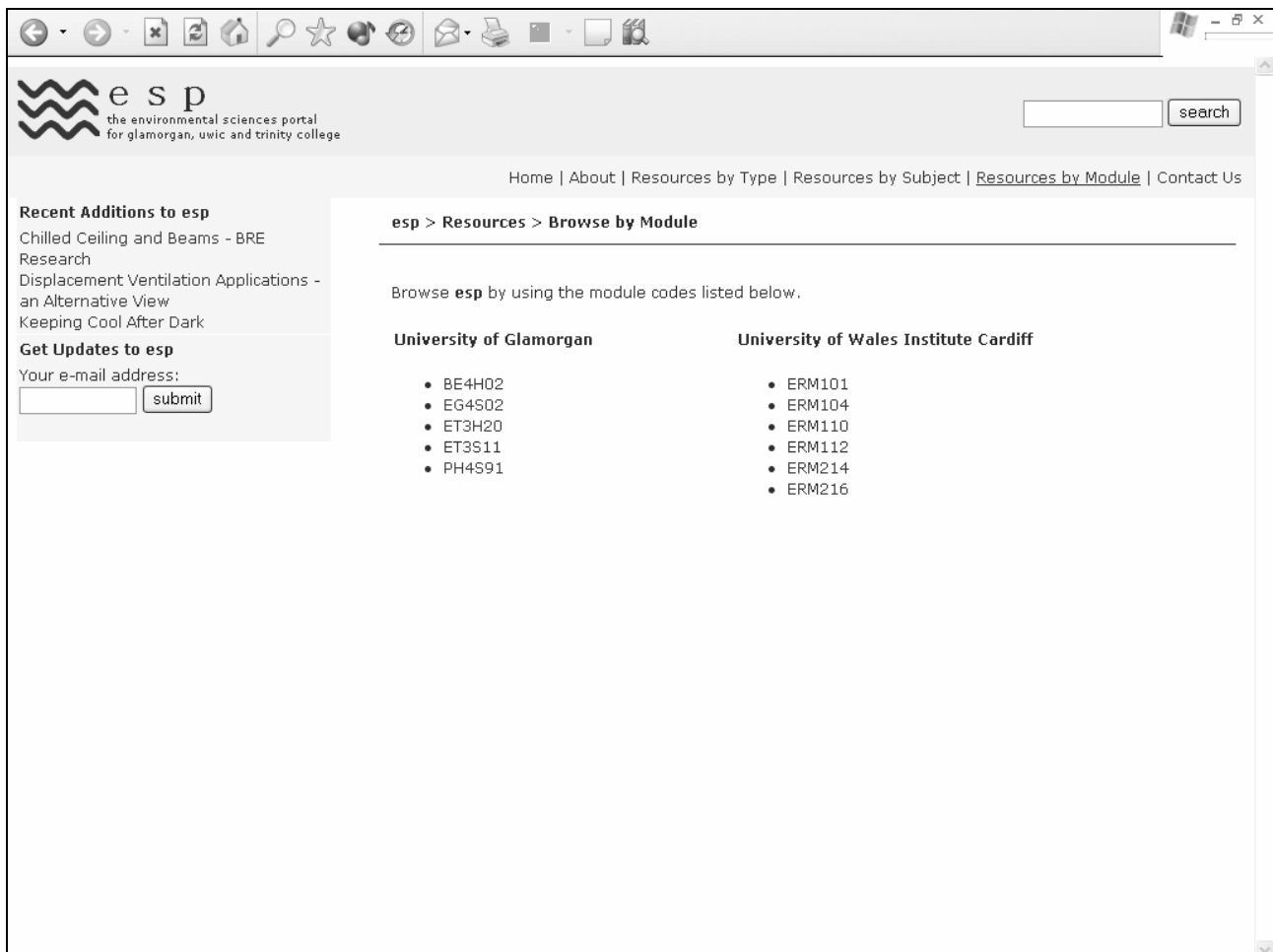


Figure 2. Recommended reading is an important way in which students look for resources. The esp portal includes links to resources by course module code.

It was also noted that although the courses identified are or are potentially delivered by e-learning, traditional print textbooks dominate what academics are recommending. For this reason, core textbooks were also included in the portal.

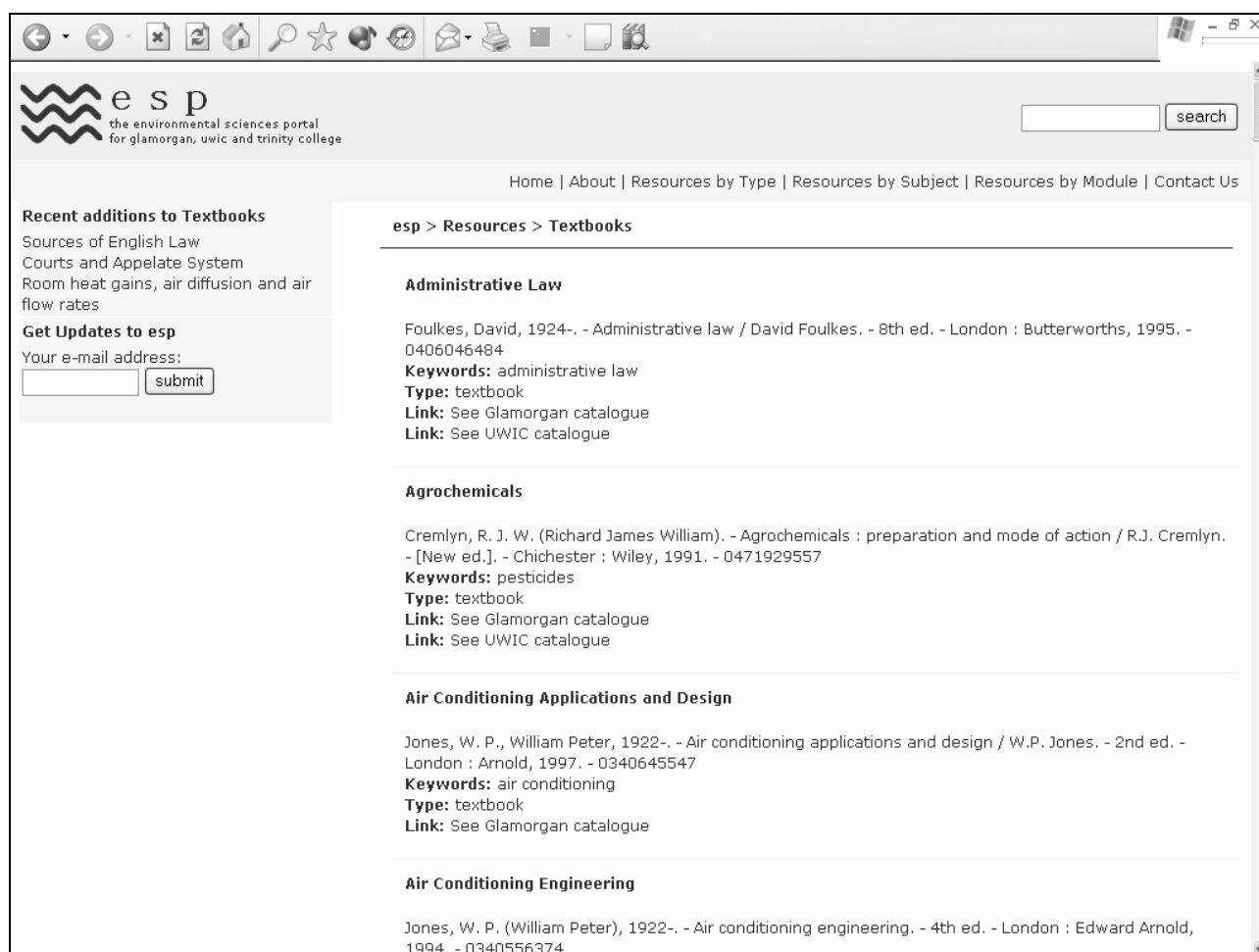


Figure 3. Textbooks continue to play a dominant role in the courses taught at both Glamorgan and UWIC. Links to OPACs were created to show the local availability of recommended and other useful resources.

2.2 Outcomes

Definition of Subject, Course and Research Focus

Wayne Morris (Glamorgan) met with Dr Robert Morgan (Lecturer and Head of Environmental Research Unit in the School of Applied Sciences) and Dr Andrew Geens (Acting Head of Division of Environment and Geography). During the meeting, it became apparent that Environmental Sciences is delivered across two schools at Glamorgan – the School of Applied Sciences and the School of Technology. It became clear during the meeting that the courses in the School of Technology are more similar in content to those delivered at UWIC than the courses offered by the School of Applied Sciences. The courses offered by the School of Technology have more of a focus on business management or “applying the science”. The following courses are delivered by conventional means though the MSc Sustainable Environmental Development is being developed for e-learning:

- ◆ BSc (Hons) Energy and Environmental Technology
- ◆ BSc (Hons) Environmental Management
- ◆ BSc (Hons) Environmental Sustainability
- ◆ BSc Safety, Health and Environmental Management
- ◆ MSc Sustainable Environmental Development

The department is also developing a Sustainability Research Unit, which will focus on those topics taught on the MSc schemes.

Wendy Smith met with Peter Redding (Lecturer on the BSc (Hons) and MSc Environmental Risk Management Courses) on 3/6/03. Having studied the environmental science related courses at UWIC, Glamorgan and Trinity, he came to the following conclusions:

- ◆ The content of BSc (Hons) Environmental Management and BSc (Hons) Safety, Health and Environmental Management at Glamorgan is very similar to BSc (Hons) Environmental Risk Management at UWIC.
- ◆ There is some overlap between MSc Sustainable Environmental Development at Glamorgan and MSc Environmental Risk Management at UWIC
- ◆ Although Trinity offer a course in Environmental Management, their definition of Environmental Management is somewhat different to UWIC and Glamorgan's (i.e. The Trinity Environmental Management Course focuses on management of the environment whereas the Glamorgan and UWIC Environmental Management courses are Environmental Management as in "Business management" or "environmental policies of businesses").
- ◆ There is, however, some common ground. There is a module in UWIC's ERM courses called Environmental Impact Assessment, which covers the conservation aspects of environmental management.
- ◆ Environmental Pollution is also an area that may be common to all three institutions
- ◆ The following are specialized areas of research in the School of Applied Sciences:
 - ✓ Occupational Health and Safety
 - ✓ Chemical Incidents
 - ✓ Air Quality
 - ✓ Environmental and Occupational Health and Safety Risk Assessment

Definition of User Requirements

The following user requirements were identified when Wayne Morris met with academic staff at Glamorgan:

- ◆ Though there are some differences in the subject taught at the institutions there is some commonality in the resources required to support these courses. A number of bibliographic databases would be common across the courses, as would a few journal titles. Core textbooks and specific journal articles in contrast would be different.
- ◆ E-journals are useful, but currently these are under utilised. This was considered to be a problem with the way in which the course is structured leaving little time for extended research.
- ◆ Neither academic was familiar with the RDN, but acknowledged that such a service could be useful. The view, however, was that it may be better to highlight some key websites within the portal and use the RDN as a service for further searching. Students often do not have time to perform extended searching for resources.

- ◆ Government websites are important, particularly so in the School of Technology schemes which often refer to White Papers, consultation papers etc, but there is a much wider range of sites that are useful.
- ◆ The potential for digitised short loan material was welcomed, along with availability of electronic versions of core textbooks.
- ◆ Conference proceedings were regarded as particularly useful to School of Technology lecturers and researchers. Indeed it was suggested that the portal could be host to papers presented by Glamorgan academics.
- ◆ Reference tools such as encyclopaedias and dictionaries were also regarded as useful where available. Students often have different backgrounds in the subject and need to fill gaps in their knowledge.
- ◆ Personalization was regarded as possibly useful along with ability to receive e-mail updates of changes to the portal.

The following user requirements were identified when Wendy Smith met with Peter Redding (Lecturer in Environmental Risk Management at UWIC):

- ◆ The most important resources for UWIC's Environmental Sciences courses are government sites e.g. Environment Agency, European Union and subscribed electronic resources giving access to full-text official documents, such as Technical Indexes Info4Education (a resource that both UWIC and Glamorgan subscribe to). ENDS (Environmental Data Services Report) is also very heavily used and both UWIC and Glamorgan subscribe to it.
- ◆ Although journal articles are considered an important resource for environmental courses, full-text official documents are more useful.
- ◆ Peter Redding was very enthusiastic about linking to RDN and was keen to encourage students to make more use of it.
- ◆ The idea of including digitised theses in the portal was also well received but given the short timescale of the project and the likelihood of students needing advance warning to submit their theses on disc, it was not considered to be feasible.
- ◆ The idea of possibly including e-prints in the portal was well received but the comment was made that e-prints already up on the web were not easy to find.

Definition of Existing Resources

For a list of existing resources, please see Appendix 2.

Reading lists that support the courses at both Glamorgan and UWIC were collected. It was noted that standard printed textbooks still predominate as recommended reading. The use of journals, databases and other web-based sources in many respects were seen as secondary or support materials rather than core reading.

With this in mind it was viewed important to include these traditional sources within the portal, in order to provide a complete 'picture' of what materials were regarded as important at both a local institutional level, but also what is available to students across participating institutions.

Identification of Potential Resources

Glamorgan

Websites

Selected Websites are an important resource. It would be more useful to list specific Websites recommended by lecturers, and supplement this with the RDN.

Short Loan

A digitised short loan collection would be welcomed. Exam papers would be useful, though only those that were sat in summer 2003 would be relevant. Robert Morgan suggested that journals were underused. This was down to the little time students have allocated to research.

e-Journals

- ◆ ECOS Online (Australia) (SApS)
- ◆ Environment, Development and Sustainability (SApS)
- ◆ Journal of Coastal Conservation (SApS)
- ◆ Journal of Coastal Research (SApS)
- ◆ Limnology & Hydrology (SApS)

UWIC

- ◆ An Electronic Short Loan Collection was welcomed (if it was going to be feasible within the timescale)
- ◆ The inclusion of E-prints (either existing e-prints already on the web or e-prints from authors within the participating institutions) was also welcomed. However the staff in Environmental Sciences at UWIC are more involved with consultancy work than with writing articles.
- ◆ The question was asked as to whether the project would involve joint purchasing of electronic resources.
- ◆ Although the inclusion of examination papers was not ruled out, concern was expressed about the amount of staff time (in School of Applied Sciences) involved in digitising and maintaining their exam paper collections.

Identification of Existing Systems

Further to the agreement in the first steering group meeting on 2nd June 2003, it was agreed that interviews should be carried out with key members of Library and Information Services staff and those involved in e-learning projects at both Glamorgan and UWIC on the inter-relationship of collaborative portal development with websites, VLEs and e-learning development generally. Interviewees were likely to include Ann Cross, Andrew Dalglish, Tim Hutchings, Matthew Sparks (Glamorgan) and Stephen Gregory, Spencer Jordan and Jennifer Welsh (UWIC). It was agreed that Jeremy Atkinson and Wayne Morris would pilot interviews at Glamorgan in the first instance.

System Design and Implementation

The portal is now hosted on Glamorgan's server with the title ESP: The Environmental Sciences Portal for Glamorgan, UWIC and Trinity College. Users can sign up for e-mail alerts notifying updates to the portal. There are over 120 resources listed in the portal at present. All of the resources included in the portal can be searched or browsed by resource type, by subject or by module. Links to full-text e-journals and bibliographic databases are available. Keywords have been assigned to each of the resources. Each resource has a brief annotation, keywords, type description and link. Five modules from both UWIC and Glamorgan have been included and can be browsed using the Resources by Module option. There is some overlap in subject area, notably ERM216 and BE4H02. A subject tree for the portal was developed by putting together all of the module titles from the Environmental Sciences courses offered at Glamorgan, UWIC and Trinity and the environmental sciences subject tree provided by GeSource (The RDN gateway for Geography and the Environment and identifying related terms that could be merged under one keyword. After consultation with academic staff at UWIC and Glamorgan, the subject tree was eventually narrowed down to the following keywords:

- Built Environment
- Conservation
- Eco-Safety
- Environmental Biology
- Environmental Chemistry
- Environmental Impact Assessment
- Environmental Law and Policy
- Environmental Management Systems
- Environmental Microbiology
- Environmental Physics
- Environmental Risk
- Epidemiology
- Health and Safety
- Organisations
- Pest Control
- Pollution Science
- Professional Issues
- Sustainability
- Toxicology
- Waste Management

Reading lists have been obtained from academic staff at both Glamorgan and UWIC and links to UWIC and Glamorgan catalogue records for items from the reading lists where available. Wayne Morris has put together a spreadsheet of all of the existing resources from UWIC, Glamorgan and Trinity in order of resource type for the purposes of identifying books, journals, e-journals or online databases that are common to Glamorgan and UWIC or to all three institutions. It was found that there was little overlap between books recommended on the reading lists but that many of the books recommended on Glamorgan's reading list were available at UWIC and many books on UWIC's reading list were available at Glamorgan.

The steering group agreed that we should not be constrained by reading lists in recommendation and inclusion of resources for the portal because a wider range of resources and the sharing of reading lists between institutions could aid the production of future reading lists. The content of the portal can be browsed by the following resource types:

- Conference Papers
- Databases
- Dissertations and Theses
- Exam Papers
- Image Collections
- Journals
- Learning and Teaching Materials
- Official Publications
- Reference
- Search Tools
- Textbooks
- Websites

Textbooks form the largest portion of materials recorded in the portal. Links to both Glamorgan and UWIC OPAC records are made available where possible. Some books are held at both libraries, others not. Interestingly, some recommended texts are only available at the partner and not at recommending institution. One conference proceeding is available, though others are going through rights clearance. Examples of exam papers are available from both Glamorgan and UWIC. These currently have no restrictions on access. UWIC's are loaded on their own website, Glamorgan's has been imported onto the esp portal. This may need to be addressed.

Where online databases or e-journals are only available in one institution, members of the steering group have contacted the suppliers of the databases and enquired about the possibility of extending access to all three institutions on a trial basis for the duration of the project and have also enquired about the cost of joint purchasing of subscriptions after the project has finished and whether there is a discount available. Both Wayne Morris and Wendy Smith have liaised with academic staff in their respective institutions and identified resources from the other institution that they would like to access. Wayne Morris identified the following UWIC resources that Glamorgan would like to access:

Databases

Localaw (Sweet and Maxwell)
Pollution Abstracts (Cambridge Scientific Abstracts)

Journals

Waterlines (ITDG Publishing)

Publisher/Supplier responses

Replies have now been received from each of these three publishers.

- ◆ Sweet and Maxwell will offer the following discount for joint purchasing of Localaw:

You currently have Local Law modules for Environmental Health, Housing and Local Government. These are due for renewal by the 1st of April 2004 at £1075, £1299 and £1075 respectively, all subject to vat.

If the same three modules were taken from the same date by the University of Glamorgan we would supply these to both institutions at 10% discount. In addition, we would include a gratis access for Glamorgan from now until the end of March 2004.

- ◆ Cambridge Scientific Abstracts can offer special pricing for all three institutions subscribing to Pollution Abstracts. They will offer the 2nd and 3rd institutions 50% off the list price provided the first institution pays the full rate of \$1390.
- ◆ ITDG Publishing said that there is no discount for 3 institutions banding together to purchase subscriptions to Waterlines, and they do not provide free trials for their journals. It is likely that joint purchasing will go ahead.

Wendy Smith identified the following Glamorgan resources that UWIC would like to access:

EnviroNetBase

Environment Online

Geobase

Lexis Nexis Environmental

Science Direct (Selected journals)

Wiley Interscience (Selected journals)

UWIC would also like to access the following journals via Science Direct:

Advances in Environmental Research

Atmospheric Environment

Computers, Environment and Urban Systems

Environmental Impact Assessment Review

Environmental Pollution

Environmental Research

Global Environmental Change

Remote Sensing of Environment

Science of the Total Environment

Also, UWIC would like access to the following journals via Wiley Interscience:

Environmental Law and Management

Environmental Quality Management

Journal of Environmental Policy and Planning

And Environmental Management and Health (via Emerald)

The following replies were received

◆ *ENVIRONetBASE*

"This project sounds interesting. I need to check with CRC Press, but I am sure they will agree to let your partners have a look at ENVIRONetBASE, but I have a feeling that we can only restrict this to a 30 day trial, so they can get an impression of the content etc. Actually any sites can visit: www.environetbase.com and view the titles, and also make a search to view the list of results for free, once a user clicks on one of the chapters you do need a subscription and IP access. If there is significant interest from other sites, we would be happy to negotiate special conditions to include more sites with IP access, so that the cost for each site become lower compared with individual subscriptions.

We could make a mini-consortia for this project. If there are also small and large sites, we could even work on a small and large price system to cover all needs and budgets. Elsevier and CRC are very flexible in making such offers. If you would like me to provide 30 day trial access for University of Wales Institute Cardiff and Trinity College Carmarthen, please send me their contact details, add, contact person, and IP range, and I can set up access."

◆ *GeoBase*

"Thank you for your interest in GeoBase. The University of Glamorgan subscription could be extended to other institutions but there would be an additional cost. So that we can provide a price can you let me know the number of Full Time Equivalents in total at each institution and the estimated number that would find GeoBase of interest?"

◆ *Environment Online*

"I'm sure we would be willing to look at this in more detail and develop a strategy that both fulfils your requirements and meets our commitments in terms of copyright and licensing."

LexisNexis Environmental

"This does indeed sound like an interesting project that you are working on, and I would be glad to discuss some of the partnership options that you describe below. As it now stands, the license agreement for LN Environmental does not allow a third party to access the service, and in essence, each university would be required to maintain their own subscription to the database. But thinking "outside the box" as it were, we might be able to explore something whereby the other two universities partner with your project, but simply pay an addendum to the existing subscription. In other words, they would have to pay an addendum, but it would not be as much as a full subscription.

Does this sound appealing? If so, please let me know and I can see what we could do for the other two institutions".

◆ *Digitisation*

A number of book chapters and journal articles have been selected for digitization. Linda Graves at Glamorgan has approached HERON for rights clearance to make available the various resources. For a list of these resources, please see Appendix 3.

- ◆ HERON have received clearance from the CLA for 5 of these. The requests are now with the publishers. All of the diagrams, graphs *etc.* have been requested to be included, as the extracts would not have made much sense without them. Copyright clearance has been refused for the article in Atmospheric Environment on account of the fact that it is available online through Science Direct at Glamorgan.
- ◆ Rights will be given to Glamorgan and UWIC as existing members of HERON. Access for Trinity would have required them to sign up for HERON.
- ◆ Peter Redding (UWIC) has selected a 2002 BSc Environmental Risk Management Dissertation for digitization and this has now been sent to Glamorgan. Examples of Glamorgan dissertations have not yet been obtained despite promises.

2.3 Benefits and Constraints

During the development of the portal, the following benefits and constraints have been identified:

Benefits

- ◆ Identification of resources that users in particular institutions don't have access to: when identifying potential resources to be purchased for a particular subject area, it can be useful to look at what other institutions have purchased for similar courses.
- ◆ The portal has resulted in the bringing together of reading lists to help academics in curriculum development: Looking at reading lists for other institutions enables academics to discover texts that they may not have thought of recommending.
- ◆ The development of the portal has resulted in the identification of key resources and investigation of the feasibility, mechanisms and costs of opening up access to users in other institutions
- ◆ The portal development has given the participating institutions the opportunity to share subject expertise between different institutions. In the long term, the portal may facilitate collaboration between academics and library and information services staff working in the same subject area in each institution.
- ◆ The development of the portal has presented an opportunity to collaborate with other institutions in the purchasing of resources: Many positive offers of discounts for joint purchasing of electronic resources have been made by suppliers, e.g. Sweet & Maxwell and Cambridge Scientific Abstracts.
- ◆ The investigation of the potential to collaborate with other institutions in the production of support materials (e.g. user guides, online information skills modules). If such collaboration were feasible, it would result in less duplication of materials and would free up staff time in both institutions.
- ◆ In the long term, the portal would help to facilitate the standardisation of approaches to presenting learning resources within an institution i.e. collaboration between institutions could extend to the delivery of user education or information skills training

- ◆ The portal may also facilitate the standardisation of reading list administration. One interviewee pointed out that there was currently no consistency in the way in which academics recommend materials and sharing reading lists between the three institutions using the portal may help to rectify this problem.
- ◆ The portal may have a role in encouraging students to read around their subject when previously they may have relied on recommended reading from their reading lists.
- ◆ Given that there are so many tools available for retrieving resources, for example, Library Catalogue, e-journals, e-books online databases, subject gateways a portal may help to draw these tools together.
- ◆ Centralized rights clearance for digitized resources should provide some saving across participating institutions as a whole

Constraints

The steering group encountered the following constraints when working on the development of the portal:

Different subject coverage of the courses in the different institutions

Although all three institutions offer courses in the Environmental Sciences. The definition of Environmental Sciences or Environmental Management varies between the courses offered at the three institutions. The Environmental courses offered at Trinity are more related to conservation, coastal and countryside management. Some of the courses offered at Glamorgan also have more of a conservation bias whereas the Environmental Health and Environmental Risk Management courses at UWIC are more related to business management of the environment, occupational health and safety and health effects of environmental hazards. In order to resolve these differences, members of the steering group have gone through the modules of each course and identified common ground between the three institutions. There is considerable overlap between the BSc (Hons) and MSc Environmental Risk Management courses at UWIC and the BSc (Hons) Environmental Management course at Glamorgan. The Environmental Impact Assessment module of the ERM courses relates more specifically to the conservation side of environmental management so there is some overlap with the courses at Trinity.

Compilation of Subject Tree for Environmental Sciences

The portal originally could only be browsed by resource and not by subject. The process of compiling a subject tree from the module titles for each course was difficult because between the three institutions there were so many module titles. The situation was resolved by going through the complete list of module titles and grouping similar terms together under broader terms.

Keywords have now been assigned to each resource to assist searching.

This means however, that this is a locally defined subject tree that must now sit alongside other forms of subject access to resources users are faced with, e.g. RDN, OPAC etc. It would be desirable to attempt to standardise subject access to resources schemes such as Library of Congress Subject Headings. This may assist in the sharing and harvesting of metadata with other sources of records.

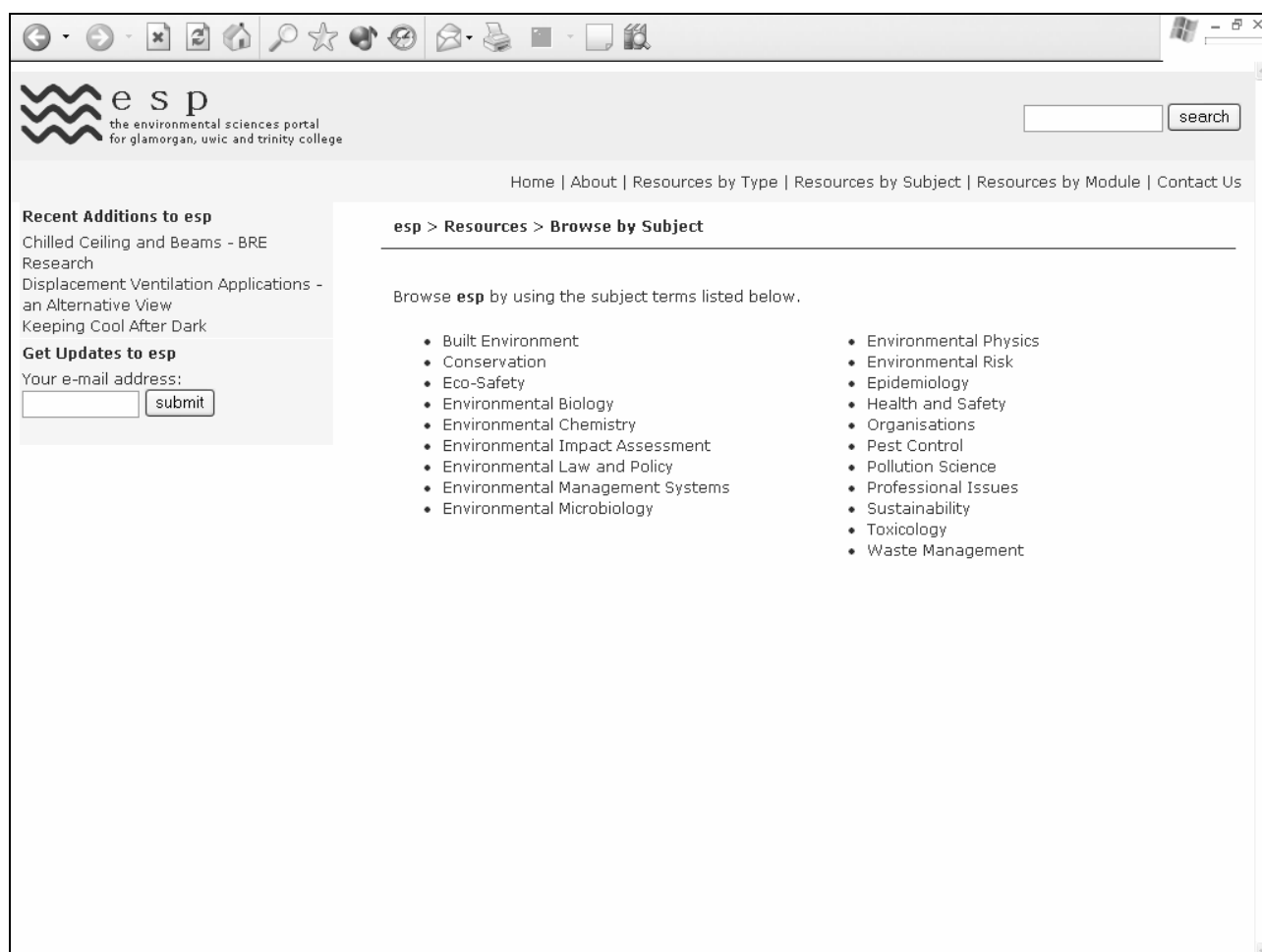


Figure 4. A simple subject tree was created to help users browse for resources. This was considered an important addition to the search feature.

Rights Management and Exam Papers

UWIC has its Environmental Sciences exam papers up on the web. Although they are password protected on UWICNET they are not password protected if you go through the main Applied Sciences web site. Staff at Glamorgan and some staff at UWIC have expressed concern about making their exam papers available to all institutions. UWIC has now agreed to password-protect the exam papers on the Applied Sciences site. The inclusion of copyright declarations is also being considered.

Glamorgan does not currently store electronic versions of their exam papers online, though it has for some time been considered desirable. For the purposes of this project an example of an exam paper was produced, but unfortunately did not contain any issues regarding rights clearance.

Passwords and Authentication.

The issue of how we display password information, which may be unique to each institution needed to be addressed. In the case of non-ATHENS authenticated databases, the following options have been identified as possible solutions to the problem:

- Students could be asked to request passwords by e-mail

- Password-protected password sheets could be provided on the portal

Athens

The Athens authentication service is now widely used across institutions, but during the course of the project Glamorgan adopted the new Athens Devolved Authentication (AthensDA) system.

This service allows “an organisation to have a single set of credentials for a user, and for a user to be authorised for access to online services depending on characteristics defined by his organisation.”

The important aspect of this development is that Glamorgan users must now login to a local web server in order to authenticate with Athens. This makes connection to sources contained within the portal less straightforward than when starting out on the project. There is no real easy answer to this problem, but it is envisaged that standard Athens logins would be activated once more for those Glamorgan users wishing to use the portal.

Eduserv are currently working on an upgrade to the AthensDA which will go some way towards overcoming this difficulty.

Authentication, and importantly information about authentication and access entitlement, must be a central theme in portal development and e-learning support.

The issue of whether or not to include local information.

The issue of whether or not to assign information such as module codes, lecturers' names to resources needed to be addressed. The following conclusions were reached:

Although it could be argued that assigning lecturers' names to resources could mean that students would only search by lecturers' names or module codes rather than use subject terms or keywords, it was decided that given that a majority of students rely on their tutor's recommendations for resource selection, module codes should be assigned where available.

This is especially important in an e-learning context where students are very much directed by lecturers' recommendations and may want to link to resources from within a VLE.

One point that was made by an interviewee was that a majority would only use those resources that have been specifically recommended by their tutors. They will refer to as few resources as possible to enable them to complete their tasks

Alternative suppliers

The issue of how we handle situations where duplicate resources are actually subscribed to from different suppliers needed to be addressed. The following conclusions were reached by the steering group:

In the case of e-journals accessed through different providers, we can include links to separate URLs. An interviewee commented that there should be no problem in enabling users to access the same or similar resources from different suppliers, so long as the information is clearly presented within the portal.

Reading Lists

The issue of whether we need to be constrained by reading lists in our selection of resources was raised. It was agreed that if we are constrained by reading lists, the benefits of sharing resources are lost.

URL Maintenance

URL maintenance (in particular, the staff time involved in maintaining links) is seen as a major problem by some staff.

Duplication of records

An interviewee made the point that duplication of records across systems is a concern and suggested that we should explore the potential for co-operative schemes for record creation across Wales.

Competition within Universities

Competition between universities may be a concern, particularly where academic content is concerned.

Support of Academics

Getting the support of academics is crucial to the development of the portal but could be problematic if the academics do not have the time or the interest to get involved in portal development.

Scalability

Entering data into the portal has proved time consuming. The portal has many of the functions that may be deemed desirable but a technological solution that draws together data from existing resource discovery tools such as OPACs, reading list software, JISC sponsored portals etc. would be desirable.

Consideration should be given to two possible scenarios.

- ◆ Institutions should explore the potential of their own local systems' abilities to pull together data held in external sources, allowing the local user the option of using tools he/she is already familiar with.
- ◆ Alternatively, there may be a centralized service, perhaps based on the M25 Consortium of Academic Libraries (<http://www.m25lib.ac.uk>) model, where users can search across systems, in this case OPACs based on the Z39.50 standard, to discover resources of interest to them.

Either option, potentially requires the advice and assistance of library management system and related service providers in their development.

Learning Styles of Individuals

An interviewee commented that e-learning is highly directed so it is unclear what role a portal could play. Resource discovery is dependent on learning styles of individuals and most would want links to resources embedded in course content.

Lack of Evaluation of Cross-Searching Facilities

The same interviewee also commented that there is no real evidence that students want all the cross-searching we provide but there is none to the contrary as little evaluation has been done. JISC is addressing this problem with the EDNER evaluations.

Variable levels of information skills amongst users

Given the variable levels of information skills amongst users, an information skills programme is important to the development of any portal. However key differences between institutions in their approach to information skills sessions need to be addressed.

Ownership of licenses to shared resources

Although sharing resources has clear potential in that we have the financial strength to drive down subscription costs, the possibility of withdrawal of courses and the subsequent lack of demand for a resource could conflict with a co-operative approach. It is not clear who owns the license to shared resources.

3. INTERVIEWS

3.1 Methodology

Wayne Morris conducted interviews with relevant staff working in library and e-learning support areas both at Glamorgan and UWIC. It was decided that at this stage individual interviews would be held rather than group sessions. We wanted to gain as many unbiased or uninfluenced views as possible. Interviewees were not shown the portal in its developmental stages.

Each interviewee was sent a copy of a document describing the purpose and context of the project prior to the meeting, along with some information outlining the main themes of the interview, notably

- The inter-relationship of the various mechanisms for resource discovery and access (e.g. OPACs, reading list software, library web pages, VLEs, content management systems, national or regional gateways and portals, institutional portals) and the ways in which these mechanisms might be developed, coordinated and integrated. Consideration should also be given to the balance required between direct links to resources in VLEs and links to a broader range of resources to encourage 'reading round the subject'.

- The possibilities for collaboration in the development, delivery and support of e-learning between two or more institutions in Wales and on an all-Wales basis in order to enhance services, widen access and achieve cost effective delivery.

The interviews were structured inasmuch that each individual was asked the same set of questions, but were encouraged to explore other relevant themes that interested them.

3.2 Interview schedule

Each interview lasted for approximately one hour.

20 August 2003, Ann Cross (Information Services Manager, Glamorgan)

21 August 2003, Matthew Sparks (Media Services Manager, Glamorgan)

22 August 2003, Andrew Dalglish (Library Services Manager, Glamorgan)

16 October 2003, Arwen Thomas (Campus Librarian, UWIC)

16 October 2003, Jenny Welsh (Librarian, UWIC)

16 October 2003, Spencer Jordan (E-Learning Support Officer, UWIC)

31 October 2003, Tim Hutchings (E-Learning Services Manager, Glamorgan)

3.3 Outcomes

At Glamorgan there were recurring themes within the interviewees responses:

- There was clear scepticism about the role that the portal could play within an e-learning context.
- Students want access to recommended resources direct from within their course content.
- There is a role for a tool that 'gathers' together recommended resources, but this is more likely to be reading list software.
- We need to reduce the number of search tools that users need to use.
- We should explore ways in which existing OPACs could be used to deliver resource discovery across institutions.
- We should look at ways of embellishing existing records with access information and share these records across institutions
- There may be some savings both financial and in staff time by jointly negotiating licences with suppliers. This may be handled by the HEPCW, though we should also be mindful of UK wide deals.
- There does seem to be clear potential for sharing support materials such as user guides or online information literacy courses

There were some common themes expressed by colleagues at UWIC too.

- The role of the library in promoting and managing resources to support e-learning was a particular theme raised at UWIC. Ways in which librarians can be more proactive in engaging both academics and students in the use of e-resources needed to be developed.

- The importance of involving academics in resource selection and promotion was seen as crucial in the successful development of a portal.
- A portal approach to managing resources was seen as a useful mechanism for drawing users' attention to resources. At present library webpages, OPACs and VLEs are too fragmented to offer the user a complete picture of the range of materials available.
- Sharing locally produced information skills materials was seen as an area that could benefit greatly from a collaborative approach. Many institutions produce similar support materials.
- The potential for negotiating joint licenses for resources was welcomed, though it was recognised that there would be some issues to resolve regarding ownership and commitment.
- Centralized creation, sourcing or harvesting of resource descriptions or 'bibliographic records' was regarded as a benefit.

4. USER EVALUATION

4.1 Methodology

Library and e-Learning colleagues were interviewed as a group by Paul Riley and Wayne Morris at UWIC and by Jeremy Atkinson and Wayne Morris at Glamorgan. Academics were interviewed individually. We were only able to interview a single academic respondent at either institution, but nevertheless, they were able to give a useful perspective on the project.

4.2 Outcomes

The range of resources included within the portal was welcomed. The majority of materials included were items recommended by academic staff, but a significant number were added by librarians at either institution.

This collaborative approach proved useful as one academic remarked that he had discovered some useful, hitherto unknown to him, resources, by browsing the subject listing. He recognized the value to resource discovery, in drawing together resources recommended by academics and identified by librarians at collaborating institutions.

Some comments were made on the potential to include locally produced materials, such as pre-prints or conference papers. Both academics and library staff saw some benefits in this, though issues around intellectual property rights would clearly need to be worked through formally before they could be considered for inclusion.

Exam papers were included, but were seen as being relevant only to students in which the exams were set. The portal may not be the most appropriate place for these items. A VLE hosting associated materials is more suitable and furthermore is likely to offer suitable authentication.

Resources by Module

All respondents highlighted the importance of access to resources via a recommended reading list or module based listing. Indeed e-learning staff noted that this is really the first port of call for students. They want to know what their lecturers are advising as essential, recommended and supplementary resources. E-learning staff at both institutions, while commenting on the importance of the reading list, saw a requirement to present students with something more. That is, an effective tool for introducing students to a wider range of resources besides those confined to a lecturer's recommendations.

The value of listing another institution's reading lists alongside ones own is considered to be of little importance, but may be of some interest to academic staff.

Resources by Subject

Respondents agreed that there was value in having a subject based method of organizing resources accessible by all participating institutions. Such a listing was seen as a compliment to listing resources by module, and may be one mechanism for helping students to go beyond the limited reading list.

It was recognised however, that the repackaging of resources into a subject portal is not enough in itself to encourage wider reading among students. Indeed, academics themselves saw both the value and importance of such an approach, and acknowledged there was an important role for them to play in the uptake of these extended resources. A portal however, could be seen as a useful means of marketing resources to both academics and students alike, given its ability to collect all resources about one topic together under one unified system. Moreover, a portal of this nature has direct relevance as it has been compiled specifically with this community in mind.

Resources by Type

Again, respondents agreed that there is some value in listing resources by category such as e-journal, database *etc.* This was particularly helpful in showing the full extent of what was now available through the collaborative approach.

Digitized Extracts and Textbooks

Despite the emphasis on e-learning, textbooks dominated the recommendations from lecturers. Some effort had been made to acquire digitized copied of selected chapters and extracts but scaling this up across the many hundreds of texts recommended is clearly difficult. Indeed, the merit in doing so is also questionable, given the relatively low overlap in core texts being recommended. There is little value in paying to widen access to digitized texts if only students at a single institution will utilize the resource. The examples we applied for however showed that there was no extra cost to a second HERON member when applying simultaneously, or as a group.

The merits of listing textbooks and linking to institutional OPACs were discussed. There was a mixed response regarding the usefulness of this. Some respondents were sceptical about the use made of alternative libraries by students. Others saw it as potentially useful for students to see if copies of books are available at alternative sites other than their own. This was seen as particularly true given the relative close

proximity of Glamorgan and UWIC. It does however; raise the question about access arrangements and borrowing rights for students of participating institutions.

Both academics however, suggested that the inclusion of textbooks in a portal of this nature would become less important over time. They could easily foresee a situation where they would be able to recommend online materials exclusively, drawing particularly on materials based on government websites and the like.

This of course, may be true for Environmental Sciences, but not for others.

E-journals, Databases and Licenses

The potential to gain access to a wider range of sources through negotiated licenses was universally agreed to be a good thing. Indeed, one academic rated this as the most useful feature of the collaborative approach. Funds are short, and a single institution is seldom able to purchase access to all the materials it would like.

Library staff however, while agreeing that widening access to resources is desirable, noted that there are potential administrative obstacles to overcome. These would include issues regarding ownership of the licence, and the possible commitment to fund resources even if they were no longer of use to specific institutions within the partnership.

Centralized administration of licences on the other hand could offer some useful savings in staff time.

Relationships of the Portal to OPACs, VLEs, Library Websites and JISC Initiatives

This issue was explored, but it was difficult to determine a convincing or clear relationship between each resource discovery tool. There was a clear desire to minimise the requirement to use multiple tools. Some respondents were concerned that the portal was yet another interface for students to learn to use, while others saw the benefit of drawing all resources under a single interface which actually decreases the number of tools a student would require.

It was clear that the VLE would be the main mechanism for delivering recommended reading lists to students. Coursework, lecture notes, forums and other learning activities are typically found here, and recommended reading lists sits nicely alongside.

It was evident that there was a role for another tool to draw together the wider range of subject specific resources. Some saw the portal as being such a tool, and indeed one e-learning colleague was very positive about the portal's potential. Another e-learning colleague on the other hand was sceptical about the role such a localised portal could play. He saw the administrative outlay involved in maintaining such a portal an obstacle to development across subject areas and saw existing tools such as OPAC and a library website as being more relevant.

Some comment was made about the benefit of compiling a local portal when the JISC are undertaking similar work with the Resource Discovery Network initiative. While the RDN was seen as useful, it was felt, by one academic in particular, that it was of marginal relevance to his courses. His topic was not covered in great enough depth, and there was the problem of subject definition. The Portal on the other hand, was

targeted specifically at Glamorgan and UWIC courses, so there was clear relevance of all the materials listed within the portal. In that way, local collaboration is of greater value than any national schemes.

Sustainability and Scalability

Most respondents identified that extending the development of portals across subject areas and across institutions was a significant undertaking, which would present resource implications to staff.

On the other hand, it was clear that there was potential to make savings in other administrative areas. For example, it may be possible for library staff to share instructional documentation and develop online information literacy skills modules, given students across institutions would be sharing a common resource.

Similarly, administration of licences and their negotiation could be shared.

5. FINDINGS

Project Team

The project demonstrated the commitment of the participating library services and teaching staff to improving services through collaboration. This was shown through joint decision-making, achieving deadlines and a willingness to share information and expertise.

E-Learning

The approach adopted to e-learning by the institution influences the management of the LIS resources. E-Learning as developed for E College Wales of Glamorgan has led to staff advocating a more direct link to specific resources required than the UWIC approach which is broader in application. However, in all cases there needs to be a consideration of the best way of encouraging wider reading within an on campus or off campus e-learning approach.

Despite the different approaches to e-learning, the project highlighted that there are common issues to be addressed. The inter-relationship of the various mechanisms for resource discovery and access (e.g. OPACs, reading list software, library web pages, VLEs, content management systems, national or regional gateways and portals, institutional portals) need to be developed, co-ordinated and integrated.

As both Glamorgan and UWIC use Talis as their Library Management System and Blackboard as their VLE, there was an easier understanding of the application and functionality of both products.

Notably however, Glamorgan has two models for e-learning delivery. The largest area of development in e-learning has been in the E-College Wales initiative which uses Blackboard for some functions but relies heavily on a purpose built Content Management System to deliver course materials and links to learning resources. Other Glamorgan courses use Blackboard in a more conventional sense.

Content

Teaching staff at both Glamorgan and UWIC had similar requirements for the content of a portal.

Textbooks form the largest portion of materials recorded in the portal. It was found that there was little overlap between books recommended on the reading lists but that many of the books recommended on Glamorgan's reading list were available at UWIC and many books on UWIC's reading lists were available at Glamorgan.

Each institution subscribed to electronic resources that teaching staff from the other institution would like to access.

Suppliers

The replies from suppliers suggest that a collaborative approach to purchasing electronic databases can be worthwhile and result in cost savings, e.g., GeoBase.

In order to obtain copyright clearance for digitised material both institutions need to subscribe to HERON.

Evaluation

In order for the portal to be fully evaluated, it would be beneficial to carry out an evaluation over the course of an academic year. This would provide an opportunity to evaluate the portal as it is actually used in supporting teaching, learning and research in the subject area at both institutions.

It would also provide an opportunity to undertake some deep resource sharing as both institutions would be using the resource. In order for this to occur, some funding may well be required to sustain the portal.

6. CONCLUSIONS

The conclusions are considered against each of the feasibility study objectives.

6.1 To undertake a study that enables two WHELF institutions already actively engaged with the wider e-learning agenda to build on their track records, to share experience and expertise with each other and with the sector as a whole, in order to enhance services, widen access and achieve cost effective delivery.

The project provided an opportunity for LIS at Glamorgan and UWIC to explore both their strategic and operational approaches to supporting e-learning. Approaches to e-learning are often very different in different institutions and pooling of ideas and sharing of experience provided a more rounded way of looking

at problems and drawing conclusions. This will be shared with the sector through the publication and dissemination of this report, a presentation to WHELF and input to a conference or seminar.

6.2 To take a content driven approach to develop a shared portal to digital resources in all forms in support of teaching, learning and research in a single subject area (environmental sciences) in the two institutions.

The choice of subject area is critical and it cannot be assumed that subjects with the same title will cover the same areas at different institutions. The content driven approach rather than a technological approach was successful as it enabled the project to be user focused. Therefore, the early meetings with the teaching staff to identify their requirements were critical in establishing the direction of the project. Continuing close liaison between academic and LIS staff is essential in developments of this kind. It is noted that close liaison with academic staff in itself can present problems, as academic staff have their own commitments.

6.3 To investigate and report on the extent to which a collaborative approach is effective in meeting the common and different information needs of staff and students in the two institutions.

A collaborative approach can be effective in meeting the information needs of staff and students. If existing or potential competition between institutions can be overcome, there can be a positive sharing of both academic and support staff expertise. There can be a widening of access to resources e.g. electronic databases, with an increased awareness of resources available, which can be of direct benefit to curriculum development. This raised awareness may create expectations of access to print and electronic resources at other institutions. This would impact upon Inter Library Loan budgets and on reciprocal access schemes such as UK Libraries Plus.

6.4 To investigate and report on the advantages and disadvantages of taking a collaborative approach in areas such as the development of a technical infrastructure, rights clearance and digitisation.

Through the process of setting up and maintaining a portal, the collaboration approach was investigated and is reported in Section 2. In order to take advantage of digitisation it is necessary for institutions to subscribe to HERON. The project found that significant savings can be made via HERON by applying as a group rather than individually.

The technical infrastructure and accompanying support was located at Glamorgan and this proved successful. The project proved there is potential in such a collaborative approach.

6.5 To investigate and report on how the development of a shared portal relates to the library websites, VLEs and e-learning activities generally in the two institutions.

This was investigated through the interviews with selected staff. It is evident there is no simple model to apply to the various mechanisms for resource discovery and access. Rather, each institution needs to

assess what is most appropriate locally. The shared portal would then relate to the already existing infrastructure of the institution. It would be useful to explore ways in which existing OPACs could be used to deliver resource delivery across institutions. Existing records could be embedded with access information which could be shared across institutions.

Although Glamorgan and UWIC use the same LMS and VLE, this did not really impact upon the technical development of the portal and would not prohibit institutions collaborating that did not have the same systems.

Consideration needs to be given to appropriate authentication and authorisation procedures for access to some resources and how to display and disseminate password information.

6.6 To investigate and report on the extent to which the development of a shared portal is sustainable in the two institutions are scalable to other subject areas in the two institutions and to other institutions.

Entering data into the portal has proved time consuming. The portal has many of the functions that may be deemed desirable but a technological solution that draws together data from existing resource discovery tools such as OPACs, reading list software, JISC-sponsored portals etc would be desirable. This would reduce the amount of effort in recording data in several places, possibly drawing on Z39.50, XML and OpenURL type technologies that enable systems to 'talk' to one another. A technological solution would go some way to minimising the amount of effort involved in duplicating records across various systems. Essentially the portal would build itself, by enabling easy access to data that is held in different systems. Time could then be spent at home institutions ensuring data was to standard.

A possible model would be the development of a range of subject portals with one institution or a group of institutions responsible for the development of a particular subject portal and for negotiating extended access to electronic resources on behalf of a group of institutions or all Welsh HEIs. However, for the model to be sustainable a resource commitment would be required from the institutions concerned. This would need to be reflected in institutions' LIS recurrent budgets.

By necessity however, given subject definition is difficult, it is probable that quite a modest number of portals would be created of a rather broad subject scope, e.g. Business; Psychology.

7. RECOMMENDATIONS

7.1 WHELF Development Fund to support further work with clusters of institutions developing subject based portals and other integrated approaches to resource discovery within an agreed subject framework, focusing in particular on existing and future academic collaboration between Welsh HE institutions. This should also take into account existing and planned UK wide initiatives such as the RDN and the JISC resource Guides.

7.2 WHELF and HEPCW to agree a mechanism for achieving cost effective subscriptions with electronic resource suppliers, including e-books. In many cases, this need not be as formal as the established agreements for books and journals, rather a framework identifying responsibilities for joint purchasing and extending access to electronic resources within an agreed subject framework. This mechanism should also take into account existing and planned UK wide deals. Any developments in this area should link to recommendations in the Journals case study.

7.3 WHELF to consider a Wales wide e-prints initiative, involving the National Library of Wales, either as a standalone development and / or embedded in the development of the subject portals.

7.4 WHELF to consider the potential for collaboration in the production of value added support material for e-learning, e.g. user guides, online information skills modules.

7.5 WHELF to explore with other partners, e.g. public libraries, FE, NHS, the possibility of expanding the approaches taken (e.g. resource discovery, portal development) to incorporate other sectors.

7.6 WHELF to investigate with HERON the feasibility of an all Wales digitisation clearance model.

7.7 The findings of this project to be considered in discussions WHELF will have on collection management and development.

7.8 Further funding to be sought to turn the findings of this project into a toolkit which could be used by other institutions.

HELP E-learning Feasibility Study Project Plan

Start date: June 2003

End date: November 2003

Institutions involved:

University of Glamorgan

University of Wales Institute Cardiff

Trinity College Carmarthen

Staff involved:

The lead institution for the feasibility study will be the University of Glamorgan and the study will be managed overall by Jeremy Atkinson, Head of the Learning Resources Centre at the University of Glamorgan. Paul Riley, Head of Library Division at UWIC, and two staff seconded part-time to the project - Wayne Morris (University of Glamorgan) and Wendy Smith (UWIC) - will be the other key people involved in the project. Elinor Le Bourdon (Trinity College Carmarthen) will be a member of the Steering Group for the feasibility study, for the particular purposes of assisting with the consideration of Welsh language issues and of the scalability/applicability of project findings to other higher education institutions in Wales.

Introduction:

The main practical thrust of the HELP project is to identify and investigate areas where inter-institutional working seems likely to offer real prospects of improved services and/or efficiency gains in the light of the National Assembly's vision for the HE sector, and to establish what configuration of institutions (geographic, functional, subject) can best achieve the stated objectives. The HELP Steering Group, in the light of the outcomes of the collaboration review undertaken as the first phase of the project, has identified the development of the e-learning agenda as a key focus for one of the project's two feasibility studies.

Feasibility study objectives:

- To undertake a study that enables two WHELP institutions already actively engaged with the wider e-learning agenda to build on their track records, to share experience and expertise with each other and with the sector as a whole, in order to enhance services, widen access and achieve cost effective delivery
- To take a content driven approach to develop a shared portal to digital resources in all forms in support of teaching, learning and research in a single subject area (environmental sciences) in the two institutions

- To investigate and report on the extent to which a collaborative approach is effective in meeting the common and different information needs of staff and students in the two institutions
- To investigate and report on the advantages and disadvantages of taking a collaborative approach in areas such as the development of a technical infrastructure, rights clearance and digitisation
- To investigate and report on how the development of a shared portal relates to the library websites, VLEs and e-learning activities generally in the two institutions
- To investigate and report on the extent to which the development of a shared portal is sustainable in the two institutions and scalable to other subject areas in the two institutions and to other institutions

Project milestones:

06/03:

- Initial Steering Group meeting
- Definition of project scope, financial and management procedures
- Definition of subject, course and research focus
- Sharing of e-learning/e-resources experiences
- Identification of existing systems
- Definition of user requirements
- Definition of existing resources
- Identification of potential resources
- Procurement of appropriate hardware/software

07-09/03:

- Steering Group meetings
- Initial system design and implementation
- Full scope of content established
- Authentication and authorisation procedures established
- Rights clearance and digitisation

10-11/03:

- Steering Group meetings
- Completion of system design and implementation
- Full implementation of content
- User evaluation
- Completion of feasibility study report

Deliverables:

- A shared portal to digital information resources to demonstrate to staff and students of the two institutions, to WHELP and to HEFCW and other external stakeholders the potential and benefits of a collaborative approach to library and information services support of e-learning.

- A detailed report on the work and outcomes of the feasibility study

Project Management:

A small Steering Group consisting of Jeremy Atkinson and Wayne Morris (University of Glamorgan), Paul Riley and Wendy Smith (UWIC) and Elinor Le Bourdon (Trinity College Carmarthen) will be established to manage and steer the study. Other University of Glamorgan, UWIC and Trinity College Carmarthen staff will be involved as appropriate. The Group will meet at least monthly and will be responsible for providing regular reports to the HELP Steering Group as well as the final report of the feasibility study. The interim reports to the HELP Steering Group and the final report will pay particular attention to the extent to which work in this area of development is best carried out in individual institutions, in clusters of institutions or on an all-Wales basis.

User input and evaluation:

There will be a close liaison with academic staff and students in environmental sciences in the two institutions to obtain:

- Input on the appropriate structure and content of the portal
- Feedback on the value and use of the portal

Budget:

The initial Steering Group meeting will identify budget requirements for the feasibility study (e.g. secondment costs, hardware and software, travel) and seek HELP Steering Group approval within the overall project budget.

Definition of Existing Resources

The following resources were identified as relevant to the courses offered at Glamorgan:

Databases

- ◆ ANTE (SApS)
- ◆ Business Source Premier (SoTech)
- ◆ Environment Online (SoTech)
- ◆ LexisNexis Environmental (SApS/SoTech)
- ◆ Forestry Abstracts (SApS/SoTech)
- ◆ Geobase (SApS/SoTech)
- ◆ Inside (SApS/SoTech)
- ◆ Journal Citation Reports (SApS/SoTech)
- ◆ Leisure & Tourism Abstracts (SoTech)
- ◆ PubScience (SApS)
- ◆ Science & Technology Proceedings (SApS/ oTech)
- ◆ Science Direct (SApS/ SoTech)
- ◆ Soil & Fertilizers (SApS)
- ◆ Web of Science (SApS/ SoTech)
- ◆ Web of Science Proceedings (SApS/SoTech)
- ◆ Wiley Interscience (SApS/SoTech)
- ◆ Zetoc (SApS/SoTech)

e-Journals

- ◆ ENDS Report (SApS)
- ◆ Environmental Conservation (SApS)
- ◆ Environment International (SApS)
- ◆ Environmental Pollution (SApS/SoTech)
- ◆ European Environment (SApS/SoTech)
- ◆ Freshwater Biology (SApS)
- ◆ Geographic & Environmental Monitoring (SApS/SoTech)
- ◆ Geographical & Environmental Modelling (SApS/SoTech)
- ◆ IDS Bulletin (SApS)
- ◆ IISD Linkages (SApS)
- ◆ Journal of Animal Ecology (SApS)
- ◆ Journal of Coastal Research (SApS)
- ◆ Journal of Environmental Law (SApS/SoTech)
- ◆ Journal of Environmental Management (SApS/SoTech)
- ◆ Journal of Fish Biology (SApS)
- ◆ Landscape Research (SApS)
- ◆ Marine Policy (SApS)

- ◆ Marine Pollution Bulletin (SApS)
- ◆ Ocean & Coastal Management (SApS)
- ◆ Our Planet (SApS)
- ◆ Restoration Ecology (SApS)

Websites

- ◆ CADDET Energy Efficiency <<http://www.caddet-ee.org>> (SoTech)
- ◆ CADDET Renewable Energy <<http://www.caddet-re.org>> (SoTech)
- ◆ Environment Agency reports <<http://www.environment-agency.gov.uk>> (SApS/SoTech)
- ◆ EUROPA <<http://europa.eu.int/index-en.htm>> (SApS/SoTech)
- ◆ NOAA <<http://www.noaa.gov>> (SApS/SoTech)
- ◆ OECD reports <<http://www.oecd.org>> (SApS/SoTech)
- ◆ RDN <<http://www.rdn.ac.uk>> (EEVL, GEsources and SOSIG in particular) (SApS/SoTech)
- ◆ UN reports <<http://www.un.org>> (SApS/SoTech)
- ◆ United Nations Environment Programme <<http://www.unep.org>> (SApS/SoTech)
- ◆ UK Government reports <<http://www.parliament.the-stationery-office.co.uk>> (SApS/SoTech)
- ◆ World Bank reports <<http://www.worldbank.org>> (SApS/SoTech)

e-Books

- ◆ ENVIROnetBASE is host to over 100 e-books. These are thought to be more suited to the SoTech courses. (SApS)
- ◆ netLibrary. There are no core texts in Glamorgan's netLibrary account that support SApS MSc courses, though there are a few titles that would be considered useful as additional reading. (SApS)

Reference Works

- ◆ xreferplus. Offers access to:
- ◆ Encyclopedia of Ecology and Environmental Management (SApS)
- ◆ Illustrated Dictionary of Science (SApS)
- ◆ New Penguin Dictionary of Science (SApS)

The following resources were identified as relevant to the courses offered at UWIC:

Databases

- ◆ ANTE (Abstracts in New Technologies and Engineering)
- ◆ BOPCAS (British Official Publications Current Awareness Service)
- ◆ Business Source Premier
- ◆ Journal Citation Reports
- ◆ Leisure and Tourism Abstracts
- ◆ Newsbank

- ◆ Technical Indexes Info4Education (Including OHSIS – Occupational Health and Safety Information Service)
- ◆ ISI Web of Knowledge
- ◆ Ovid Medline
- ◆ Index to Theses
- ◆ Ingenta Journals/Ingenta Select
- ◆ Pollution Abstracts
- ◆ Swetswise
- ◆ Zetoc

E-Journals

- ◆ Applied and Environmental Microbiology
- ◆ ENDS Report
- ◆ Environment International (Electronic access for current year only)
- ◆ Environmental Pollution (Electronic access for current year only)
- ◆ Epidemiology and Infection
- ◆ Journal of Environmental Law
- ◆ Journal of Public Health Medicine
- ◆ Risk Analysis
- ◆ Waterlines

Websites

- ◆ European Commission's Environment Directorate-General:
http://europa.eu.int/comm/dgs/environment/index_en.htm
- ◆ Eurolex, European Union's portal to EU law: <http://europa.eu.int/eur-lex/en/index.html>
- ◆ European Environment Agency, <http://www.eea.eu.int/>
- ◆ CADDET Energy Efficiency <<http://www.caddet-ee.org>>
- ◆ CADDET Renewable Energy <<http://www.caddet-re.org>>
- ◆ Environment Agency reports <<http://www.environment-agency.gov.uk>>
- ◆ EUROPA <<http://europa.eu.int/index-en.htm>>
- ◆ NOAA <<http://www.noaa.gov>>
- ◆ OECD reports <<http://www.oecd.org>>
- ◆ RDN <<http://www.rdn.ac.uk>> (EEVL, GEsources and SOSIG in particular)
- ◆ UN reports <<http://www.un.org>>
- ◆ United Nations Environment Programme <<http://www.unep.org>>
- ◆ UK Government reports <<http://www.parliament.the-stationery-office.co.uk>>

E-Books

- ◆ Patty's Industrial Hygiene and Patty's Toxicology

Reference Works

- ◆ Localaw (including Encyclopaedia of Environment Health Law and Practice, Encyclopaedia of Planning Law and Practice, Encyclopaedia of Housing Law and Practice, Encyclopaedia of Local Government Law and Woodfall's Landlord and Tenant)

Both UWIC and Glamorgan subscribe to the following online databases relevant to Environmental Sciences:

- ◆ EBSCO Business Source Premier
- ◆ Technical Indexes Info4Education
- ◆ ISI Web of Knowledge
- ◆ ANTE (Abstracts in New Technologies and Engineering)
- ◆ Index to Theses
- ◆ Ingenta Journals
- ◆ Journal Citation Reports
- ◆ Newsbank
- ◆ Ovid Medline
- ◆ SwetsWise
- ◆ UlrichsWeb
- ◆ Zetoc

UWIC also subscribes to the following database:

- ◆ Localaw (including Encyclopaedia of Environmental Health Law and Practice, Encyclopaedia of Planning Law and Practice, Encyclopaedia of Housing Law and Practice, Encyclopaedia of Local Government Law and Woodfall's Landlord and Tenant)

Both UWIC and Glamorgan subscribe to the following journals available in both print and electronic format:

- ◆ Applied and Environmental Microbiology
- ◆ Environment International (UWIC – current year only)
- ◆ Environmental Pollution (UWIC- current year only)
- ◆ Journal of Environmental Law
- ◆ Journal of Public Health Medicine
- ◆ Risk Analysis

UWIC subscribes to the following journals relevant to Environmental Sciences:

- ◆ Epidemiology and Infection (print and electronic)
- ◆ Environmental Education

- ◆ Environmental Engineering Science
- ◆ Environmental Health Journal
- ◆ Environmental Health News
- ◆ Journal of Planning and Environmental Law
- ◆ Journal of Public Health Medicine

Both UWIC and Glamorgan link to UK Government and EU sites for Environmental Sciences, RDN and other relevant subject gateways.

(a) Potential Costs of External Hosting of Portal and Assigning URL

Although we have been able to host the portal on Glamorgan's servers, we did investigate the costs of hosting the site on an external server at the outset. Fees are quite modest, with £199.00 pa being typical, with a further £50.00 to register the URL.

(b) Extended Subscriptions for Databases

Resource	Duration	Cost for single subscriber	Cost for second subscriber	Savings
GeoBase	1 year	£8773.00	£850.00	91%
LexisNexis Environmental	1 year	\$2650.00	\$2440.00	8%
Environetbase	30 day trail only			0%
Environment Online	1 year	£650.00	£650.00	0%
				A 5 simultaneous user licence was granted for the second subscriber though
Localaw Environmental Health	1 year	£1075.00	£967.50	10%
Localaw Housing	1 year	£1299.00	£1169.10	10%
Localaw Local Government	1 year	£1075.00	£967.50	10%
Pollution Abstracts	1 year	\$1390	\$695	50%

(b) Extended Subscriptions for e-Journals

Resource	Duration	Cost for single	Cost for second	Savings

		subscriber	subscriber	
Atmospheric Environment*	1 year	-	-	0%
Waterlines	1 year	£35.00	£35.00	0%

*Atmospheric Environment is subscribed to by Glamorgan as part of the ScienceDirect package. It was not possible to extend access to this journal to UWIC. UWIC would need to take out a full subscription to gain access.

(c) HERON Sourced Digitized Texts

Resource	Duration	Cost via collaborative approach	Cost if institutions applied separately	Savings
Legg, Roger Colby. <i>Air-conditioning systems: design, commissioning and maintenance</i> . London: Batsford, 1991 Chapter 5. Room heat gains, air diffusion and air flow rates, pp. 87-109	1/12/2003 – 31/7/2004	£44.00	£44.00 x2 = £88.00	50%
Bunn, Roderic. Cold silence <i>Building Services Journal</i> 21 (3) March 1999, pp.26-28	1/12/2003 – 31/7/2004	£44.00	£44.00 x2 = £88.00	50%
Barnard, Nick. Keeping cool after dark <i>Building Services Journal</i> 21 (3) March 1999, pp.29-30	1/12/2003 – 31/7/2004	£44.00	£44.00 x2 = £88.00	50%
CIBSE National Conference, Alexandra Palace, London: 5-7 Oct 1997. Volume I of II Geens, A.J.; Graham, M.S. & Alamdari, F. Displacement ventilation applications: an alternative view, pp. 38-52	1/12/2003 – 31/7/2004	£39.00	£39.00 x2 = £78.00	50%
CIBSE National Conference, Alexandra Palace, London: 5-7 Oct 1997. Volume I of II Butler, David. Chilled ceiling and beams : BRE research, pp. 53-60	1/12/2003 – 31/7/2004	£39.00	£39.00 x2 = £78.00	50%
Hirst, Patricia & Hirst, Michael.	1/12/2003	£119.00	£119.00 x2	50%

<i>Textbook on A Level law</i> , Oxford : Blackstone, 1998 Chapter 2; pp.15-30	– 30/11/2008		= £238.00	
Hirst, Patricia & Hirst, Michael. <i>Textbook on A Level law</i> , Oxford : Blackstone, 1998 Chapter 3; pp.31-52	1/12/2003 – 30/11/2008	£119.00	£119.00 x2 = £238.00	50%