

Final report on the Higher Education Academy Education for Sustainable Development project

“Welcome to the Sahel”: an interdisciplinary resource-bank of sustainable development perspectives for English, environmental science, history, and religious studies undergraduates”

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Aim

The aim of this project has been to develop a resource to enable increased awareness amongst undergraduates of sustainable development issues. This has been undertaken by extending the present field-led or documentary-led experiences of undergraduates studying history, environmental science and religious and cultural studies to consider the sustainability of societies from a remote, environmentally sensitive region: the West African Sahel.

Project outline

This project has developed a learning and teaching resource – an electronic resource-bank titled *Welcome to the Sahel* – that considers sustainability issues arising from the Sahel region of Africa. These issues include different perceptions of sustainable resource use - religious and cultural, historical perceptions of the region, and human responses to environmental change. The resource-bank has been designed to stimulate trans-disciplinary interaction between undergraduates and between taught Masters’ students from several different subject areas. To facilitate dissemination across subject areas, resources are all electronic media based. The resource-bank comprises four main collections; based around media-type: streaming-video, documentary, cartographic and still images. The resource was launched in March 2008.

Highlights

- Creation of resource bank containing over 200 unique items.
- Commissioning of, and use of, bespoke materials: video film, cartography, and still images.
- Project launched and in use by undergraduates.
- Planned use for session 2008/9 by Departments spanning both science and arts disciplines.
- Project nominated by University of Stirling for the sustainable development innovation category of the Times Higher Education Awards 2008.
<http://www.timeshighereducation.co.uk/>

Project outputs

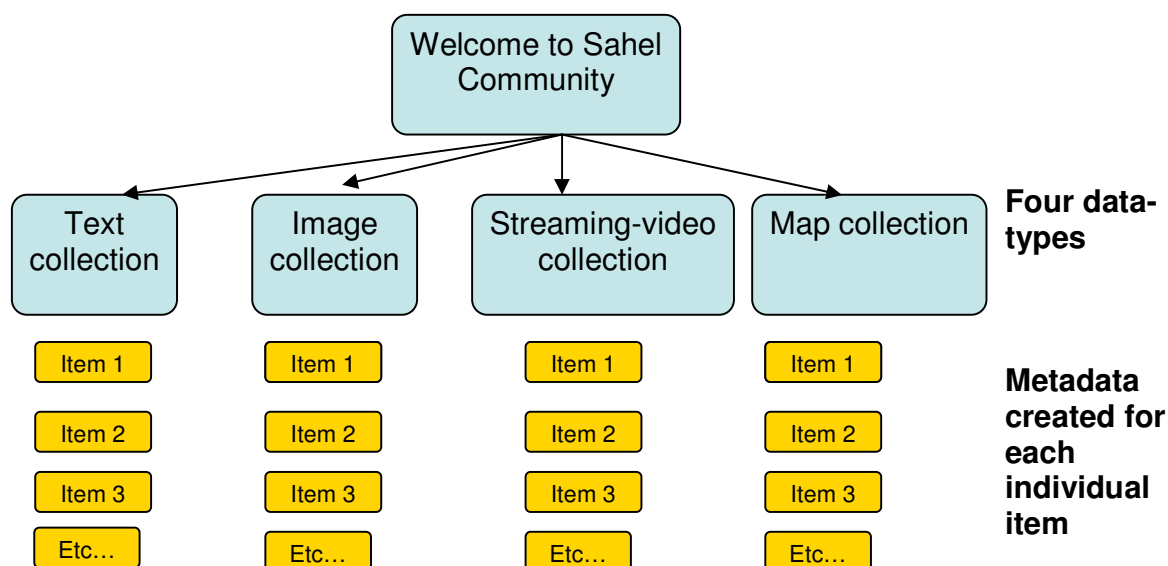
The deliverables of the project in terms of key milestones have continued to be met during the period since the interim report was written. Relatively minor variations from the original planned outline were approved by the ESD project co-ordinator.

1. Database construction

The Welcome to the Sahel Resource Bank has been constructed using a combination of database and virtual learning environment software. The scope of the resource has expanded beyond the project proposal, specifically in two components: i) customisation of the underlying data-base and ii) student access through the University of Stirling virtual learning environment.

The digital depository database DSpace (www.dspace.org) has been used to hold the resource-bank materials. This database software was selected after considering and testing several alternatives. In summary, DSpace is an open-source relational database designed to allow preservation and ready access to scholarly work. It was selected on the basis that it is extremely scalable, as open-source software it can be customised to meet specific needs, and there was already knowledge of the software through a basic implementation used for the University of Stirling's institutional depository called STORRE. (<https://dspace.stir.ac.uk/dspace/index.jsp>). For the Welcome to the Sahel resource bank the type and structure of the metadata as well as the range of and storage of different media have all required significant customisation of this database. The structure of the database is shown in Figure 1.

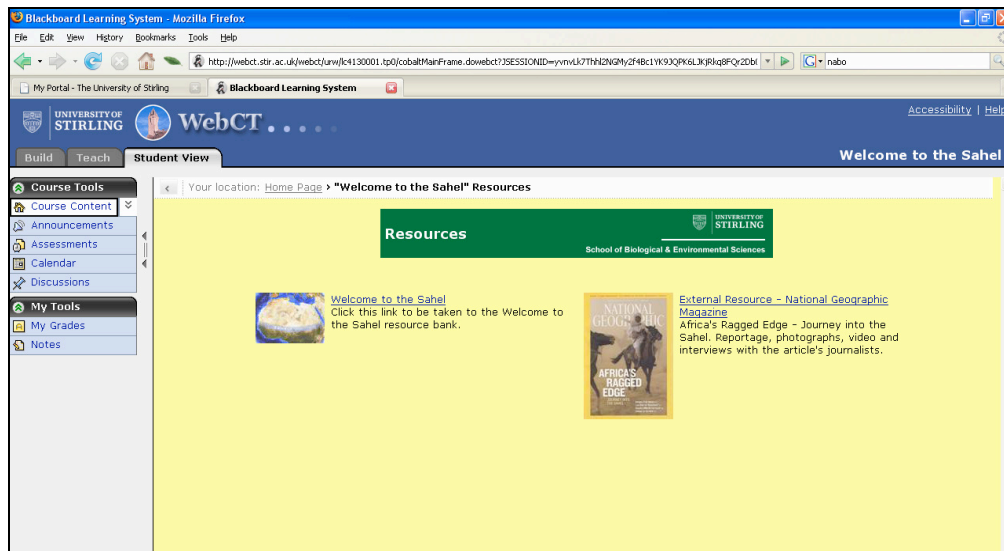
Figure 1. Welcome to the Sahel resource bank database structure.



Given the different types of media stored in the data-base and the possibility of scaling the work to something larger in the future, specific attention has been given to underlying the database structure in respect of the metadata required. The Dublin-Core metadata system has been used, providing commonality to existing University of Stirling Library catalogue keywords. This has led to four strands of data-types being adopted: video, printed documents, maps, and still images. The structure has changed during the project (*cf.* November 2007 interim report) in that maps and documents are now considered separately since they have distinctly different meta-data requirements, whereas all streamed video media are now considered together.

A significant disadvantage of a DSpace database is that it is designed primarily for completely open access. Open access for the Welcome to the Sahel resource was not a viable option given the legal issues surrounding copyright. Therefore a major challenge in the technical delivery of the project has been the protection of the intellectual property held in the resource bank whilst maintaining the ready and broad uptake of the material by undergraduates. This has been undertaken with two different layers of software protection such that the materials can be uploaded by specific Stirling staff members and can be accessed only by registered Stirling students and Stirling academics. The former has required extensive customisation of DSpace whilst the latter has been achieved through integrating the Welcome to the Sahel resource bank into Stirling's virtual learning environment (Figure 2).

Figure 2. Screenshot of the virtual learning environment interface to the Welcome to the Sahel resource bank.



Consequently, copyright protection and data security issues over and above those originally envisaged have been addressed. These advances have several tangible benefits including: a standardised workflow for uploading materials into the resource-bank based on readily recognised media types (this eliminates issues as to when a video is considered a film or a podcast for instance), a standard and prompted set of metadata for each media type allowing subsequent data searching by students to be similarly prompted if needed, and automatic authentication of users as bona fide members of the university through use of a login procedure common to all University staff and students.

2. Database contents

Materials for inclusion in the database have been collected and collated. Where necessary, and where suitable copyright permissions are granted, these have been purchased. Selection of materials was based on the following criteria:

- Suitability for enhancing debate on sustainability rather than acting as a crises narrative;
- Contextualisation of the Sahel region including historical narratives;
- Examination of gender-related issues to sustainability – e.g. a gender balance was sought in video and pictorial representations of village life in the Sahel; and
- Examination of contrasts between peoples' lives in the Sahel region and elsewhere.

Considering each collection - video, printed documents, maps, still images - in turn:

Video materials include professional ethnographic films considering water-resource use, religious and gender issues, a French-language film collection and field-work video recorded by the PI showing geoarchaeological methods in use. Highlights of the video collection include the ethnographic film *"Lake Chad - Mother of the Waters. Four entrepreneurs, two villages, and a lake in Africa"* by Holger Kirscht and Matthias Krings (2003) and the polemic documentary video *"I'm a subsistence farmer...get me out of here!"* by Ceri Dingle (2007).

Printed documents made available as PDF files include conference "grey" literature, out of copyright scanned books, and more recent materials where copyright permission has been granted. Where possible, searchable PDF files have been created. Highlights include the complete back catalogue of the *Borno Museum Society* journal – a journal that primarily reports summaries of keynote lectures given on Sahel-related topics; and complete scanned copies of major expedition reports such as the three volumes of Henry (Heinrich) Barth's 1859 *"Travels and Discoveries in North and Central Africa being a journal of an expedition undertaken under the auspices of Her Britannic Majesty's government in the years 1849-1855"*.

The cartographic material collection includes both historical maps and commissioned work. The latter was obtained through the University of Stirling's cartographer. Copyright permissions to use a set of map materials produced by the French overseas ministry and OECD Sahel regional offices have been sought and remain (as of June 2008) pending. If granted, these would be an undoubted highlight of the collection.

The collection of still images comprises scenes of domestic life and of environmental issues. These include images taken by the PI during field-work in northern Nigeria in November 2007 and in January 2008.

3. Copyright protection and approvals

Legal issues relating to the submission and use of materials placed in the Welcome to the Sahel resource bank have required considerable effort to establish that each item entered into the database has copyright approval. The two most common situations are i) where materials are from an external source (i.e. not being submitted by the copyright holder) and already has copyright attached and ii) where the academic depositing an item has generated the material themselves (video, still image) and is transferring copyright. This is done on a non-exclusive basis allowing the academic further use of the material. To cover both situations, a

standardised legal agreement (copyright license) has been adopted (annex 1) and is integrated into the electronic submission process. This prompts an approval notice for submissions from academics contributing to the database. Records of copyright owner submissions, as well as copyright transfer/approval for use of all other materials are being maintained and archived (paper-based).

A third and rare situation is where materials collected have restrictions placed upon them in terms of their transferability – e.g. recorded video that under the terms of its educational use cannot be transferred to and stored on a central server. In this instance a web link giving details of the location of the physically stored video, in the manner of a library book, has been created in the virtual learning environment, outside the resource-bank itself.

4. Student Access to database

Student access can be managed either to allow searches of the whole database, as a link to a specific item, or to a set of items. Through the University of Stirling’s virtual learning environment (Figure 2) a database search can be initiated by a student, who is then presented with the results as in the example in Figure 3. Alternatively single database objects have been linked using a unique internet address (handle.net link – see Figure 3 for an example) into materials elsewhere in the virtual learning environment and used to support a specific lecture.

Figure 3. Results of search

The screenshot shows a web browser window displaying the search results for a specific item in the University of Stirling Digital Resource Bank. The browser address bar shows the URL: <http://sahel.stir.ac.uk/dspace/handle/10253/94>. The page header includes the University of Stirling logo and the text 'University of Stirling Digital Resource Bank'. A navigation menu on the left includes options like 'Home', 'Communities & Collections', 'Titles', 'Authors', 'Subjects', 'By Date', 'Sign on to:', 'Receive email updates', 'My DSpace authorized users', 'Edit Profile', 'Help', and 'About DSpace'. The main content area displays the following information:

- Please use this identifier to cite or link to this item:** <http://hdl.handle.net/10253/94> [Edit...]
- Title:** Travels and Discoveries in North and Central Africa being a journal of an expedition undertaken under the auspices of H.B.M.'s government in the years 1849-1855
- Authors:** Barth, Henry (Heinrich)
- Keywords:** Travel, North Africa, Borno, West Africa, Sahel, Desert, Lake Chad
- Publisher:** Harper and Brother, New York
- Description:** Three volumes of Barth's famous journal of geographical and scientific observations made in the Sahel region of West Africa
- Appears in Collections:** [Text Resources](#)

Below this information is a table titled 'Files in This Item':

File	Description	Size	Format	
Travels_and_Discoveries_in_North_and_Cen3a.pdf	Volume 3	38.77 MB	Adobe PDF	View/Open
Travels_and_Discoveries_in_North_and_Cen2.pdf	Volume 2	37.85 MB	Adobe PDF	View/Open
Travels_and_Discoveries_in_North_and_Cen1.pdf	Volume 1	21.38 MB	Adobe PDF	View/Open

At the bottom of the page, there is a yellow box with the text: 'This item is protected by original copyright' and a link to [View License](#). Below this box is a button labeled 'Show full item record'.

5. Project Management, Testing and Launch

The advisory committee for the project comprised the PI, Co-I and staff from the participating departments including Information Services the database hosts. Additional to the original proposal, the University's School of Languages, Cultures and Religions has become involved with the inputting and planned use for session 2008/9 of Francophone West African materials.

The University of Stirling's virtual learning environment messaging service was used to target student interest towards the materials within the database and to gather feedback. Initial use of the resource (alpha testing) commenced in October 2007 with an Environmental Science class (Semester 5) having access via a simple link to an ethnographic film and to a small collection of conference-based "grey" literature; this material was contextual to and hence supporting of their taught course. The materials linked environmental, process-based, understandings to cultural issues surrounding food production for local subsistence in the Sahel. In terms of technical requirements of the resource-bank, student feedback (alpha testing) was positive in respect of the quality and ease of access to the streamed video; students were less enthusiastic about the need to access further written materials beyond their existing reading list. It was clear that visual rather than text-based materials were preferred by the student body when such materials were presented outside of their existing interfaces to the course.

Participating students in spring semester 2008 (beta testers) were identified across each of the wider discipline areas and comprised students from each year group (Semester 2-8). Additionally, the resource was made available to Masters-level students studying environmental history and environmental science. These students provided feedback over and above that gained from the alpha testing in that the resource bank was by this stage larger, and the database had become fully searchable.

A project launch event was held (19 March 2008) with academic staff, students who acted as beta and alpha testers, and staff from library and computing services invited. Prof. Robin Law FBA, an acknowledged authority on African history kindly opened this event and gave a keynote address emphasising the need to incorporate wider understandings of sustainability of the people of the Sahel into relevant courses. This was accompanied with talks and discussion on the creation of the database, the materials sourced, and the technical implementation of the resource bank within the virtual learning environment. Particular emphasis in these discussions was placed on the ease of use of the resource; a specific issue surrounding Dublin Core Metadata emerged as a systematic problem. This has since been rectified.

Course feedback from beta-testing students has reinforced that gained from the alpha test, in that the streamed video is well liked and found to be supportive of other teaching. Student uptake was predominantly in the environmental sciences and in history, the two subject areas where the resource has been most heavily trailed by staff. Disappointing uptake by several subject areas was noted. To improve on this, publicity to staff as well as undergraduates will be required for the forthcoming academic session. Such materials have been drafted as part of the project. Tangible results of the project have been found in respect of improved student performance on essay-based exam questions particularly those considering sustainability, drought and desertification. These were noted by the PI for both year 2 and year 3 students. A technical issue surrounding access restriction through the virtual learning environment was also reported through student course representatives and has since been rectified. Monitoring of such technical issues will remain a priority for future use.

Future

The Welcome to the Sahel resource bank will be used in a range of courses next academic session. Publicity of the resource has reached staff in other disciplines, and the resource bank will become adopted in courses (e.g. French) beyond the scope of the original project proposal.

The success of the Welcome to the Sahel resource bank has given rise to a demand for similarly structured resources – i.e. searchable, multiple media and access restricted for intellectual copyright protection. One such currently under development relates to materials about historical sustainability of communities found in the North Atlantic region, thereby opening another route towards the promotion of sustainability literacy.

**PA
RO
24 June 2008**

Annex 1. Text of Copyright licence for Welcome to the Sahel project

License/Copyright for **Welcome to the Sahel** Resource Bank - A University of Stirling Closed-Access Digital Depository

Copyright

The copyright of materials in this collection remains with the author, unless it is stated to have been assigned to the University of Stirling. The University of Stirling reserves the right to keep electronic copies for consultation in both cases.

Deposit/End user license

COVERED WORK

I would like to deposit my material in the closed-access University of Stirling digital repository "Welcome to the Sahel". Material referred to below as "Work" is covered by this agreement. When I deposit Work, whether personally or through an assistant or other agent, I agree to the following:

NON-EXCLUSIVE RIGHTS

Rights granted to the digital repository through this agreement are entirely non-exclusive. I am free to publish the Work in its present version or future versions elsewhere.

I agree that University of Stirling may electronically store, copy or translate the Work to any medium or format for the purpose of future preservation and accessibility. The University of Stirling is not under any obligation to reproduce or display the Work in the same formats or resolutions in which it was originally deposited.

DEPOSIT IN CLOSED ACCESS UNIVERSITY OF STIRLING DIGITAL REPOSITORY

I understand that work deposited in the closed-access digital repository will be accessible only via University of Stirling network access.

I understand that once the Work is deposited, metadata will be incorporated. Removal of the item can be made after discussion with the digital repository administrators.

I AGREE AS FOLLOWS:

- That I have the authority of the authors to make this agreement and to hereby give University of Stirling the right to make available the Work in the way described above.
 - That I have exercised reasonable care to ensure that the Work does not breach any laws including defamation, libel and copyright.
 - University of Stirling does not hold any obligation to take legal action on behalf of the Depositor, or other rights holders, in the event of breach of intellectual property rights, or any other right, in the Work deposited.
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Annex 2. Expenditure

1. Staff replacement

Staff replacement for PI allowing PI to develop database and contents. £1250

2. Consumables and software

Video software - Ulead Mpeg4 editing software
Apple Quicktime editor

Sanyo Xacti solid-state recorder

Qubase audio-editing software (also supported from School equipment budget)

Solid-state video and audio recording media

Purchase of ethnographic DVDs

Purchase of maps and text materials

Miscellaneous consumables – e.g. batteries for cameras, paper and print materials. total £1250

3. Undergraduate-symposium, conference travel and Evaluation

Contribution to cartography costs (internal recharges) £200

Publicity/launch materials (internal recharges) £375

Other launch event costs £125

Contribution to travel associated with collection of resource materials – Nigeria November, 2007 £400

Contribution to conference travel - University of Frankfurt £400

Grand Total £4000
