

A Welsh educational experience:  
developing a school/community  
e-learning framework for living sustainably

(1969-2010)

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*1969 Welsh Environment Journal*

The late 1960s marked the general emergence of environmental awareness. The response of a small group of postgraduates in the zoology Department of University of Wales at Cardiff was to publish the Welsh Environment Journal. WEJ was a mixture of reviews, interviews and reportage, which highlighted Welsh examples of global environmental issues. It circulated throughout Wales and several copies turned up in the parliamentary library at Westminster, where they prompted a flow of congratulations from MPs who found the contents informed political debate.

*1971 Natural economy*

WEJ opened up student discussions about the limitations of narrow subject teaching in a world that was increasingly dominated by cross-subject environmental problems. During a zoology field course on the Welsh nature reserve of Skomer Island this grass roots interest in curriculum reform emerged as a proposal for a new multi subject degree. Surprisingly, the idea was enthusiastically taken up by academic staff in all the pure and applied science faculties of the University. It became the philosophical thread for an honours course in 'Environmental Studies'. This course integrated the inputs from eleven departments, from archaeology, through metallurgy, to zoology. It ran successfully, attracting some of the most able students until the university merged with a neighbouring institution in the late 1980s, when the new policy was to abolish all cross-discipline teaching.

Towards the end of the 1970s, the University of Cambridge Local Examination Syndicate evaluated the Cardiff environmental studies course. The Duke of Edinburgh, Chancellor of the University of Cambridge, had directed UCCLES to come up with a cross-curricular subject as a UK contribution to world development education. A group of Cambridge advisors and teachers eventually turned 'environmental studies into the GCSE school subject 'natural economy' (the organisation of people for sustainable production). Natural economy was launched by UCCLES as a part of its International GCSE. Although this period coincided with the creation of a root and branch reform to create a UK national school curriculum, there was no widespread demand for change with respect to 'traditional subjects'.

However, natural economy was taken up by UK schools within the independent sector and by European schools taking the International Baccalaureate. Namibia and Nepal adopted it under guidance from UCCLES as a subject to replace geography and biology at A level; using practical examples of these country's cross subject issues of economic development.

### *1980s Distance learning*

Natural economy was disseminated from Wales throughout Europe as part of the EC's Schools Olympus Satellite Education Programme. It was uploaded from Gwynedd's education centre at Llangefni on the Isle of Anglsey. The nearby Cwm Idwal mountain national nature reserve was used as a practical model of the conservation of biodiversity.

A partnership was formed between the University of Wales, the UK Government's Overseas Development Administration and the World Wide Fund for Nature to produce a cultural ecology model of Nepal with the help of a sponsorship from British Petroleum.

An interoperable CD version of natural economy for computer-assisted learning was created in the Department of Zoology at Cardiff with a grant from DG11 of the EC. This work was transferred to the Natural Economy Research Unit (NERU), which was set up in the National Museum of Wales in the late 1980s.

### *1993 SCAN*

SCAN (Schools and Communities Agenda 21 Network) was created in St Clears Teachers Resource Centre for West Wales with funds from CCW, Dyfed County Council and Texaco Pembroke Oil Refinery. The stimulus was the Children's Agenda 21 that emerged from the Rio Environment Summit in 1992. SCAN was designed by a group of Pembrokeshire teachers to act as an online focus for community action in the context of curriculum targets being integrated with neighbourhood objectives for the Local Agenda 21. The assumption was that schools working with the communities they serve could play a key role in the introduction of sustainable development principles into everyday living. SCAN's first community action plan was produced by Johnston Primary School, and activated the local authority to make significant environmental improvements in the village. Links were made with the European Schools Network based in Portugal for pupils to compare their concerns about environment and spread ideas about how they could be tackled locally by school and community working together.

Through initial pump priming by Countryside Council for Wales, SCAN thrives to this day as part of the National Museum's education service in Cardiff. However, it has turned out that the school/community interface is not an easy one for either party to penetrate and sustain without central support that links the two policy areas of education and sustainability. Also, within the museum, SCAN has come to focus on biodiversity rather than the broad interdisciplinary context required for teachers to interact with managing broader neighbourhood behaviour change needed for living sustainably. Nevertheless, SCAN is a good working example of how to organise and sustain an on-line bilingual interactive distance-learning network with national coverage. There is nothing like it elsewhere in Europe.

### *1994 Going Green Directorate (GGD)*

The GGD grew from a 1994 gathering of schoolteachers and academics in Wales. The Countryside Council for Wales, Dyfed County Council, and the local Texaco oil refinery sponsored the meeting. This partnership was based in the St Clears Teacher's Resource Centre and Milford Haven High School and its junior feeder schools. From here, a successful award-winning pilot was led by Pembrokeshire schools to create and evaluate a system of neighbourhood environmental appraisals, and network the local findings from school to school.

The objective of the GGD is to promote practical conservation management through environmental appraisal and the long-term management of neighbourhood historical assets, green spaces and community services in order to promulgate a sense of place, improve quality of life and enhance biodiversity.

### *1995 Community offices*

Through a series of school-based environmental appraisals it soon became clear that different communities faced different environmental issues but all had a need for a community office to coordinate and manage local projects for sustainability. To this end, local business sponsorships were obtained to establish two prototype community offices in the IT departments of Crickhowell High School and Pembroke High School to test the following four on-line elements.

- Interdisciplinary information about world development with tools for building personal bodies of knowledge linking culture and ecology;
- Citizenship toolkits for making and operating long-term plans for sustainability that deal with neighbourhood environmental issues and family life;
- Open forums associated with a dedicated web viewer for networking ideas and achievements between 'islands of sustainability';
- A central Webmaster to hold the network together on a day-to-day basis.

These were the days of pioneering the embryonic Internet with rural 'cyber cafés' and the SCAN team got involved in a series of local initiatives in Wales and England to introduce computers and software into communities to help develop local action plans.. Now, with the availability of cheap computer memory and broadband all of these features are now commonplace components of free online networks throughout the world.

### *1998 Conservation management*

The fundamental educational philosophy behind SCAN in the 1990s was to move towards a more locally based and neighbourhood-focused education. Yet it is only now being accepted that this is the only practical route to sustainability. Interdisciplinary knowledge and know-how about making and operating community action plans for sustainable living are bound together with locality. Community cannot be distinguished from locality because it is locality, in terms of such factors as history, demography and income, that sets the agenda for how the community functions. This idea was actually backed by the EC LIFE Environment programme (a partnership between SCAN, the UK Conservation Management System Consortium (CMSC), and the University of Ulster) in the late 1990s.

The aim was to produce and test a conservation management system for industries and their community neighbourhoods, using *cultural ecology* (a development of natural economy linking conservation with industrialisation) as the holistic framework. The aim was to

provide a web enrichment resource for education/training in conservation management in schools and communities. The work was organised on the premise that traditional subject-based teaching is an impediment to learning about how to function as an involved citizen in a world dominated by cross-subject issues of environment and economic development. Within this cross-curricular framework, students are able to develop an understanding of: (1) the earth's resources, (2) the problems caused by careless use of these resources, (3) the conflicting opinions on this topic, and (4) how to get updated information so that people can be wise users and stewards of the earth. Pilot work in these directions was funded in Cardiff schools by the Cardiff Bay Development Corporation.

#### *1999-2003 Testing the CMS in community action plans*

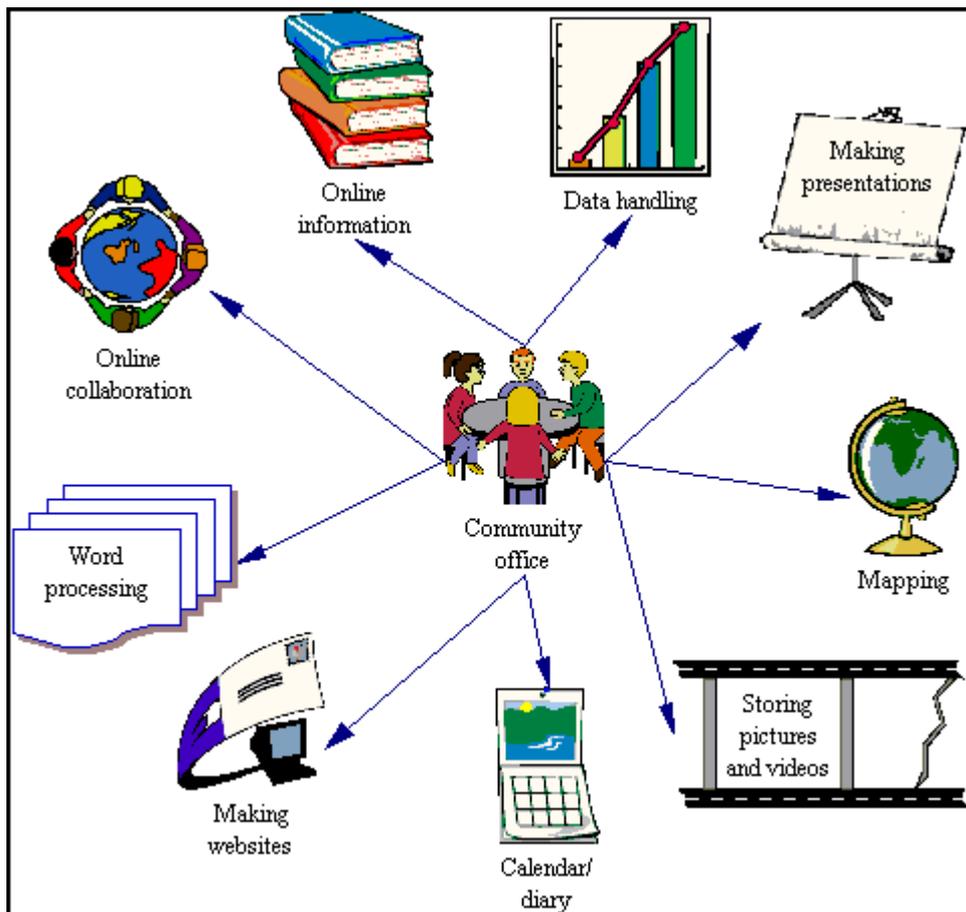
The CMS Consortium linked up with several UK communities through their local authorities to test the suitability of the CMS software package for volunteers carrying out environmental improvements. The most successful effort came from the small Suffolk village of Parham, which adopted a community version of SCAN to carry a village environmental appraisal and used the CMS to make a biodiversity action plan to manage hedgerows, ponds and three village greens. Suggestions for simplifying the CMS professional package for volunteers resulted in a community management system based on a PC network of electronic diaries.

#### *2004-08 COSMOS*

Becoming a citizen in today's world focuses learning on *cultures of sustainability with multi-subject organised syllabuses*. This defines the COSMOS project.

Current work in COSMOS involves creating and testing the elements of a global distance concept mapping for communities in the form of a prototype 'citizen's environmental network'. The latter was envisaged almost two decades ago in the UK Strategy for Sustainable Development, where it was referred to as a community tool for the Biodiversity Strategy. The aim was to spread ideas and achievements about operating plans for environmental improvements as an exercise in interactive citizenship. It was to be pump-primed by Government and then run by community volunteers, but nothing has happened in the interim to realise this community-led objective. COSMOS provides on-line resources to promote the creation of local special areas of sustainability and make the long-term action plans necessary for the community to move towards sustainable development. These plans should give priority to strengthening local groups and institutions using local resources to meet local needs.

Fig 1 Elements of a community office for e learning and communicating achievements



The software for community use should be of an international standard and available free or at low cost, with good inbuilt Help and networked via a dedicated IT/GIS web viewer. COSMOS uses a combination of electronic diaries with Google Docs as a user-friendly online software template for organising a community office (Fig 1). Google Docs consists of a Web-based word processor, spreadsheet and presentation application offered free by Google. It allows users to create and edit documents online while collaborating in real-time with other users. Documents, spreadsheets, and presentations can be created within the application itself, imported through the web interface, or sent via email. They can also be saved to the user's computer in a variety of formats. By default, they are saved to the Google servers. Open documents are automatically saved to prevent data loss, and a full revision history is automatically kept. Documents can be tagged and archived for organizational purposes. Together with Google site maker, a community can go on line with a home PC at no cost. Google forums can also be integrated into the system.

*2009-10 Living sustainably wiki*

Currently, discussions are underway in Wales with community development officers, education advisors and conservation organisations to assemble COSMOS as an e-learning adjunct to the SCAN model to provide a knowledge framework within the Welsh Assembly Government's sustainable development strategy and associated social drivers for people to locate themselves sustainably in place and time. Living sustainably is a global concept. In this respect it should have an international audience to learn about how others of different

faiths and cultures are tackling the issue reciprocally in the interests of communal and world peace through understanding.

The chosen format for setting up such an international e-learning network dealing with the topic of 'living sustainably' is a wiki.

- A wiki is a website managed centrally that allows users to easily add and edit content within an HTML browser, which invites all users to edit any page or to create new pages within the wiki Web site, using only a basic Web browser.
- A wiki therefore promotes meaningful topic associations between different pages by making page links almost intuitively easy and showing whether an intended target page exists or not.
- A wiki is not a carefully crafted site for casual visitors. Instead, it seeks to involve the visitor in an ongoing process of creation and collaboration that constantly changes the Web site as a knowledge system.
- A wiki enables communities to write documents collaboratively as collections of pages referred to as a "wiki pages". The entire collection of pages, which are usually well interconnected by hyperlinks, is "the wiki". A wiki is essentially a database for creating, browsing, and searching through information as text, picture, video and audio files.
- A wiki allows for non-linear, evolving, complex and networked text, argument and interaction. Wikis are generally designed with the philosophy of making it easy to correct mistakes, rather than making it difficult to make them.

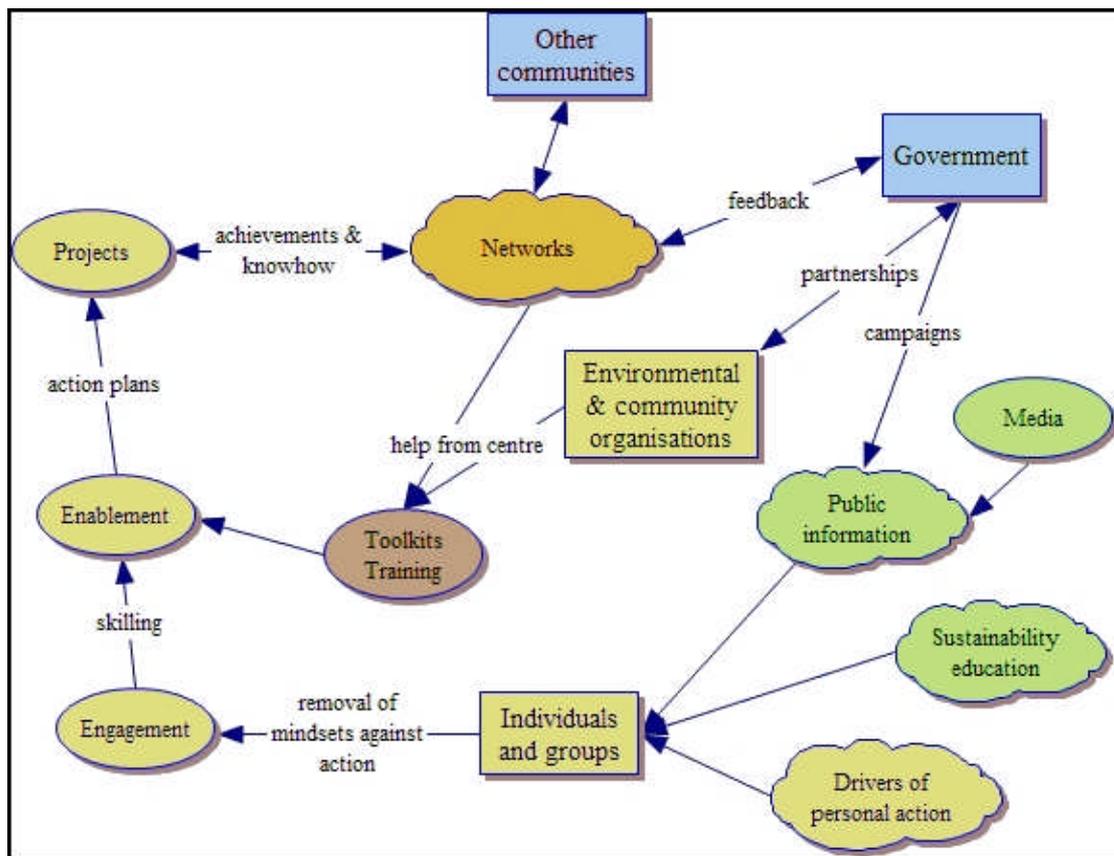
Thus, while wikis are very open, they provide a means to verify the validity of recent additions to the body of pages. The most prominent, on almost every wiki, is the "Recent Changes" page—a specific list numbering recent edits, or a list of edits made within a given time frame.

The software system chosen to develop the wiki is 'Wikispaces'

[Wikispaces](#) was setup as a free international online collaboration tool, which allows multiple users to interact and work together. The Wikispaces idea uses a similar user interface as Wikipedia, where users can create a document, edit it, and hold discussions about the documents or any edits that have taken place. You can:

- create a document, or space, for editing, like Wikipedia;
- let anybody view and edit it;
- choose to restrict the editing process only to people who you already know, by inviting only trusted users and setting up a password;
- and or an extra fee, you can even restrict the viewing of your space.

Fig 2 Diagram of a community action cycle



Like Wikipedia, a history of document changes is kept, and a log is made of which user made which changes and at what time, so that collaborating authors can keep track of the work being done. While the power of the basic collaboration tools is not what you'd expect if you are used to a typical word processing suite, Wikispaces is a useful free application where multiple users across the globe can collaborate on simple documents or ideas.

The living sustainably wiki ([www.livingsustainably.wikispaces.com](http://www.livingsustainably.wikispaces.com)) is integrated with a concept map lodged at the ICOPER European Community demonstration web site. ICOPER promotes technology enhanced learning in higher education under the scheme for adopting higher education standards for European education. (<http://www.icoper.org/>)

The educational proposition of the ICOPER concept map is that a citizen's environmental network to spread ideas and achievements should be focused on the production of action plans by communities, families and individuals. Although 'hair shirt' environmentalist self denial is not going to overcome the global ecological crisis, to cooperate effectively we need to think more deeply about how to embrace value systems based on humanitarian beliefs. This is a reminder that in its derivation the word 'ethics' means not just a set of beliefs or values, but a way of life and personal orientation to the world. Therefore, action plans need to incorporate both material and spiritual values because, for our fulfilment as human beings, we need not just economic but moral and spiritual goals for the long term care of our planet.

Plans for living sustainably have to find space for poetic truths about the environment alongside those of science. In other words, we have to plan how we can stop trying to meet non-material needs by material means and work to alternative visions of modernisation that permit richer choices about the paths to collective wellbeing.

The aim of community action plans is to promote behaviour change in citizenry, defined as environmental re-socialisation, to take up the physical world in a sustainable way. These plans are actually part of a community action cycle (Fig 2), where two-way feedback and support for meeting the objectives of the plans comes to and from local political strategies and the help given by non-governmental organisations, which provide know-how and fund the process of change. Within this perspective a community action cycle can be seen as a mechanism of participatory democracy to devolve political powers and resources to neighbourhood bodies.

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*Other primary links*

SCAN (<http://www.museumwales.ac.uk/en/scan/schools/> )

CMSC ([www.cmsconsortium.org/](http://www.cmsconsortium.org/))

Natural Economy & COSMOS ([www.culturalecology.info](http://www.culturalecology.info))

Making community action plans (<http://www.biodiversity.ecoworld.co.uk/cwicnet/About.htm> l)