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KEVIN RICHARD BUTT

University of Central Lancashire, School of Built and Natural Environment, Preston, PR1 2HE, UK
e-mail: *krbutt@uclan.ac.uk*

SUSTAINABLE DEVELOPMENT: A VIEW FROM ONE UK UNIVERSITY

The UK government has produced indicators across a spectrum of areas to monitor sustainable development in Britain. Individuals, communities and organisations can utilise these to assist their own attempts to meet current needs without compromising future requirements. The University of Central Lancashire is used by way of example to show how two facets (direct actions and education) can encourage a move towards sustainable thinking and deeds.

Key words: sustainable development, indicators, education

I. INTRODUCTION

It is now an accepted reality that mankind is capable of directly affecting natural resources and even climate on a global scale. Since industrial development, our effect on the earth has moved beyond local perturbations to the wider environment. Because of this, we cannot ignore the current sustainability agenda. This is not new, as a definition of sustainable development was proposed within the Brundtland Report [1], "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Even twenty years on, this continues to be pertinent. The publication of "Our Common Future and the work of the World Commission on Environment and Development" laid the groundwork for the convening of the 1992 Earth Summit and the adoption of United Nations Agenda 21, the Rio Declaration and for the establishment of the Commission on Sustainable Development. Thinking and research in this area has since blossomed and publications in the realms of Sustainable Development have grown rapidly over the past 30 years [12] (Figure 1).

II. UK GOVERNMENT POSITION ON SUSTAINABILITY

This is outlined succinctly in "Sustainable development indicators in your pocket" published by the Department for Environment, Food and Rural Affairs in July 2007 [5]. This is an update of previous national indicators, with additional indicators at international, regional and local levels also established. In addition to raising awareness, the indicators are crucial to policy monitoring and can be used both to monitor specific issues and to create overviews of progress for broad priority areas. There are 68 national indicators supporting the strategy, including measures of everyday concern such as health, housing, jobs, crime, education and the environment. The indicators also support one or more of the four priority areas outlined in the Strategy.

* *Pracę recenzowała:* dr hab. prof. UR Joanna Kostecka, Uniwersytet Rzeszowski

These priority areas are: (1) Sustainable consumption and production, (2) Climate change and energy, (3) Natural resource protection and enhancing the environment, (4) Creating sustainable communities and a fairer world.
Examples of these indicators showing progress over recent decades in the UK in areas of renewable (green) electricity generation (part of priority 2) and recycling of household waste (part of priority 3) are shown in Figures 2 and 3 respectively.

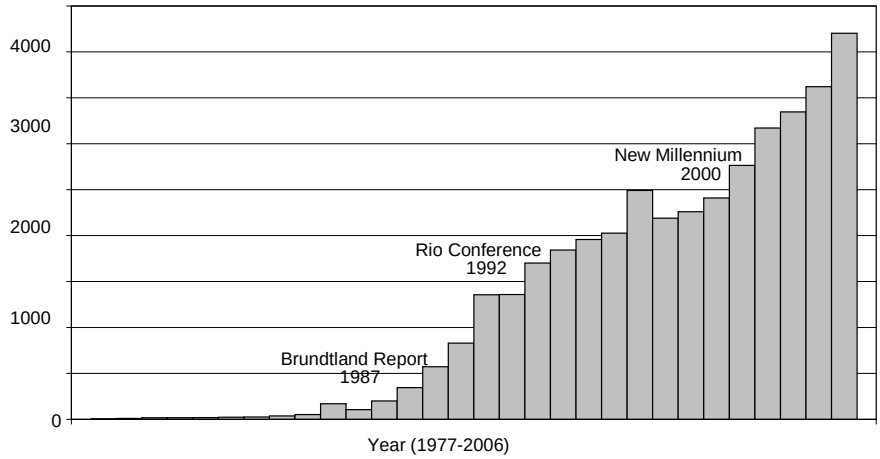

Fig. 1. Number of publications obtained from Web of Science (1977-2006) using a search for "Sustainable Development" (notable milestones indicated)
Rys.1. Liczba *rezultatów wyszukiwania publikacji w Web of Science (1977-2006) dla zapytania „zrównoważony rozwój" (zaznaczono ważniejsze kroki naprzód)*

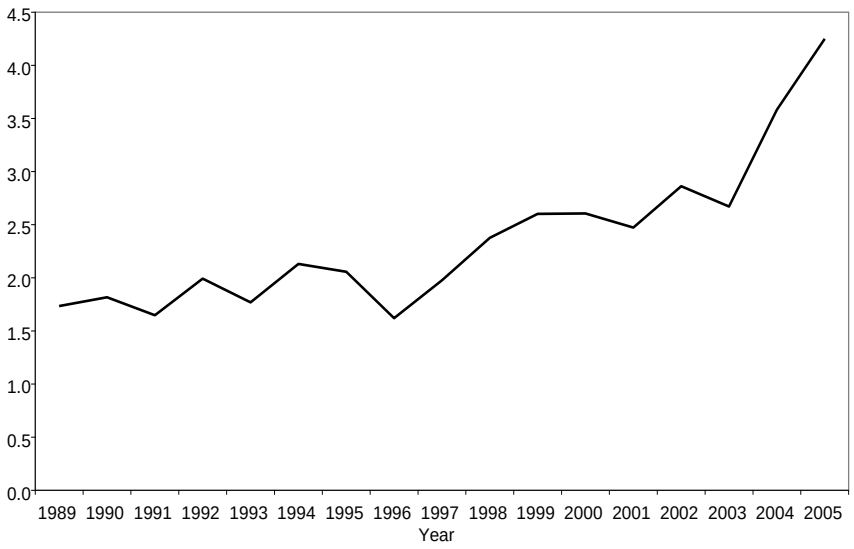

Fig. 2 . Renewable electricity generated as a percentage of total electricity (1989-2005) (Adapted from Defra [5])
Rys. 2. *Wyprodukowana energia odnawialna jako procent całej elektryczności (1989-2005) (za Defra [5])*

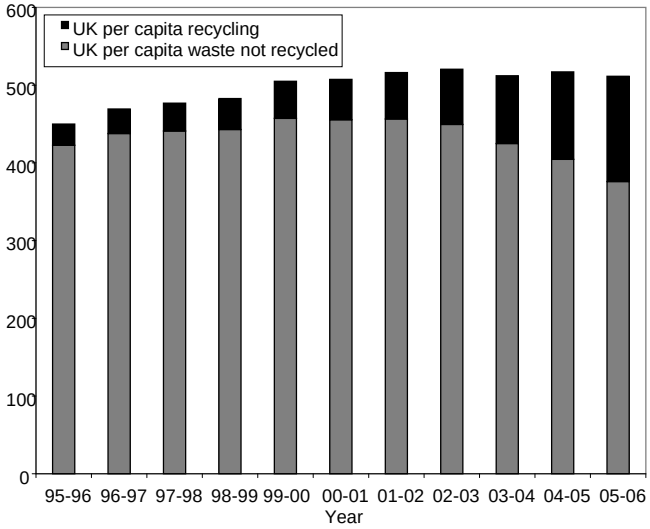

Fig. 3. Household waste production in the UK 1995-2006 [kg per person per year] (Adapted from Defra [5])

Rys. 3. *Odpady domowe w UK w latach 1995-2006 [kg/osobę/rok] (za Defra [5])*

III. UCLAN AND SUSTAINABILITY

Within the UK there are some 150 institutes of Higher Education which bear the name University. Many are relatively newly created, have developed from other colleges or polytechnics or in the case of "Ox-bridge" have been in existence for centuries. Regardless of their origin, longevity, location or financial situation, all need to now seriously consider the sustainability agenda. To illustrate this situation, an institute that until 1992 was a Polytechnic, the University of Central Lancashire (UCLan), based in Preston in the north west of England, will be used by way of example. This University has a student body of some 30,000 students and is therefore in the top ten universities in the UK measured by student number.

The Senior Management Team (SMT) at UCLan is forward looking and has a clear vision with respect to sustainability [11]. The University's Medium Term Strategy, "A World-Class Modern University" [10] spans the period 2007-2017 and makes direct reference to sustainability. Within this document the following statements are made:

1) We will be a model international University for sustainability.

2) Our sustainability strategy will ensure that the University becomes a carbon-neutral institution within 20 years.

3) We will also ensure that our students are educated for global citizenship by integrating sustainable development, health and wellbeing into our curricula.

UCLan will now aim to become a model international University for sustainability. This strategy and associated operational plans are based on a commitment to the following principles:

– To fully meet or exceed standards set by local environmental legislation and advisory codes of practice having official status, in the countries in which the University operates.

– To address the root cause rather than to treat the symptom wherever possible; reducing the production of CO_2 or waste now will have a far greater positive impact than planting trees or increasing the amount of waste recycled. Put another way, the University will reduce when it can and offset when it can't.
– To raise awareness about climate change and sustainable development.
– To be a role model and advocate for sustainable development.
– To the prudent use of natural resources and the prevention of pollution.
– To continuous improvement, through the setting of objectives and targets and by monitoring and review.

Objectives - By 2012 UCLan will:
1) Implement an Environmental Management System to BS14001 [2] or equivalent by 2010 to provide a solid framework to monitor and manage environmental performance.
2) Reduce its carbon footprint by 25%. Specifically: ensure all new buildings meet rigorous criteria for sustainability, i.e. Building Research Establishment Environmental Assessment Method (BREEAM) or equivalent; minimise energy usage; develop and install on-site micro-generation and, where technically possible and financially feasible, retro-fit existing building stock with energy-saving devices; reduce potable water usage by 15%, e.g. ongoing training and a reminder to everyone to "turn it off."
3) Reduce waste produced by 25% and increase waste recycled to 25%, e.g. change what is bought and consumed (less packaging or reusable), change working practices (reduce paper dependency).
4) Reduce car usage and dependency for commuting staff and students, e.g. improve facilities for showering, storage of bikes and gear.
5) Reduce air travel, by reducing actual air miles and/or imposing an appropriate carbon offset tax.
6) Ensure sustainability is one of the key criteria in procurement policy, e.g. purchase of environmentally-friendly materials (recycled paper and soy inks) from accredited suppliers; reusable packaging, less packaging, recyclable packaging; FAIRTRADE accreditation.
7) Curricula development: educate students for global citizenship by integrating sustainable development, health and well-being into curricula across the University.

Objectives 1 to 6 will seek to encourage all staff to reduce UCLan's current carbon footprint, shown for the academic year 2005/6 (Tab. 1). Objective 7 will be met specifically by the academic staff and is examined in detail below.

Table 1 - *Tabela 1*
Carbon Footprint for University of Central Lancashire 2005/6 (Adapted from UCLan [11])
Ślad węglowy Uniwersytetu Central Lancashire w roku 2005/6 (na podstawie [11])

Emissions Source *Źródła emisji*	Annual Cost *Koszty roczne* (£ k)	Annual Usage *Zużycie roczne*	Annual CO_2 Emissions (t yr^{-1}) *Roczna emisja CO_2*	Baseline (%) *Punkt odniesienia*
Electricity / *Elektryczność*	871	16,483 MWh	7,088	57
Gas / *Gaz*	537	21,113 MWh	4,011	32
Oil / *Ropa*				<1
Water / *Woda*	188	131,197 m^3	53	<1
Fleet Vehicles / *Park samochodowy*	25	305,750 miles	130	<1
Air Travel / *Podróże samolotem*		6,300,000 miles	1,134	9
Total / *Suma*	1,621		12,416	100

IV. WORK AT A DEPARTMENTAL LEVEL

At UCLan sustainability issues arise in the running of the institution, as already outlined, but also occur within academic material delivered to students and through research. The University is about to create a Centre for Sustainability and pump-prime this with an injection of £0.4 million. It is likely that this Centre may be located within the School of Built and Natural Environment (SBNE) which was formed in 2007 from the amalgamation of the Department of Built Environment and the School of Natural Resources (formerly the Department of Environmental Management), within the Faculty of Science and Technology. SBNE has research-active staff publishing across a range of sustainability issues, including waste management, land restoration, sustainable tourism, environmental planning and sustainable design [3,4,6,8]. This expertise means that undergraduate and postgraduate provision reflects these interests with for example, degree programmes in Environmental Management, Ecology and Conservation Management, Waste Management, Architecture and Construction Engineering. In turn, and within these programmes, some modules are specifically aimed at delivering current research in the sustainability arena.

One new module, which is due for delivery in 2008, is "Issues in Sustainability". This Level 1 (first year undergraduate) module seeks to offer a multi-disciplinary approach to the subject and be available across the University to all UCLan students as an elective module or certificate, as part of the UCLan policy to make all students sustainable literate. The collected work will include elements drawn from, e.g. the natural and built environment, health and technology. Research will be central and current "cutting edge" material presented. It is anticipated that the essence of this module will be collated to form a book, as current up-to-date literature is limited [7,9]. The proposed structure of the book is:

(1) Introduction to the subject – providing background to module/UCLan setting and topic.
(2) A conceptual background of the subject.
(3) The main thrust: research in contemporary sustainable issues. To include: climate change, waste management, soils, built environment and construction, energy, technology, health, tourism, global issues.

These chapters will be followed by a "Future research agenda" section. This will feature each of the authors of the preceding specific chapters suggesting where research in their given area is heading and more significantly, potentially guiding undergraduates in these directions, when considering dissertation topics. In this way, the sustainability agenda is once more highlighted to the students and would seek to develop a personal awareness of how this might form a part of their own studies.

To further encourage sustainable thinking by undergraduates, UCLan has established £1,000 per year to be awarded as a student prize for "Sustainable Futures". This will be given to the best dissertation, determined by a panel of academics from across the university, which addresses sustainability from either a natural/built environment or resource conservation perspective.

The future must consider the sustainability agenda. From the level of government down, and from the individual upwards. We cannot collectively ignore the human-mediated processes which constitute everyday life and impact on our surroundings. Guidance from government is valuable, but as a university in the higher education sector, we need to ensure that we operate in a sustainable manner, offer guidance to our charges and trust that our graduates take this message with them into their professional roles in a host of sustainable development-related areas.

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Rząd brytyjski przedstawił wielodziedzinowe wskaźniki w celu monitorowania zrównoważonego rozwoju Wielkiej Brytanii. Jednostki, społeczności i organizacje mogą ich używać aby ułatwić sobie kontrolę wypełniania założeń zrównoważonego rozwoju dla bezpiecznej przyszłości. W publikacji, na przykładzie University of Central Lancashire pokazano jak dwie domeny (akcja bezpośrednia i edukacja) mogą zachęcić do wykonywania kroków w kierunku zrównoważonego myślenia i działania.

Słowa kluczowe: zrównoważony rozwój, wskaźniki, edukacja