



HARPER ADAMS UNIVERSITY COLLEGE

**ENVIRONMENTAL SUSTAINABILITY
STRATEGY 2010-2015**

April 2010

Executive Summary

Harper Adams University College is firmly committed to environmental sustainability, which is at the heart of its strategic mission, namely 'Higher education for the delivery of a sustainable food chain and rural economy.'

The institution has a central role to play in supporting rural environmental sustainability in terms of farming production and environmental management, the use of natural resources, renewable energy technologies and the development of sustainable communities. To fulfil this role the University College will lead by example by striving to implement best practice and continually reviewing and improving its environmental performance via nationally recognised accreditation schemes in carbon reduction and HE sector benchmarking schemes.

Harper Adams University College has made significant progress to improve its environmental impact since the introduction of the institution's first Environment Strategy in 2002. The University College has reduced per capita energy consumption through numerous energy efficiency measures, whilst renewable energy is generated by photovoltaic roof tiles and biomass boiler. In 2011 the opening of the Anaerobic Digester will also supply renewable energy to the campus and offset the College's carbon emissions by nearly four times its current carbon emissions. Extensive waste recycling and collection using electric vehicles is in operation and a site has been identified as a focus for waste recycling facilities with a full business case underway. Car share schemes with dedicated parking facilities are in place and being utilised. A bike hire scheme for students and a bike purchase scheme for staff are also in place. The Catering department has introduced a local food sourcing policy, using meat and produce from the University College and won the Times Higher Education Award 2008/9 for Outstanding Contribution to Sustainable Development on the principle of 'food meters' rather than food miles, and uses other locally sourced produce. The curriculum has been reviewed and enhanced in areas relating to environmental sustainability to make its incorporation more apparent throughout all course awards. Biodiversity on the University College Farm has been encouraged and actively leading the teaching, research and knowledge transfer in more sustainable agricultural practices and stewardship of the environment.

Harper Adams University College's latest Environmental Sustainability Strategy (2010-2015) supersedes the 2008-2013 strategy and aims to build on improvements implemented to date. The Strategy contains two sections. The first provides the strategic context to current and planned initiatives within Harper Adams University College. Section one outlines why it is important to improve the University College's environmental impact, describes how the Environmental Strategy links with other University College strategies, and introduces the concept of the rural village-farm model. This model presents the relationship between Harper Adams University College and the University College Farm as a sustainable model for the interaction between rural villages and neighbouring farms, whereby a farm provides products and services for a nearby community. The Anaerobic Digester facility at the University College is one possible example of a rural community interaction.

The second section of the Environmental Sustainability Strategy is the Action Plan, which presents and prioritises environmental improvements that the University College intends to implement between 2010 and 2015. Importantly these improvements are categorised according to Environmental Sustainability Indicators, which will enable the University College to benchmark current and future performance.

The Environmental Sustainability Strategy 2010 – 2015 functions not only to provide strategic direction to the environmental improvements implemented by Harper Adams University College, but also serves to communicate to staff, students and external organisations the institution's commitment to reducing its impact on the environment. Through identification of Environmental Sustainability Indicators the University College's progress will be better monitored, quantified and disseminated during the lifetime of this Strategy.

Karen Hughes
Environment & Waste Management Officer
Updated November 2010

Introduction

1. This document sets out the University College's strategic plans for taking forward its Environmental Sustainability Strategy to 2015. The Environmental Sustainability Strategy is necessary to ensure the University College's environmental aims and objectives are clearly defined and effectively implemented and managed.

2. The Environmental Sustainability Strategy aims to address the following broad principles:

- Where is the University College currently with regard to environmental sustainability?
- Where does the University College want to be?
- How will the University College achieve its environmental sustainability aims and objectives?

3. The Environmental Sustainability Strategy broaches the environmental sustainability aspirations of the University College in a structured manner, defining the University College's commitment and providing an overview of the main external drivers and an explanation of the link to the Strategic Plan and component strategies. The Environmental Sustainability Strategy includes a project plan, which documents and prioritises key environmental sustainability indicators, and includes definition of key milestones, attributing their implementation and responsibility to members of University College staff. Since the previous strategy key detailed plans have been developed. The Carbon Management Plan focuses on many of the key points in the action plan in more depth with the aim of meeting the sector carbon emissions reduction target.

The University College's Mission and Long Term Vision

4. In 2002, a major shift in the agricultural industry towards more sustainable farming practices and stewardship of the environment was signalled with the publication of the Report of the Policy Commission on the Future of Farming and Food (The Curry Report¹). This was followed by a fundamental Government-commissioned review of the way in which rural services are to be delivered and support for the farming industry is to be provided^{1,2}. The Government's response³ to both reports set out an overarching aim of creating sustainable rural development and sustainable rural communities. The University College's mission and vision are not only to be able to secure high quality academic services, but also to lead this national agenda for change.

5. The University College mission is:

'Higher education for the delivery of a sustainable food chain and rural economy'

6. The University College's vision is to maintain a high quality university college made distinctive by:

- Activities closely related to the needs of the rural economy and industries reliant on that economy, with a specific commitment to farming for sustainable environments and knowledge transfer to support the rural economy.
- Activities contributing to sustainable consumption and production, renewable energy generation, protection of natural resources, and human and animal welfare.
- The development of new markets for students from a wider range of backgrounds supported by appropriate course and pedagogic developments.
- The provision of a learning environment and promotion of a student culture that enhance employability.
- Strong industry links that add business relevance to the University College's role in higher education and encourage lifelong learning.
- A central role for the University College in the provision of higher education for the rural economy, during and beyond the planning period.

Scope of the Environmental Sustainability Strategy

7. Environmental sustainability refers to the long-term maintenance of valued environmental resources in an evolving human context. In order to improve sustainability we must reduce the size of our ecological footprint by reducing the amount of resources we use, and waste and emissions we produce. This definition encourages implementation of renewable energy and energy efficiency technologies, improved soil and water management, sustainable travel, waste minimisation and

¹ *Farming and Food: A Sustainable Future*. Report of the Policy on the Future of Farming and Food, HMSO, January 2002.

² *Rural Delivery Review (The Haskins Report)*, DEFRA, November 2003.

³ *The Rural Strategy 2004*, DEFRA, July 2004.

recycling. The scope of this strategy addresses each of these areas.

External Drivers Influencing the Sustainable Development Strategy

8. The following section sets out the key factors and policy areas that relate and influence the University College's Environmental Sustainability Strategy.

9. Climate change presents a serious threat to human society and the natural environment. During the last century the earth warmed by approximately 0.6°C, largely due to increased greenhouse gas emissions from human activities⁴. Without action to reduce greenhouse gas emissions global temperatures are expected to rise by 1.4-5.8°C by 2100, with sea levels rising by 0.09-0.88 metres compared to 1990 levels⁴. Globally this will result in more extreme weather occurrences (floods, droughts), with developing countries at higher risk of disease, hunger and flooding. Within the UK we can expect to see more frequent flooding and warmer winters⁴, which will ultimately affect UK agriculture by altering the types of crops grown, pests and weeds encountered^{5,6}.

10. The Kyoto protocol is an international agreement to fight climate change by reducing emissions of six greenhouse gases, including Carbon Dioxide and Methane. The protocol came into force in February 2005 and was ratified by more than 160 countries⁶. Under the agreement industrialised countries agreed to reduce their collective emissions by 5.2% compared to 1990 levels by 2010⁷. Each country has an individual target to cut greenhouse emissions. The UK's Kyoto target is to cut greenhouse emissions by 12.5% below 1990 levels by 2012. Statistics suggest that agriculture is responsible for 42% of UK methane emissions (DEFRA). Approximately 10% of UK agricultural methane emissions arise from methane produced by cattle and cropping systems and the storage of animal slurry, providing a strong argument for development of anaerobic digestion as a mechanism to harness a proportion of these emissions⁸.

11. Following the EU Renewable Energy Directive, the UK published the UK Renewable Energy Strategy in 2009, which explains how the UK will produce 15% of energy from renewable sources by 2020 and states that by 2020;

- More than 30% of electricity will be produced from renewable sources.
- 12% of heat will be produced from renewable sources.
- 10% of road transport fuels will be produced from renewable sources.

12. These renewable energy targets are ambitious considering in 2009 a minimal amount of heat, 5.5% of electricity and 2.6% of road transport fuels were produced from renewable sources. In order to meet these targets the UK Government has introduced a number of financial incentives to support the generation of renewable energy. In April 2002 the Renewables Obligation came into force requiring licensed electricity suppliers to supply a percentage of electricity from renewable sources. The requirement increases year on year. The current requirement is for 9.7% of electricity to be supplied from renewable sources, with this figure rising to 15.45 by 2015/16. Should electricity suppliers fail to meet this obligation they can either:

- Purchase Renewable Obligation Certificates (ROCs) from suppliers who have met their obligation or who do not have an obligation.
- Pay a buy-out price, currently £37.10 per MWh.
- A combination of the above two.

13. Initially one ROC was awarded for every MWh of electricity produced from renewable sources. However, it was recognised less financially viable technologies require a greater level of support to be economically viable. Subsequently ROCs were banded, with a variable number of ROCs awarded dependent on the technology used to generate them.

⁴*Climate Change: The UK Programme 2006*. HM Government. March 2006.

⁵*Climate Change and Agriculture in the United Kingdom*. UK Ministry of Agriculture, Fisheries, and Food. 2000.

⁶*The Impacts of Climate Change on Agriculture*. DEFRA. February 2005.

⁷International Action: The UN and the Kyoto Protocol. www.defra.gov.uk.

⁸Methane Emissions by Source. DEFRA e-statistics www.defra.gov.uk.

14. The Government has used powers in the Energy Act 2008 to introduce a system of feed-in tariffs (FITs) as an incentive for small scale (less than 5MW) renewable electricity generation. These feed-in tariffs work alongside the Renewables Obligation (RO), which will remain the primary mechanism to incentivise deployment of large-scale renewable electricity generation. The Renewable Heat Incentive (RHI) will be introduced in June 2011 as a mechanism to incentivize the generation of renewable heat at all scales.

15. In March 2005 the UK Government published its sustainable development strategy 'Securing the Future'¹⁰, which contained four priorities – sustainable consumption and production, climate change and energy, natural resource protection and sustainable communities. The strategy reflected on the need to educate the UK population to enable them to make more sustainable choices. The strategy conveys the idea of a one planet economy, which will require a major shift to deliver new products and services with a lower environmental impact across their lifecycle, and new business models that meet this challenge whilst boosting competitiveness. The four priority areas highlighted in the Governments sustainable development strategy are echoed in The Regional Sustainable Development Framework¹¹ produced by the Government Office for the West Midlands.

16. In 2005 and updated in 2009, The Higher Education Funding Council published 'Sustainable Development in Higher Education'¹², which provided a vision in which the higher education sector in England is seen as a major contributor to society efforts to achieve sustainability, within the next ten years. The strategy aims to encourage the higher education sector to:

- Embed the principals of sustainable development in its values and activities.
- Develop curricula and pedagogy to enable students to develop the values, knowledge and skills to contribute to sustainable development.
- Strengthen links to business, the community, civil society, government and others in pursuit of sustainable development.
- Build the new skills, knowledge, and tools needed for sustainable development through research and knowledge exchange.
- Continuously improve its own impact on the environment, society and the economy.
- Work with student organisations to promote behavioural change among students and support initiatives that seek to harness the student resource at the campus level.

17. In support of the UK Government targets to reduce carbon emissions of 34% by 2020 and 80% by 2050 on a 1990 baseline and the university sector target, the University College has signed up to the GuildHE's 'statement of intent on sustainable development by university and college leaders' (2010) and pledged to produce and publish an institutional carbon management plan including a target for carbon reduction from energy consumption (scopes 1 and 2 emissions) against a 2005 baseline. The 2005/6 sector baseline was agreed, as this was when data was first collected and reported for the Estates Management Statistics (EMS).

18. The Regional Development Agency, Advantage West Midlands (AWM), produced a Sustainable Development Policy¹⁴, which was principally concerned with developing environmentally sustainable services, companies, and products. This policy demonstrated to the University College the agencies commitment to funding projects, demonstration and R&D, with an environmentally sustainable focus. From April 2012 the AWM will cease to exist due to Government reorganisation of government agencies. Therefore support and funding will come from the newly formed Local Enterprise Partnerships (LEPs) and other funding bodies and organisations.

19. The Strategy for Sustainable Farming and Food¹⁵, published by DEFRA, recognises that whilst agriculture generates significant environmental benefits it is also has a significant negative impact on the environment (e.g. water pollution, emissions to atmosphere). The Strategy for Sustainable Farming and Food identifies key principals for sustainable farming and food, which include:

- I. Supporting the diversity and viability of rural and urban economies.
- II. Enabling viable livelihoods to be made from sustainable land management.

¹⁰ *Securing the Future – UK Government Sustainable Development Strategy*. HM Government. March 2005.

¹¹ *Securing the Regions Future*. Government Office for the West Midlands. May 2006.

¹² *Sustainable Development in Higher Education*. HEFCE. 2005, update Feb 2009.

- III. Respecting and operating within the biological limits of natural resources (especially soil, water and biodiversity).
- IV. Achieving consistently high standards of environmental performance by reducing energy consumption, by minimising resource inputs, and by using renewable energy.

20. The Strategy for Sustainable Farming and Food provides direction to the University College and the University College Farm with respect to enhancing environmental sustainability within the land based sector. The University College has already taken steps to support the diversity and viability of rural and urban economies and communities through development of the business clubs, particularly the Sustainable Technologies Network. Bullet points 2 and 3, above, are addressed through the farm which provides a working example of sustainable land and natural resource management. The University College and University College farm both work to achieve bullet point 4 as discussed previously in this document.

21. Fig. 1 illustrates how the University College Environmental Sustainability Strategy addresses the related and influential strategies reviewed above. The figure also recognises the relationship between the Environmental Sustainability Strategy and the West Midlands Regional Energy Strategy¹⁶ and Sustainability West Midlands: documents/organisations that have been produced in response to 'Securing the Regions Future'.

Environmental Sustainability aims, objectives and expertise

22. Further to the mission and vision of the University College outlined in points 4-6, and specific to environmental sustainability the University College is committed to:

- Ensure compliance with environmental legislative requirements.
- Follow codes of best practice where possible.
- Wherever practical and possible minimise energy usage and waste, reduce emissions, recycle materials and incorporate renewable energy generation.
- Enhance biodiversity and minimise activities that reduce biodiversity.
- Minimise release of Greenhouse gases to the atmosphere.

23. To achieve our environmental sustainability objectives we will employ a set of core values to underpin our work, namely to:

- Train and educate staff and students with regards to sustainable best practice, particularly in the areas of resource efficiency, recycling, energy efficiency, renewable energy production, conservation of natural resources, sustainable travel and welfare.
- Develop a set of sustainable indicators to monitor the University College's performance.
- Communicate environmental and sustainable development policy and practices to staff, students, and the public.
- Review relevant policy and practices on a regular basis and ensure that they support the strategic objectives of the University College.
- Ensure relationships are correctly aligned.

24. In addressing our commitments and delivering our intentions, we will focus on particular areas of expertise. These are:

- Sustainable technologies (rural).
- Working with rural businesses.
- Training and educating students.
- Natural resource conservation and management.
- Finding ways to link the rural and urban environmental agendas.

¹⁴ *Advantage West Midlands Sustainable Development Policy and Action Plan*. AWM. February 2006.

¹⁵ *Strategy for Sustainable Farming and Food*. DEFRA. 2002.

¹⁶ *West Midlands Regional Energy Strategy*. Government Office for the West Midlands. November 2004.

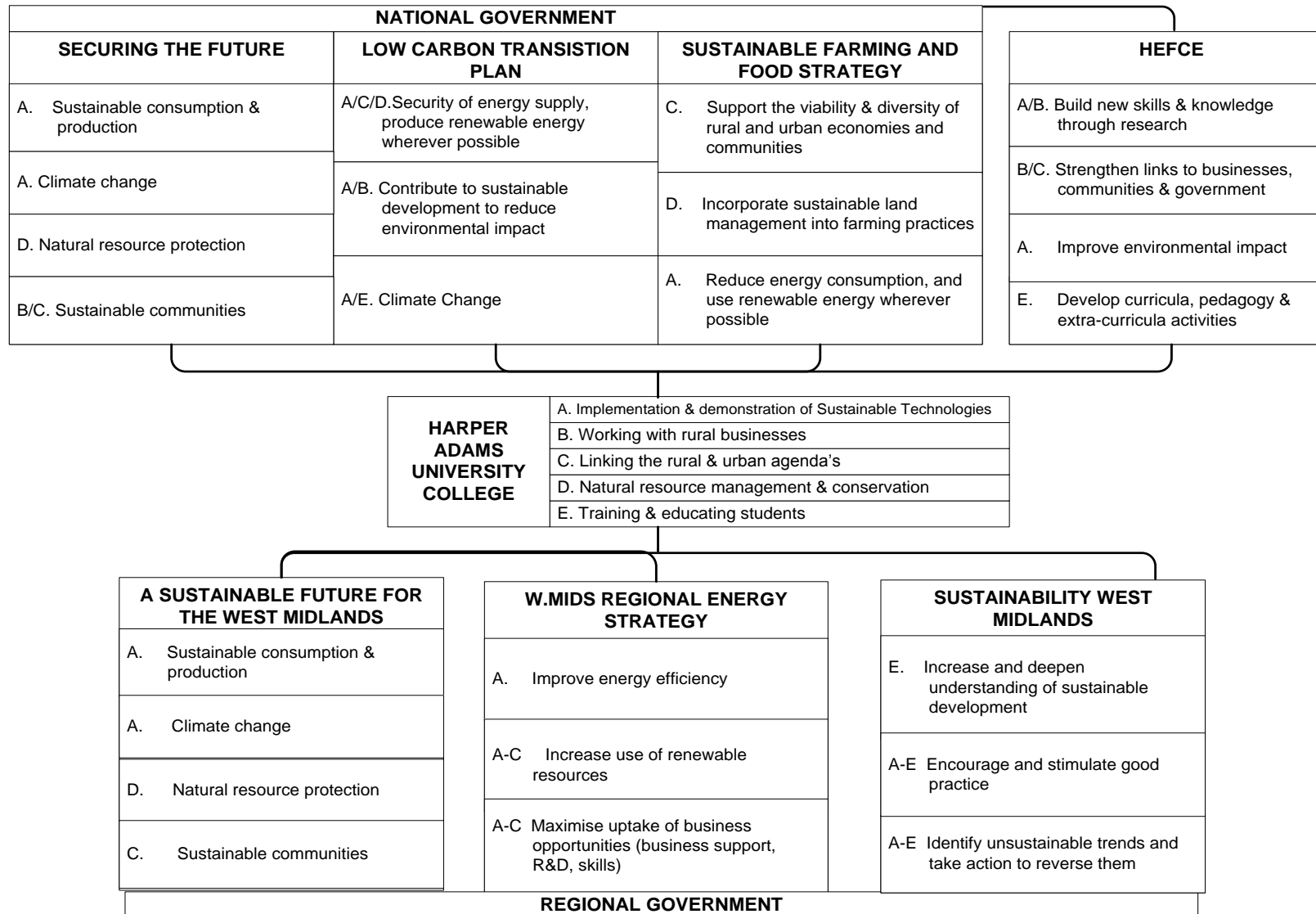


Fig. 1: Mapping key University College expertise to the major elements of national and regional government sustainable development policies.

25. The University College aims to develop a stronger national reputation in the area of environmental sustainability that has been achieved through demonstration, research and reach-out activities, as detailed in paragraphs 26 – 29.

26. The demonstration of environmental sustainability at the College includes the:

- Generation of renewable energy using a 300kW_h biomass boiler, 10kW_p photovoltaic array, solar thermal system, and 450kW_e Anaerobic Digester.
- Implementation of energy monitoring and building management systems designed to increase understanding of the institutions energy consumption, enabling the implementation of more targeted energy management strategies.
- Construction of sustainable buildings that include green roofs, the use of sustainable and low carbon embedded building materials, recycled materials for insulation e.g the straw bale walls of the CELT building and polypropylene in the roof space.

27. Demonstration of environmental sustainability is complemented by research that aims to extend current knowledge and understanding in a number of subject areas, which include investigating the:

- Reduction of greenhouse gas emissions arising from agriculture, for example by investigating how methane emissions from dairy cattle can be reduced.
- Conversion of agricultural wastes, such as Oilseed Rape straw, to energy such as bioethanol and fuel pellets.
- Potential to use anaerobic digestion as an alternate disposal option for fallen livestock on-farm.
- Characteristics and value of anaerobic digestate as an alternate fertiliser.
- Environmental impact of systems and processes through lifecycle assessment.

28. In relation to the current strategy, reach-out activities aim to enhance the rate at which external organisations improve their environmental sustainability. For example,

- The Sustainable Technologies Network delivers knowledge sharing conferences, seminars and short courses. In addition the network provides a consultancy service to provide stakeholders in the sustainable technology sector with more in-depth support.
- The 'Developing carbon management strategies for HE institutions with extensive landholdings' project aims to provide leadership to institutions with extensive landholdings (including farmed land) to enable them to (i) measure greenhouse gas emissions arising from agricultural activities in their educational estate, (ii) establish realistic carbon equivalent reduction targets and (iii) develop informed carbon management plans.
- The BioenergyWM initiative that aims to promote interest and activity in, and markets for, bioenergy in the West Midlands.

29. The College's demonstration, research and reach-out activities related to environmental sustainability act to enrich the teaching curriculum by providing students with a practical understanding, which complements the theory that is provided by class based study. Examples of modules that benefit from this connection include Conservation of Resources, Sustainable Energy and the Rural Estate, Alternative Crops, and Sustainable Systems.

30. Historically the urban and rural agendas have been relatively distinct. However there are many similarities between the urban and rural agendas in the field of environmental sustainability that the University College has identified. For example, implementation of Anaerobic Digestion at the University College is of interest to the rural agenda for treatment of farm waste, and the urban agenda for processing catering and kitchen waste. Although the University College's vision is principally concerned with the rural economy and reliant industries, strengthening these links and promotion of the University Colleges activities to the urban agenda are demonstrated. For example delegates at previous bioenergy seminars and conferences have included those from a rural and urban environment. Development of R&D and demonstration projects includes collaboration with both urban and rural companies and Higher Education Institutions.

Link between the Environmental Sustainability Strategy and other University College Strategies

31. The Institutional Sustainability Framework Plan provides information on the long term sustainability of Harper Adams University College, and takes into account the University College's Strategic Plan (2008-2013) in addition to the Estates, Farm, Financial, Procurement, Academic and Environmental Sustainability sub-strategies (Fig. 2).

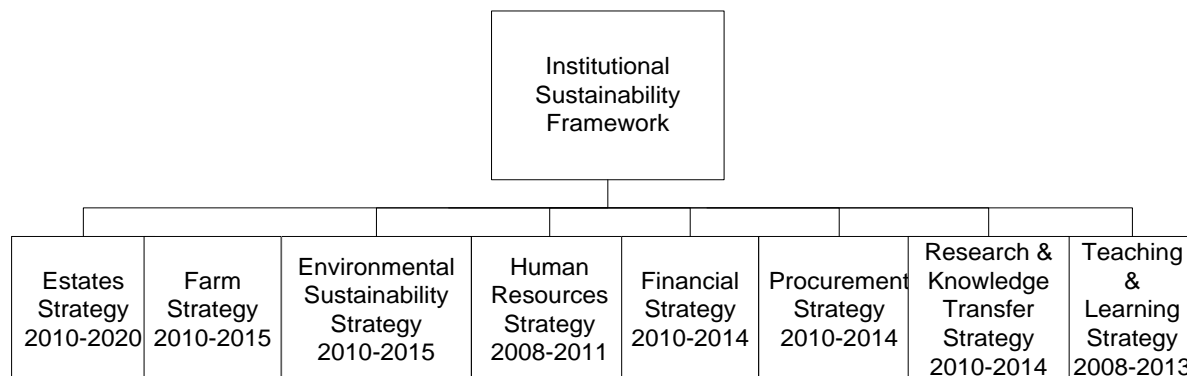


Fig. 2: The relationship between the Institutional Sustainability Framework and University College sub strategies.

32. The fundamental principle behind the Institutional Sustainability Framework is 'adaptive capacity', in which the University College aims to manage key resources so as to at least maintain the current capacity of the institution to respond effectively to changing demands. Directly related, the Environmental Sustainability Strategy enhances the capacity of the University College to respond effectively to changes in environmental demands by:

- Preparing a strategic approach to address environmental changes, such as climate change, energy security and price fluctuations, and environmental policy.
- Identifying benefits presented by environmental sustainability, such as improving the University College's carbon footprint, reducing the institutions dependency on fossil fuels and presentation of diversification opportunities to the rural and urban setting.
- Developing mechanisms to address the consequences of environmentally negative actions. For example, developing and promoting anaerobic digestion as a mechanism to reduce greenhouse gas emissions produced as a result of farming activities.

33. Environmental sustainability forms an important component of the four broad areas outlined in the Institutional Sustainability Framework – namely money, people, equipment and buildings. The Environmental Sustainability Strategy serves to unite and enhance the environmental sustainability elements of the Estates, Farm, Human Resources, Financial, Procurement and Teaching and Learning Strategies, which are discussed below.

34. The Estates Strategy 2010-2020 aims to provide a high quality physical environment that is cost effective, environmentally sustainable and safe for students, staff and visitors.

The University College estate presently features many elements of sustainability;

- The Biomass Hall houses a biomass unit, which produces renewable heat for hot water to the University College estate.
- The Bamford Library features the use of sustainable building materials, natural ventilation, energy-efficient lighting and rainwater harvesting.
- The self-catering Student Hall of Residence incorporates photovoltaic roof tiles.
- The Regional Food Academy has a solar thermal array to provide hot water
- All new developments; Post Graduate Centre, Regional Food Academy, Student Services building and new Hall of residence have energy efficiency lighting and building management system installed to control the heating and lighting and were designed to meet the higher level BREEAM certification standards.

- Countryside, Environment, Leisure and Tourism (CELT) Resource Building features the use of locally sourced, sustainable building and insulating materials and has a green roof to increase biodiversity to the area and won a 'Highly Commended' in the 2010 Green Gown Awards in the Sustainable Construction and Refurbishment category.
- Dedicated parking facilities have been provided for car share schemes
- Bicycle shelters have been provided for the bike scheme users and bicycle owners/users

35. The Estates Strategy plans to build upon the sustainable features detailed in point 34.

Specifically the Estates Strategy plans to:

- Develop comprehensive recycling facilities for general University College waste.
- Install on-farm anaerobic digestion utilising farm slurry and food waste as feedstock.
- Provide a campus heat ring with a variety of renewable heat input sources and points of use along its length.
- Encourage sustainable transport amongst staff and students.
- Further support the development of adequate bus routes and timings with the local bus companies and Local Authority.
- Continue to benchmark the University College's performance via the Carbon Trust Standard, Business in the Community regional benchmarking and other HE sector benchmarking systems.

36. The Farm Strategy 2010-2015 focuses on a number of themes relating to the provision of a learning, research and knowledge transfer environment, maintaining the farm as a viable business so that it can change and adapt to changes in UK agriculture, leading in sustainable farming practices and technical developments and the ethical approach to the production of food and the stewardship/management of the environment. The Farm is central to the academic objectives of the University College, not only does it contribute significantly to our academic work, but it defines the University College as a specialist higher education institution in land-based studies and provides an important part of the educational facilities.

37. The Financial Strategy 2010-2014 focuses on four key themes, namely long-term financial viability, investment in productive resources, efficiency and value for money and integration of University College strategies with financial issues. Within these themes and with reference to environmental sustainability the Financial Strategy commits to:

- Recognise new opportunities that should be judged in terms of strategic benefits as much as financial merits. Photovoltaic roof arrays are associated with long payback periods (in excess of 40 years) that make them financially unattractive. However the University College installed a photovoltaic system on the self-catering student hall of residence because of strategic benefits including endorsement of UK technology, development of the University College as a sustainable technology demonstration centre, and promotion of the University College as innovative and forward thinking.
- The University College's Value for Money plan aims to maximise resource efficiency and waste minimisation, whilst also introducing sustainable sources of renewable energy.

38. The Teaching and Learning Strategy supports incorporation of research and reach-out activities in the curriculum. The Teaching and Learning Strategy aims to continuously review the curriculum in light of the dynamic external environment. Historically, the incorporation of environmental sustainability in the curriculum was not always apparent. For example, while the BSc (Hons) Countryside and Environment Management course contained a number of modules which dealt with environmental sustainability (eg Environmental Monitoring, Environmental Pollution Issues in the Countryside, Water Quality Management, Sustainable Systems, and Environmental Assessment and Management) the subject was not always overtly visible in the undergraduate business degree courses. In view of this, and the recommendations presented in HEFCE's 'Sustainability for Higher Education', most of the undergraduate programmes were revalidated in 2009 using a curriculum framework that required environmental sustainability to be incorporated overtly throughout all the course awards.

39. The Human Resources Strategy is key to promoting and delivering changes in curriculum development and delivery, learner support and professional teaching standards staff will embrace over the strategies planning period. Furthermore the Human Resources Strategy will promote and

deliver the skills and expertise required to implement the actions detailed in the Environmental Sustainability Strategy. For example, staff training to those involved in operating sustainable technologies, and development of expertise to analyse energy use.

40. The Procurement Strategy states the University College will consider all reasonable procurement options and any suitable hybrids/alternatives, to ensure best value from all procurement of goods, works and services. As a committed member of the NWUPC and the Energy Consortium, the University College will support the collaboration in the purchase of a range of bulk purchases and best value contracts including the procurement of energy. It is the intention in the short – medium term not to purchase renewable energy but to generate it through the renewable technologies currently on site and any future installations such as the anaerobic digester.

41. The Reach-Out and Research Strategies are also related to the Environmental Sustainability Strategy. Two of the four research themes identified in the Research Strategy incorporate environmental sustainability. Innovation for agriculture includes investigation of the impact of agriculture on farmland birds, and the impact of climate change on crop quality. Management of alternative crops and farm waste incorporates investigation of farming for energy crops, agricultural waste utilisation using clean and sustainable technologies and technologies for slurry and waste management.

42. The Reach-Out Strategy identifies innovation for sustainable farming as a key theme, delivered principally through the Sustainable Technologies Network. The principle objectives of this network are to (i) demonstrate near market or mature sustainable technologies at the University College campus, (ii) develop environmental and sustainable technology research opportunities and (iii) to facilitate knowledge exchange to the public. Demonstration and research projects include the biomass burner and Photovoltaic roof array detailed in points 26-29. Knowledge exchange activities include providing 'tours', seminars, conferences, practical day workshops and literature to individuals with an interest in environmental sustainability.

The Rural Community Model for Environmental Sustainability

43. Harper Adams University College has a central role to play in supporting rural environmental sustainability in terms of farming production and environmental management, the use of natural resources, novel renewable energy technologies and the development of sustainable communities. The mission of the University College maps clearly on to providing the professional personnel, capable of reflective engagement in this agenda, together with the evidence-base to support new working practices, to help deliver important rural aspects of the Framework over the next planning period.

44. The relationship between Harper Adams University College as a Higher Education Institution and the University College Farm represents a sustainable model for the interaction between rural villages and neighbouring farms, whereby a farm provides products and services for a nearby village. The anaerobic digester facility at the University College is put forward as an example of the rural community interaction. In this case the University College farm operates as an energy generator, converting manures produced on farm and food waste produced in the local area to generate renewable electricity and heat that is then sold to the University College. The University College-farm interaction provides a unique opportunity for demonstration and replication of environmentally sustainable systems in other rural settings. Additionally, study of the University College-farm interaction enables the economic, practical and environmental feasibility of the arrangement to be investigated. The biomass burner at Harper Adams provides a second example of the rural community model in which biomass produced on farm is converted to heat that is used to heat the college estate. The Environmental Sustainability Strategy aims to further develop projects which demonstrate the rural community supply model.

Alignment of Key Environmental Sustainability Actions within the University College

45. The University College is committed to reducing its carbon footprint and improving its environmental sustainability, with considerable progress achieved to date. To enhance the University College environmental credentials and to provide a benchmark against which future progress can be quantifiably compared, a set of Environmental Sustainability Indicators have been

identified as documented in Table 1: the University College Environmental Sustainability Action Plan.

46. Over recent years the University College has dedicated substantial resource to enhance the institutions environmental sustainability. To further advance the University College's environmental performance the institution plans to implement additional schemes, which are detailed within the University College Environmental Sustainability Action Plan and the University College's Carbon Management Plan. Current and proposed schemes will be delivered by the University College, the University College Farm, or through interaction between the two, as illustrated in Fig. 3. For example, the University College Farm is considered responsible for improving water and soil quality, whilst establishing recycling services and monitoring and reducing energy consumption are considered the responsibility of the University College and more specifically the Estates Department. Several projects are positioned at the interface between the University College and the University College Farm. For example, Anaerobic Digestion will be located on the University College Farm, which will operate the facility and provide feedstock, whilst the unit will provide educational and research opportunities for University College students and staff.

Goals, Project Plan and Priority Areas

47. The Environmental Sustainability Action Plan (Table 1) has been developed in response to the Environmental Sustainability Strategy.

Management, Monitoring and Evaluation

48. Progress against the Environmental Sustainability Action Plan will be monitored on a regular basis by the Environmental and Waste Management Officer and reported to the Sustainable Development Steering Group. Actions and timescales will form agenda points when the group meets to ensure progress is being made. Each year an annual progress report will be produced by the Environmental and Waste management Officer, presented and agreed with the Sustainable Development Steering Group prior to being presented to the University College Executive and Board of Governors.

Using collaboration to achieve our aims

49. The University College recognises that the achievement of best practice in environmental sustainability will require commitment and time from a wide range of University College staff. The University College is keen to learn from best practice elsewhere and to collaborate, where appropriate to achieve its objectives. Through the Environmental Association for Universities and University College's the University College is able to gain best practice from other Higher Education Institutions, whilst participation in organisations such as the Business Environmental Support Scheme for Telford (BESST) enables us to learn about environmental best practice as applied in the private sector.

Further Information

50. Further information about the University College's Environmental Sustainability Strategy or Carbon Management Plan can be obtained from:

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Environment & Waste Management Officer

Tel: 01952 815330

Email: khughes@harper-adams.ac.uk

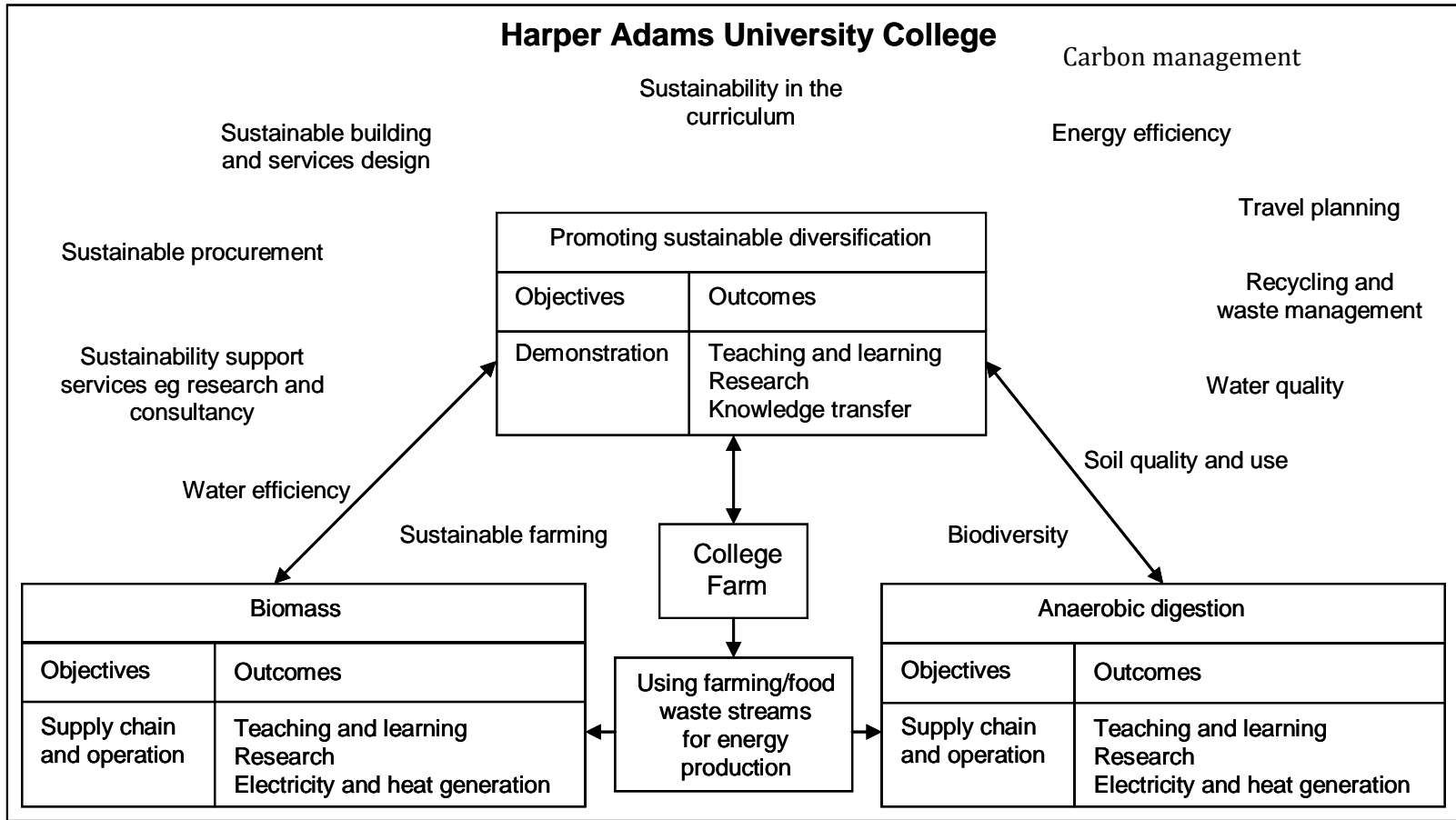


Fig 3: Alignment of environmental sustainability projects between the University College and the University College Farm

Environmental Sustainability Strategy Progress Report 2010

Delivery targets based on priorities and assigned to the end of each relevant Academic Year as follows:

Previously

1 = 2008/09

2 = 2009/10

3-5 = 2010/11

5-7 = 2011/12

7-9 = 2012/13

This will change to;

1 = 2010/11

2 = 2011/12

3-5 = 2012/13

5-7 = 2013/14

7-9 = 2014/15

Environmental Sustainability Indicators have been prioritised according to ease and importance of implementation by the equation:

Priority = Ease of implementation x Importance of implementation.

Ease of implementation is rated on a scale of 1 -3, with 1 representing easy and 3 difficult.

Importance of implementation is rated on a scale of 1 - 3, with 1 representing very important.

Consequently the priority associated with implementing the environmental sustainability indicators is rated on a scale of 1 – 9, with 1 representing highest priority.

Sustainable Indicator	Where were we in 2007/8?	Where would we like to be?	Implementation		Priority	Action/ Responsibility	Where are we now? 2010
			Ease	Importance			
I. Natural resources and waste: Environmental Sustainability Indicators in the Natural Resource Management Group will draw from the areas of Sustainable Technologies (Rural), Natural Resource management and Conservation and linking with the urban and rural agendas.							
<ul style="list-style-type: none"> • Energy efficiency 1. Gas/ electricity use per m³ 	Gas and electricity use for the University College as a whole is known, but has not been converted to 'use per m ³ '.	Continue to monitor energy use of residential and non-residential buildings to allow patterns of demand to be identified and visual displays produced with the aim of encouraging energy efficiency. A milestone in reduction of CO ₂ emissions arising from energy use by 48% by 2020 against a 2005/6 baseline. This is in line with the sector and Government target.	2	1	2	i. Install building-by-building monitoring. ii. Produce benchmark figures for energy use. iii. Analyse energy use for each building and identify trends. iv. Promote energy efficiency among staff and students. v. Monitor energy use.	i. In progress - Sub metering installed on main site during 2009/10. More meters are to be installed during late 2010/early 2011 at the new dairy, Silcock Hall and SSC. Quotes to be obtained for NIPH site sub metering & potentially upgrade sub station ii. In progress – previous years consumption used as the benchmark for current residents to reduce consumption against – introduced 2010 iii. Ongoing – energy consumption monitored via e-Sight for trends iv. In progress - Introduction of annual comp between previous
		Install more sub metering (mainly at NIPH site) to further monitor and target excessive energy use, control energy consumption and make energy efficiency measures where possible. Set carbon reduction targets per building and report consumption for DECs (where necessary) and Carbon Trust Standard with accuracy.	2	1	2	vi. Produce a case study comparing energy use for the Bamford Library with a comparable non-sustainable building. Responsibility: Estates Manager & Environment & Waste Management Officer Action requires allocation of funding.	
		Explore in more depth the facilities that e-Sight can	2	1	2		

		<p>offer to drill down and obtain comprehensive management information. Energy use per m³ is still to be done. Has been done for m². Intention to establish by 2011 through work on space utilisation.</p> <p>Continue to promote energy saving campaigns to staff and students and competitions to raise awareness and promote action.</p>	2 1	1 1	2 1		<p>residents and current ones to reduce energy consumption, use proportion of savings as an incentive/reward. Awareness campaigns are ongoing on an annual basis</p> <p>v. Ongoing - E-Sight software system has been installed to monitor energy use.</p> <p>vi. – In progress - Using the Bamford Library as a case study for making energy efficiency measures to improve DEC rating. Project commenced Oct 09.</p>
<ul style="list-style-type: none"> Raw material use efficiency 2. Water use per m³ 	<p>All water at HAUC is abstracted from the HAUC borehole. We did not know how much water was wasted through leakage etc.</p>	<p>Building-by-building monitoring would enable water use per m³ to be quantified, and would provide a benchmark for future water use.</p> <p>Have all buildings with a water supply metered. Continue to monitor water usage and trends.</p>	2	1	2	<p>i. Install building-by-building monitoring.</p> <p>ii. Produce benchmark figures for water consumption.</p> <p>iii. Analyse trends in water use.</p> <p>iv. Monitor water use.</p>	<p>i. In Progress - Water meters have been installed in all new developments. Meters yet to be installed in some buildings on the NIPH site, Bradford Halls and at new Dairy.</p>

						<p>v. Monitor leakages</p> <p>Responsibility: Environment & Waste Management Officer and Estates Manager</p> <p>Action requires allocation of funding</p>	<p>ii. Outstanding</p> <p>iii. Ongoing – water usage is monitored for trends in the halls of residences</p> <p>iv. Ongoing - Water usage is monitored through e-Sight on majority of buildings to monitor trends and usage. The boreholes are also manually checked daily for leak detection and excessive use.</p> <p>v. In Progress – meter has been installed on the link from the Post Grad /RFA water supply to monitor water leaks, and will be installed on the Dairy and AD to monitor leakage</p>
<ul style="list-style-type: none"> Recycling and waste management 3. Amount of paper recycled including confidential 4. Number of aluminium cans recycled 	<p>The University College established a policy for the disposal of waste. For example; a system for collating of all waste transfer and consignment notes, all weights are recorded and monitored. There is a system in place</p>	<p>The University College's recycling policies should be promoted to ensure all staff and students are aware of these facilities.</p> <p>Continue with the collection of data regarding amount recycled to allow statistical</p>	1	1	1	<p>i. Assess current and future level of recycling.</p> <p>ii. Locate and promote recycling bins as appropriate.</p> <p>iii. Provide the Guide to Recycling at HAUC to all</p>	<p>i & iv. Ongoing - Waste streams and quantities are recorded and monitored on a day to day basis and all waste notes collected in a centralised point in line with legislative</p>

<p>5. Number of glass bottles recycled 7. Number of ink cartridges recycled 7. Amount of oil recycled 8. Amount of plastic recycled 9. Amount of wood recycled 10. Amount of Haz waste recycled 11. Amount of WEEE recycled 12. Amount of metal recycled 13. Amount of tyres recycled 14. Amount of cardboard recycled</p> <p>Points 8 – 14 are additional waste streams added since the 2008-2013 strategy. Paper now includes confidential waste paper</p>	<p>for the destruction and recycling of confidential waste paper. And more materials are segregated and recycled and collaboration between departments is encouraged to group similar waste streams together.</p>	<p>analysis and visual display.</p> <p>Continue to promote Reduce, Re-Use and Recycle through support of national campaigns e.g Recycle Week and in-house campaigns e.g Swishing, Go Green Week, Swop Shop.</p> <p>A clothing bank should be provided on site to replace the Bag It Up campaigns for year round clothing collection.</p> <p>T&L Forum to take forward the feedback from the discussion in the Paper Focus Groups (staff and student forums) to reduce paper use.</p>	<p>1</p> <p>3</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>1</p> <p>3</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>new staff at induction and students to inform them of the recycling facilities at the University College, and what happens to the materials after they have been collected by the University College.</p> <p>iv. Collate waste transfer notes and consignment notes and weight tickets</p> <p>v. Promote resource efficiency, waste minimisation and Reduce, Re-Use and Recycle principles to staff and students</p> <p>NB: Points iv & v have been added since 2008 action plan</p> <p>Responsibility: Environment & Waste Management Officer and Estates & Facilities Manager.</p>	<p>requirements. Cost is also monitored and recorded. Monitoring started Jan 2008 - date</p> <p>ii. Complete - Recycling bins were installed in all self catering halls and some houses kitchens in 2008/9. All houses had bins by 2009/10. Posters put up in kitchens, corridors and non self catering halls. Recycling bins were installed in all dining areas and some lecture rooms in 2009/10. More paper and plastic recycling bins installed in Common Room, PGC, Foulkes Crowther building, B Block and Bamford Library in 2010.</p> <p>iii. Complete - A guide to recycling at HAUC was produced in Jan 2008 and placed on halls notice boards and self-catering kitchens each academic year, post room and Common</p>
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							Room and staff notice boards. Also given to new staff and a presentation done in induction. v. Ongoing – promoted through awareness campaigns such as Go Green Week, Energy Saving Week
<ul style="list-style-type: none"> Renewable energy generation <p>14. Type and amount of renewable energy generated</p> <p> </p>	<p>The University College is committed to demonstrating renewable energy technologies. Currently the University College demonstrates a Biomass boiler by Talbott's Heating (300 kW_h), Photovoltaic roof array (~8,624 kWh/year), and solar thermal roof array.</p>	<p>Further development of the University College's capacity to generate renewable energy, and be less reliant on core resources with the installation of an Anaerobic Digester to treat farm and food waste to generate heat and power and reduce the Co2 emissions by 15,000tCo2 per annum.</p> <p>Provide a campus heat ring main with a variety of renewable heat input sources and points of use along its length.</p> <p>Explore feasibility of a wind turbine for the Dairy.</p> <p>Register the photovoltaics on the Microgeneration Certification Scheme</p>	1	2	2	<p>i. Gain funding and develop plans to install an Anaerobic digester for treatment of farm waste with subsequent renewable heat and electricity generation</p> <p>ii. Obtain funding and develop plans to install a wind turbine for the Dairy to generate renewable electricity.</p> <p>iii. Obtain funding for an air source heat pump for the CELT building.</p> <p>iv. Gain further funding for future capacity to generate renewable energy</p> <p>NB: Points ii. – iv are</p>	<p>i. Complete – The AD is under construction with completion in early 2011. It will provide the College with half its energy requirements and reduce our carbon emissions by 15,000tCo2, more than triple our current emissions of 4,930 tCo2(2008).</p> <p>ii. In progress – research is being undertaken to establish viability</p> <p>iii. In progress – quotes being collated</p> <p>iv. Ongoing - The</p>

		(MCS) and anaerobic digester with Feed-in-tariff (FITs) scheme to generate an income and for the AD - CHPQA Certificates to claim ECAs (Enhanced Capital Allowances) for claiming allowance on Tax Return and Climate Change Levy exemption for energy generated.				additional to the last action plan Responsibility: Farm Manager, Sustainable Technologies Network Manager and Estates & Facilities Manager	Photovoltaics generate 8,000KWh of electricity annually that provide Jebb Halls with half their electric requirement. These have been registered for FITs. The CHP was removed in 2009 and the biomass boiler remains providing heat for the QMH, swimming pool, SU and changing rooms.
II. Carbon Minimisation: Environmental Sustainability Indicators in the Carbon minimisation Group will draw expertise from the area of linking the urban and rural environmental agendas.							
<ul style="list-style-type: none"> Travel planning 	Two travel surveys conducted in 2002 and 2007 suggested staff and students make a large number of relatively short car journeys. The road to Newport is busy which discouraged cycling or walking to work.	Reduce car travel to and from HAUC. Reduce cross campus driving and encourage more use of bikes and walking to help alleviate car parking pressures Continue with minibus service Further promote car sharing and reduce the number of cars on campus Increase car sharing	2	1	2	i. Further encouragement of the car-sharing scheme. Introduce more car sharing parking spaces where possible ii. Consult with Telford and Wrekin regarding developing a safe cycle path and improving the local bus service. iii. Survey staff and student travel	i. – Ongoing - Various car sharing schemes have been introduced (2009/10) and 5 car parking spaces dedicated to car sharers (2009). Car park zoning introduced in 2010 with dedicated student share spaces in the library car park. ii. Complete – new cycle path marked out by T&W. T&W also
15. Number of cars on campus							
16. Number of people car sharing			1	2	2		
17. Number of people cycling/ walking to Harper Adams.			1	2	2		

		among staff and resist the need for further car parks				<p>practices and update University College Travel Plan.</p> <p>iv. Promote and incentivise walking and cycling to work and at work through free breakfasts for participants</p> <p>v. Continue to promote and support national campaigns, eg Bike Week, Walk to Work Week, World Car Free Day to reduce emissions</p> <p>vi. Purchase more bikes and cycle racks/bike pods for the bike hire scheme</p> <p>NB: Points iv. – vi are additional to last action plan</p> <p>Responsibility: Office Services Manager and Estates & Facilities Manager</p>	<p>provide staff & student cycle proficiency training – introduced in 2010.</p> <p>iii. - Ongoing - A further travel survey was conducted in late 2009. The results of the 2009 survey are yet to be analysed and fed back.</p> <p>iii. – Ongoing - The travel survey will be an annual survey. The 2009 Travel Plan is available on the website.</p> <p>iv. - Ongoing - Promote and incentivise walking and cycling to work and at work through free breakfasts for participants.</p> <p>v. - Ongoing</p> <p>vi. - Ongoing - Further introduction of bike hire scheme to rent bikes to students and staff purchase of bikes through salary sacrifice. More bikes are however needed as the scheme</p>
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							is over subscribed.	
<ul style="list-style-type: none"> Greenhouse gas emissions 18. Carbon savings through generation of renewable energy 19. Carbon savings through improvements in energy efficiency 20. Methane emission reductions through sustainable manure storage and animal emissions (related to diet) 21. Ammonia emissions 22. Pesticide use/hectare (take into account toxicity rating) 	<p>Carbon savings are considered difficult indicators to measure as they do not take into account all our carbon emissions. Emissions are not currently quantified.</p> <p>Methane emissions are difficult to measure, and as such have been classed as low priority.</p>	<p>See point 1 and 8. Installation of an anaerobic digester would reduce methane emissions and enable methane emission savings to be quantified (volume of gas and gas composition would be analysed).</p> <p>Pesticide per hectare should be easier to calculate than previously because records are kept.</p> <p>Apply for reaccreditation of the Carbon Trust Standard in 2011 to include scope 3 emissions</p> <p>Participate in the Carbon Trusts 'HE Carbon Management Programme'</p> <p>A fully functioning biomass burner operating all year with heat storage facility supplying heat to the campus all year around.</p> <p>An operating anaerobic digester which reduces greenhouse gas emissions by transforming methane into carbon dioxide</p>	1	1	1	<p>i. Carbon savings for specific activities will be quantified.</p> <p>ii. Quantify ammonia emissions and pesticide use per hectare.</p> <p>iii. Greenhouse gases will continue to be quantified.</p> <p>iv. Secure supply of biomass for the biomass burner. Ensure burner is fully functional at all times</p> <p>v. Make energy efficiency measures</p> <p>vi. Farm management practices needs to be aimed for productivity, profit and reducing greenhouse gas emissions.</p> <p>NB: Points iii. – vi have been added to this action plan</p>	<p>3</p> <p>3</p> <p>6</p> <p>6</p> <p>9</p> <p>3</p> <p>3</p> <p>6</p> <p>9</p>	<p>i. Ongoing - A carbon footprint of the College for 2008 has been produced taking into account scope 1-3 emissions.</p> <p>ii. Outstanding – pesticide use is not currently monitored or benchmarked against DEFRA</p> <p>iii. – Ongoing - The carbon footprint for 2006-2009 for scope 1 and scope 2 has been produced. A reduction in Co2 emissions have been achieved and as a result the College attained the Carbon Trust Standard (Feb 2010). Carbon dioxide emissions for scopes 1-2 will continue to be quantified through the Carbon Trust Standard and include scope 3 at the reaccreditation in 2011/2012.</p> <p>iv. – In progress – A supply for the biomass burner is under</p>

		<p>emissions generating electricity.</p> <p>Implementation of energy efficiency measures as low energy lighting and improved insulations.</p> <p>Methane emissions are difficult to reduce without reducing the number of animals kept. Improving animal productivity can lead to reduced emissions.</p> <p>Nitrous oxide emissions can be reduced by improved nutrient management and precision farming for the arable land. Manure storage should have appropriate pH and moisture content.</p>				<p>Responsibility: Farm manager and Estates & Facilities manager</p>	<p>investigation.</p> <p>v. In progress - Investigations are underway on how to improve energy efficiency to save carbon. Instalment of low energy lighting in all buildings can save carbon. All energy saving projects to be included in the Carbon Management Plan to reduce emissions.</p> <p>vi. – Completed - Methane emissions from the College farm have been quantified.</p> <p>Nitrous oxide emissions from the college farm have been quantified.</p>
<p>III. Conservation and the Environment Environmental Sustainability Indicators in the Conservation and the Environment Group will draw expertise from the areas of Natural Resource Conservation and Management.</p>							
<ul style="list-style-type: none"> Biodiversity <p>23. Number of specific wild birds and plants</p> <p>24. Diversity of trees and hedges planted</p>	<p>A wildlife and conservation survey was completed several years ago. This survey has not been revisited.</p>	<p>Publish formal documentation of biodiversity at the University College on Open Fields online library.</p> <p>Obtain HLS accreditation to replace the Countryside Stewardship Scheme</p>	<p>2</p> <p>2</p> <p>2</p>	<p>3</p> <p>3</p> <p>3</p>	<p>6</p> <p>6</p> <p>6</p>	<p>i. Complete a conversation survey to assess biodiversity on the University College Estate.</p> <p>ii. Compare findings of repeated wildlife and conservation survey and the</p>	<p>i. – Ongoing - Environmental Audit conducted; commissioned by Farm Manager, maps out the existing habitat features of the College estate, plan to conduct this</p>

<p>25. Newt Survey (2009)</p> <p>26. Bird Survey (2005)</p> <p>27. Butterfly survey (2009)</p>		Repeat Bird Survey	2	3	6	<p>survey completed several years ago.</p> <p>iii. Obtain funding for resources for future and ongoing surveys</p> <p>iv. Maintain great crested newt survey licences and conduct annual survey</p> <p>NB: Points iii & iv have been added to the 2010-2015 action plan</p> <p>Responsibility: Farm Manager</p>	<p>audit again at the end of the HLS in 10 years time. Archaeology survey conducted as part of Farm Environment Plan (FEP) to establish existing features and habitat.</p> <p>ii. – Ongoing - Butterfly survey was conducted last year by a student, and is logged with the Butterfly Conservation Society. However due to the timing of the year that the survey needs to be done and the time commitment required, it is difficult to make this an annual survey.</p> <p>iii. In progress – quotes being obtained. Various surveys have been conducted and are available on the Open Fields online library or HAUC website.</p> <p>iv. – Ongoing - Ecology survey (2008) was conducted prior to the RFA development and great crested newts were found in various</p>
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							locations on campus.
<ul style="list-style-type: none"> Soil quality 28. Organic matter content 29. Phosphorous status 30. Erodability 	HAUC use to have labs that would analyse the entire farm soil quality every 4 years. Now only a few soil samples are analysed as samples are sent away for analysis.	<p>Aim is to revert back to analysing samples at HAUC every 4 years.</p> <p>Soil erodability is difficult to measure, but could be achieved through risk assessment via a student project.</p>	1 1 2	3 3 3	3 3 6	<p>i. Revert to analysing entire farm soil quality every 4 years.</p> <p>ii. Measure soil erodability every 4 years through student projects.</p> <p>iii. Implement measures to improve soil quality as necessary.</p> <p>Responsibility: Laboratory Manager</p>	<p>i. & iii. - Ongoing - Soil quality is done on day to day basis as part of farm practices</p> <p>ii. - Ongoing - Soil erosion was measured as part of a student project in 2009</p> <p>Laboratory Manager to be directed to re-establish University College facilities for soil and water analysis.</p>
<ul style="list-style-type: none"> Water quality 23. Nitrate 24. Sulphate 25. Phosphate 26. pH 	The Environment Agency currently measures the water quality of Black Brook. Previously HAUC measured the water quality.	<p>Continue the analysis of Black Brook water quality, through student practical's and projects.</p> <p>Results of water analysis used to develop a strategy to improve water quality if necessary.</p>	1 1 1 1	2 2 2 2	2 2 2 2	<p>i. Establish a system to measure water quality of Black Brook annually.</p> <p>ii. Implement measures to improve water quality as necessary.</p> <p>Laboratory Manager to be directed to re-establish University College facilities for soil and water analysis.</p>	<p>i. - Ongoing - Water is tested by students as part of course practical. EA test the water quality of the Sewerage Works but not HAUC, the results are not shared with HAUC</p> <p>ii. - In progress - Water monitoring equipment requested for student project work</p>

IV. Sustainable Research and Teaching							
The University College's unique expertise in training and educating students will address Environmental Sustainability Indicators in the Sustainable Research and Teaching Group.							
<p>Integration of sustainability into courses to promote sustainability literacy</p> <p>27. Number of courses incorporating aspects of sustainability</p>	<p>Environmental issues are covered in some courses within specific modules. In other courses they are integrated into the whole curriculum.</p>	<p>All students should have the opportunity to set their specialist learning in the context of sustainable development principles.</p> <p>See the increase in popularity of environmental and sustainability focused courses</p>	1	1	1	<p>i. Assess the number of courses incorporating sustainable development themes. ii. Review the number of courses incorporating sustainable development themes. iii. Increase incorporation of sustainability across the curriculum for example by (a) setting assignment 1 of student placement to assess host companies sustainability or by (b) incorporating sustainability as part of the marking scheme for all assignments. iv. Monitor course feedback to highlight if environmental courses are getting as much interest, support and input v. Monitor positive report from external examiners on environmental focused courses.</p>	<p>i. – iii. – Ongoing - Curriculum 2010 updated course awards with sustainability indicator and is included in all modules, however, specific environmental courses have award specific outcomes</p> <p>iv – In progress – students complete a feedback sheet at the end of each academic year and the results are collated and reported annually.</p> <p>v. Outstanding - This is something that is not volunteered by the external examiners but will be encouraged to provide in future.</p>

						NB: Points iv & v added to this action plan	
						Responsibility: Course Leaders	
<ul style="list-style-type: none"> Research and consultancy into sustainable areas <p>28. Number of projects 29. Amount of funding 30. Consultancy income</p>	There are many research and consultancy projects centred on a sustainable theme conducted by staff at HAUC. The number and income generated from these projects is not quantified.	The Open Fields online library and Research and Reach-Out reports should enable all research and consultancy projects with a sustainable theme to be identified and the income generated. Promotion of HAUC environmental research and consultancy will be promoted through the NRKE, Sustainable Technologies Network and staff at HAUC.	1 1 1	1 1 1	1 1 1	<p>i. Quantify number of projects and income generated through sustainable research and consultancy. ii. Monitor number of projects and income generated to allow benchmark for comparison.</p> <p>Responsibility: Sustainability Business Development Manager</p>	i. & ii. - Ongoing – A record of all short courses/workshops for sustainability subjects is kept e.g wind turbines, PVs, biomass burners
V. Estate and Farm management:							
Environmental Sustainability Indicators within the Estate and Farm Management Group will draw expertise from the areas of working with rural businesses and linking the rural and urban environmental agendas.							
<ul style="list-style-type: none"> Sustainable building design and refurbishment <p>31. Environmental, social and financial impact</p>	In recent years, several University College buildings have been refurbished or newly built. Although this has been achieved with sustainable building design in mind, the social, financial and environmental impact has not been quantified.	<p>Continue to develop the University College estate with consideration to sustainable design and materials via BREEAM rating. Attain a minimum of 'Very Good' rating.</p> <p>Farm continue to operate integrated farming practices (LEAF) to reduce impact and improve efficiency</p>	2	3	6	<p>i. Quantification of the environmental, social and financial impact of refurbished and newly built buildings via BREEAM ratings where possible. ii. Development of project profiles to transfer knowledge regarding sustainable building design to</p>	<p>i. Ongoing - We have new developments and a refurbishment that are BREEAM 'Excellent' and 'Very Good' rated. The CELT building has the exception to provide biodiversity credit at the SSC building.</p> <p>ii – Complete -The</p>

						staff, students and visitors. Responsibility: Estates Manager and Farm Manager	CELT building has the exception to provide biodiversity credit at the SSC building. The area around the building is having a managed regeneration programme put in place to increase biodiversity in that area.
<ul style="list-style-type: none"> Procurement <p>32. Proportion of resources sourced locally 33. Proportion of contracts with businesses with an environmental policy</p>	Catering has a local procurement policy.	<p>Source resources locally to minimise transport miles, and promote local economy.</p> <p>Identify suppliers with Environmental Policy for future EMS</p>	2 2	3 3	6 6	<p>i. Quantify proportion of resources sourced locally and number of contracts with environmental policy. ii. Assess whether resources can be sourced more locally. Economics should be considered.</p> <p>Responsibility: University College Secretary and Office Services Manager</p>	<p>i. – Outstanding - this has yet to be done throughout the college. ii. – Ongoing - Waste and building contractors are sourced locally to reduce transport miles and Co2 emissions</p> <p>College has a Purchasing Policy now which is on the website and a Procurement Strategy 2010</p>
<p>VI. Rural community relations Environmental Sustainability Indicators in the Rural Community Relations Group will draw expertise from the areas of Sustainable Technologies, Training and Educating students, and working with rural businesses.</p>							
<ul style="list-style-type: none"> Promotion of diversification opportunities to the rural sector 	HAUC currently promotes rural diversification opportunities through the business clubs and consultancy. This has a	Continued promotion of rural diversification opportunities. Continued development of student project and placement				<p>i. Quantification of sustainable development indicators 34 & 35. ii. Use of the</p>	Workshops attended and provided by BESST to network with other businesses

<p>34. Number of seminars, conferences and training sessions held</p> <p>35. Number and type of businesses helped</p> <p>36. Student projects</p> <ul style="list-style-type: none"> Liaison with the local community to increase sustainability and reduce environmental impact. 	<p>knock-on effect by helping businesses, which may then create employment opportunities. Opportunities for student projects and placements are created throughout interaction with the rural community e.g 'renewable technology Open Days'</p>	<p>opportunities. The number of businesses helped and the number of jobs created are difficult indicators to measure unless businesses attending events at HAUC are monitored.</p>	<p>1</p> <p>3</p> <p>2</p> <p>2</p>	<p>1</p> <p>3</p> <p>1</p> <p>2</p>	<p>1</p> <p>6</p> <p>2</p> <p>4</p>	<p>database system to record student project and placement opportunities, number of attendees for HAUC conferences, seminars and training sessions.</p> <p>iii. Work with the local community through the Local Agenda 21 initiative, Newport 21, Green Drinks i.v. Work with network groups in Shropshire & West Midlands e.g BESST to work with communities and local businesses</p> <p>Responsibility: Sustainable Technologies Business Development Manager.</p>	<p>ii. – Ongoing - Reports are given on the number of research and reach-out work conducted annually.</p> <p>iii. - Ongoing – regular attendance to events and been guest speakers</p>
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