3. Sustainability initiatives in UK Zoos

3.1 Introduction

This chapter attempts to define and illustrate the role of sustainable development as relevant to zoos in the United Kingdom. It explains the concept of sustainable development and its applicability to zoos. It also summarises structures and procedures that can encourage sustainable development, including examples of specific positive measures and good practice from UK zoos.

3.2 Sustainable Development

What is sustainable development? The government's definition is "ensuring a better quality of life for everyone, now and for generations to come".

It is meant to be an international ideal that maintains satisfactory living conditions (environmentally, socially and economically) at present, while not compromising the same opportunities for future generations. Although the idea is simple, the task is substantial. It means meeting four objectives at the same time, in the UK and the world as a whole:

- social progress which recognises the needs of everyone;
- effective protection of the environment;
- prudent use of natural resources; and
- maintenance of high and stable levels of economic growth and employment.

Some further background on the principles is set out in Appendix 1 and also at http://www.sustainable-development.gov.uk/.

Important initiatives have grown out of the idea of sustainable development, including the Earth Summit in Rio de Janeiro in 1992 which involved nearly 180 countries. This has led to initiatives such as the UK's Local Agenda 21, which can set sustainable development goals at a local level, and also to accreditation schemes, such as ISO14001 which addresses pollution prevention and environmental management to encourage sustainable development.

Sustainable development should be considered in all types of organisation: government, community and business. The underlying principles of zoos in the UK - education, conservation and research (see Zoos Forum Handbook Chapter 2) - provide

incentives and opportunities for zoos to act in accordance with sustainable development. Zoos vary greatly in size, the range of species maintained, the focus of their work and in other ways, so it is not appropriate to define one sustainable development model that should be adopted by all. Instead, the types of measures taken should be appropriate to the activities, scale and nature of the zoo.

Zoos should source their stock sustainably. As set out in the Conservation, Education and Research chapter, stock should only be taken from the wild, regardless of whether it is to be part of a managed programme, if there is evidence to show that collection will not have a detrimental effect on the population, species as a whole or its habitat. This is also set out in the Federation of Zoos animal transaction policy. Similarly, the Ethical Review chapter sets out that the costs and benefits relating to obtaining stock should be weighed up. Obviously, sourcing of stock must always be in full compliance with national and international law.

3.3 Key issues to consider

This section sets out some key environmental issues which it may be useful for zoos to consider, specifically the following topics:

- Energy & Building Design
- Water
- Waste
- Purchasing, Sponsorship & Investment
- Transport
- Wildlife Habitat
- Training & Awareness
- Partnership & Participation

These headings are considered in more detail below. Sustainable development also involves economic and social aspects, as well as environmental issues, so these should be appropriately addressed, especially health and safety.

Substantial sustainability initiatives have already been achieved in some UK Zoos. For example those highlighted in at a ‘Sustainability in Zoos’ seminar/workshop held at Blackpool Zoo on 12 October 1999. Many of these initiatives are referred to in Appendix 4, together with other examples.

Energy & building design
Energy is one of the most important sustainability issues because of its contribution to climate change and pollution.

The strategy for sustainable energy use and building design is generally to first **reduce** the amount used, either through simple actions (i.e. turning off lights, computers; using only the amount of energy needed) and to introduce **efficiency** measures (i.e. energy efficient appliances / heat fixtures. In addition, energy can be purchased from **renewable sources** and new buildings should be built with energy saving techniques and fixtures, using materials such as wood from sustainable sources rather than PVC. For example, timber products carrying the Forest Stewardship Council (FSC) logo are guaranteed to come from sustainable sources. Building design should avoid tropical hardwoods, and where this is unavoidable they should only by sourced from FSC-certified suppliers.

"Green electricity" – power produced from renewable energy sources – is now available through most electricity suppliers. As well as green tariffs, a number of less formal arrangements exist around the country, through which electricity customers are tapping into renewable energy.

Examples of specific measures taken in UK zoos are in Appendix 4.1.

Water

Many zoo animals spend extensive periods in water, and all are dependent upon supplies of good quality water. Water costs to zoos have, and will continue to increase. Many measures to reduce, reuse and recycle water (the Reduction Principle of sustainability – see Appendix 1) have been implemented. Reedbeds can be constructed to treat waste water and new technological advances can reduce wastewater.

Examples of specific measures taken in UK zoos are in Appendix 4.2.

Waste

Waste management is a highly important sustainability issue for zoos to address. Waste should be approached using the 3'R's (reduce, re-use, recycle of the reduction principle of sustainability, see Appendix 1). All waste should be reduced where possible, especially in packaging. Any unavoidable waste should be re-used by, for example, re-using paper (possibly shredding for animal bedding or composting) and boxes. Recycling and composting measures should then be considered and implemented. Paper, aluminium cans, bottles and corrugated cardboard can be recycled almost everywhere, and green waste (branches, leaves, etc.) can usually be composted, as can animal dung. Although EU Regulations will require all councils to provide recycling facilities for batteries, a

better policy is to only use rechargeable batteries. Administration and record keeping also contribute significantly to the waste production cycle.

Animal husbandry generates a large amount of waste on a daily basis. Animal waste represents a potential health hazard and is therefore best disposed of on the premises, though opportunities exist to generate income from "zoo poo", and much animal waste may be composted.

Examples of specific measures taken in UK zoos are in Appendix 4.3.

Purchasing, sponsorship & investment

Zoos can improve their purchasing practices by ensuring that environmental and ethical standards are applied. For example, zoos can specify low-packaging items and goods from "fair trade" sources. Zoos can also encourage suppliers and sub-contractors to demonstrate responsible attitudes, require them to supply copies of Environmental Policy/statements, and only invest in environmentally and ethically sound organisations. Zoos should also try to encourage environmentally and ethically conscious behaviour from their sponsors, and specifically choose such sponsors. Zoos can therefore make a substantial contribution to local and global sustainability. The proximity and equity principles of sustainability (see Appendix 1) should impel all zoos to apply environmentally and ethically standards in their purchasing choices.

As set out in the Conservation, Education and Research chapter, stock should only be taken from the wild, regardless of whether it is to be part of a managed programme, if there is evidence to show that collection will not have a detrimental effect on the population, species as a whole or its habitat.

Examples of specific measures taken in UK zoos are in Appendix 4.4.

Transport

Transport, together with energy is the main source of increasing carbon dioxide emissions to the atmosphere, which are severely impacting the climate and biodiversity directly. Reducing carbon dioxide emissions is a major contribution that zoos can make towards helping conserve biodiversity.

Zoos can encourage staff and volunteers to car share or use public transportation. Visitors should be encouraged to use public transport, for example, by providing incentives (entry discounts) with evidence of public transport use (bus tickets). Another

measure, which reduces carbon dioxide and other pollution, is to obtain materials for zoos from local suppliers.

Examples of specific measures taken in UK zoos are in Appendix 4.5.

Wildlife Habitat

Wildlife conservation is a fundamental priority for all zoos. This is also addressed in the CER chapter of the handbook. Funding may be available to assist with the costs of creating wildlife habitat (see Appendix 5). By planting trees zoos can offset their carbon dioxide emissions and become "Carbon Neutral", thus combating climate change.

Examples of specific measures taken in UK zoos are in Appendix 4.6.

Training and awareness

Training of staff is essential to ensure that environmentally friendly practices are being followed. It is also important to gain staff input, as crucial contributions and innovative ideas are always available, inside the organisation, but often remain untapped.

Similarly, the public should be made aware of zoos initiatives and ought to be encouraged to adhere to environmental principles while on the zoo property. An effective way to do this is to provide information on sustainable behaviour and facilitate this by, for example, strategically placing recycling bins throughout a park and encouraging purchase of low waste materials (e.g. packaging and cups) in zoo shops and canteens. This will only be effective where all zoo staff are seen to apply environmental principles themselves. Many options for creating and protecting wildlife habitats and reducing waste and resource use can be promoted through a reed bed, or a sustainable garden exhibit.

Examples of specific measures taken in UK zoos are in Appendix 4.7.

Partnership and participation

Zoos, aquaria, and farm park attractions are very well placed to provide both partnership, and with some opportunities, leadership. Participation is one of the most important principles of sustainable development (see Appendix 1).

Local Agenda 21 has now been added to by the duty (and powers) placed upon a local authority to prepare a Community Strategy or Plan which improves quality of life and assists moves towards

sustainability. This process should provide fresh impetus to sustainable development partnership projects.

Examples of specific measures taken in UK zoos are in Appendix 4.8.

3.4 Ways to Implement Sustainable Initiatives

This section sets out some mechanisms to establish and implement sustainability initiatives in zoos.

"Green" Working Groups
An easy first step in giving attention to environmental issues is to form a group within a zoo, consisting of staff that volunteer because they are concerned about implementing environmental measures. It may be a good idea to first form an informal group to bring out issues and encourage staff involvement and suggestions. Green groups can carry out assessments to help senior management create environmental policies. Alternatively, if senior management has already formulated an environmental policy, green groups can be a great support to implementing the objectives and disseminating information throughout the rest of the staff and the public.

Environmental Policies
To help organisations become aware of, and take action to act responsibly towards their natural environment, a widely recognised and recommended procedure is to create and adopt an environmental policy. An environmental policy states the goals / objectives an organisation intends to undertake to create an atmosphere of awareness and action toward improving environmental impacts. Environmental policies can also greatly assist applications for funding.

Creation of environmental policies is the responsibility of senior management, who should first carry out or arrange a general review of environmental aspects upon which to base the policy. Assessment and policy formation should be combined with training and input from all staff and volunteers, as well as education of the public and shareholders of the environmental initiatives. It may also be useful both to explain the goals and to detail the exact efforts that will be used to undertake the objectives. The intention is that the stated objectives should be reviewed over time to assess performance and re-assess the goals. It is important to have boundaries and definitions or it may be difficult to achieve cohesiveness and meet goals.

Health and safety requirements should already be in place, and should not be ignored when forming the environmental policy.

Case studies of environmental policies from Marwell Zoological Park, Paignton Zoo Environmental Park, Bristol Zoo Gardens and Chester Zoo are in Appendix 2 for reference. The formation of an Environmental Policy is a good foundation for any organisation to create environmental awareness and move towards environmentally sustainable practices, which often begin with an environmental audit.

Environmental Audits

Environmental audits are integral, practical measures in implementing environmentally sustainable practices, the first step in a successful Environmental Management System (EMS). The main objective is to comprehensively consider environmental issues that affect zoos, such as energy, water, waste, purchasing, transport, etc. An environmental audit measures and evaluates the environmental impacts that a zoo has on its surroundings. One example of a type of audit is the Total Assessment Audit (TAA), which attempts to account for all aspects of environment impact, with three primary objectives: improvement in productivity, reduction of waste and increase in energy efficiency (Haman, 2000). Assessing several environmental areas together allows for examination of overlaps and innovative solutions. Individual audits—such as isolated waste audits or energy audits—are useful, though opportunities may be missed since the focus is only on a single objective.

Structures that Encourage Sustainable Initiatives

Environmental Management Systems

Environmental Management Systems (EMSs) are tools for improving environmental performance and reducing impacts upon the environment. They can provide order and consistency to address environmental concerns in a systematic manner through the allocation of resources, assignment of responsibility and ongoing evaluation of practices, procedures and processes. EMSs are routes of managing human activities that impact the environment—rather than actually attempting to manage the environment. An EMS should focus effort on the interactions that an organisation has with its environment. A case study giving an example of an EMS for a zoo is at Appendix 3.

EMSs can assist businesses, including zoos, not only in recognising environmental impact but in managing themselves effectively, e.g. assisting in reacting to new circumstances (e.g. new legislation, attitudinal shifts, market forces), improving company image, exploiting market opportunities, reducing risks, and be ahead of their competitors (Alberti et al, 2000).

It is possible to obtain accreditation for EMS, such as ISO 14001, denoting that an organisation has been successful in reducing its environmental impacts in a systematic manner.

3.5 Bibliography

Alberti, M., Caini, L., Calabrese, A. and Rossi, D (2000). "*Evaluation of the costs and benefits of an environmental management system*" in International Journal of Production Research. 38 (17): 4455-4466.

Barwise J (1992). *Environmental Management Systems: A Guide for the HE sector*, April 1998. HE 21 Higher Education for the 21st Century.

Bell, Christopher (1997). "*The ISO 14001 Environmental Management Systems Standard: One American's View*" in *ISO 14001 and Beyond: Environmental Management Systems in the Real World*. Ed. Christopher Sheldon. Greenleaf Publishing: Sheffield, UK.

Blaza A and Chambers, N (1997) *Environmental Management Standards: Who Cares?* In Sheldon C (ed) ISO 14001 and Beyond: *Environmental Management Systems in the Real World*. Greenleaf Publishing: Sheffield, UK.

Bruges, J (2002) *The Little Earth Book*. 3rd Edition. Alistair Sawday Publishing: Bristol. www.littleearth.co.uk

Building Better Business Partnership (1998). *Your General Management – Environmental Tips and Case Studies to Save You Money*.

Cascio, Woodside and Mitchell (1996) *"ISO 14001 Guide. The New Environmental Management Standards"* McGraw-Hill.

DTI (2000*) Keen to go* green *New Review* 44, p7

DTI Energy Technology Support Unit have written a *"Guide to UK Renewable Energy Companies"* (James & James 1997).

East Lothian Council (2001) *Environment Strategy 2002-5*. Haddington, Scotland.

Ecodyn (Ecodyn Environmental Ltd). [Internet] "*ISO 14001 & EMAS*." <http://www.ecodyn.com/ISO14001.htm>

El Bassam (1998) *Energy Plant Species. Their use and impact on the environment and development"* James & James.

European Commission: EMAS Helpdesk. July 2001. [Internet] "*EMAS-The Eco-Management and Audit Scheme*." http://europa.eu.int/comm/environment/emas/>

Friends of the Earth Scotland (1996) *The Green Office Action Plan*. FOES, Edinburgh.

Haklik, James, E. [Internet] "*ISO and Sustainable Development*." Transformation Strategies. <http://www.trst.com/sustainable.htm>

Haman, William G (2000). "*Total Assessment Audits (TAA) in Iowa*" in Resources, Conservation and Recycling. 28 (3-4): 185-198.

McLaren, Bullock and Jouseff (1998). *"Tomorrow's World. Britain's Share in a Sustainable Future"* Earthscan.

Moffatt, Ian. 1996. *Sustainable Development: Principles, Analysis and Policies*. London: Parthenon Publishing

Scottish Executive. "*Environmental Management at Victoria Quay*." [Internet] <http://www.scotland.gov.uk/library/documents2/envaccred.htm>

Sheldon, Christopher, ed. 1997. *ISO 14001 and Beyond: Environmental Management Systems in the Real World*. Greenleaf Publishing: Sheffield, UK.

Sheldon, Christopher & Yorker, Mark (1999) *Installing Environmental Management Systems: A step-by-step guide*. Earthscan, London

SIEnA Factsheet 3 (1996): *IT and the Office Environment*. Southampton Environment Centre, February 1996.

Starkey, R (ed) (1998) *Environmental Management Tools for SMEs: A Handbook*. European Environment Agency Environmental Issues Series No.10. Office for Official Publications of the European Communities: Luxembourg

Sutton, P (1997) *Targeting Sustainability: The Positive Application of ISO 14001*. In Sheldon C (ed) *ISO 14001 and Beyond: Environmental Management Systems in the Real World*. Greenleaf Publishing: Sheffield, UK

Von Weizacker, Lovins and Lovins (1997) *"Factor Four. Doubling Wealth, Halving Resource Use"* Earthscan.

Wastebusters (1994) *The Green Office Handbook*.

WCED (World Commission on Environment and Development). (1987). *Our Common Future*. Oxford: Oxford University Press.

Welford R I 1996 Corporate Environmental Management Systems and Strategies. Earthscan Publications Ltd: London, UK

Welford, R. and Gouldson, A. (1993). Environmental Management and Business Strategy. Pitman Publishing, London.

Wells, A. (1997) *Training and Environmental Management Systems*. in *ISO 14001 and Beyond: Environmental Management Systems in the Real World*. Ed. Christopher Sheldon. Greenleaf Publishing: Sheffield, UK.