

The botanic garden as a model for sustainability

A botanic garden education programme cannot operate in isolation from the rest of the garden. It is an integral part of the garden's operations. For a garden therefore to participate in building a sustainable society it must commit not only its education programme but also the rest of its operations. No matter where in the garden a sustainability model emerges from - education, horticultural or administration - its first purpose must be to engage the support of the rest of the garden. It is only then that it will be able to present a unified and coherent model of sustainability to the greater community.

A first step therefore may be to build sustainability into the garden's institutional policies (see 2.18.4 Sustainable practices within the botanic garden, International Agenda for Botanic Gardens in Conservation, op cit.). To persuade the rest of the garden staff to share in a vision of sustainability, good information should be provided in a range of different ways. This could take the form of information sheets, seminars, newsletters etc. Experiential workshops could also be run so that staff can explore their feelings and issues to do with sustainability, understand the benefits and contribute new ideas and solutions to building a sustainable garden.

Conducting a green audit

Once staff are committed to a vision a botanic garden may begin to consider how its operations can reflect the ethics of sustainability. An effective way to do this is to conduct a green audit, which entails looking critically at all areas of a garden's operations in relation to sustainability. While all members of staff



The National Botanic Garden of Cuba believes that its award winning eco-restaurant will provide a nutritional model for the future. All food served in the restaurant is produced in the garden and menus incorporate both cultivated and wild plants, thereby educating people about alternative plant species. Waste is composted and returned to the garden, again providing a model of sustainability. Photo: National Botanic Gardens, Cuba

will be involved in some way, it is important for a designated person to be responsible for overseeing the audit

Caring for the Earth: A Strategy for Sustainable Living (IUCN, UNEP and WWF, 1991) proposes nine principles for a sustainable society:

- *Respect and care for the community of life.*
- *Improve the quality of life.*
- *Conserve the Earth's vitality and diversity.*
- *Minimize the depletion of non-renewable resources.*
- *Keep within the Earth's carrying capacity.*

- *Change personal attitudes and practices.*
- *Enable communities to care for their own environments.*
- *Provide a national framework for integrating development and conservation.*
- *Create a global alliance.*

The aim of these principles is for them to be translated into action. Here they are used as a framework within which to conduct a green audit. The following questions are merely suggestions, not exhaustive and gardens can adapt them to their own situation. They are intended to focus gardens on areas in which they may need to pay more attention.



Recycling at the Eden Project, UK, is big and brash. Eden is working to ensure that all its potential waste is made from materials that can be recycled and that it uses and sells items made from recycled materials. When the weight of materials sent for recycling equates to the weight of products on site made from recycled materials Eden will beWaste Neutral. Photo: Catherine Cuttler, Eden Project, UK

Respect and care for the community of life.

Does the garden:

- Carry out environmental impact assessments when any part of the garden is significantly altered?
- Accept sponsorship from companies and other donors that have an adverse effect on the environment?
- Play a role in influencing the agendas of those companies and other donors towards the environment?
- Engage in wider programmes outside the botanic garden which supports this principle?

Improve the quality of life

Does the garden:

- Improve staff job satisfaction?
- Support staff to realise their potential?
- Allocate time and resources for staff training and development?
- Conduct outreach programmes focusing on health and/or food security?
- Employ local people?

Conserve the Earth's vitality and diversity

Does the garden:

- Have a plant conservation strategy? Has it registered its participation in the International Agenda for Botanic Gardens in Conservation?
- Comply with relevant environmental legislation?
- Dispose of food waste in a sustainable way?
- Set achievable targets for reducing water consumption?
- Recycle water and/or collect rainwater?
- Know the source of each waste type it produces and volume?
- Set targets to minimise waste?
- Ensures that all waste is treated according to environmental legislation or regulations?

- Use products that are or can be recycled both outdoors in the garden and in its administration?
- Provide recycling stations for the public?
- Recycle the following:
 - water
 - green garden waste
 - glass
 - plastic
 - drink cans
 - food cans
 - office paper
 - cardboard
 - newspapers and magazines
 - batteries
 - toner cartridges
 - machine oil
 - other?
- Purchase environmentally friendly cleaning products?
- Purchase in bulk to minimise packaging waste?

Minimize the depletion of non-renewable resources

Does the garden:

- Set realistic targets for reducing energy consumption.
- Provide staff training in the importance of minimising the depletion of non-renewable resources?
- Ensure that glasshouses are designed to minimise heat loss?
- Use renewable energy (e.g. solar panels, wind turbines)?
- Take measures to build energy efficiency into new building projects?

Cheyenne Botanic Gardens, USA, generates approximately 40 to 50% of its electricity from a photovoltaic solar energy system, powering paddle fans, irrigation controls, many lights and all of the computers and office equipment. The Gardens have pioneered many techniques in solar greenhouse gardening and the use of integrated pest management. Photo: Shane Smith, Cheyenne Botanic Gardens, USA

- Provide secure areas for bicycles for staff and visitors?
- Encourage staff to travel to meetings outside work using public transport?
- Encourage visitors to visit the garden by public transport, foot or bicycle?

Keep within the Earth's carrying capacity

Does the garden:

- Work with its national government to implement the Convention on Biological Diversity?
- Work with the relevant authorities to monitor CITES?
- Provide information to the public about the problems of plant over-collecting and increase their understanding of the complexity of the problem?
- Raise the public's awareness about the Convention on Biological Diversity and other environmental policies?

Over consumption is probably one of the greatest problems facing the environment.

Does the garden:

- Carry out environmental audits and set targets for reducing consumption?
- Ensure that the products sold in the shop and restaurant or café are derived from ethically produced sources, have come from renewable sources and/or are recyclable (i.e. Does the garden have an environmentally sensitive purchasing policy)?
- Ensure that their tea shops and restaurants have reusable rather than throw away crockery and cutlery?
- Ensure that the food served reflects healthy living, is seasonal, locally produced and organic?

Change personal attitudes and practices

Does the garden:

- Model the ethics of living sustainably?
- Promote equal opportunities within the garden?



- Run education for sustainable development programmes?
- Disseminate information through formal and informal education systems about sustainability?
- Promote sustainable tourism?

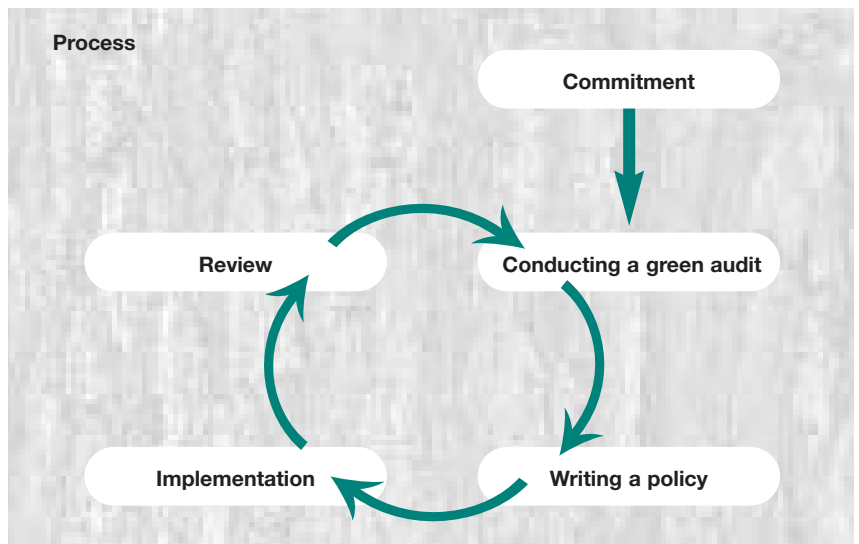
Enable communities to care for their own environments

Does the garden:

- Provide information to communities about plants including how to cultivate and harvest them?
- Provide resources (e.g. expertise, time, plants, compost) for communities to care for their own environment?
- Help communities to respect, value and care for their communities?
- Encourage urban regeneration programmes?
- Run training programmes on sustainable farming and harvesting?
- Train communities in the cultivation, harvesting and use of medicinal plants?
- Work with local people to document their knowledge about plants and their uses?

“ When we try to pick out anything by itself, we find it hitched to everything else in the Universe. ”

(John Muir, 1911)



Provide a national framework for integrating development and conservation

Does the garden:

- Work with its government to implement national plans for sustainability and biodiversity conservation?
- Provide up-to-date scientific information to relevant bodies in order that the environment is internalised in economic decisions?

Create a global alliance

Does the garden:

- Belong to BGCI and participate in the international community of botanic gardens?
- Belong to other conservation organisations/networks – national and regional?

- Support the development of other botanic gardens?
- Provide resources for staff to visit other botanic gardens and institutions to learn about best practice in sustainability?
- Ensure internet access for staff?

Having conducted a green audit, the next step for botanic gardens is to write a sustainability policy capable of review and updating. In addition to staff having specific responsibilities for implementing sustainable practices, the garden should designate staff to oversee its sustainability policies. Once the policy is written the garden may choose to open itself up for external review and invite comments from visitors and/or other institutions.

Delegates at the 2nd World Botanic Gardens Congress in Barcelona, Spain. 500 delegates from over 70 countries agreed to adopt international targets for plant conservation, including a commitment to help conserve 75% of the world's critically endangered plant species by 2010. Photo: BGCI

