

3 Developing an environmental education strategy for your garden

3.1 Vital elements of an education strategy

In order to develop an effective environmental education programme, the garden must decide what types of programmes it will run, who it will aim the programmes at, and which particular aspects of conservation and environmental awareness it will concentrate on.

To do this each botanic garden needs to prepare a written education and awareness plan identifying and prioritising:

- the conservation and sustainability messages of the garden
- groups to be targeted
- the facilities needed
- the facilities available
- the knowledge required for each group to understand the conservation messages
- the skills that each group needs
- the attitudes and behaviours to be encouraged
- the programmes to be developed

Educators need to consider not only the present situation in the garden, but also the capacity for development of education programmes over the next 2, 5, even 10 years. Ideas which are not seen as a priority should be set aside.

Each garden is unique and so will have particular aspects of environmental and conservation education that it is best equipped to teach. For this reason, and because the development and running of the education programme will affect everyone, it is a good idea for all members of staff to contribute to the formation of the plan.

3.1.1 Deciding on the message

The process of deciding on the particular programmes to be run will involve determining the conservation message to be conveyed to each group. A garden may want to present different aspects of plant conservation to different target groups. Each garden also needs to take into account the facilities available.

A 'whole garden' approach

It is important to link the education programme aims and objectives with the overall aims of the botanic garden. Each garden should have a mission statement (see The Botanic Gardens Conservation Strategy, Chapter 8) which the education staff should have been involved in drawing up. Garden staff need to be familiar with the mission statement when they put together the education programme. Education will be most successful when the institution as a whole adopts a co-ordinated and focused approach. To decide on the message some questions need to be asked, such as:

Locally

- Has your garden signed up to the International Agenda for Botanic Gardens in Conservation?
- What plant collections does the botanic garden have?
- Are local plants threatened and by what?
- Are their habitats peculiar to the region and are any under threat?
- Are there local developments that might threaten plant biodiversity?
- Are people familiar with local plants?
- Are there local areas in need of restoration or revegetation?
- Are there areas of natural vegetation within the garden or associated with it?
- Are there any plants the botanic garden can make available to the local community - for example could they provide plants for schools to revitalise their playgrounds?
- Do local growers produce plants for local uses, or are they mainly for export?
- Where is the garden situated geographically - in a rural or urban environment?
- What resources does the botanic garden have for education both inside and outside the garden?
- What sort of contact do local people have with the land?
- Are there other local organisations that have a similar message to impart?
- What effective local environmental action can the garden inspire?

Nationally

- Has your country signed up to the Convention on Biological Diversity?
- Is there a national biodiversity strategy?
- Is there a national environmental education strategy? How will this affect your botanic gardens education plan?
- Is there a national plant genetic conservation strategy?
- How much of the country's plant biodiversity is endangered?
- Which habitats and/or plant species are under threat and how are they threatened?
- Which plants are important in the national economy and what are the implications for conservation?
- Does the country trade in endangered plant species? What are the implications for their conservation?
- Tourism. What are the implications for conservation?
- Population growth and movement (immigration and migration). What are the implications for conservation?
- Pollution. In what way is the nation polluting its own environment and to what extent?
- Which other botanic gardens are active nationally or regionally in plant conservation? To what extent do they co-operate and share resources?

Internationally

- Some scientists estimate that up to a quarter of all higher plant species (250,000) will be threatened with extinction or serious genetic erosion in the next 30-40 years. What effect could this have on the local environment and population?
- Pollution. Does the country suffer from the effects of another country's pollution? What effect does this have on the environment and on the country's habitats and plants?
- Changing weather patterns. What are the likely consequences for the country's habitats and plants?
- World food and other trade patterns. What are the implications for plant conservation?
- Deforestation. What relevance is this to your country, region?
- What international co-operative role can/does your garden play?
- What is the role of your botanic garden in saving plant biodiversity?

Some of these issues are very wide reaching. One garden will not be able to tackle them all. The important point is that educators are aware of and look at these issues when devising the education programme. Not every issue will be appropriate for every group. Young children probably will need practical, 'hands on' sessions whereas older children and adults may find the wider, more philosophical issues, interesting. Groups of teachers may be well informed on the scientific issues but less aware of practical activities that can be used with their classes and vice versa

3.1.2 Identifying target groups

An important step in the formation of an education plan is to decide exactly whom the programmes will be targeted at. A garden may decide to target groups of people who already visit the garden or they may hope to reach people who have not previously visited. Part of deciding on who to target may involve carrying out a visitor survey but the main target groups for most gardens will include at least some of the following:

- schools - infant, primary and secondary.
- teachers - both in-service and pre-service (by training 30 teachers, a garden can reach 30 times the number of children in each class)
- colleges and universities - plant science, botany in particular, as a subject in tertiary institutions is diminishing in many countries and botanic gardens are increasingly being called on to fill this role.
- youth clubs - most countries have a co-ordinating body.
- parents - many parents help out in schools and clubs and botanic gardens are beginning to recognise the potential of this group for spreading the conservation message.
- farmers and horticulturists - botanic gardens could work with farmers and horticulturists to develop more sustainable ways of farming the land.
- businesses - the economies of most countries are based to a substantial degree on the exploitation of plants, gardens have an important part to play in educating the business community and in developing partnerships with them.
- general public - including a) visitors to the botanic garden b) non-visitors to the botanic garden.
- potential sponsors - business, the education authority, local and national government, charitable trusts, non governmental organisations (NGOs)

- botanists and conservationists at botanic gardens and elsewhere - their collaboration is often vital to the success of education programmes
- botanic garden staff - it is important to involve all garden staff. This will mean internal staff training on education.
- landscape architects - gardens could work with landscape architects to design landscapes which include a variety of plants including species which are endangered in the wild.
- amateur or home gardeners - gardens can encourage environmentally responsible gardening, involving organic methods, composting etc.
- gardens can educate tourists about the trade in plants and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- 'friends' of the garden - friends are important ambassadors for many gardens
- community groups - gardens can work with local groups on local greening issues

Financial constraints usually mean that it is almost impossible to target all these groups. Each garden has to set priorities according to the message they want to get across and the facilities that are available.

3.1.3 Resources and facilities

The way an education programme develops will depend on:

- **Education staff.** A successful programme needs staff assigned specifically to education although other staff, e.g. horticulturists, can also make a valuable contribution. The number required will depend on what the garden hopes to do and the size and number of groups targeted for education
- **Volunteer Culture.** Some people are keen to offer their voluntary services for the cause of nature conservation. Volunteers through their skills, knowledge and commitments can support the botanic gardens to achieve its objectives in environmental education. Student groups (both lower and higher level), morning walkers and senior citizens are groups that may be interested in offering their time to the botanic gardens on a voluntary basis. Educators could prepare a brochure stating the agenda of the garden for biodiversity conservation and environmental education and explaining the ways in which volunteers could support these programmes. As volunteers require some returns, the brochure should outline the benefits to volunteers, for example, honorariums, plants, compost, flowers, free entry, etc. For a volunteer programme to be successful, time needs to be invested in selection, training and organisation of the volunteers. A questionnaire may be used in the selection of volunteers.
- **Time.** Time must be given specifically to the development and running of the education programme. The amount of time will depend on the number of staff available.
- **Support.** It is important for other members of staff to support the education officer/s in whatever way they can. There needs to be good communication within the garden about the role each member of staff can play in education. Frequent meetings of staff involved in environmental education are necessary to assess the progress of work carried out in this area and to avoid possible miscommunication.
- **Budget.** The garden must allocate a budget, however small, to education and someone must be responsible for managing this budget. It is impossible for the education staff to make decisions and plans about what kind of programme to run if they have no idea of the amount of money available. A garden may decide to take on additional fundraising activities to finance the education programme.
- **Garden collections.** In order for the education programme to be effective and relevant, educational plans should be linked with the garden's plant accession and collections policy. (see The Botanic Garden Conservation Strategy, Chapter 8)
- **Facilities.** Educators need to look at the garden in terms of educational facilities. Is it possible to plan an area in the garden specifically for education? For example, an area for gardening, trees for climbing, plants for touching. Are there implements; tools, pots, plants, soil, buckets, etc. that can be used? Additional facilities such as indoor spaces, visitor centres, shops, cafes and toilets considerably support an education programme, but they are not essential for the development of good education programmes.
- **Educational materials.** It is important to remember that resource production should be needs led. Front-end evaluation will ensure that any material produced will support the aims and objectives of the education programme. Botanic garden educational materials (books, education packs, slides, videos etc.) could be catalogued and made available to all those interested in using the garden as an educational resource.

3.1.4 Background knowledge

Educators need to be aware of the background knowledge necessary to understand the points being made. This means knowing the standard of education and experience of each group. For example, to teach children about the importance of plants in preventing soil erosion educators must first make sure the children understand why it happens and why we need to stop it. Some popular misconceptions that educators in botanic gardens have come across include:

- plants make food from soil
- trees are not living things
- botanic gardens are just amenities

A carefully thought out questionnaire could be used to collect baseline data on the target group's present knowledge, values and misconceptions. This information could then be used to shape programmes.

3.1.5 Attitudes and behaviour

Environmental education is not simply about supplying people with information. If botanic gardens are going to get the conservation message across then they need to encourage a change in attitudes and behaviours. Everyone interprets the world from within a particular framework of perception and thought. Age, class, creed, culture, ethnicity, gender, geographical context, ideology, language, nationality and race all shape personal perspectives. Education programmes can provide opportunities in which students can safely examine their held attitudes and behaviour.

3.1.6 Skills

In order to take part in an education programme, learners may need to acquire new skills. These may be specific 'botanical' skills of propagating, planting or identifying, but education programmes may also help children and adults to develop, social skills such as co-operation and communication. Educators need to think about the particular skills they want to encourage and develop, especially when working with children.

3.1.7 Developing programmes

An enormous variety of educational programmes can be developed inside and outside a botanic garden. These include:

- interactive exhibitions
- simulation games
- tours
- drama
- discovery trails
- natural crafts
- demonstrations of collections
- botany courses
- field excursions
- conservation landscaping
- practical horticulture and arboriculture.
- interpretive signs

It is often a good idea for educators to begin with small pilot programmes which can be evaluated with the help of those involved before expanding to larger programmes.

Involving teachers in the development of programmes and material is also important as this will give educators an insight into the priorities and needs of teachers. As many of the activities developed will be related to school or college curricula it is important to involve or inform those institutions responsible for developing curricula.