

Redefining the Role of Botanic Gardens – towards a new social purpose



**University of
Leicester**



BGCI

REDEFINING THE ROLE OF BOTANIC GARDENS - TOWARDS A NEW SOCIAL PURPOSE

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Executive summary

This research, the first of its kind, was conducted by the Research Centre for Museums and Galleries (RCMG), School of Museum Studies, University of Leicester. Commissioned by Botanic Gardens Conservation International (BGCI) and funded by the Calouste Gulbenkian Foundation, it set out to investigate the social role of botanic gardens in the UK. Botanic gardens, like many organisations in the cultural sector, are concerned with being more socially relevant, working with their communities and addressing contemporary concerns like climate change. However, whilst much good work is being done there is the potential for botanic gardens to do much more. To investigate their full potential requires much work, but by examining the current situation and arguing for the broader social role of botanic gardens, this report begins that process, providing a background for dialogue and discussion around this issue.

Why is this research needed?

Throughout the cultural sector there has been an increasing turn towards social relevance, and botanic gardens have made tentative steps towards broadening their audiences and engaging with community concerns and needs. However, very few have reached their full potential when botanic gardens could be significant sites for addressing social and environmental changes that will concern us all. In the UK alone, there are over 130 botanic gardens, attracting approximately 6 million visits every year. Target 14 of the Global Strategy for Plant Conservation (GSPC, produced by the Convention on Biological Diversity) requires that everyone understands the importance of plant diversity and the need for conservation. But at the moment botanic gardens are only reaching a very narrow section of UK society. They are perceived to be exclusive and elite institutions. There is little long-term research into who uses botanic gardens and why. In a society where many people have become disconnected from the natural world but where the threats from climate change and species extinction (plant and animal) are predicted to get worse as the century progresses, botanic gardens could play an important role in re-connecting people with the world of plants, educating them and showing them models for sustainable living.

BGCI is an international organisation with a network of members across the world that exists to ensure the world-wide conservation of threatened plants, the continued existence of which is intrinsically linked to global issues including poverty, human well-being and climate change. BGCI wants to challenge traditional thought patterns in botanic gardens and to support them to examine their philosophies, values and practices so that they can develop their potential as positive contributors to social and environmental awareness and change. This is critical if they are to participate in, and articulate their relevance to, wider society.

Through mixed methods research, this report scopes out the current situation in botanic gardens. It examines social inclusion and social responsibility conceptually and practically, their current appearance in botanic gardens, and generates a way forward – how the challenges of the modern world can be approached in a constructive and powerful way, in which botanic gardens can be major players.

Research findings

Botanic gardens are well placed to educate the public on conservation issues and the human role in environmental change

The 21st century has seen increasing awareness and concern about the human impact upon the environment. In 2000, BGCI estimated that two thirds of species are in danger of extinction due to human actions. Under the Convention of Biological Diversity, botanic gardens are committed to promoting education and awareness about plant diversity and the need for its conservation. Whilst many botanic gardens are well established as educators in a formal sense, their role as informal learning environments is less well documented. But by their very nature, as places which physically, directly, display plants to people, often in an informal, relaxed way, they are perfect places to demonstrate how important plants and people are to each other. Thus they can 'act as a metaphor for the complex relationships that humanity has with the environment' (Saunders 2007: 1213). As a society we have largely become disconnected from the natural world. Botanic gardens have the potential to be places wherein that connection is re-established, benefiting the audience personally through a connection with nature, providing education and physical activity. But this direct contact has wider implications: by raising awareness of issues of social and environmental justice amongst their audiences, botanic gardens can contribute to wider action upon worldwide moral issues. Social and environmental responsibility is inextricably linked, and the work of botanical gardens shows this. Their research has global reach, concerned as it frequently is with human healthcare, nutrition, and plant management for the support of livelihoods.

The research showed that botanic gardens were particularly concerned with development in seven key areas:

- Broadening audiences (audience development)
- Enhancing relevance to communities (meeting the needs of communities)
- Education
- Conducting research which has socio-economic impact locally and globally
- Contributing to public (and political) debates on the environment
- Modelling sustainable behaviour
- Actively changing attitudes and behaviour

Common to most botanic gardens is the desire to **broaden their audiences**, and to undermine the perception that they are just for a particular elite of white, middle-class, older people. The research uncovered a lot of action in this regard – events, activities and courses are designed with varied audiences in mind, advertising and community outreach targeted to attract new audiences, and capital development undertaken to aid in the interpretation of the site itself.

But these actions are disparate and varied across the sector. Botanic gardens need, and want, to articulate their relevance to everybody, but their success at doing so is varied. Work is rarely supported by any in-depth research and successes and failures are not always fed back into the development of further action. Few organisations pro-actively seek to target excluded audiences and there is a widespread concern that this may actually increase exclusion and difference. Many botanic gardens have an understandable concern with maintaining their

existing audiences and the state of their collections, and this often leads to the perception among certain groups that they do not have the appropriate skills or behaviour patterns to navigate these sites.

Enhancing relevance to these communities is an intensive, long term and difficult task. It requires people with specific skill sets and experience who are not always found on the staff of botanic gardens. But it also requires total organisational commitment.

Three quarters of the surveyed sites were working with hard to reach communities, often working from the premise that everyone is, in some way, connected with the plant world, whether they realise it or not. By showing how plants are used in everyday items and medicines, as they have done at the University of Oxford Botanic Garden, gardens can reach out into the wider world, helping people to make the connections between the lives they live and the world upon which it is based. Often this type of action involves working with disabled and SEN (special educational needs) groups, providing courses, opportunities to visit, and even the chance to gain a job or voluntary position. 'Great Day Out' at the Eden Project gave people the opportunity to escape from a problematic personal situation for a day, and has potential to lead to a voluntary position for the participants.

Offsite, too, their actions can have a deep impact. Community gardening, such as conducted by the Botanic Garden Trust, Sydney, evidences the benefits which can be brought to communities and to the garden itself through increased interaction. Their 'Community Greening' programme had a huge social and environmental impact, providing education, physical activity, improving public spaces and bringing communities together. So too does the Eden Project work directly with communities, upon the particular issues which are facing them and which challenge their well-being, as they did with 'Clay Futures.'

However there is the potential to do much more. Work is often achieved through short-term funded projects. Many botanic gardens lack the capacity or the motivation to engage, and many are unclear about what their social role really is or could be. Whilst they themselves may believe that they are relevant to everyone, this is not always evidenced through evaluation or research. If they are to be truly accessible, these things need to change.

The status of botanic gardens as providers of **education** is well established. The educative offer at botanic gardens can range from academic, specialist courses to lifelong learning opportunities for school and community groups. Drawing on their strengths, learning opportunities frequently involve practical, multi-sensory engagement with plants and sites. Many have provision for school groups, ranging from teacher-led visits to individual workshops. But there is variation about how embedded education is in their culture and there is limited research into learning experiences. There is scope to learn from more ambitious education programmes, like the 'Fairchild Challenge' devised and managed by the Fairchild Tropical Botanic Garden in Florida. Such activities have huge impact on the participants, in terms of their knowledge, social well-being and self-esteem. Many gardens talk about an approach which is lifelong and holistic – something worth taking further.

Botanic gardens participate in **research of local and global socio-economic importance**. In developing medicines and hardier crops, methods of seed storage and conservation strategies, their research is used to directly benefit communities nationally and internationally.

Closely linked to their research and to their role as scientific institutions is their **contribution to public and political debate on the environment**. As scientific institutions, they agree that climate change is a serious issue, and are usually allied with the scientific consensus regarding its threat. Botanic Gardens Sydney used the experimental programmes of 'Big Answers to Big Questions' to engage in this debate, which led to some very positive evaluation feedback. The Eden Project takes a specific, proactive stance upon environmental issues, articulating their specific messages through their three clear themes of 'People, Plants and Planet', and the botanic garden at Oxford is also willing to use creative methods to get the message across, such as storytelling and art.

But such explicit articulation is not found everywhere. Many botanic gardens do not want to bombard their visitors with messages of doom and gloom. They are seen as being relaxing places to go and enjoy, a perception which many institutions would not like to disturb. Nor do they want to offend their audiences with accusations, or disturb their own status as scientific, seemingly 'objective' institutions. But objectivity is itself based upon certain sets of values, and the increasing consensus regarding climate change in the scientific community at large suggests that this 'status quo' cannot be maintained. Open, honest, two-way dialogue is what is needed.

Botanic gardens can do more than just inform about climate change. They can act upon it too, providing **models for sustainable behaviour** which really show visitors how they might take action and what its effects could be. If the professional and personal actions of the staff, and the nature of the site itself are models for action, the message is more likely to be respected. But only if it is communicated well, through a dialogue which allows visitors and garden to share expertise and information.

In this way, botanic gardens can contribute to **actively changing attitudes and behaviour** towards the natural world. They have the potential to convey the relevance of plants to human life, and the impact which human lifestyles have upon the natural world, to every part of the societal spectrum. Through programmes such as Eden's 'Seeds, Soup and Sarnies' and Chelsea's 'Shelf Life' awareness and lifestyle changes can be encouraged. These proactive approaches need to be encouraged across the sector and focused on those who traditionally do not visit botanic gardens.

Botanic gardens are taking action. But there is more that could be done

If botanic gardens truly are to reposition themselves and redefine their social purpose, more integrated action and more evidence is required. At the moment there are a number of factors which **inhibit this change**.

Most botanic gardens have a long history in which they have rarely been required to consider their public role, the impact of which is still felt in the organisational

structure and staff population today. Small workforces and a lack of staff with specialist experience in social and community-based work lead to a lack of broader vision and an inward focus upon collections which is not conducive to community engagement. The management hierarchy of many botanic gardens has traditionally been dominated by people with a background in science and horticulture, less inclined to see that change. A hierarchy dependent upon a single individual is problematic, for it locates them as the axis of change, rather than spreading leadership and inspiration throughout the organisation as a whole. Related to this is the issue of staff passivity. The botanic garden sector is often perceived as a 'nice' place to work, and combined with the regularly 'reserved' nature of the staff this means that the impetus for change is rather limited. A reluctance to take an overtly political stance upon climate change is partly a product of this – but their failure to do so may well mean that the public are less inclined to act upon social and environmental issues themselves. For without the support and example of institutions which are accorded such reverence, individual action may be seen as having little worth.

Botanic gardens have not, because of their specialist nature, always needed to demonstrate their social worth to their governing bodies (particularly where these are publicly funded). Many have become distanced from the priorities of these organisations. If change really is to happen, then these organisations need to work in a united way towards the same goals, whilst recognising the different benefits which they each can bring. The University of Oxford Botanic Garden, tied as it is into the University, is a great example of the advantages of such practices. Botanic gardens are also often distanced from the wider national and international policy context. Even government supported organisations such as Kew Gardens and the Royal Botanic Gardens in Edinburgh found it hard to articulate their relevance in governmental terms. Eden, on the other hand, has a strong social mission, and is, in fact, often at the forefront of developments in policy. It is by making the direct links with policy that botanic gardens can make their impact more apparent.

The issues extend beyond governance. There is no one, central source of funding to motivate botanic gardens to work with excluded communities. Funding for social agendas is linked to organisations that are directly supporting projects in the community such as regeneration or housing. To gain access to funding it needs to be embedded in partnership working and making the social agenda a priority. For most botanic gardens this will require a very different organisational structure, which is much more challenging.

The lack of evidence that botanic gardens have of the impact on their users is a serious impediment to developing their social role. Without understanding the impact they have, botanic gardens will not see the real value of the work they do or be able to communicate their value to external audiences and funding bodies.

There are many forces for change which can motivate gardens to consider their social role

The need to re-connect with the natural world and the benefits which this can bring are of escalating concern in the urbanised West. That many gardens are publicly funded organisations means that they are increasingly required to be accountable to that public, encouraging site development and broader audience engagement.

In many cases, to get funding to survive and thrive, they need to demonstrate evidence for such actions. There is less evidence for the relevance of botanic gardens to policy than there is for other cultural institutions. But the languages of social policy, sustainability and environmental justice are becoming ever more prevalent in the language of government and funding bodies, and botanic gardens need to begin to engage with this if they are to remain relevant.

By tapping into this wider network, they can bring benefits to themselves. Working with partners offers a chance to escape isolation and develop new ideas and approaches, as has been demonstrated at Oxford and Eden. Only by working together can society hope to solve the huge issues faced in the 21st century. For environmental and social justice are global concerns, inextricably intertwined with each other. They come hand in hand, and it is only by treating them as part of the same problem, and involving themselves in both ecological and social issues, that botanic gardens can really contribute to combating the 'five tectonic stresses' of population, energy, environment, climate and economics (Homer-Dixon, in Janes 2009:28).

But to do this, passion is needed. Passion not just for plants, but for their relationship with people and the rest of the world. Whilst the love of plants is a common occurrence in botanic gardens, there is not always that fervour for social engagement which is so evident at Eden. BGCI believes that this can change, and works towards raising awareness and engagement within and without the sector through publications, conferences and congresses. As a central body it has a crucial position in the potential renaissance of botanic gardens, enabling new ideas and partnerships to be formed. Through the work of organisations such as BGCI, botanic gardens are becoming increasingly aware of their social role. The Global Strategy for Plant Conservation enhances the possibilities for collaboration towards shared targets within the botanic garden community and with external partners. The role of organisations such as BGCI is to start the conversation about possible changes which needs to take place across the sector. The question which must be asked is this:

What does the social role (and responsibility) of botanic gardens look like?

Future Developments

If botanic gardens are to be seen as socially and environmentally relevant, they need to change. But change is a difficult process, and a number of things are needed to achieve it.

Redefining their purposes: values, mission, vision

To reposition an organisation requires a re-evaluation of their mission, values and vision. In order to change, botanic gardens need to ask themselves the following questions:

- Why we exist?
- What we believe in?
- Who we do it for?
- What we want to achieve?

The answers to these questions need to be articulated in a way which is targeted, specific, and embedded across the organisation as a whole. For it is only by being clear and unified in purpose that the actions of organisations can be fruitful. Clarity of purpose, combined with flexibility, means that botanic gardens can more confidently navigate the contemporary world, and be confident in taking a stand upon political issues and engaging audiences in dialogue.

A lengthy process of change across the whole organisation

Change is a process which takes time. It will involve discussion and debate within individual organisations and across the sector as a whole. The increasing collaboration which is needed will require long term shifts in attitudes and behaviour. The whole organisation needs to be committed to the processes of change, otherwise change will not happen.

There is a fear of change – but it can also be inspiring, and bring great benefits. Nothing can remain static, and by engaging with these processes of change, botanical gardens will be better equipped to deal with their contemporary context, to the benefit of society *and* themselves.

Botanic gardens are uniquely placed to address climate change, but they aren't taking a visible and active role

Botanic gardens are full of expertise and knowledge, and can show the interconnection of people and plants and the potentially devastating effects of climate change. But despite this, and despite the relevance of climate change, they are not making large-scale efforts. They are often unclear and tentative about exploiting the full potential of their role, which their current core values don't often account for. They need to be bolder in working with non-traditional users, for pressure is mounting upon them to be socially relevant. The whole sector needs to discuss their role here, and it is under the auspices of organisations like BGCI that this can be done.

Botanic gardens should consider their social and environmental roles

Climate change is both an environmental and a social issue. For people to understand their impact upon the environment, it needs to be articulated to them as a social issue. The combination of social and environmental justice is critical if botanic gardens are to reinvigorate their fundamental purpose. They have an opportunity to reposition themselves as 'a voice of authority on climate change', to give solutions through articulating and enacting sustainable behaviour and responding to community needs.

Communicating, evidencing, advocating

Once they have decided to reposition themselves, organisations need to communicate this, both to themselves and to the wider world. Their new purposes must be embedded throughout their organisation and staff must work together to achieve success.

External communication is critical. Botanic gardens must raise their visibility to other cultural organisations, public bodies and the government. They need to gather evidence which they can present to these groups to show their value and importance, and communicate this in a language which will convince the sceptics both internal and external.

Finding a middle way between the model of the traditional botanic garden and the Eden Project

The work of the Eden Project is valuable, if not critical, but it is not a model which should be emulated by every botanic garden. Each garden is different, with different issues, characteristics, communities and responsibilities. The traditional work of the botanic garden, as a place for research and education must not be lost, for the contribution of this to the wider world is immeasurable. It is in the communication of this work where they can stand to make the most changes, for to remain relevant they need to present themselves as such to many groups. There are many areas in which they can enact change, which this report highlights, which walk a middle way between the traditional botanic garden and the Eden Project. The characteristics of the truly socially relevant botanic garden will only really emerge after active discussion within the sector, which it is to be hoped this report will open up.

The botanic garden is hugely important, culturally, ecologically, economically and socially. It cannot be left behind. It must take an active role in the world in which it finds itself, for the failure to unlock its true potential would be a sad loss to society.

Section One Introduction, Context and Background

1. Introduction to the research

The Research Centre for Museums and Galleries (RCMG), in the School of Museum Studies, University of Leicester, was commissioned to undertake this research by Botanic Gardens Conservation International (BGCI). BGCI is a UK-based international organisation which networks botanic gardens around the world for plant conservation and environmental education. The Calouste Gulbenkian Foundation funded this project.

This report looks at the social role of botanic gardens in the UK, the first national study of its kind. Through our research we found seven key areas where botanic gardens - at different levels of motivation and sophistication - were concerned with being more socially relevant. These are:

- Broadening audiences (audience development)
- Enhancing relevance to communities (meeting the needs of communities)
- Education
- Research which has socio economic impact locally and globally
- Contributing to public (and political) debates on the environment
- Modelling sustainable behaviour
- Actively changing attitudes and behaviour.

However, as this report will demonstrate, they have the potential to take on a much broader social role.

This section introduces the organisations involved in the research and the rationale behind the project.

1.1 Botanic Gardens Conservation International (BGCI)

BGCI is an international organisation with a network of members across the world that exists to ensure the world-wide conservation of threatened plants, the continued existence of which is intrinsically linked to global issues including poverty, human well-being and climate change. BGCI was set up as a small secretariat under the auspices of the International Union for Conservation of Nature (IUCN) and became an independent organisation in 1987. Their membership network has grown consistently throughout every continent and now unites over 700 members and conservation partners from 118 countries worldwide. BGCI aims to support and empower their members and the wider conservation community so that their knowledge and expertise can be applied to reversing the threat of the extinction crisis that faces one third of all plants. BGCI's vision is a world in which plant diversity is valued, secure and supporting all life. To create this world their mission is:

'To mobilise botanic gardens and engage partners in securing plant diversity for the well-being of people and the planet'.

From grassroots action, to educating through botanic gardens, to shaping government policies, BGCI uses its international network and local expertise to achieve real conservation gains. For further information see <http://www.bgci.org/>.

1.2 Research Centre for Museums and Galleries (RCMG)

Since it was established in 1999, RCMG has developed a reputation for the quality of its research and evaluation, particularly in the fields of museum learning, education, inclusion and the social role of museums. As part of the School of Museum Studies at the University of Leicester, it combines academic rigour with practical experience of the museum sector.

Our work to date has enabled us to develop a unique set of skills, experiences and perspectives, which are of value to this particular evaluation. Our research projects commonly utilise a variety of research methods, both quantitative and qualitative, to generate evidence from a variety of perspectives, to capture (as far as possible) the richness and complexity of participant, group, and community experiences and impacts as well as organisational issues. Our breadth of experience enables us to place these in a broad (and, where appropriate, international) strategic and policy context.

Research teams are brought together to meet the specific needs and requirements of each project. The RCMG research team for this study have substantial experience of museum practice and research and evaluation of the social role of museums, a theme which is woven through their work. Key publications that have been authored by members of the team and are relevant to this field include:

- *Building Bridges Guidance for museums and galleries on developing new audiences* (1998)
- *Including Museums: perspectives on museums, galleries and social inclusion* (2001)
- *A Catalyst for Change: The Social Impact of the Open Museum* (2002)
- *Museums, Society, Inequality* (2002)
- *Inspiration, Identity, Learning: The Value of Museums, Second Study* (2007)
- *Prejudice and the Reframing of Difference* (2007)
- *Rethinking Disability Representation in Museums and Galleries* (2008)

For further information, see:

<http://www.le.ac.uk/museumstudies/research/rcmgpublicationsandprojects.html>.

1.3 The rationale for the research

Over the past decade there has been increasing focus on the social role of major visitor-based cultural centres in the UK, in particular museums and galleries. However there is a distinct gap in this area within the botanic garden community. Botanic gardens are part of the biological and cultural fabric of communities in almost every country and ecosystem around the world. In the UK and Ireland alone, there are 130 gardens receiving around 6 million visitors per year. However, while many botanic gardens run a range of education and community programmes for select audiences, consideration of their wider social role is not usually high on their

agenda. Consequently, large sections of the public do not visit botanic gardens and gardens themselves are often seen by certain groups as exclusive, elite institutions. There is a lack of research into perceptions of and access to nature and the environment within certain socially excluded groups in the UK and few botanic gardens consider cultural and social heterogeneity in their design, outreach and functioning.

BGCI believes that this needs to change. Target 14 of the Global Strategy for Plant Conservation (GSPC) requires that everyone understands the importance of plant diversity and the need for its conservation. With over 200 million visitors per year worldwide, botanic gardens are important stakeholders in implementing this target. Within the sector, BGCI holds a unique position connecting these botanic gardens in a network and drawing on the skills and expertise of their members and partners. BGCI is best placed to liaise with botanic gardens and facilitate debate and change.

BGCI would like to challenge the traditional way of thinking and encourage botanic gardens to examine their purpose and reevaluate their own mission and policy within a framework of social responsibility. While the immediate goal would be to encourage plant conservation awareness and actions amongst a broader section of the community, BGCI would also like botanic gardens to consider how they can bring diverse communities together through a common interest in plants, and in this way empower communities to take greater control over their lives. This would include them considering how they can utilise their social impact to play a direct role in combating some of the problems that disadvantage many diverse communities and individuals.

BGCI wants to encourage botanic gardens to re-examine their philosophy, values, goals and practices with the aim of debating their own potential to contribute toward positive social change and broad environmental awareness. Through adopting more inclusive policies and practices botanic gardens could significantly increase their reach which would result in fundamental benefits for the wellbeing of individuals, communities and society as a whole.

This report provides the foundation of a long term project for BGCI. BGCI intends to produce a summary report on social inclusion and botanic gardens - following on from the initial research report produced through this work - which will inform key practical projects with botanic gardens in the UK. This work in the UK will eventually act as a model to inform social inclusion policy and practice in botanic gardens globally.

2. The approach to the research: aims, objectives and methods

The research for BGCI was carried out by RCMG between June 2009 and June 2010. This section describes the aims and objectives of the research, the research focus taken and the methods used to generate a breadth and depth of data – both quantitative and qualitative – from a range of perspectives.

2.1 Research aims and objectives

Presently, only a handful of botanic gardens in the UK have considered their social role; the audiences they attract and the contemporary issues they address including climate change. The aim of this research project was to investigate the current situation and make the case for botanic gardens to broaden their social role - within the context of plant conservation - and provide a platform for further dialogue and debate around this important issue.

The objectives for the research were:

- To carry out desk research into the current situation surrounding social inclusion and sites - how equivalent sites (e.g. museums and galleries, the National Trust, national parks) are dealing with inclusion, the policy context, how this might relate to relevant international legislations such as the Convention on Biological Diversity;
- To carry out research into botanic gardens and social inclusion - what are botanic gardens currently doing, examples of good practice, where gaps exist;
- To identify the main groups for botanic gardens to consider for social inclusion;
- To organise a focus group to test the emerging findings;
- To produce a report on botanic gardens and their social role.

The findings of the report will be presented at the 4th Global Botanic Garden Congress, which is taking place 13-18 June 2010 in Dublin, Ireland, in order to promote dialogue worldwide about the need for botanic gardens to engage with a greater diversity of audiences for both social reasons and plant conservation.

2.2 Research focus

The research team for this project:

Jocelyn Dodd	Director, RCMG
Ceri Jones	Research Associate, RCMG
Prof. Richard Sandell	Advisor, School of Museum Studies, University of Leicester
John Vincent	Consultant, The Network - tackling social exclusion in libraries, museums, archives and galleries
Louise Allen	Consultant, University of Oxford Botanic Garden

The research was designed to enable the research team to develop an understanding of how botanic gardens might focus on their social role and responsibilities - including the expansion of their audiences - and enhance their contribution toward positive social change and broad environmental awareness. This includes enabling visitors to understand the connection between botanic gardens and the world-wide conservation of threatened plants, the continued existence of which is intrinsically linked to global issues including poverty, human well-being and climate change.

The research used a mixed-methods research design, combining qualitative and quantitative methods to capture and generate primary data from diverse sources and multiple perspectives. This primary data was then augmented with secondary data from a number of sources. The generation of primary and secondary data was done in relation to six interlinked research themes, which provided a framework for the research:

- Social Inclusion and Social Responsibility: Concepts, ideas and policies
- Social Inclusion and Social Responsibility in practice
- Current Environmental Legislation
- Social Inclusion and Social Responsibility: Current practice in botanic gardens
- Case studies: Examples of current and good practice
- Recommendations for potential development and target audiences.

Using a combination of qualitative and quantitative methods is becoming increasingly familiar in social science research and a number of approaches have been identified (see for example Robson 2002: 372). Elements of the research remained flexible, enabling researchers to respond to the changing context of the evaluation and take opportunities to gather relevant and useful information as it arose.

Quantitative research methods were used to provide an overview of the botanic gardens sector and their responses to the issues presented in the research. The rest of the research (the largest part) utilised qualitative methods. Qualitative research is based on interpretive philosophies (Glesne and Peshkin 1992), where the focus is on understanding specific events in specific settings. Qualitative research recognises that there are multiple interpretations of events and diverse responses to social settings. It has a particular concern with the meanings accorded to situations – it seeks to understand what Mason (1996) calls 'intellectual puzzles.' While there are many forms of qualitative research, all have in common an emphasis on holistic understanding of events in their contexts, and a concern with meanings and actions. This approach was essential to understanding the context in which the need for a social role for botanic gardens has emerged, where the forces for change are occurring and to assess the impact it will have on the multiple constituencies involved. It was important for the research team who were unfamiliar with the botanic garden sector, although not with the wider themes of the social role of cultural organisations.

Three key aspects of the processes of qualitative research are *description* (context, processes, intentions, events, multiple meanings); *classification* (breaking up the data, categorising it, and reassembling it through appropriate conceptualisation); and *connections* (finding patterns in the data, linking the evidence to broader

themes, patterns or theories and so on). Research processes proceed through progressive focusing – as the context, actors and issues within the context become familiar, themes begin to emerge, and the research puzzles are progressively refined and addressed.

Researchers were aware of their position within the research; the experience, skills, knowledge of the research team was critical in the gathering of evidence and the analysis of the data. This influenced the selection of what to look at, what to search for, what might be significant in the analysis of the intellectual puzzle, and the explanation of this significance.

2.3 Research ethics

Research was carried out within the University of Leicester's Research Code of Conduct and Data Protection Code of Practice (<http://www.le.ac.uk/academic/quality/Codes/index.html>). The following guidelines also provide a framework for RCMG research:

- *Statement of ethical practice for the British Sociological Association*, <http://www.britisoc.co.uk>
- *Ethical Guidelines*, Social Research Association, <http://www.the-sra.org.uk/>
- *Revised Ethical Guidelines for Educational Research*, British Educational Research Association, <http://www.bera.ac.uk/>
- *Legal and ethical issues in interviewing children*, www.esds.ac.uk/aandp/create/guidelineschildren.asp
- *Guidelines for research among children and young people, Internet research guidelines, Qualitative research guidelines and The Responsibilities of Interviewers*, The Market Research Society 2000, <http://www.mrs.org.uk>

This research project did not raise any extra-ordinary ethical issues and the research was carried out with adults in their professional capacity. Care was taken to obtain the informed consent of all participants to take part in the research, to be recorded for accuracy, and for their words to be used in any publications that result, including those made available on the World Wide Web. It was the responsibility of the researcher to inform participants in meaningful terms the purpose of the research, why they were involved and how it will be disseminated and used. Following best practice this was through an information sheet and written consent form. Consent forms will be archived by RCMG for a minimum of five years.

2.4 Research methods

To answer the research questions, various research methods were used to generate primary data, to gather secondary data, and to provide both breadth and depth of evidence. The research methods are presented in Table 1 showing how they were relevant to a specific research theme, and are described in greater detail in the following sections.

Table 1: Research themes linked to the relevant research methods

Research theme	Research Methods
Social Inclusion and Social Responsibility: Concepts, ideas and policies	Literature review / desk research
Social Inclusion and Social Responsibility in practice	Literature review / desk research
Current Environmental Legislation	Literature review / desk research
Social Inclusion and Social Responsibility: Current practice in botanic gardens	Literature review / desk research Self-completion questionnaires to BGCI members Telephone interviews with key practitioners and senior managers
Case studies: Examples of current and good practice	Desk research In-depth case studies of botanic gardens (national, international) involving (where appropriate): <ul style="list-style-type: none"> • Site visits • Interviews
Recommendations for potential development and target audiences	Analysis and interpretation of data Testing emerging findings with a 'Think Tank' of key thinkers and practitioners

Literature Review

Desk research of secondary resources was carried out by the research team within the framework of the following research themes:

- Social Inclusion and Social Responsibility: Concepts, ideas and policies
- Social Inclusion and Social Responsibility in practice
- Current Environmental Legislation
- Social Inclusion and Social Responsibility: Current practice in botanic gardens

John Vincent, consultant, of The Network – tackling social exclusion in libraries, museums, archives and galleries, contributed to the desk research. The literature review describes and explores the following key themes, providing a context for the research:

- Introduction: an overview of the Botanic Garden sector and the context to the research into their social role;
- The need for the public communication of global warming and human-influenced climate change - the role of environmental education, ethical values, learning and activism;
- Thinking about Social Exclusion - including the context to social exclusion and inclusion, UK government policy, EU policy, and the international dimension, who is excluded, how exclusion is manifested, causes of exclusion, limitations of the concept, and the relationship with terms such as community cohesion, social justice, social capital and active citizenship;
- Why social inclusion for botanic gardens? - the impetus for botanic gardens to be socially inclusive;
- Combating social exclusion: approaches and strategies
- Challenges to developing programmes for social exclusion
- Social inclusion and social responsibility: Current practice in botanic gardens
- Social inclusion in other contexts: what can botanic gardens learn?

The literature review explores the concepts of social inclusion, social justice and social role and how these are made manifest in practice across a range of diverse institutions relevant to, and including, botanic gardens. This includes cultural and memory institutions such as museums, libraries and archives, organisations that care for heritage and historical landscapes such as the National Trust, National Parks, and Zoos. Relevant literature was drawn from a wide variety of sources and was international in its outlook.

Emerging from the literature review were a number of issues around social exclusion and social justice, which we could link with the increasingly urgent global need to respond to climate change, promote sustainability and prevent further extinction of plant and animal species. We concluded that addressing these issues may be critical to the repositioning of botanic gardens as inclusive and socially responsible organisations.

Self-completion questionnaire for BGCI members

To give an overview of the way in which botanic gardens in the UK are approaching their social role, we undertook an audit in the form of a self-completion questionnaire focusing on named UK members of BGCI. This needs to be seen in the context that not all botanic gardens are members of BGCI.

The questionnaire was designed to be quick to complete, with a mix of 10 open-ended and closed questions. The questions were designed to give the research team a broad overview of the botanic gardens sector, what they offer to visitors and their attitudes towards social inclusion and climate change (Table 2).

Table 2: Description of questions to BGCI members, self completion questionnaire

Question	Description
1	Details of the organisation – name of person completing the form, address and contact details
2	The governance of the organisation
3	Number of visitors per annum
4	Does the organisation have a mission statement?
5	Types of events offered – to schools, general public, leisure groups, special interest groups, community groups and others
6	Types of facility on site – café, room for school groups, meeting rooms and other
7	Response to the question - 'In your opinion, are botanic gardens relevant to the whole of society including those who are under- represented in the current visitor profile of botanic gardens, for example lower social economic groups (C2, D, E), Black and Asian communities, disabled people etc?'
8	Whether the organisation works with hard-to-reach groups who do not normally visit botanic gardens and examples where applicable
9	Response to the question – 'How important are the issues of climate change and global warming to your organisation?'
10	Response to the question – 'How important is it for your botanic garden to educate the wider public about issues of global warming?'

Recipients of the questionnaire were asked to provide relevant contact details if they were willing to participate in further, in-depth research.

A definition of 'social exclusion' was provided with the questionnaire to give respondents the dimensions of the concept and provide them with some context for the work (see below).

Definition of social exclusion, self completion questionnaire

Social inclusion targets those individuals and groups who are most excluded from society. There are a number of 'dimensions' which can lead to people becoming excluded from society; these can be complex and are sometimes interlinked:

- Economic (e.g. long-term unemployment; workless households; income poverty)
- Social (e.g. homelessness; crime)
- Political (e.g. disempowerment; lack of political rights; alienation from/lack of confidence in political processes)
- Neighbourhood (e.g. decaying housing stock; environmental degradation)
- Individual (e.g. mental and physical ill health; educational underachievement)
- Spatial (e.g. concentration/marginalisation of vulnerable groups)
- Group (concentration of above characteristics in particular groups, e.g. disabled, elderly, ethnic minorities, disaffected youth).

From a database of 97 UK BGCI members, 95 questionnaires were sent out in the first instance; 24 by email and the remaining 71 by post.¹ Twenty-five (25) questionnaires were returned by the initial deadline. Questionnaires were re-sent, omitting a total of 47 botanic gardens for the following reasons:

- They were small, privately-run or very specialist collections which made it unlikely they would engage with the issues of the research (37);
- Organisations were duplicated on the list (4);
- Organisations were satellites to larger organisations and a questionnaire was completed by 'proxy' (6).

An additional 13 questionnaires were received from the re-send, taking the total of returned questionnaires to 38. Excluding the unlikely, proxy and duplicate questionnaires, a total of 50 questionnaires were sent out, giving a return rate of 76%.²

In-depth case studies: Examples of current and good practice

In-depth case studies were used to give examples of current and best practice in the sector, to show how botanic gardens are responding to agendas around social inclusion and social responsibility, and to identify where gaps exist. Case study sites were national and international in scope and were selected in conjunction with one or more of the following criteria:

¹ Where organisations were duplicated in the contact list only one questionnaire was sent

² Excluding only the duplicate and proxy questionnaires gives a return rate of 44% (38 from a possible 87) which is about average for a postal survey.

- Examples must use outdoor resources with limited interpretation;
- Different types of organisation and governance;
- Scale of resources;
- Range of different approaches / cultural diversity/ targeting minority groups/ developing environmentally literate audiences/ organisational change;
- Advocates for the approach;
- Specific issues/ target audiences.

Four case study sites were selected: The University of Oxford Botanic Garden, Oxford, UK; The Eden Project, St Austell, Cornwall, UK; Botanic Gardens Trust Sydney, Australia; and The Fairchild Tropical Botanic Garden, Coral Gables, Florida, USA. Table 3 outlines the research activities undertaken for each of the case study sites. Interviews were semi-structured and a protocol was developed to be used with each case study site but which could be adapted to suit the context. Secondary resources including websites, reports and papers augmented the primary data that was generated from the interviews and site visits.

Table 3: List of research activities for each case study site

Case study site	Research activities	Researcher(s)
The University of Oxford Botanic Garden	Site visit - 15 02 2010 (1 day) Interviews with: <ul style="list-style-type: none"> • Louise Allen, Curator • Emma Williams, Primary and Families Education Officer • Flora Bain, Community Education Officer, Oxford Museums & Collections 	Jocelyn Dodd Ceri Jones
The Eden Project	Site visit – 03 02 2010 to 05 02 2010 (3 days) Interviews with: <ul style="list-style-type: none"> • Amile Trolle, Eden Forum • Juliet Rose, Community Development Manager • Philip Waters, Play project • Camilla Baker, Seeds, Soup, Sarnies project • Jodi Giles, The Great Day Out project Telephone interview – 10 03 2010: <ul style="list-style-type: none"> • Tony Kendle, Foundation Director 	Jocelyn Dodd
Botanic Gardens Trust Sydney	Telephone interview – 08 02 2010 <ul style="list-style-type: none"> • Janelle Hatherly, Public Programs Manager 	Jocelyn Dodd
The Fairchild Tropical Botanic Garden	Telephone interview – 16 03 2010 <ul style="list-style-type: none"> • Novita Kollitz, Fairchild Challenge Satellite Programs Coordinator 	Jocelyn Dodd

Interviews with key practitioners and senior managers

The rationale for the interviews with key practitioners and senior managers was to gain the views of, and insights from, key people in the sector:

- How important they saw the social role of botanic gardens as being
- To better understand the factors that limit the sector's engagement with a broader social role
- To better understand forces for change in the sector.

The interviews were carried out by Jocelyn Dodd and Ceri Jones.

Table 4: List of interviews with key practitioners and senior managers

Date	Name	Position	Organisation
12 01 2010	Rosie Atkins	Curator	Chelsea Physic Garden
02 03 2010	Sara Oldfield	Secretary-General	BGCI
02 03 2010	David Rae	Curator	Royal Botanic Garden Edinburgh
04 03 2010	Simon Toomer	Director	Westonbirt Arboretum
09 03 2010	Honor Gay	Head of Learning	The Natural History Museum
11 03 2010	Professor Angela McFarlane	Director of Content and Learning	Royal Botanic Gardens, Kew

The 'Think Tank'

A key part of the research process was the bringing together of a 'think tank' of experts, practitioners and major thinkers in the areas of social exclusion, social justice and environmental justice to test the emerging research findings.

The think tank met on Monday 22 March 2010 at the Jodrell Laboratory, Royal Botanic Gardens Kew in London. Table 5 lists the participants in the discussion.

Table 5: List of the participants in the 'think tank'

Name	Organisation
Victoria Johnston	Public engagement with climate change nef (new economics foundation)
John Vincent	The Network – tackling social exclusion in libraries, museums, archives and galleries
Julia Willison	Head of Education Botanic Gardens Conservation International
Louise Allen	Curator The University of Oxford Botanic Garden
Louisa Hopper	Calouste Gulbenkian Foundation Observing
Rosie Plummer	Director National Botanic Garden of Wales
Heather Smith	Head of Access for All National Trust
Jocelyn Dodd Ceri Jones	Research Centre for Museums and Galleries Facilitating

The process was very positive for RCMG, with the think tank members finding much that was relevant and thought-provoking in the findings that were presented to them. Participants from external organisations helped to put the findings into a wider context and reflect similar concerns that are facing other organisations in terms of social inclusion and environmental issues.

2.5 Conclusion

This section described the research aims and objectives and the framework of six inter-linked themes through which the research was focused. It gave an overview of the different research methods that were used and which enabled the researchers to generate a wealth of primary data from multiple perspectives, alongside the collection of secondary data to augment and give the broader context to the research objectives. Both quantitative and qualitative methods were used to give breadth and depth.

The next section gives an overview of the botanic garden sector and the concepts that underpin this research, namely the potential for botanic gardens to engage with a broader social role in the context of the threat posed by climate change to plant biodiversity across the world. This is drawn from the desk research which fed into the literature review, and the questionnaires carried out with BGCI members.

3. Context and background: the themes of the research

This section draws on the literature review and questionnaires completed by BGCI members to present an overview of the key issues underpinning the research. These provided a backdrop to the primary research conducted with botanic gardens, helping to shape the research questions and themes.

The section starts with an overview of the Botanic Gardens sector, the size and characteristics of the sector, and the main functions they carry out, namely conservation, research and education. The unique nature of botanic gardens and what they offer to society is also considered. This is followed by an overview of the idea of a broader social role for botanic gardens, looking in particular at concepts like social exclusion and the context from which this work has emerged, for instance social policy which seeks to combat or alleviate the causes of inequity and division in society. The nature of social exclusion as a contested term is also explored.

A third key component of this section is an overview of the issues surrounding climate change and the increased focus on the detrimental impact of human beings on the environment. It explores the challenges to communicating the issues to a public when the science is contested and challenged in the media, as well as the perceived negativity of an issue which demands on so many levels a radical change in our lifestyles, economy and society. It is an issue suffused with confusing political rhetoric and increasing scepticism despite the consensus from scientists that climate change is a significant issue that we must take action on now if we are to safeguard the future of the planet, as well as our own future.

3.1 Botanic gardens: an overview of the sector

'Modern botanical gardens...are global treasures in an age of ecological crisis.' (Rinker 2002)

Botanic gardens are well placed to educate the public on conservation issues related to what is regarded as one of the biggest challenges faced by humankind, responding to and alleviating the impact of global environmental changes. These changes are believed by many scientists to be exacerbated by human activity, particularly industrialisation and the use of fossil fuels to maintain lifestyles in the developed world. Industrialisation and urbanisation in the developing world is also gathering apace. At the same time botanic gardens are looking to develop their social role. This could see them contributing to, and addressing, issues of inequality and social responsibility as institutions, putting them in a better position to influence public thinking about the need for equality and social responsibility around issues of plant conservation and climate change. BGCI are at the forefront of advocating for this change:

'Global climate change is altering the biological landscape in this century just as radically as Darwin revolutionised biological thought in his. Botanic gardens should be in the vanguard of humankind's response to this challenge' (Willison 2008:4)

This section will begin by looking at the characteristics of the botanic garden sector, before considering the unique role that botanic gardens might have in terms of their social role alongside other cultural organisations, parks and gardens. This draws on evidence from BGCI and from the literature review of available research in this area. Traditionally there has been a lack of research within the sector. Thirdly, evidence from questionnaires completed by BGCI members are analysed to examine what botanic gardens currently have to offer for their audiences and the attitudes of organisations towards the two themes identified as critical to this research: social exclusion and climate change.

3.1.1 Botanic gardens: the characteristics of the sector

There are around 2,500 botanic gardens in 148 countries worldwide (BGCI 2010b); they are often located in urban contexts (Saunders 2007). In terms of global spread, there are over 500 botanic gardens in Western Europe – with 130 of those found in UK and Ireland - 350 botanic gardens in North America, and around 200 botanic gardens in East and Southeast Asia, most of which are found in China. Most of the southern Asian botanic gardens are found in India (BGCI 2010b). It has been estimated that there are over 250 million visitors annually to public gardens globally (Ballantyne et al cited in Ward, Parker and Shackleton 2010:50). What defines botanic gardens as different from other public parks and gardens is to be found in the BGCI definition from the International Agenda for Botanic Gardens in Conservation:

‘Botanic Gardens are institutions holding documented collections of living plants for the purposes of scientific research, conservation, display and education’ (BGCI 2010b).

The critical element is the emphasis on having collections of plants for conservation, research and education reasons rather than for purely aesthetic reasons. The following criterion also illustrates some of the activities that botanic gardens undertake as institutions, although it should not be regarded as exhaustive (BGCI 2010b):

- A reasonable degree of permanence
- An underlying scientific basis for the collections
- Proper documentation of the collections, including wild origin
- Monitoring of the plants in the collections
- Adequate labelling of the plants
- Open to the public
- Communication of information to other gardens, institutions and the public
- Exchange of seed or other materials with other botanic gardens, arboreta or research institutions
- Undertaking of scientific or technical research on plants in the collections
- Maintenance of research programmes in plant taxonomy in associated herbaria.

Ward, Parker and Shackleton (2010) summarise the benefits of botanic gardens (alongside the three core functions of conservation, research and education) as providing: green and recreational space in urban areas; economic benefits from attracting tourists and visitors to a region; psychological and spiritual restoration and

wellbeing; opportunities to look at rare flora and fauna; and, in one example from the Baikal region (Siberia), 'maintaining local traditions and community identity' (50). The history of botanic gardens has seen a development from specialist ('physic') gardens supplying early medical faculties in medieval Europe, to the collection of diverse species of plants for study and exhibition in the eighteenth and nineteenth centuries, some with a civic mission to educate and inform the public. Since the 1970s, the 'general role of botanic gardens in plant conservation has been widely accepted' (Oldfield 2009:581), and today botanic gardens carry 'much of the responsibility for the genetic protection of threatened species, along with ex situ protection of plants with economic and ecological importance' (Rinker 2002). In terms of their collections, BGCI (2010b) states that botanic gardens:

- Maintain more than 4 million living plant collections
- Amongst their collections are representatives of more than 80,000 species, almost 1/3 of known vascular plant species of the world
- There are a total of 142 million herbarium specimens in botanic garden herbaria and 6.13 million accessions in their living collections.

As a sector botanic gardens are therefore seen as providing an:

'enormous and varied repository of knowledge, expertise and resources... particularly relevant to conservation, ethnobotany [the study of the relationship between people and plants] and our modern uses of plants' (Waylan 2006:6).

3.1.2 Why botanic gardens have a unique role to play in the 21st century

In a time of increasing concern about the impact of human activity upon the environment, botanic gardens are potentially well placed to inform and encourage action against the loss of the world's plants species, and the impact that this will have upon the people and animals which rely on them. It is estimated that as many as two-thirds of the world's plant species 'are in danger of extinction in nature during the course of the 21st century, threatened by population growth, deforestation, habitat loss, destructive development, over consumption of resources, the spread of alien invasive species and agricultural expansion' (BGCI 2000:1).

Through the Convention on Biological Diversity agreed in 1992 coming into force in 1996, botanic gardens have a commitment to 'promote education and awareness about plant diversity' and incorporate 'the need for its conservation' into communication, educational and public awareness programmes (Convention on Biological Diversity, undated). The role of botanic gardens as 'educators' is well established, although their contribution as informal learning environments is 'sparsely documented in the educational literature' (Saunders 2007:1210). Botanic gardens are increasingly presenting the view that plant diversity and the world's ecosystems are under threat from the actions of humans, with displays addressing habitat destruction or global climate change, for instance at the New York Botanical Garden and the Royal Botanic Gardens, Kew (Ryken 2009:12). Botanic gardens are therefore regarded as ideal places to encourage exploration of the relationship of nature to culture:

'by their physical framing of the plant collections, botanic gardens can act as a metaphor for the complex relationships that humanity has with the environment' (Saunders 2007:1213).

The informal atmosphere of many botanic gardens and their relaxing, aesthetic environments are also seen by Ballantyne, Packer and Hughes (2007) as effective contexts in which to present to visitors:

'the interrelationships among plants, animals and humans and to explain how the different components are inextricably linked and interdependent' (440).

Botanic gardens bring people into direct contact with the natural world and demonstrate how the natural world benefits us. There are many ways in which contact with the natural world benefits humans as a species. Significantly, we rely on plants as a 'vital part of the world's natural heritage and an essential resource for the planet... [and] a vital component of global sustainability' (BGCI 2000). Plants supply us with food, fibres, fuel, clothing, shelter and medicine. Plants are fundamental components of any eco-system. For instance trees:

'contribute to the sequestration of anthropogenic carbon dioxide and provide other eco-system functions, such as soil stabilisation and regulation of surface run-off' (Oldfield 2009:581).

In the West there is the opinion that our loss of contact with nature through industrialisation and urbanisation has been an important contributor to the potentially catastrophic impact that humans are having on the environment:

'In many ways human beings have successively detached themselves from the natural world both physically and intellectually' (Sandell, Öhman and Östman 2003:234).

It is also an issue of social justice; the developing world is already facing far more calamitous impacts as a result of climate change including the loss of important habitats upon which many of the world's poorest people rely directly on for their food, shelter, fuel and livelihoods (Waylen 2006a). Without close contact with nature many people have a limited understanding about how human beings are part of the environment; we relate to it more as 'consumers'. Such reductionist ways of looking at the world have confused our relationship with the natural environment. As Willison (undated) points out, most people:

'are divorced from natural systems and food production. Our food comes straight from the supermarkets, our cities are full of concrete, most of our working lives are indoors and most of our interactions take place with human-made artefacts... Any 'nature' we interact with is tamed within gardens and parks' (2).

More people than ever before in developed - and increasingly in developing countries - are living in cities. Whilst urbanisation has many positive impacts such as increased access to services, opportunities for economic growth and improved quality of life, this is not spread equally to all inhabitants. There are also implications for the environment including 'land-use change, pollution, loss of habitat and

biodiversity, population change and increasing resource demands' (Ward, Parker and Shackleton 2010:49). Green space is often limited or under threat from development.

The connection between human well-being and biodiversity is increasingly understood by Botanic Gardens. Parks and gardens have a long tradition of being regarded as healthy spaces for leisure and recreation, promoting a wide range of benefits (Jones and Wills 2005). Along with other public, green spaces, as noted earlier, botanic gardens are well placed to provide safe environments where people can come into contact with the natural world; a visit to a botanic garden for instance can help children:

'to tune into plants, to find out what makes them tick and the vital part they play in maintaining the planet for all species' (Parker and Preston 2002:2).

The benefits are thought to increase when individuals take part in physical activities such as gardening, which, as Hatherly (2006) describes:

'can be done by people of all ages, backgrounds, social status, interest levels and abilities. The rewards and sense of achievement are instant (there's the satisfaction of successfully planting something) and ongoing (watching it grow and/or produce fruit)' (3).

BGCI has adopted the term 'human wellbeing' to describe the 'many aspects of human welfare that must be fulfilled in order to reduce poverty and improve lives' (Waylen 2006b:4) and to describe the contribution that botanic gardens can make to that agenda. Willison (undated) considers that some botanic gardens have embraced their role in the development of social capital, which is critical if people are to work together to meet the challenges of biodiversity conservation posed by climate change:

'[Botanic gardens] consider the development of social human relationships as critical to resolving environmental problems and are designing programmes that enable disparate social and cultural groups to meet and examine their relationships with plants and with each other' (1).

This is often through the provision of 'community programs and courses on topics such as propagation, weed control and plant adaptations' (Ballantyne, Packer and Hughes 2008:440). Botanic gardens are involved in research to improve human health care, such as the Natal National Botanic Garden in South Africa, which is involved in a project to provide free healthcare support to people with AIDS. Horticultural therapy – the use of gardening activities, plants and horticultural techniques as psychological and physical therapy - is also increasingly recognised as a useful tool for therapists. Many botanic gardens are involved in projects that help to improve nutrition, through enabling communities to grow their own food in sustainable ways, particularly for the rural and urban poor, for example Chicago Botanic Garden's Green Youth Farm (BGCI 2006). The effective management of natural resources can help to alleviate poverty through supporting livelihoods, educating and empowering communities to use plants (often from botanic gardens) that can be made into products that can then be sold. Many of the projects that botanic gardens are involved in can also help to provide political

empowerment for those who are voiceless, improve social networks and community cohesion, reduce vulnerability and contribute to the combating of social problems (Waylan 2006a).

In her summary of the 'uniqueness' of botanic gardens Willison (2001) reflects and develops the evidence presented above, the key theme being that botanic gardens are ideally placed to demonstrate to the public the importance of the plant / human relationship and the critical need to protect that relationship as it comes under threat from the long built up effects of urbanisation, industrialisation and human-induced climate change:

- Botanic gardens tend to be situated in urban areas making them accessible to large numbers of people. As we move further into the 21st century, their sites are set to become increasingly more precious and important due to the growing numbers of people migrating into urban areas from rural landscapes.
- Botanic gardens have diverse collections of plants and plant artefacts. This puts them in a unique position to demonstrate:
 - The incredible diversity of the plant kingdom, locally as well as nationally and internationally.
 - The interaction of plants in ecosystems, their relationships and how they provide life support functions for a whole range of species, including humans.
 - The global linkages and interdependencies that exist and the importance of plants in our lives economically, culturally and aesthetically.
 - The links between plants and local and indigenous peoples.
 - The major threats that face the world's flora and the consequences of plant extinctions.
- Botanic gardens contain extensive botanical and ethno-botanical knowledge. This knowledge is crucial in enabling the public to make better informed decisions about their environment.
- Botanic gardens are actively involved in plant conservation and offer the public opportunities to see conservation in action. This is important if people are to connect with nature on a personal level.
- Botanic gardens have extensive botanical and horticultural expertise. This can be used to help and empower people to green up their local communities, set up community gardens and become more self-sufficient.

This section has largely drawn upon evidence from BGCI and academic research to present the unique role that botanic gardens have to play in helping human beings to face the coming challenges of the 21st century. The next section will present evidence from the perspective of 38 botanic gardens in the garden who responded to our request to complete a questionnaire about the social role of botanic gardens.

3.1.3 The social role of botanic gardens: evidence from the questionnaires

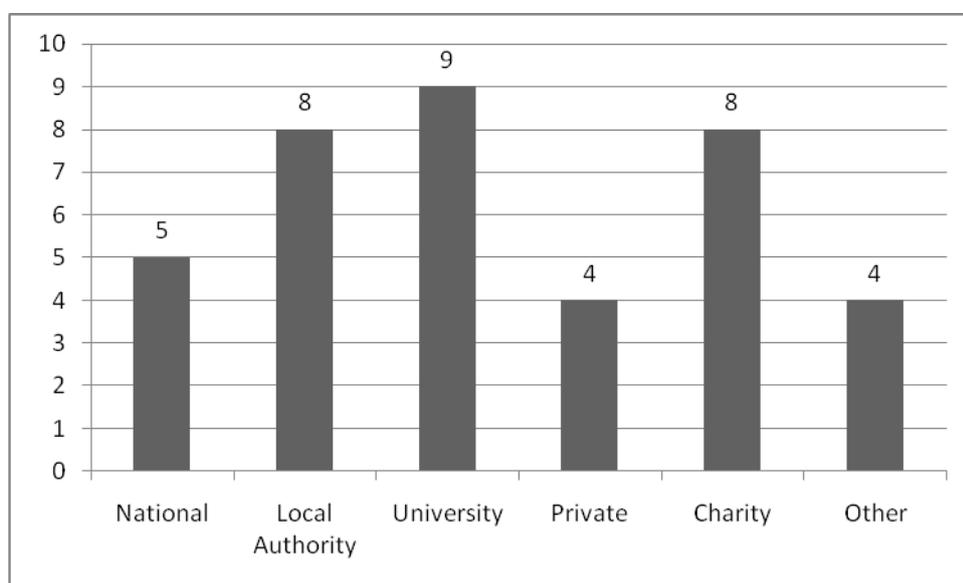
The questionnaires completed by BGCI members give an overview of what botanic gardens offer in the way of amenities and facilities to their audiences. This overview also sheds some light on the attitudes of organisations towards social exclusion and climate change. The information is presented with the caveat that the sample size is relatively small, 38 botanic gardens in total, and therefore represents only a selection

of botanic gardens in the UK. Used in conjunction with the evidence provided from elsewhere (interviews, case studies), its value lies in the breadth it gives across the sector as a start to considering the importance of these issues (social role, environmental role) to botanic gardens.

The governance of botanic gardens

The questionnaire asked botanic gardens to give details of their governance. There was a spread across the types of governance of botanic gardens who responded to the questionnaire including 9 botanic gardens which are part of Universities, 8 run by local authorities and a further 8 run as charities. Smaller numbers of national (5) and private gardens responded (4). In discussion with Julia Willison of BGCI it was agreed that this was fairly representative of the sector as a whole.

Figure 1: The governance of Botanic gardens, self-completion questionnaire



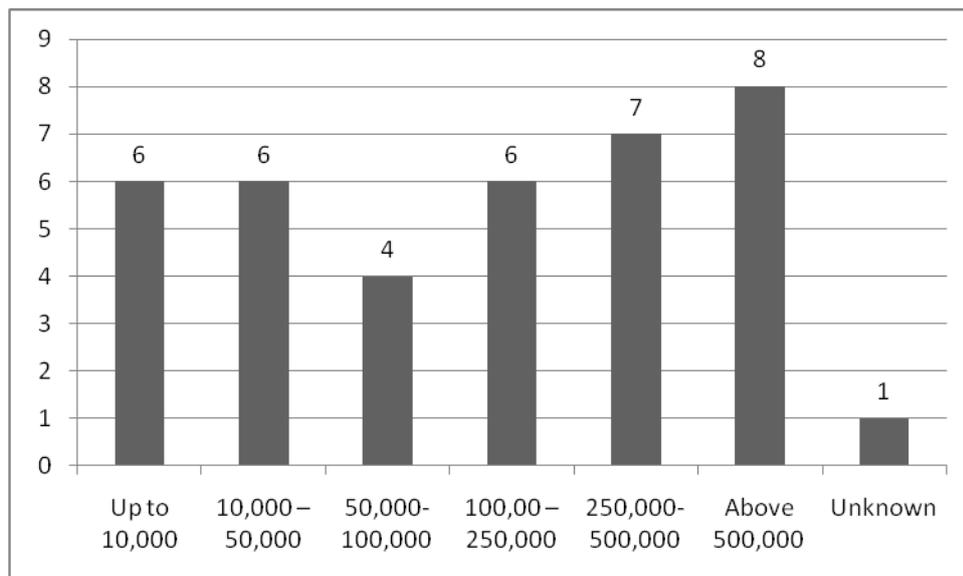
N=38

Number of visitors per annum

Botanic gardens were asked to provide an estimation of their visitor figures per annum. With the exception of one garden, all respondents were able to give an estimated figure as chosen from a pre-supplied list. Twenty-two out of the 38 gardens which responded to the questionnaire had numbers of visitors ranging from 10,000 to 250,000, although the highest single group of gardens (8 respondents) reported visitor figures of over 500,000.

In discussion with Julia Willison of BGCI it was agreed that this was fairly representative of the sector as a whole, although there were more botanic gardens than might be expected with visitor numbers above 250,000. This may be connected to the types of gardens which elected to complete the questionnaire.

Figure 2: Number of visitors per annum, self-completion questionnaire

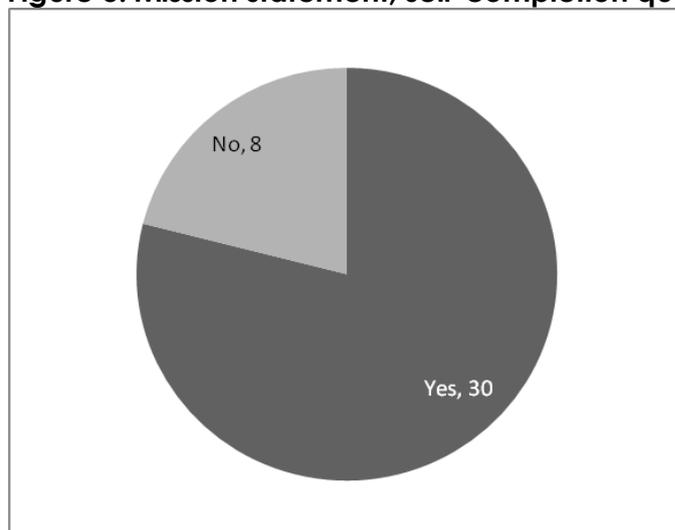


N=38

Mission statement

Botanic gardens were asked if they had a mission statement. Thirty of the 38 botanic gardens which responded to the questionnaire did have a mission statement; the remaining 8 which did not were able to give the values or 'vision' which described their key roles as an organisation.

Figure 3: Mission statement, self-completion questionnaire



N=38

Common themes from the mission statements given by botanic gardens include the need to conserve plants, promote biodiversity and provide education and awareness to visitors of the significance of their collections and plants more generally. Sir Harold Hillier Garden for example has a mission statement that encompasses all these elements:

'a) the conservation, protection and improvement of the collection of plant species of the temperate world for the public benefit by the cultivation and maintenance of such plants; b) the education of the public about the cultivation, preservation, propagation and conservation of such plants and their impact upon biodiversity and the conservation of the physical and natural environment'.

At least two of the botanic gardens have missions that have a social element in the values that are espoused. The Eden Project for instance connects their activities to a clearly defined social goal:

'To promote the understanding and responsible management of the vital relationship between plants, people and resources leading to a sustainable future for all'

Less detailed but in a similar vein, Royal Botanic Garden Edinburgh works to 'explore and explain the world of plants for a better future'. Two gardens owned by the Forestry Commission – Bedgebury and Westonbirt National Arboretum – also have more socially relevant missions to 'connect people with trees to improve their quality of life'. These mission statements focus more on the impact the organisation hopes to have on people (society), as opposed to mission statements like those of the University of Leicester Botanic Garden which have more of an emphasis on plant diversity, conservation and research:

'To explore and explain the world of plants by:

- Maintaining the most diverse garden in the region
- Underpinning biological research
- Providing material support to University teaching
- Devising and providing formal education programmes for all age groups outside the University'.

Not all of the mission statements given by organisations were focused on their core business. Some reported a mission that was relevant to the wider organisation such as the University or local authority. The University of Reading Botanic Garden for instance reports the University mission statement of 'We are one of the UK's leading research intensive universities' and Bradford takes the mission of the local authority:

'To work with our partners and communities to improve the quality of life for all residents and make the district one to be proud of. To provide a high quality service and be among the best performing councils in the country'.

Whilst these state important and useful aims, such missions do not always locate the activities of the botanic garden specifically to a purpose or goal. However missions such as that for Sunderland Museum and Winter Garden have a distinct social aim:

'Our mission is to help people determine their place in the world and define their identities, so enhancing their self-respect and respect for others'.

For those gardens which did not specifically have a mission statement, very similar themes appeared in the key roles that they described to us. For instance, National

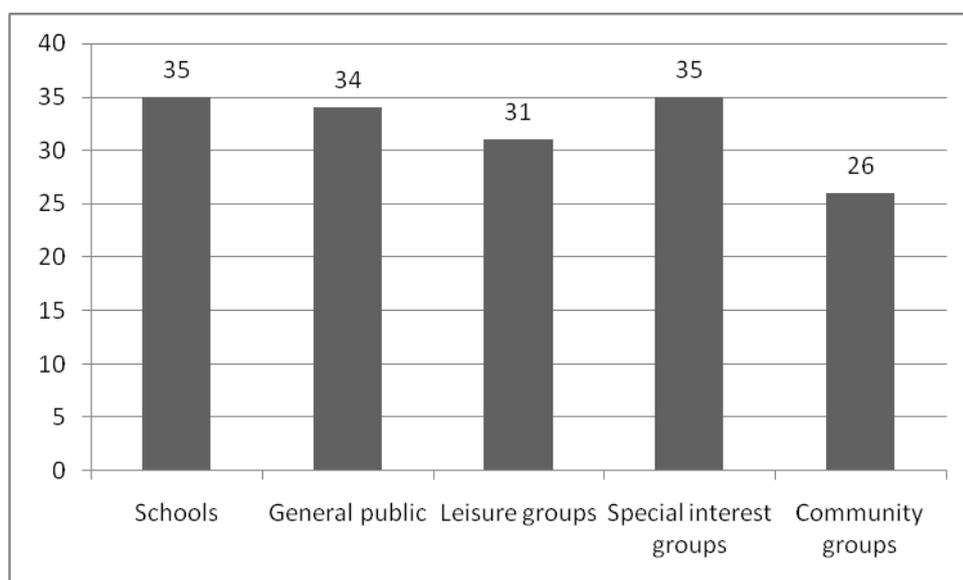
Botanic Garden of Wales encompasses conservation, education and research as their key roles:

'NBGW is dedicated to the research and conservation of biodiversity: to sustainability, life long learning and the enjoyment of the visitors. Vision: Conservation, Education, Inspiration.'

Types of events offered by botanic gardens

Respondents to the questionnaire were asked to indicate the types of events that they offered to selected types of groups from a tick-box list. School groups and special interest groups are very well catered for, with 35 of the 38 respondents offering events to these groups. Events for the general public (34 respondents) and leisure groups (31 respondents) are also very high. Still very high but not as well catered for by the botanic gardens in our sample are community groups, with 26 of the 38 respondents providing events for these kinds of groups.

Figure 4: Types of events offered, self-completion questionnaire



N=38

From the questionnaires comes a range of events and groups that are catered for by botanic gardens. These vary from events that are aimed at the public generally to those targeted at specific groups. Events can also be classified in numerous ways to ones which are for entertainment or recreation purposes, formal or informal education programmes and where botanic gardens are working with communities or excluded groups. Taken as a group, botanic gardens appear to be working with a variety of groups as evidenced by the returned questionnaires (Table 6).

Table 6: Groups botanic gardens provide events for, self completion questionnaire

Entertainment, recreation, leisure purposes	Gardening groups Weddings and other special occasions Britain in Bloom Guided tours National Garden Scheme (NGS)
Formal or informal education / learning purposes	Art classes Photographic groups Short courses for adults
Events targeted at specific groups	Residential care homes / OAPs Refugees and asylum seekers Disabled groups including mental health groups Women's Institute Probus Clubs Food Bank Young Offenders Homeless people Recovering drug addicts Neighbourhood Awards (working with local communities) BME groups e.g. Chinese, Afro-Caribbean Schools in disadvantaged areas
Friends groups and volunteers	Friends groups Conservation volunteers

However, only 5 botanic gardens from the 38 that responded to the questionnaire were working with a diverse range of groups. These were:

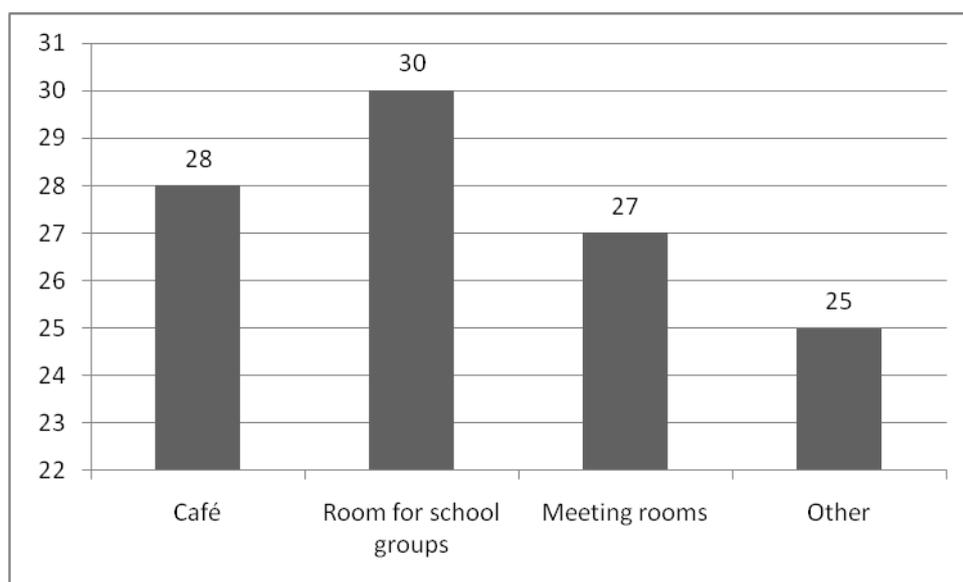
- National Botanic Garden Wales - Communities - First Area groups from across South Wales, WIs, Black Environment Network, Gateway Groups, and pupils at risk of exclusion.
- Royal Botanic Garden Edinburgh - Specific community projects have targeted for example, the elderly Chinese community in Edinburgh, schools in disadvantaged wards.
- Sunderland Museum and Winter Gardens - Refugee and asylum seeker groups. BME groups. Friends groups. Summer schools. Cub scouts etc.
- The University of Oxford Botanic Garden - Oxford Food Bank; Local Young Offenders; Night Shelter; Civic Society; NGS (National Garden Scheme) Openers; Lord Mayors Picnic.
- Westonbirt Arboretum - Our aim is to offer as wide a service as possible given our resources. Where possible we often seek to work in partnership to widen our audience base as becoming more inclusive is a goal for us as an organisation. For example, recently worked with Wiltshire Wildlife Trust on project to engage interfaith / Afro-Caribbean groups. Arts-based project with local artist and Nelson House a local charity working with recovering addicts.

Facilities offered by botanic gardens

The most common facilities offered by respondents to visitors were rooms for school groups (30 respondents), café (28 respondents) and meeting rooms (27

respondents). Twenty-five botanic gardens mentioned other facilities and amenities they have on site for visitors; examples include Bath and North East Somerset gardens which offer a 'new Interpretation and Education Centre which has state of the art IT facilities' for the use of groups and visitors. The Eden Project describes itself as 'a living centre for experimentation in education' for which the 'biomes and whole site are a crucial element to this'. Kew Gardens mentions its Millennium Seed Bank Building, which is 'designed so that the public can see scientists at work when they visit.' The Royal Botanic Garden Edinburgh also has a 'Real Life Science Studio where visitors can engage directly with scientific and horticultural staff'.

Figure 5: Types of facilities offered, self-completion questionnaire



N=38

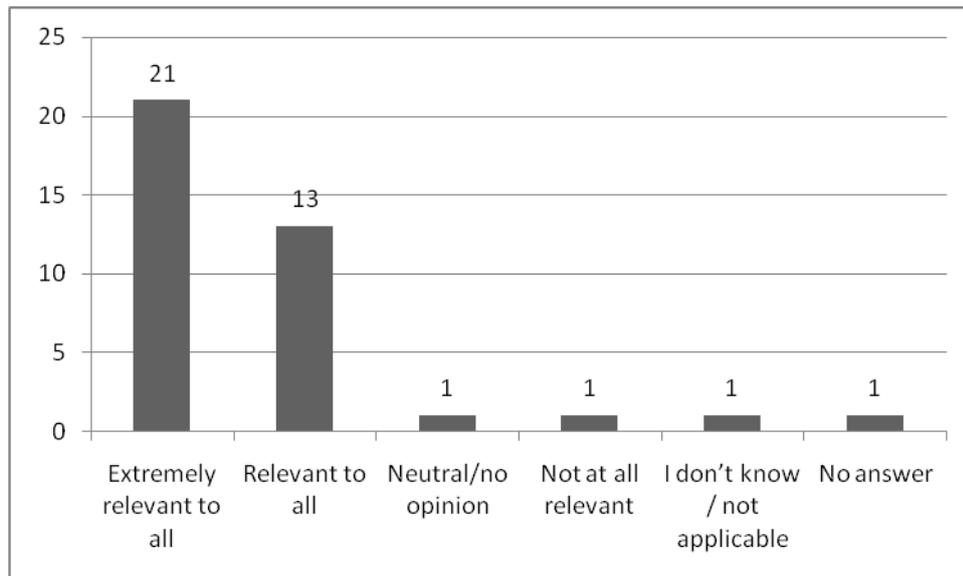
Hard to reach groups

We asked botanic gardens to respond to the question:

'In your opinion, are botanic gardens relevant to the whole of society including those who are under-represented in the current visitor profile of botanic gardens, for example lower social economic groups (C2, D, E), Black and Asian communities, disabled people etc?'

The answer was overwhelmingly yes. Twenty-one of the 38 respondents agreed that botanic gardens are 'extremely relevant to all' and a further 13 agreed that they are 'relevant to all'. Only one respondent felt that it was 'not at all relevant' to their botanic garden and was explicitly hostile to the idea that organisations should work towards encouraging 'hard to reach' audiences to visit.

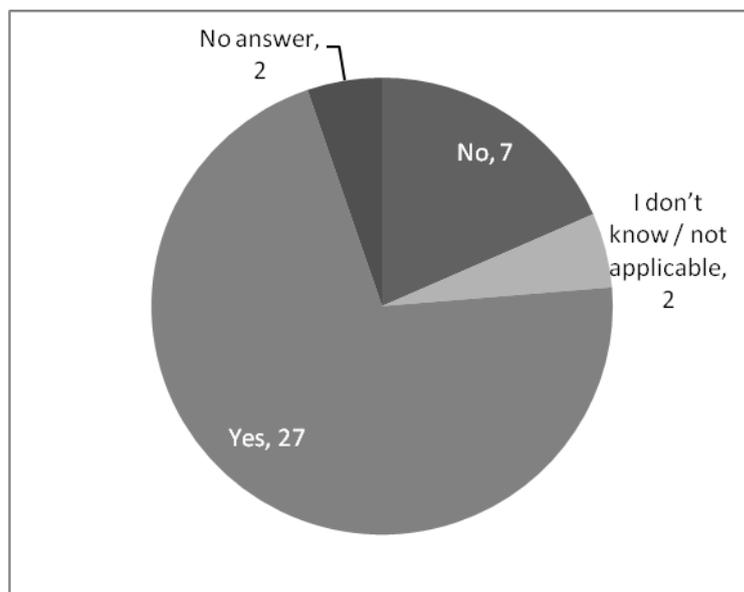
Figure 6: Botanic gardens are relevant to all, self-completion questionnaire



N=38

As a follow on question, botanic gardens were asked if they work with hard-to-reach groups who do not normally visit botanic gardens. They were asked to give examples of these groups where applicable. Three quarters of the botanic gardens who answered the questionnaire (27 of 38 respondents) said that they did work with 'hard to reach' groups.

Figure 7: Working with hard to reach groups, self-completion questionnaire



N=38

In the main this tended to mean working with disabled people and 12 botanic gardens reported working with disabled groups or providing job or volunteer

opportunities for disabled people and/or young people with special needs. Other hard-to-reach groups that botanic gardens specifically mentioned included:

- Mental Health groups
- Asylum seekers
- Single mothers
- Schools and communities from disadvantaged areas
- Young Offenders
- Homeless people
- Former drug addicts
- Prisoners
- Teenagers and young adults
- Minority ethnic communities.

Some botanic gardens mentioned that whilst they were not currently working with hard to reach groups it was an area of their work that they wanted to develop in the future.

'Currently looking at ways to reach hard-to-reach groups' - Sir Harold Hillier

'We have done some events and offered tours specifically for hard to reach groups... More focussed events are being planned in this area in the future' - University of Bristol Botanic Garden

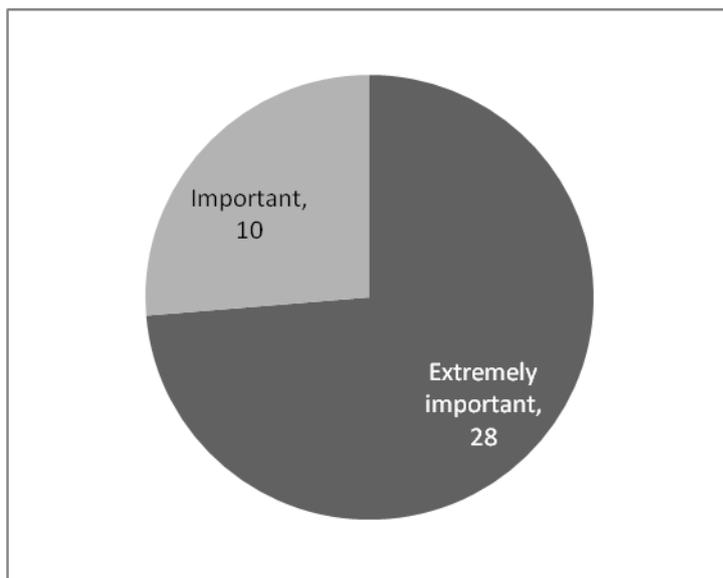
'We are beginning to now. NBGW until recently in Wales was perceived as too 'high brow' by many but we have been and are continuing to link much more with hard to reach groups' – National Botanic Garden of Wales

It can be surmised from the questionnaires that across the sector botanic gardens are working with a range of hard-to-reach groups – however looking at sites individually provision is patchy with some sites tending to be very focused on working with such groups whilst others are not engaging with the issue.

The relevance of climate change

Climate change and global warming were presented in the questionnaire as 'key issues in the twentieth-first century.' Botanic gardens were asked how important the issues of climate change and global warming are to their organisations. There was unanimous support for the statement that climate change and global warming are hugely relevant issues with almost three-quarters of botanic gardens (28 out of 38 respondents) stating they were 'extremely important' and the remaining 10 gardens stating they were 'important' issues.

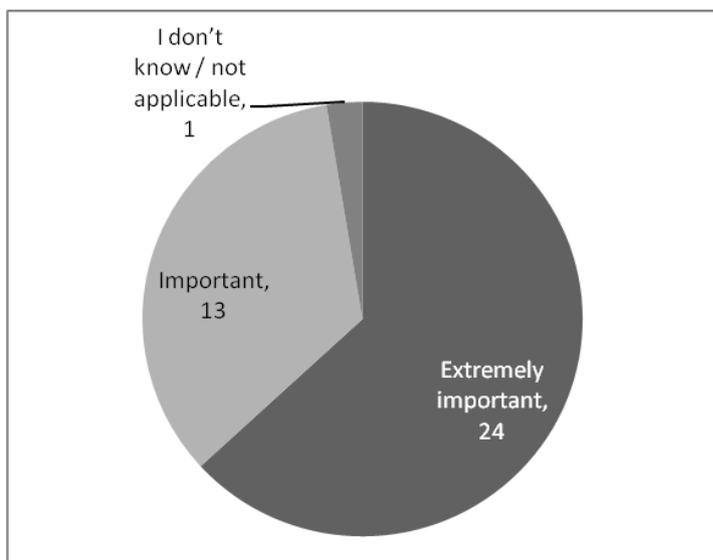
Figure 8: Relevance of climate change, self-completion questionnaire



N=38

A related question asked botanic gardens how important it is to educate the wider public about issues of climate change and global warming. Almost all the respondents agreed that it was 'extremely important' or 'important' (37 out of 38 respondents) to educate the public about issues to do with climate change. Only one respondent was less certain and ticked the 'I don't know / not applicable' box.

Figure 9: Importance of educating the wider public, self-completion questionnaire



N=38

Conclusion

On the basis of the information taken from the questionnaires returned to us by 38 botanic gardens (and taking into account that the organisations that responded

are the 'more keen' ones towards issues of social inclusion) botanic gardens as a group are making steps towards working with hard to reach groups and being more accessible. All gardens, with one exception, stated that botanic gardens were relevant to all people in society including hard to reach groups and most gardens were actively working with groups that they defined as hard to reach. However provision was patchy with some organisations being very far forward in this regard and others only starting to develop work in this area. A few gardens cited lack of resources as a reason for not doing more (if they gave a reason).

Having given an overview of the characteristics of the botanic garden sector and the unique role that BGCI and researchers in the field consider that botanic gardens have to play as we go into the 21st century, we have also looked at evidence from 38 UK botanic gardens which suggests that botanic gardens do have a social role to play and some are making steps towards being socially inclusive and working with hard-to-reach groups. On the basis of the questionnaires, some are further forward than others. Before we look in greater depth at the findings from the research, this section will give an overview of the two key issues that botanic gardens have the potential to contribute to; social justice and sustainability. The material is drawn from the literature review and represents a summary of the key ideas developed as part of that review.

3.2 Social justice and sustainability: important issues for the 21st century

As we begin the second decade of the 21st century, the general mood in the UK is one of caution and uncertainty following global economic collapse and recession. Commentators such as King (2010) writing in *The Independent* are talking about the need for 'a new age of austerity'. At the same time it is becoming increasingly difficult to ignore the evidence which suggests that the impact of human activity on the environment is reaching critical levels. Throughout history, human beings have played a role in both the conservation and degradation of the environment, transforming it through our many activities including farming, transport, settlements, tourism, industry, mining and waste management (Blowers 2003). Whilst there has been a long tradition of concern about the impact of humans on the environment (Ryken 2009), the concern has become far more urgent over the latter part of the twentieth century and into the twenty-first. Organisations such as new economics foundation (nef) suggest that new forms of society based on a 'high degree of social solidarity [are] needed to tackle the profound economic and environmental crises that confront us all today' (Coote and Franklin 2009). Across the world there are calls for more fair and equitable societies, where everyone is included, and 'all people feel valued, their differences are respected, and their basic needs are met so they can live in dignity' (Planning Institute of Australia, 2009).

As evidenced by the questionnaires completed by UK BGCI members, botanic gardens recognise that being socially inclusive and educating the public about climate change are important issues to their organisations. The impact of human activity does not only have an impact on human life but on non-human life as well. As many as 60,000-100,000 plant species are threatened by the combined effects of 'over-collecting, unsustainable agriculture and forestry practices, urbanisation, pollution, land use changes, and the spread of invasive alien species and climate change' (Convention on Biological Diversity undated:1). Humans depend on plants

for a number of diverse needs including food, fuel, medicine and shelter, and 'around 350 million of the world's poorest people directly depend on forests for all their basic needs, and about 2000 million for cooking and fuel wood' (Waylan 2006:4). It is increasingly recognised therefore that changes to current lifestyles are critical, not only to prevent the further degradation of the environment but to prevent the further loss of species that are essential to our survival and wellbeing. As suggested in section 3.1.2, botanic gardens are well placed to communicate these issues to the public and even inspire them to take action. Before we examine the findings from our research which helps us to answer the question of how botanic gardens can, and are, meeting social needs and communicating the impact of climate change, an overview of the key issues to this research are given below. It begins with an overview of social exclusion as a concept, where it emerged from and how it has been approached by governments and organisations in the UK and globally. This is followed by an overview of the key themes around climate change and the challenges to communicating the issues to the public. These are important ideas for botanic gardens to take into consideration if they are to make the most of their social role.

3.2.1 The socially responsible organisation: social inclusion, social justice and social role

Increasingly, the need to meet the challenges of the 21st century has been linked to questions of social justice and equity. In the UK, despite sixty years of relative peace and prosperity, successive governments and the welfare state have not 'managed to narrow inequalities of income or health or to strengthen social solidarity' (Coote and Franklin 2009:4). Society is regarded as increasingly polarized between the poor and the affluent, with far less social mobility than previous decades. 'Exclusion' can be seen as a growing concern in (post) industrial societies, with disadvantaged groups potentially being more affected by global changes or less able to effect any changes to their lifestyles. Examining their audiences and contributing to debates on social inclusion is vital if botanic gardens are to reach the widest possible audiences with their message and be socially responsible.

Social goals and social action are increasingly framed and driven by a number of concepts which are at once understandable but also ambiguous and used in a number of different ways and contexts. There is currently, therefore, much debate over the meaning of terms like social exclusion, inclusion and cohesion and how they should be applied. For instance, there is much criticism from academics in various disciplines at the way in which the government has used concepts such as social inclusion to tailor their social policies:

'Social cohesion, social inclusion and social sustainability are notions of this order that project their vague but inherently positive aura to other notions and concepts like social capital, solidarity, tolerance, governance, networks, third sector, civil society, participation, etc., which they tend to redefine as means towards new ends' (Maloutas and Malouta 2004:449)

In its early stages, this research began by looking at the role that botanic gardens can play in combating social exclusion. The researchers have come to prefer the term 'social role' because it has less of the baggage that has become attached to 'social exclusion' and the criticism that has been made of how the UK government

has come to use the term. However, we begin by looking at 'social exclusion' as a concept, how it has been used, challenged and contested, and the alternatives that are increasingly used in political dialogue and policy.

Social exclusion: an overview

'Social exclusion' is variously described and seems to be used interchangeably with other concepts in the mass of literature available from academics, government policy, the EU and international organisations like the World Health Organisation (WHO). It is a flexible concept that has also changed over time. Drawing on this literature, the following core concepts can be identified which are attached to the term 'social exclusion' but which are by no means used in all contexts:

- Exclusion is a social problem but the reality is the lived experience of individuals
- It is linked to poverty but is more than material deprivation
- Social exclusion is not felt uniformly across society and some groups are seen at greater risk of exclusion than others
- It has a series of interlinked dimensions that create a 'vicious' cycle of exclusion from mainstream society through which inequality is perpetuated
- Excluded individuals are unable to contribute to society
- It is a long-term process that can pass down generations
- It is a dynamic process, as well as a condition, that people can fall in and out of depending on their life circumstances.

Social exclusion is often used as a 'relational' concept where the excluded are contrasted with the rest of society, however it is also complex in that although some groups are identified at risk of exclusion, not all individuals in that group will be excluded (Percy-Smith 2000b). The Social Exclusion Unit has however tended to direct its policies at specific groups in society including the unemployed, young people 'not in education, employment or training' (NEETs) and young single mothers. Levitas (2005) cautions that we should also distinguish between the structural and cultural arguments for social exclusion; structural reasons would include the economy, method of income distribution and education system. Cultural reasons may include upbringing, educational experience, lack of role models and low aspirations. Byrne (2005) contends that social exclusion does not identify fixed or stable groups in society, instead people may move in and out of exclusion over the course of their lives. It is therefore more properly a dynamic category rather than 'a label to be applied to particular individuals or households' (81).

Social exclusion has been applied broadly to UK society through government policy; however it emerged from a very specific context. It first appeared in French social policy in the 1980s, referring to 'a disparate group of people living on the margins of society and, in particular, without access to the system of social insurance' (Percy-Smith, 2000:1). In the UK, social exclusion has tended to be linked with poverty, for instance Townsend's *Poverty in the United Kingdom* (1979) was one of the first studies to suggest that poverty was more than material deprivation because it prevents individuals from taking part in the life of society (Levitas 2004). Alongside poverty are

a number of associated barriers which may cause individuals, groups or communities to be excluded from society, for instance:

'low income, poor health, inadequate housing, lack of education and training, difficulties reaching services and no involvement in decisions which affect [an individual's] future' (The Countryside Agency 2000:5).

Barriers are recognised as being both physical and tangible, or intangible, such as cultural attitudes and values. People may be at risk from exclusion if they are attached to a group which is perceived to not 'accept' the values, norms and lifestyles of the majority population (Percy-Smith 2000). Some commentators and researchers emphasise that barriers are not the 'fault' of those who are excluded but are put in place by society, by institutions both public and private. Social exclusion is also relevant to rural as well as urban contexts, although rural exclusion can be very difficult to identify and necessitates different approaches from urban exclusion (The Countryside Agency 2000).

Since Townsend's original twelve dimensions of poverty - which included food, clothing, health, education and recreation (Whelan and Whelan 1995) – many researchers and academics have sought to encapsulate the experience of social exclusion as a model. For example Percy-Smith (2000:9) suggested that there are seven dimensions of exclusion based on work done by Leeds Metropolitan University (Table 7). This categorises the myriad ways in which individuals and groups may be excluded into seven broad areas.

Table 7: The seven dimensions of social exclusion

Dimension	Indicators
Economic	Long-term unemployment 'Casualization' and job insecurity Workless households Income poverty
Social	Breakdown of traditional households Unwanted teenage pregnancies Homelessness Crime Disaffected youth
Political	Disempowerment Lack of political rights Low registration of voters Low voter turnout Low levels of community activity Alienation / lack of confidence in political processes Social disturbance / disorder
Neighbourhood	Environmental degradation Decaying housing stock Withdrawal of local services Collapse of support networks
Individual	Mental and physical ill health Educational under-achievement Low skills Loss of self-esteem, confidence

Dimension	Indicators
Spatial	Concentration and marginalisation of vulnerable groups
Group	Concentration of above characteristics in particular groups: elderly. Disabled, ethnic minorities

Social exclusion: a global issue

It can be argued that the core emphasis of 'social exclusion' – to ensure a fair and equitable society for all, including those on the margins of society - has become an important issue and key policy priority on a national, European and international level. It has been a key part of UK government policy since 1997, when the New Labour government charged the newly formed Social Exclusion Unit (now the Social Exclusion Task Force) with combating social exclusion and breaking the 'cycle' of disadvantage by directing funding more effectively through policies of prevention as well as cure, for instance through addressing low educational standards and expectations and getting people on welfare back into work (Levitas 2005). Over time the Government has refined its concept of social exclusion and it has become much more sophisticated in its understanding that the issues that cause social exclusion cannot be resolved 'overnight' and, indeed, have long-term consequences:

'Social exclusion is a short-hand term for what can happen when people or areas have a combination of problems, such as unemployment, discrimination, poor skills, low incomes, poor housing, high crime and family breakdown. These problems are linked and mutually reinforcing. Social exclusion is an extreme consequence of what happens when people do not get a fair deal throughout their lives and find themselves in difficult situations. This pattern of disadvantage can be transmitted from one generation to the next' (Social Exclusion Task Force 2009).

This understanding has perhaps been in response to much criticism of the perceived failure of government policy to significantly reduce inequality and poverty whilst New Labour has been in power. Whilst there has been some success in the combating of social exclusion in the late 1990s and early years of the 21st century, in more recent years progress has steadied or even declined (Palmer, MacInnes and Kenway 2008:10). Scotland, Wales and Northern Ireland have also adopted anti-poverty and social inclusion strategies, although like in England progress has been patchy and evidence of impact has not always been robust (for instance see Winckler 2009).

At a European level the concept of 'social exclusion' has been incorporated into the practices and research of the EU and on an international level has been research carried out by the World Health Organisation (WHO). The EU embraced the concept of social exclusion, using it as the basis for developing a European social policy 'linking economic growth and competitiveness... to social solidarity through freedom from poverty and equal access to jobs' (Harloe 2001:892). Work by WHO has also made the link between social exclusion and poor health chances, highlighting categorically that:

'Poverty and social exclusion increase the risks of divorce and separation, disability, illness, addiction and social isolation and vice versa, forming vicious

circles that deepen the predicament people face'. (Wilkinson and Marmot 2003: 16-17)

It can also be linked to work done by the United Nations (UN) to eliminate global poverty and inequality. For instance the Millennium Development Goals agreed upon in 2000 set targets for the world nations to meet by 2015. These goals include ending poverty and hunger, promoting gender equality, and ensuring environmental sustainability (UN 2010).

Social exclusion: a contested concept

Social exclusion has been criticised as a concept and the way in which it has been interpreted by the UK Government. Paugam (1996) perceived there was a lack of understanding about the causes of exclusion, and often there was a false dichotomy established between the 'excluded' and 'included' in society, where the excluded were seen as being 'outside' society when the reality may be more complex. Portraying the excluded as groups separate from society 'is in itself an obstacle to the fight against social exclusion' (Paugam 1995:71). Levitas (2005) also criticised the UK Government's approach to exclusion and targeting of specific groups, suggesting that it promotes a view that exclusion is a 'peripheral problem at the margins of society' (7) and neglects the inequalities and differences between those who are described as included. Although some people may be arguing that 'social exclusion' as a policy priority has 'had its day', the EU has declared 2010 as the European Year for Combating Poverty and Social Exclusion (Department for Work and Pensions 2009).

Alternatives to social exclusion: social cohesion and social justice

What other terms might be considered rather than social exclusion? 'Social cohesion' and 'community cohesion' have been suggested as alternatives to suggest what an inclusive community might look like, however there are commentators who see 'community cohesion' primarily as a way of dealing with faith and race issues (for instance see Institute of Community Cohesion 2009; Number10.gov.uk 2007); and some who have seen the notion as flawed from the start (Burnett).

Social justice is another term that has been extended from its original premise. Closely related to the work of John Rawls - his *Theory of Justice* (1972) sets out the theory of justice as related to fairness; 'the hope for social institutions that do not confer morally arbitrary lifelong advantages on some persons at the expense of others' (Honderich 2005:786) - more recently, theorists have developed Rawls' ideas to take into account the rise in identity politics, namely the concern for recognition and esteem of difference and equity of participation in social and political life. Thus, social justice is 'also about recognition and authenticity of identity and equity in participation' (Gamarnikow and Green 2003:210). Fainstein (2001) follows Martha Nussbaum in suggesting 'it extends to the ability of people to lead meaningful lives' (885-886). As well as being concerned for the absence of exploitation, economic marginalization and deprivation experienced by individuals in society, social justice is also concerned for the distribution of cultural and social resources (Cribb and Gewirtz 2003). For instance the Scottish Museums Council (2002) drew upon Article 27 of the Universal Declaration of Human Rights to convey their belief that:

'Insofar as access to cultural heritage is a matter of rights and citizenship rather than a privilege, then the imperative for museums and art galleries to be socially inclusive is a matter of justice rather than welfare' (2).

Whilst the term 'social justice' has been core to centre-left politics for some considerable time, it came to the fore in terms of current social policy as a result of the inquiry by and final report from the Commission on Social Justice (1994:10). In their book on social justice, the think-tank, ippr, talked about the four principles of social justice, which they identified as being (Miller 2005:5):

- Equal citizenship
- The social minimum – 'All citizens must have access to resources that adequately meet their essential needs, and allow them to lead a secure and dignified life in today's society.'
- Equality of opportunity
- Fair distribution – of 'Resources that do not form part of equal citizenship or the social minimum'.

In 2009, an assessment of social justice policy developed the following definition of social justice (Craig 2009: 236):

'a framework of political objectives, pursued through social, economic, environmental and political policies, based on an acceptance of difference and diversity, and informed by values concerned with:

- achieving fairness, equality of outcomes and treatment;
- recognising the dignity and equal worth and encouraging the self-esteem of all;
- the meeting of basic needs, defined through cross-cultural consensus;
- reducing substantial inequalities in wealth, income and life chances; and
- the participation of all, including the most disadvantaged.'

In Scotland, this work has been called 'social justice' from the start (Scottish Executive 1999:17). Yet, despite this, 'social justice' was not the term chosen in England. Perhaps part of the reason was that it was – and is – still without a universally-agreed definition, despite being used by many politicians as the headline term for this whole area of work. Perhaps, too, there was a reluctance to embrace this term; as Miller (2005) argues:

'To pursue social justice is to believe that society can be reshaped – its major social and political institutions changed – so that each person gets a fair share of the benefits... Neo-liberals reject this idea because they believe it is destructive of a free market economy' (3).

Whatever the reason, the term 'social justice' has tended to be used less in England. Social justice however has become linked with 'environmental justice'; as well as the need for an equal, fair and just society for people it has been linked to the need to ensure a world that uses its resources fairly, justly and within limits so that everyone can benefit, now and in the future. The new economic foundation's (nef) concept of 'sustainable social justice', for instance, incorporates the need to live within the limits of the earth's resources whilst at the same time enabling 'all people to live their lives in ways which are satisfying and sustainable' (Coote and Franklin 2009:11). The

'Global Greens' network of Green Parties and political movements defined social justice as (Global Greens 2001:3):

'We assert that the key to social justice is the equitable distribution of social and natural resources, both locally and globally, to meet basic human needs unconditionally, and to ensure that all citizens have full opportunities for personal and social development. We declare that there is no social justice without environmental justice, and no environmental justice without social justice.'

The vision of nef and Global Greens will require radical changes to be made to present societies, particularly in the West, in order to achieve their aims. This is one of the criticisms of the UK Government's approach to social exclusion from social scientists like Levitas (2005) and Byrne (2005) who argue that New Labour only ameliorated the worst effects of a fundamentally unjust and inequitable social structure. Rather than seeking to resolve the structural inequalities that led to exclusion in the first place, such as income distribution, Byrne (2005) argues that New Labour has instead promoted;

'equality of opportunity rather than outcome and a concentration on the creation of wealth rather than its redistribution' (151).

Conclusion

Despite the focus on social exclusion and social justice, inequality and poverty continue to be persistent problems in the 21st century. Some social scientists argue this is because social exclusion is caused by inequalities inherent in political and social structures, which has contributed to the UK becoming one of the most unequal societies in Europe (for example Kazepov 1998; Byrne 2005; Pantazis, Gordon and Levitas 2006). However evidence from the Joseph Rowntree Foundation acknowledges that child poverty has been reduced by the 1997- 2010 Labour tax and benefit reforms (MacInnes, Kenway and Parekh 2009). Social exclusion has been linked to the practices of (post) industrial nations in the developed world, in particular the changing nature of employment in a globalised market; a focus on high skilled jobs; the perceived weakening of social ties; and 'atomisation of the work force' (Paugam 1996:1). Instead of being at the margins, poverty and inequality can be seen as endemic in a system based on capitalism:

'Capitalism is... a system based on production for profit. It needs expansion of its markets in order to survive. Its need for growth is incompatible with the finite resources of the planet' (Levitas 2005:188)

Without a radical rethink as to socio-economic systems and structures, it is suggested that all the government can really do is 'paper over the cracks', dealing with the problems when they occur rather than tackling them at the core. It is clear that social exclusion must be addressed because it creates problems for society, including a persistent minority on benefits; large increase in social inequalities; decline in opportunities for social mobility; the 'ghettoization' of the excluded and low-paid in specific, largely urban, locales with inferior access to public resources; and the disengagement of the excluded from institutions and political/social practices (Byrne 2005:152).

The messages emerging from the debate around social exclusion are equally important to the way in which society will deal with the increasing threat from climate change and the impact of human activity on the environment. Will we 'paper over the cracks' as they emerge or will we take steps to tackle them now by working to change the fundamental social and economic practices which have caused climate change? We turn now to the environmental concerns that rank alongside poverty and human rights and equality as one of the biggest challenges facing societies today.

3.2.2 Creating a sustainable future? Our impact on the environment

Concerns for the impact that human societies are having on the environment have accelerated in the last decades, and science has led the way in linking environmental damage to human actions. As early as 1895, connections were being made between the use of fossil fuel and the warming of the atmosphere by Svante Arrhenius, Nobel Laureate in chemistry, (Dilling and Moser 2007) and from then the evidence has mounted. In the 1950s scientists began to raise the alarm as to the negative impact that the modern, global and development-orientated economy would have on natural resources but it was not until the 1970s that these issues went global. Environmental activism became linked to anti-capitalist and peace movements, calling for the replacement of cultural values based on individualism, science and progress with non-material values, international solidarity, responsibility for future generations and improved quality of life for all (Sandell, Öhman and Östman 2003). By the 1980s the environmental message had been adopted by mainstream political parties and regularly discussed in the media; it also shed some of its 'hair shirt image' (Michaelis 2007:251) and morphed into a concern for how societies can maintain current levels of social comfort and technological progress without costing the earth. In 1988 James Hansen announced at the US Senate Committee on Energy and Natural Resources that science was 99% confident that climate change was a reality (Dilling and Moser 2007:1) although everything else was more or less open to debate, for instance the extent to which it is caused by human activity, the extent of the threat, and the extent to which we should change our behaviour before it is too late. Some argue it may even be too late now.

Despite challenges to the contrary, the scientific consensus remains that human-induced climate change is a real threat (Dilling and Moser 2007). There is a greater understanding of how human use of the natural world is hastening its decline. Recent decades have seen a more concerted effort by scientists and environmental activists to communicate that humankind may be accelerating climate change drastically with their activities and causing irreversible damage (Abraham and Lacey 1990). Environmental changes will also have a damaging impact on human societies including conflicts over increasingly scarce resources, increased spread of disease, and water shortages for some populations (Monbiot 2006). In June 1992 the UN Earth Summit at Rio de Janeiro, the first ever congress to focus on the environment and development, it gave out the message that:

'nothing less than a transformation of our attitudes and behaviour would bring about the necessary changes' (UN 1997).

It also brought issues of the environment and development together 'Sustainable development' has been put forward as a solution, defined as development which:

'meets the needs of the present without compromising the ability of future generations to meet their own needs' (UN 1987).

Millennium Development Goals were set in 2000 by the UN to meet the need for the elimination of poverty and environmental sustainability. The implementation of these goals has however been fractious with lack of unified approaches from governments despite the need for action (Shea and Montuillaud-Joyel 2005). There is a relative lack of joined-up thinking in environmental matters on a national as well as an international level, for instance although the UK Government is committed to alleviating the effects of climate change – and was one of the first to legally commit itself to reducing greenhouse gas emissions in 2007 - it continues to contribute to global warming in other ways by building more roads and increasing air traffic (Monbiot 2006). If changes are to be made to alleviate the impact of humankind upon the environment then it is recognised that far greater changes need to be made to current lifestyles and consumption patterns (particularly in the West), changes in which everyone must participate. Such changes may 'challenge in various ways the founding ideas, lifestyles, and structures of modern industrial society' (Sandell, Öhman and Östman 2003:115). The new economic foundation (nef) for instance suggests that the whole of society must change in order to 'tackle the profound economic and environmental crises that confront us all today' (Coote and Franklin 2009:1). They call for a society based around the concept of 'sustainable social justice', a fair and equitable society where an emphasis is placed on solidarity amongst people, the safe-guarding of natural resources, a sustainable economy, inclusive, participative and accountable government, and a robust evidence base which takes into account scientific uncertainties (Coote and Franklin 2009: 6-7). Such wide sweeping changes would require a concerted and unified effort by a range of constituencies including the private sector, Governments, communities and groups, conservation and research organisations and international initiatives including inter-governmental organisations and multilateral aid agencies (Convention on Biological Diversity undated:13).

Educating the public about the impact of climate change

In resolving the worst effects of human-induced climate change it is seen as imperative that the public is educated or made aware of the issues and the role that they have to play in changing their lifestyles. It is however rightly regarded as a major challenge. To act responsibly people need to know the consequences of their actions (Blowers 2003). More than ever before the public has access to information. Far-reaching changes in technology and mass distribution channels for information mean that the public today has far greater awareness of the impact that they are having on the environment:

'The fact that the world has become more and more transparent, due largely to the mass media and the rise of new information technologies, has undoubtedly contributed... The impacts of our consumption patterns are no longer vague and invisible. People are beginning to understand the effect they are having on this world – our only home – and that they have a responsibility to look after it' (Shea and Montuillaud-Joyel 2005:6)

The aim of environmental education is, for many of its supporters, to encourage the development of citizens who are socially and environmentally aware; self-reliant, critical, creative, confident, and flexible thinkers, deeply empathetic to themselves and to the environment and empowered through appropriate skills, knowledge and values (Sterling 1990). A popular approach is 'education for sustainable development' or 'education for sustainability', which uses techniques that emphasise the social and cultural context of issues to do with climate change, identified as conflicts between different human interests, and the many voices that participate in local, national and international debates. It is a political and a moral issue that society must resolve; science cannot give us the answers, they are supplying the 'facts'. Citizens therefore need to be able to interrogate the information that they are given and come to their own conclusions about how they can actively participate. It is about enabling people to make judgements about the quality of public debates and the nature and power structures in the forum in which public debates take place (Abraham and Lacey 1990). Teaching practices that recognise this need are characterised by pluralism and support the freedom of the individual to decide their opinion.

But is this approach enough? The communication of the 'climate change' message is not an easy one. Many people are (understandably) reluctant to give up their current lifestyles; as Monbiot (2006) points out the campaign against climate change:

'is an odd one. Unlike almost all the public protests which have preceded it, it is a campaign not for abundance but for austerity. It is a campaign not for more freedom but for less. Strangest of all, it is a campaign not just against other people, but also against we' (215).

The information that the public receives about the issues is open to dilution and manipulation. Scientific research is filtered through the media, which often have their own agenda in reporting the issues. Criticism has been made of the decline in independent media channels and lack of journalists with expert scientific knowledge (Dilling and Moser 2007). People writing about climate change may have economic interests in the outcome, which are often heavily disguised to the public (Monbiot 2006). There are also the large, seemingly benevolent institutions that dominate our lives and are often driven by short-term interests and highly competitive markets, institutions which create their own 'truths' (Abraham and Lacey 1990:16). These include charities as well as the businesses and corporations that provide our food, clothing and shelter. So whilst education can be seen as one way in which to tackle deception about the environment and raise awareness of development issues the messages conveyed and the interpretation of the issues is of critical importance, as is the knowledge of who is supporting or sponsoring that education.

Climate change: contested, challenging, complex

Another hurdle to encouraging people to take action over climate change is that the science is both complex and contradictory (Monbiot 2006). It is a global problem that needs global solutions, which is not always possible when nations are at different stages of development. The effects are likely to manifest over the long-term and so may not be immediately threatening (Dilling and Moser 2007). Some early effects, such as warmer temperatures, may even be regarded as 'pleasant' in

more temperate zones (Monbiot 2006:22). Concepts like the 'greenhouse effect' and 'climate change' are abstract concepts and it is difficult for people to see the direct impacts upon their lives. There is also the perception 'supported by much science, and even more political rhetoric, that society will be able to adapt to any adverse changes once they arrive' (Dilling and Moser 2007:6). Some of the 'solutions' to climate change are already creating new problems; for instance the development of bio-fuels such as palm oil is causing environmental problems including deforestation in Malaysia to plant oil-palm plantations or the eviction of indigenous peoples (Monbiot 2006:59-60). The enormity of the problem can also overwhelm people and leave them wondering how relatively small actions will contribute to the wider alleviation of the problem. It is also difficult to disentangle the effects of human activity from impacts which would happen in spite of it (Sandell, Öhman and Östman 2003). This has led to scepticism from some quarters, the so-called climate change 'deniers'. There are scientists who are sceptical about the extent of climate change including Bjørn Lomborg, adjunct professor at the Copenhagen Business School, Professor Patrick J. Michaels, Senior Fellow in Environmental Studies at the Cato Institute (Cato Institute 2010) and Ian Rutherford Plimer, Professor at The University of Adelaide, who argue that 'Anthropogenic [*man-made*] global warming (AGW) theory... is the biggest, most dangerous and ruinously expensive con trick in history' (Delingpole 2009). These sceptics or 'contrarians' are highly mobilised and have done much to over-state the uncertainty of the science around global warming, when uncertainty "is an integral part of life and scientific inquiry" (Blowers 2003:2). It has the affect of eroding public trust in science and 'scientific uncertainty has hardened as a justification for inaction' (Dilling and Moser 2007:9). The recent scandal of 'Climategate' in the UK - when leaked emails purporting to be from the Climatic Research Unit (CRU) at the University of East Anglia suggested that data had been purposefully withheld from Freedom of Information requests - reflects the highly contested and politicised nature of global warming. Commentators in the UK have used the revelations to reinforce that science is becoming too politicised, driven by 'alarmist climate-change crusaders' (Furedi 2009) or that 'climate rationalists must uphold the highest standards of science' or risk their message being further undermined by the 'climate change denial industry' (Monbiot 2009). The Met Office Hadley Centre has attacked the exaggerated messages from scientists around climate change which 'however well-intentioned, distort the science and could undermine efforts to tackle carbon emissions' (Adam 2009). Other commentators are concerned by the politically motivated rhetoric of both supporters and deniers of climate change. The Global Warming Policy Foundation (GWPF) for instance claims that its main purpose is to:

'bring reason, integrity and balance to a debate that has become seriously unbalanced, irrationally alarmist, and all too often depressingly intolerant. The GWPF's primary purpose is to help restore balance and trust in the climate debate that is frequently distorted by prejudice and exaggeration' (Global Warming Policy Foundation 2010).

Polls undertaken in the US by the Pew Research Center in 2009 seem to show that the public there are becoming more sceptical towards the message of climate change:

'Belief that global warming is occurring had declined from 71 percent in April of 2008 to 56 percent in October — an astonishing drop in just 18 months. The

belief that global warming is human-caused declined from 47 percent to 36 percent' (Nordhaus and Shellenberger 2009).

There is increasing evidence too that it is not enough to raise awareness in order to convince people to act. Whilst in the past conservation tended to emphasise the need to protect nature from use by humans, it is 'now generally recognised that people are less likely to have an incentive to conserve natural resources if they do not appreciate their value' (Waylen 2006a:4). Research in the US suggests that the public is 'overwhelmingly aware' about global warming and the associated problems it creates but fewer people see it as a personal concern, resulting in a lack of urgency about the issue (Dilling and Moser 2007). Using fear as a means of spurring people into action has also shown to be detrimental as it does not help to create a sustained or constructive engagement with the issues. People are seen as most likely to act when the following conditions are fulfilled (Moser 2007:70-71):

- They feel personally vulnerable to the risk
- They are given useful and very specific information about precautionary actions
- They positively appraise their own ability to carry out the action
- They feel the suggested action will effectively solve the problem
- They believe the cost associated with taking precautionary measures is low or acceptable
- The implications of not taking the action is unappealing
- The new behaviour is consistent with sense of self / identity.

The challenge in the West, therefore, is communicating the message in a way that encourages people to think about social responsibility when the public is not always convinced of the need to act. It is suggested that communication strategies should seek to foster hope, encourage people to see that they are vulnerable to the risks of climate change but balance this with constructive information and support, providing a sense of empowerment and helping people to see how they can achieve their goals. This is based on the assumption that most people desire to lead a good life that is meaningful and responding to this desire means that organisations can encourage people to work towards a common good (Moser 2007:73-74).

3.3 Conclusion

Social inclusion and environmental issues are interlinked; they can both be regarded as moral issues and issues of social justice. The environmental debate is inextricably linked with political issues, as well as moral and ethical concerns about the kind of world that we want to live in; what do we conceive as a fair, equal and 'good' society? One that takes care of the environment and people within it or one which continues to deplete the world of natural resources? Running through debates on global warming and climate change are concerns about equality (climate change is unevenly distributed, with those who have contributed the least to accelerated climate change feeling the worst effects), wealth (the so-called 'developed' nations use a larger proportion of the world's resources and are depleting them far more quickly than the less developed nations), fairness and responsibility (individuals as well as governments may have to make far-reaching changes to their societies; and our responsibility to future generations (e.g. Sandell, Öhman and Östman 2003). As

Coote and Franklin (2009) suggest, unjust and socially divisive societies will find it much harder to meet the challenges posed by environmental changes effectively. Leading scientist James Hansen has recently criticised politicians for failing 'to meet what he regards as the moral challenge of our age' (Goldenberg 2009) as they tentatively attempt to get to grips with the threats posed by climate change.

But climate change is an issue of social justice because like social exclusion it targets the most vulnerable in society. People in different societies and contexts will be more susceptible to environmental changes than others (Hinchcliffe, Blowers and Freeland 2003:13) as some communities are more vulnerable to exclusion than others. Those living in poverty, disadvantaged communities, disenfranchised or excluded from the mainstream are more likely to suffer more from the effects of climate change. This can be globally as well as locally; developing countries are already experiencing the ill-effects of pollution and global warming in the form of soil erosion, reduced water tables, extreme weather conditions and deforestation (Sandell, Öhman and Östman 2003).

As a process of social change, responses to climate change have changed considerably over time and are continuing to change; some forms of social transformation are faster and more easily achieved whilst some will take longer. Only hindsight will show whether we are at a 'tipping point' (a moment in time when a static or slowly changing phenomena takes a radical turn and becomes accepted across wider society as 'normal') as far as actions towards resolving the impacts of environmental change go, however by carefully framing the ways in which climate change is communicated 'people can help the movement take off if and when a trigger event occurs' (Moser and Dilling 2007b:493).

Section Two Research Findings

4. Introduction

This section gives an outline of the findings from the research conducted with botanic gardens by RCMG. Table 8 gives a reminder of the 10 organisations involved in the research (see Section 2.4 for the detailed research methods and activities). The discussion and analysis is supplemented with desk research and findings from the questionnaires with UK botanic gardens (section 3.1.3).

Table 8: The ten organisations involved in the research

Organisation	Case study	Interview
BGCI		X
Botanic Gardens Trust Sydney	X	
Chelsea Physic Garden		X
Eden Project	X	
Fairchild Tropical Botanic Garden	X	
Natural History Museum		X
Royal Botanic Garden Edinburgh		X
Royal Botanic Gardens, Kew		X
University of Oxford Botanic Garden	X	
Westonbirt Arboretum		X

This section is organised around two sections of discussion and analysis:

Section 5 - What do we mean by the social role of botanic gardens?

Section 6 – ‘Change inhibitors’ and ‘Forces for change’

5. What do we mean by the social role of Botanic Gardens?

Environmental change, the need for sustainable lifestyles and increased government policy in this area across the globe provides a compelling impetus for botanic gardens to become more socially responsible organisations. Particularly in the developed world, and increasingly in the developing world, societies have become more and more detached from the natural world through industrialisation and urbanisation, not always with positive consequences:

‘Whilst urbanisation enhances opportunities for economic growth, access to services and infrastructural development, it also frequently has marked impacts on the quality of local and regional developments... In particular the decline in sufficient areas of green or natural spaces within urban areas has led to a decrease in ecosystem services and benefits vital for sustainable living within towns and cities’ (Ward, Parker and Shackleton 2010:49).

The potentially damaging impact of human activity on the globe and the perceived need to educate people about their relationship with the environment unites several strands of thinking including commitments to reduce poverty and inequality, which are often linked to the same causes as environmental damage, including unsustainable consumption patterns and emphasis on economic progress, and the need to involve all communities in the resolution of the perceived crisis. In the botanic garden sector it is increasingly recognised that they have a public-facing role: in this section we will examine the evidence from case studies and interviews carried out by RCMG to explore how their social role is manifest. There are seven key areas where we found botanic gardens - at different levels of motivation and sophistication - were concerned with being more socially relevant. These are:

- Broadening audiences (audience development)
- Enhancing relevance to communities (meeting the needs of communities)
- Education
- Research which has socio economic impact locally and globally
- Contributing to public (and political) debates on the environment
- Modelling sustainable behaviour
- Actively changing attitudes and behaviour.

5.1 Broadening audiences (audience development)

Seeking to broaden their audiences, making them more diverse and representative of wider society - whether by age, ethnicity or socio-economic status - was common to most botanic gardens. A basic definition of audience development is given by Dodd and Sandell (1998:6):

‘Audience development is about breaking down the barriers which hinder access to museums and ‘building bridges’ with different groups to ensure their specific needs are met.’

There was not one single approach or one single reason why botanic gardens were seeking to broaden their audiences and they were all at different stages of

development in terms of how successful they had been to break down barriers to visiting and attract more diverse communities. Most botanic gardens were aware that only certain types of people tend to visit their sites; some of this understanding was founded on rigorous research, others relied more on their intuition and first-hand knowledge of garden visitors. Different gardens had different reasons for seeking to broaden their audiences, including economic pressure and the need to be more socially relevant to meet the objectives of governing or funding bodies.

Who is visiting botanic gardens?

Botanic gardens tend to attract a very specific audience of white, middle class, older visitors. They come to the garden for a 'nice day out' to enjoy the peace and relaxation they offer rather than seeking any education or conservation-linked activity. Many are keen gardeners or are interested in wellbeing and lifestyle issues.

Chelsea Physic Garden attracts a very typical audience in terms of their general visitors - "AB in the main" - although they get more diverse visitors through schools and tourist visitors. Louise Allen, Curator at the **University of Oxford Botanic Garden**, reported very similar findings with traditionally most of their visitors coming from a very specific part of North Oxford. This has changed in recent years:

"[It was] very, very white middle-class... lots of the academic community knew we were here. The east of the city [Cowley] did not know we were here".

Westonbirt - The National Arboretum carries out annual surveys for the Forestry Commission so can be more precise about their visitors. Being part of the National Forest however has not altered the typical visiting pattern much except that they have a very high proportion of disabled people at 16% of visitors, which is according to the Director, Simon Toomer, "one of the highest in the country". This is partly due to the age of their audience. Generally people from socio-economic groups ABC1 are highly represented (84%) compared to people from groups C2DE (16%). As mentioned previously the audience tends to be older with 53% of visitors aged over 55, and a tiny proportion of children and young people under-25 (2%).

Royal Botanic Garden Edinburgh was also able to give very detailed information about their visitors. Prior to their audience development work, their audiences tended to reflect the trends already described. Visitors tended to be over 55 years old, women, and a large proportion of them (48%) were retired. The main reason for visiting was to explore the gardens (78%) and to look at the plants (79%). As the Curator, David Rae, explained, Edinburgh's audience research seemed to suggest that there were particular 'cycles' of visiting dependent upon age and stage in the life-course:

"So it's interesting how... [there were] very clear cycles of people coming in... coming in as newly-weds with young children, and then coming in again in their retirement. Of course that's generalising".

It is harder for them to attract a younger audience, as David Rae explained for teenagers, "Visiting gardens is absolutely dead un-cool". Published visitor research from Edinburgh show that in terms of socio-economic groups, like most gardens

there are more visitors from ABC1 than C2DE. One of the barriers to lower-income groups visiting is a perception amongst people in disadvantaged parts of Edinburgh that the gardens are 'not for people like us' (Edwards 2006).

Visitor research from **The Royal Botanic Gardens Kew** reveals a similar picture of largely white, middle class visitors. Most people visit to enjoy the gardens (50%) rather than coming to learn about plants or gardens (15%) or have an interest in conservation (8%). They come for the "the beauty and the space and that sort of sense of spiritual uplift" (Professor Angela McFarlane, Director of Content and Learning).

The tendency of audiences to reflect particular age, ethnicity and socio-economic categories is a familiar picture across the cultural sector. The findings from the gardens reported above fits very well with independent research undertaken into the audiences of parks and gardens. This audience has itself been quite neglected in research terms, although this is changing. The evidence that is available confirms that in Britain:

'garden visiting is a predominantly white, middle-aged and middle-class pastime' (Morris 2003:21).

Research by Connell (2004) undertaken at 13 gardens across the UK found that visitors tended to be older, with only 15.4% of visitors under the age of 40; ABC1 were over-represented (80.2%) compared to C2DE³; the majority of visitors were garden-owners (94.8%); visitors had a strong propensity to visit other cultural and natural attractions such as historic houses; and most visitors identified themselves as 'visitor with a general interest in gardening' rather than having a 'specialist horticultural interest'. The clear priority for current garden visitors was 'pleasure derived leisure experiences' (Connell 2004:245)

International research confirms this picture. Ward, Parker and Shackleton (2010) compared visitor information across 6 botanic gardens and found that garden visitors were not:

'demographically representative of the broader population found within the wards and towns in which they were situated' (2010:52).

Instead they were predominately older, predominantly more affluent and predominantly more white - 90% of visitors were white 'although most residents in the wards and cities were of the Black African population group' (2010:53) of which only 1% were visitors to the botanic gardens. The main reasons for visiting the garden were 'enjoyment of the garden's natural beauty, exercise and [to] get a breath of fresh air' (2010: *ibid*). Visiting for educational purposes was ranked 10th out of a possible 13 reasons, although 67% of visitors agreed that the gardens 'effectively promoted conservation'.

³ This can be compared to the proportion of people in these social groupings more generally in the UK which are reported as approximately; A (3%); B (20%); C1 (28%); C2 (21%); D (18%) and E (10%) (Lang 2006).

The findings reported here, both for the UK and internationally, show that botanic gardens have very specific audiences. They tend to be over-representative of people who are older, more affluent, who tend to be white, and who like gardening and most likely have their own garden. People like visiting botanic gardens to be in the peaceful, relaxing environment. As public gardens there is a huge disparity in terms of the audiences botanic gardens attract and they are not representative of the wider UK society, or the local communities who live close to gardens in their mainly urban locations. The next section will examine what botanic gardens are doing to address this imbalance.

What are botanic gardens doing to broaden their audiences?

The evidence from botanic gardens shows that they tend to appeal to the more affluent groups in society; as David Rae (Edinburgh) explains there is a perception that they are for the middle classes. He does not think that this is a true representation of what they offer:

“Well I think botanic gardens tend to be seen to be slightly middle class establishment sort of places, but they shouldn't be, because I think we really do have something for everybody from, you know, just a pure recreational [experience]... all the way through to sort of more up-market exhibitions and events”.

In order to broaden their audiences and ensure that their audiences are more representative of the wider communities that they serve, there is currently a large amount of activity taking place across the botanic garden sector that was uncovered in the case studies. There were specific projects aimed at targeting specific groups, specific events where efforts were made to attract a broader audience through targeted advertising and the attempt by botanic gardens to appeal to a broad range of people through the activities and events that they have in their gardens. A large-scale capital project designed to completely transform the site to attract more visitors was reported at one site. Examples of the types of projects and activities that botanic gardens are doing to attract broader audiences are given below.

Oxford received funding from the PF Charitable Trust to ensure that the garden makes contact with every school in Oxfordshire over the next three years – the ‘Twenty Ten Challenge’. Emma Williams, Primary and Families Education Officer, described the rationale behind the programme:

“We're trying to reach every single school in the county over a three year period... so we're also trying to strive to make sure our provision is fair and we do get a good geographic and kind of that social spread of different schools that are coming”.

To attract wider audiences the garden are ensuring that their publication material is made available widely across Oxford and is specifically targeted to the new audiences that they want to reach, as Louise Allen explained they use:

“Lots of places like drop-in centres, community notice boards, cafes, libraries, the places in the community... [There] are places that will take your leaflets

and it's about getting things right into the community... [And] free newspapers... the newspapers that drop in through people's letter boxes".

Having banners at the entrance to the botanic garden has also helped to increase the garden's visibility. They run a public engagement programme every year at the Oxford site (and a smaller version at their satellite site, the Harcourt Arboretum), a picnic programme that uses a traditional British pursuit as the basis for a celebration of plants and the natural world with events including drama, music, story-telling artworks and family-orientated activities that revolve around a central theme. Last year it was the 'Great Growing Picnic Season' which was about encouraging people to grow their own vegetables. As Louise Allen explained, the idea of a picnic was chosen because it is seen as appealing to everyone:

"the idea behind them is anyone can picnic, so they're very sort of inclusive. Anyone can do it".

The most recent picnic programme also saw the opportunity to tie in with the Lord Mayor's parade and they were approached by the city authorities to hold the Lord Mayor's Picnic in the gardens. This was very positive for the garden as it attracted a very broad audience based on the audience that attends the Lord Mayor's Parade; they tend not to be typical visitors to the gardens:

"We opened the gates and we estimate that in one afternoon 4,000 people came through... There's no denying that, you know, there were people there who never, ever come to the Botanic Garden, and that was what was so important about it. And it was lovely to really have something that the city and the garden worked on together" (Louise Allen, University of Oxford Botanic Garden).

Oxford also ensures that there are relevant activities for different types of visitor when they come to the garden, covering a broad age range. Lifelong learning is important, so engaging adults, teenagers, and families is integrated into the activities available. An example of a project was at Harcourt Arboretum, a larger site just outside Oxford which has a small exotic plant collection, historic parkland, wildflower meadows and woodland as part of its landscape. As Louise Allen explains, there was some concern with the way in which the arboretum was being used by families:

"Interestingly the arboretum has had, it's fair to say... problems with children at the Arboretum, because it is a big site, it is semi-wild. Parents think it's a very safe environment".

They developed a Geo-Caching project using GPS technology to inspire families to explore the site in a focused way. According to Louise Allen it "was incredibly successful". The activity consisted of a route through the Arboretum and the people involved were given a series of co-ordinates to navigate them around the site. At each 'position' an activity would be found in which the group, usually families, could participate:

"We ran it through the school holidays and the idea behind it was to completely focus the people who came... it attracted young people and we

had this through-life learning approach... I think you'll only have criticism of what children do in gardens if they are not engaged, and for us it's the perfect opportunity to engage them".

The idea was that the activities would enable families to work together to solve problems or respond to challenges based on the natural world:

"[They work] as a family, and that's very key, that when we do things it is about family learning in that situation. It's a group of people engaging with one another rather than mum and dad go and sit and the kids going off"
(Louise Allen, University of Oxford Botanic Garden)

Attracting communities and visitors from outside OX2, the area in the North of Oxford where traditionally most of their audiences come from is very important to Oxford Botanic Garden and being involved with events like the Lord Mayor's Parade is a means by which they can attract a more diverse audience. Projects like the Geo-caching activity and programmes of activities like the public picnic programme ensure that people are engaged when they visit the site. The Geo-caching project and other project-based community participation programmes are evaluated but wider visitor surveys are not undertaken. Without collecting data about their visitors more generally it is difficult to see how Oxford is able to know if they have achieved their objectives; we will return to this topic later but Oxford were not the only botanic garden who did not have any evidence of their audiences, rather they relied on anecdotal, intuitive knowledge based on the small team's first-hand interaction with visitors and groups to the garden.

From the **Eden Project** in Cornwall came examples of how Eden is seeking to specifically target non-traditional garden audiences like children and young people through seeking to put, in the words of Philip Waters from the Eden Project, "more playfulness into Eden". The concept has grown to incorporate the idea that any space can be animated and created with active play on site. Botanic gardens generally are very formal spaces, laid out in particular ways with beds and glasshouses, places in which active exploration by children is largely discouraged, even frowned upon. This is reinforced by the disposition of most visitors to gardens who come for peace and quiet, and as Louise Allen from Oxford mentioned above, sites are concerned about children behaving in an unfocused way. However Eden is keen to harness that sense of play which is often muted in public spaces and ensure that children and young people are engaged with an environment in a way that comes 'naturally' to them. This ties in with wider concerns that children and young people do not have the same opportunities as their parents had to engage in unsupervised play, which is leading to so-called 'nature deficit disorder' (for instance see Moss 2007).

Eden is very clear about the audiences they target through their projects. Similarly, **Westonbirt Arboretum** has used visitor research to guide its thinking towards the audiences the Arboretum needs to target to ensure that its audiences are more socially representative. As their Director Simon Toomer explained, Westonbirt is taking it further than their audiences and ensuring that social diversity is reflected in their volunteers as well as their audiences:

“We want more visitors, but we also want people taking part, participating and volunteering in the broad sense of the word, from a broader range of social strata”.

This is underpinned by a strong sense of the value that audiences bring to the site, the belief that the site only exists in relation to its visitors, as Simon Toomer said:

“actually there would be absolutely be no point to us being here without visitors”.

At present visitors and volunteers tend to represent the same narrow social groups as reported in earlier. Developing a bid for the Heritage Lottery Fund has enabled Westonbirt to think critically about their audiences and volunteers and who they want to target. They are producing an Activities Plan for which part of the process is to identify their target audiences “in a realistic way”. They want to attract groups who are usually excluded from botanic garden visitor audiences, for instance drug rehabilitation groups and young people who are ‘not employed, in education or training’ (NEET). Being realistic about the types of audience they can reach is also tempered by the strong sense that inclusivity:

“won't happen unless we actually do it consciously”.

That involves ensuring that the site is appealing to people who aren't necessarily assumed to be interested in the natural world, rather taking the opposite view:

“[We have to appeal to younger and less engaged audiences]... people who won't come just because there's a few nice trees... We need to give them more, we need to give them a reason to become interested in trees”.

The funding bid to HLF therefore aims to give visitors a more meaningful and holistic experiences of the site, providing a 'welcome' to visitors in the form of a new visitor centre and car park, new interpretation and a heritage vantage point which will enable visitors to view the entire site. To encourage more non-traditional volunteers, Westonbirt will not only target specific groups but will ensure that volunteers are provided with the means to volunteer; often time and transport is a luxury for the groups Westonbirt want to attract:

“actually it's a bit of a luxury in some ways to be able to volunteer because of flexibility to get here... We have plans provided that we are successful with HLF to start introducing a scheme of expenses paying”.

Royal Botanic Garden Edinburgh has worked hard to broaden its audiences, using evaluation to identify who is and isn't visiting. Currently it carries out visitor surveys annually (both formal and informal), building up a picture of who visits and for what reason:

“we've been trying to do that for quite a while now because we have been trying to be more inclusive for a long time” (David Rae, Royal Botanic Garden Edinburgh)

As a publicly funded organisation Edinburgh feels it has a responsibility to be accessible to a broader audience than botanic gardens would usually attract; David Rae, Curator, commented:

“I think it's our social responsibility to do that... I think we're paid by the public and therefore should be open to all the public”.

It is his belief that, “botanic gardens can be all things to all people”. People certainly visit the botanic garden in Edinburgh for many different reasons including anything from recreation to a stroll or just being outside and getting some fresh air. Edinburgh offers a wide range of activities and events that people can take advantage of. They might visit to learn about gardening, visit an exhibition in the art gallery (there is a Gallery of Modern Art located in the grounds) or to do Pilates. Edinburgh provides many opportunities for lifelong learning through a wide range of informal, adult courses as well as professional courses where students can obtain, for instance, a Diploma in Botanical Illustration:

“[It] goes from sort of very recreational courses like sort of paper making and photography and wellbeing classes and pilates, right the way through to quite specific diplomas... and certificates in horticultural, practical horticulture. So some are certificated by ourselves and we have three diplomas as well, but then the rest are purely recreational.”

Edinburgh has also targeted specific groups through projects – for instance ‘Branching Out’ which was targeted at minority ethnic groups who did not visit the garden - however these will be discussed in the next section ‘Enhancing relevance to communities (meeting the needs of communities)’.

At the **Royal Botanic Gardens Kew** they have also used visitor evaluation to find out the reasons for people visiting Kew - to enjoy the gardens rather than learn about plants or conservation efforts - was not always conducive to the messages that Kew wished to get across to their visitors. The Director of Content and Learning, Professor Angela McFarlane, explained that Kew were intending to re-position themselves as an organisation and place a stronger role on interpreting to visitors their research and conservation efforts. However the visitor research informed them that:

“it does mean that we have got to be a bit careful because we want people to come to the garden... they are owned by the nation, they are here for people to enjoy but at the same time we do want them to understand why the garden is here and what it does”.

Evaluation however has also shown that recently there has been an increase in the number of visitors who understood that Kew have a conservation role, which went up from around 30% to 60% in 2009. Kew are at the early stages of developing their audiences, and they are in the process of bringing in consultants to assess the site and produce an audit which will assist Kew in targeting particular audiences. Working with schools (including ‘challenging’ schools) is viewed as one way in which Kew can “engage with parts of the community who do not currently benefit from having Kew on their doorstep”. Kew also have a community outreach officer working to target non-traditional users and bring in more diverse audiences in terms of ethnicity for instance. In particular the Marion North gallery is seen to be relevant

to minority ethnic communities because it exhibits images of plants from around the world and has proved interesting to community groups from a variety of original ethnic background. Kew have found that non-traditional groups are interested in seeing and learning about plants from their own original home territories, which can also enrich the information that Kew has about their plants. In this way they consider that they are developing a 'two way dialogue' with some of these groups, including Afro-Caribbean and Indian sub-continent communities. For Kew it is a matter of finding the "things that are closest to the audience that you're interested in opening up a dialogue with". Similar approaches were reported by Oxford and Chelsea Physic Garden. At Oxford the peacocks at the Harcourt Arboretum and exotic plant collections at the main site are noticeably attracting more BME groups:

"actually the exotics is what very often will attract more multicultural kind of groups... [We] knew that we had a very strong Asian kind of visitor base at the arboretum because of the peacocks, that they knew they were there and they would come out and see it... The glasshouses here [in Oxford] have [also drawn visitors] we did a West Indian food festival a few years ago and to hear people coming to show their grandchildren the plants they have grown up with, it's a very instantaneous thing that we can build on" (Louise Allen, University of Oxford Botanic Garden)

Rosie Atkins, Curator at **Chelsea Physic Garden**, has also noticed that their collections of world plants can attract a more diverse audience:

"And there's also this cultural diversity when we've got a garden of world medicine. And so you get conversations that you pick up of 'in my country we used this' and 'in my country'... So it's a great bringer together of people from different cultures".

Such approaches have been advocated for instance by Morris (2003) who, in a study of how BME (British Minority Ethnic) groups use natural open spaces, highlighted the opportunities that gardens can offer as a multicultural resource;

'Plants can capture the character, scent and touch of another land, they can tune into nostalgia and recognition as well as being enjoyable' (21).

However this is quite an unsophisticated view of the complexities of community needs.

In terms of attracting broader audiences to the garden, Chelsea is in the very early stages of diversifying its audiences. In the context of a long history – founded in 1673 – it has only very recently opened the garden to the public in 1983 and opening hours are still quite limited to four afternoons a week, although that is a vast improvement from a few years ago:

"I think we're on the nursery slopes here. Partly because we've done rather a major leap the last 25 years of just going from a standing start. I'm not saying that we haven't got the aspirations to that, because we most certainly have".

Chelsea is still in the process of building up its audiences and thinking about the accessibility of the garden:

“it sort of went from about 14,000 to 18,000 in a good year, but when it hit 18,000 there was deep intakes of breath... [Now we have] over 40,000. So there's been quite a leap over the last eight years. So accessibility is also a kind of watchword I think, which I think we're following modern thinking, 21st century really”.

Barriers to developing audiences

Whilst botanic gardens were working hard to increase and diversify their audiences there were a number of institutional barriers which suggested that their efforts were not always as effective as they could be. Some gardens seemed to be relying on school visits to reach a greater diversity of their communities. However, there is emerging evidence from museums that a diverse school audience does not turn into a diverse adult audience (O'Neill, 2010). Few gardens seemed to have investigated in-depth the reasons why particular sections of society did not visit or what the barriers are. Their approaches therefore came across as very variable, having many different reasons, and some gardens were much more confident than others that they were able to reach a more representative audience. For some staff there was a sense of resignation that they could try and encourage lots of different people to come but there was only so far they could go, as this person said:

“We want all sorts and types of people to come. We'll encourage them to do it, but if they don't come, then you know, we can't claim to be converting or influencing those people”.

Limited evaluation or formal understanding of their audiences seemed to be one barrier to progressing audience development work. Few botanic gardens knew who visited them, let alone who did not visit them and why. For some it was very difficult for them to give any evidence that the work they were doing was diversifying their audiences. Faced with this lack of information, some gardens were more reactive rather than proactive in developing their audiences, responding to groups that approached them rather than actively seeking out opportunities for development. This was very positive for some gardens once they had gained a reputation for seeking out unconventional activities and events for a botanic garden:

“Once you've done something, people know you're willing to get involved. And certainly when we did Power Plant, our sound and light event, that was an amazing moment where people... We got asked to do a lot of things after that and I think the people suddenly thought hang on, these are people who are willing to risk going outside the conventional. And so individual groups have tended to come to us to ask to work” (Louise Allen, University of Oxford Botanic Garden)

Within botanic gardens the belief that gardens were 'for everyone' was frequently cited. However sometimes connected with this was a latent concern that by specifically targeting groups – of non-traditional users for instance – gardens would be limiting rather than contributing to accessibility. Botanic garden staff seemed keen to include excluded groups within the mainstream activities of the garden:

“I suppose it's about giving people the opportunity to be part of something that's not different” (Louise Allen, University of Oxford Botanic Garden).

Some gardens were grappling with how to manage the behaviour of different users on site, which prevented them from being fully accessible. One botanic garden for instance has taken the step of limiting the number of children on site for reasons of health and safety and to prevent the character of the garden changing. A member of staff was very aware that this is a policy which “a lot of people hate” but it ensures that children remain supervised. Visits from school groups are similarly managed to ensure that, as the staff member commented, “it's not children running around screaming and shouting. It's not a playground”.

Concern for how botanic gardens are used by visitors, the focus on having the ‘right’ behaviour creates enormous barriers for inclusivity. Like museums and other cultural organisations people are often deterred from visiting because they feel that they do not have the right skills to negotiate them or they are made to feel unwelcome. The formal landscape of a botanic garden can be isolating for some groups, especially children. This can be contrasted with the approach taken at Eden where they are working to make the site more appealing to children and young people, to encourage a sense of ‘playfulness’ which is not at odds with other uses of the site.

“When you've got a flowerbed that's been pristinely cultured and then kids come trampling over it, there's a sense of urgh. So it's about trying to bring those two areas together and make the place be more playful in other ways” (Philip Waters, Eden Project)

Another important point is to remind adults of what it means to be ‘playful’. For Philip Waters encouraging the ‘natural’ behaviour of children is a serious rights issue because often this natural behaviour is denied to them by adults:

“[To] recognise that children's space, and use of space, and their rights and position in the world, is equal to any adult's, you know, it's just a case of being a bit more tolerant, that children might be a bit more lively... children aren't very well respected in society and I think just this society... say in a western society perhaps, has always devalued children”.

This consideration of the needs of children as being significantly different from adults, and requiring a different understanding and information, leads onto the next section which looks at how botanic gardens are meeting the needs of specific communities and groups and enhancing the relevance to those communities.

5.2 Enhancing relevance to communities (meeting the needs of communities)

Increasingly botanic gardens are being used internationally to ‘tackle social problems through improving urban environments’ (Ward, Parker and Shackleton 2010:54). They are thinking about what their role can be by finding out the needs of specific groups and connecting these with the opportunities that botanic gardens offer. This is often intensive work, which requires specific sets of skills and intimate understanding of community needs. It also requires the whole organisation to

embrace the commitment to vulnerable people and understand the outcomes are primarily about the individuals.

Plants are seen as a common unifier between the botanic garden and the communities that they serve; as Professor Angela McFarlane (Kew) said, "Everybody eats and everybody takes medicine". This premise is often a starting point for engaging with vulnerable and hard-to-reach communities; in contrast with the previous section explored here are instances where botanic gardens are working to meet the needs of communities through discrete projects and programmes, often reaching out to those who would not normally visit or benefit from the garden in other ways.

The questionnaires completed for this research by 38 UK botanic gardens revealed that three-quarters (27 respondents) were working with hard-to-reach groups. Most reported working with disabled groups or providing job or volunteer opportunities for disabled people and/or young people with special needs, although a range of groups were reported across the sites as a whole.

The case studies and interviews yielded many examples of where botanic gardens were providing for vulnerable and hard-to-reach groups. One way in which many botanic gardens are providing relevance to vulnerable and hard-to-reach groups is through community gardening. There are many definitions of, and approaches to, community gardening but most of the examples we found refer to the development of gardens in collaboration with communities 'in disadvantaged enclaves of densely populated cities on unwanted public land' (Hatherly 2006:3). Benefits attributed to community gardening include improved quality of life, increased social interaction, increased self-reliance, reduced crime, preservation of green space and the creation of income opportunities and economic development (ACGA 2009b). This has been the experience of Botanic Garden Trust Sydney, who have made a significant impact with their 'Community Greening' programme.

Gardening the community: Sydney's 'Community Greening' programme



Understanding and acknowledging that not all communities are able to visit or engage with the botanic garden, Botanic Gardens Trust Sydney began to reflect on their relationship with communities in new ways, thinking about meeting the needs of community's whilst building on the values and processes of the botanic garden. Inspired by initiatives in the USA, the 'Community Greening' project was developed in 1999. It encourages communities in disadvantaged areas and in neighbourhoods of social housing to develop communal gardens in unused public spaces, utilising disused, barren or vacant council land, and in the grounds of churches, hospitals and schools.

"Because of limited resources, we target the communities in most need... [Who] wouldn't come to us or [who] can't come to us because they're isolated, disadvantaged" (Janelle Hatherly, Public Programs Manager)

Staff from the botanic garden provide the horticultural expertise, advice, education and training that communities need. Groups and people in specific neighbourhoods come together to transform the redundant areas; the gardens yield a diverse range of produce, including fruit, herbs, vegetables, plants, seedlings and flowers. In keeping with the environmental aims of the Trust, community gardeners are encouraged to use sustainable practices including waste reduction, recycling, reuse of resources and organic gardening principles. These are working gardens; they are long-term urban renewal projects rather than a 'quick-fix':

"They're actually communal gardening projects and it can take up to five years to end up with something on the ground that looks good and works... So if you're going to build capacity, it doesn't happen overnight, nor does learning" (Janelle Hatherly, Public Programs Manager).

Today, the scheme is flourishing with over 140 communities participating across New South Wales. Such is the success that communities now actively and constantly approach the botanic garden to be involved.

The scheme blends the ethos and values of the botanic garden with the social needs of disadvantaged communities. As a statutory body the Trust is driven by state and national policy and it is part of the garden's role to ensure that:

'all individuals in New South Wales should have the greatest possible opportunity to contribute to, and participate in, all aspects of public life in which they may legally participate' (Botanic Gardens Trust Sydney 2010).

The Public Programmes Unit at the botanic garden, who runs the scheme, aims to help the broader community appreciate their natural and cultural heritage, to learn to care for their local environment and to adopt sustainable lifestyles.

The impact of 'Community Greening'

The gardens have transformed run-down areas, aesthetically improving them while also being productive by providing fresh produce for communities. The impact of the scheme however is much more profound than this, a combination of social and environmental impacts, which directly affect people's lives, improving their confidence, developing their skills and their vocational opportunities. The botanic

garden has played a key role in creating more cohesive communities; the gardens have been a vehicle for creating a sense of community, bringing people together focusing on a shared experience, and creating interactions between those people who previously had little contact. They are valuable and valued community spaces, where people feel a sense of ownership.

The gardens have had a significant impact on crime too, reducing vandalism and anti-social behaviour and because people are more involved in their neighbourhood they are more active in reporting crime.

There have been benefits for both physical and mental health; people take part in more activity, there is the restorative impact of engaging with the natural world. The gardens have created an improved and healthier environment and improved diets through greater access to fresh fruit and vegetables.

There is environmental impact too, significantly improving the location, reducing food miles, reducing waste, increase in recycling, and reuse of resources, particularly water.

Table 9 provides an overview of the outcomes for communities participating in the 'Community Greening' programme.

Table 9: Outcomes identified from Community Greening participants and partners

Social cohesion	<ul style="list-style-type: none"> • Encourages participation of all people in the community including non-English speaking • Ownership of previously barren open space and common lands • Sense of place and purpose • Community interaction, combating social isolation • Community spirit
Crime Reduction	<ul style="list-style-type: none"> • Reduced crime and antisocial behaviour • Reduction in the fear of crime • Increased confidence and feelings of safety • More active participation in the community e.g. increased likelihood to report crime • Reduction in vandalism particularly where children and young people made to feel part of the garden
Public Health	<ul style="list-style-type: none"> • Improved physical and mental health through exercise and activity • Creating more community resilience • Improved diets with access to fresh fruit and vegetables • Gardening experience that was unable in other ways e.g. participants living in high rise housing • Improved and healthier environment
Environmental	<ul style="list-style-type: none"> • Reduces man-made CO2 emissions by planting trees and shrubs • Making a difference in the local area • Transformation and environmental improvement of previously redundant areas • Waste reduction • Increase in recycling • Reuse of resources, including water • Reduction in food miles

Individual outcomes	<ul style="list-style-type: none"> • Enjoyment • Improved self confidence • New skills • Vocational opportunities
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Table 10 describes the critical success factors which can be attributed to the effectiveness of the 'Community greening' programme.

Table 10: 'Community Greening': critical success factors

Policy/ Priorities/ Values	<ul style="list-style-type: none"> • Sydney botanic gardens are part of the Department of Environment, Climate Change and Water (DECCW). DECCW is responsible for working with the North South Wales communities 'to protect and conserve our environment, including our natural and cultural heritage'. • Sustainable practice. • The Unit supports the focus on 'Education for Sustainability', wants to make a difference, and aims to help the broader community <u>appreciate</u> their natural and cultural heritage, learn to <u>care</u> for their local environment and <u>adopt</u> sustainable lifestyles.
Partnerships	<ul style="list-style-type: none"> • Strategic partners with key social organisations has been critical • Formal partnership from 2000 with Housing New South Wales • Partnerships with Horticultural Business who provide supplies and plants
Funding	<ul style="list-style-type: none"> • Resource intensive so external funding important, but because it relates to policies and priorities, public funding is more likely to be available. • Funding over a number of years from Housing New South Wales. • Funding from State's Community Solutions Fund for work with targeted groups including young offenders and people with HIV/AIDS.
Key advocate in the community	<ul style="list-style-type: none"> • Locating a key advocate in the community is critical they act as a catalyst for community <u>capacity building</u>.
Timescale	<ul style="list-style-type: none"> • This work is about community development, it takes a number of years for projects to get established. Longer timescales are critical over several years.
Staff who combine horticultural skills & community skills	<ul style="list-style-type: none"> • The Botanic Gardens coordinator plays a pivotal role in the success of this project, it requires horticultural knowledge but also a real connection to people on the ground
Model of practice	<ul style="list-style-type: none"> • The model can be easily replicated, so the scale and scope can be extended over a large number of people, a big area and in different contexts – though it has not worked in all contexts, for example with Aboriginal communities where the concept of <u>gardening</u> is not culturally appropriate.
Environmental Issues – a social context	<ul style="list-style-type: none"> • Critical to the success of the project has been the relationships between social and environmental issues, and seeing the connections and relationships between these. That changing attitudes and behaviour is a process in real life not something abstract that people learn about and necessarily act upon. Such is the success of the Community Greening the project is now approached by other agencies for example • Sydney Water can see the direct benefits of this model of partnership working.

Botanic gardens are contributing to health and wellbeing in other ways. Ward, Parker and Shackleton (2010) note the important role that botanic gardens can play as green spaces:

'Benefits of green spaces to human well-being include livelihood provision, health improvements, stress reduction, rejuvenation and recreational activities, as well as providing a sense of peace and tranquillity' (49).

Westonbirt has developed their role in providing opportunities for health and wellbeing to those who need it most, working with groups like the Alzheimer's society, organisations like MIND and the Heart Foundation:

"We've done walks, walks for health and things like that... sponsored events... all sorts of local charities" (Simon Toomer, Director).

The physical exercise necessary to navigate the site is an important health benefit, as Simon Toomer explained:

"in terms of health benefits there is the real tangible one of actually getting people out and exercising. That's not just in actual visitors but also in people who are engaging more closely [through] volunteering and who are working for us".

As reported in the previous section, Westonbirt is engaged in a programme to develop the site for non-visitors, recognising that they need to appeal to those who are not as 'interested in trees' as their traditional visitors. They are actively working with vulnerable and hard-to-reach groups, employing staff who are experienced in working with disadvantaged groups. At the time of the research one of those projects was a drugs rehabilitation project, and the HLF funding would give them greater opportunities to reach audiences including young people not in education, employment or training (NEETs). Westonbirt however – like many gardens – feels they are constrained by the amount of resources they have to do this kind of work:

"It's one of these difficult things because we know we want to do these things but if you're not careful as your resources are frozen which is effectively what's happened to us over the last few years".

The way in which plants contribute to health and wellbeing had the potential to be explored at the **Chelsea Physic Garden**:

"we've done some visitor surveys and I think a lot of people are curious about the wellbeing message, because you know, you notice a lot of people wanting to know, you know, perhaps have someone they know who's got Alzheimer's or Parkinson's Disease, or you know, experienced some leukaemia or cancer, and they come in and they just sort of look at the plants in a very kind of wow way, you know. And when we demonstrate the uses of the plants, they get affected by that" (Rosie Atkins, Curator).

In terms of hard-to-reach audiences, Chelsea is working with Thrive, a gardening charity that works with disabled people to 'change lives'. As their website explains, the charity advocates for the 'benefits of gardening, carry out research and offer training and practical solutions so that anyone with a disability can take part in, benefit from and enjoy gardening' (Thrive 2010). Chelsea is also thinking of ways in which they can work with minority ethnic communities who live in the area local to the garden; they have plans to create a Jamaican garden in collaboration with local people, as Rosie Atkins explained:

"we're going to create a Jamaican garden hopefully here in the summer and hopefully we can get some of those people of Caribbean origins, to come and talk to us about their remembered remedies, you know, how plants, you know, dietary things, you know, there's a lot of plants. We'll be growing aki and various other things that they see in the markets, but they probably don't know that they can grow themselves in their allotments".

At **Oxford** there were a number of specific projects addressing the needs of vulnerable and hard-to-reach communities. The garden was working with Replenish, an organisation that takes the surplus vegetables grown in the botanic garden – which started as a spin-off from another project 'Food Art' - and gives it to local drop-in centres:

"So it's anything from the night-shelter, to the Donington Doorstep... [which is] a family centre and they do a hot meal at lunchtime... There's about ten charities that they distribute food to... And the idea behind it was to get fresh vegetables to community groups" (Louise Allen, Curator).

The garden hopes to extend this relationship by hiring a community vegetable gardener and provide opportunities for the groups that Replenish works with to come and learn how to grow vegetables in the botanic garden. Another project will see the development of a collection of plants which have been used by the NHS (National Health Service) to help people to learn "how plants are being used in NHS medicines and in their daily lives".

Oxford is part of Oxford Museums & Collections, which includes the Ashmolean, University Museum of Natural History, the Pitt Rivers Museum and Museum of the History of Science. Through this link they come into contact with vulnerable and hard to reach groups; for instance they work with the children's hospital at the Oxford Radcliffe, part of a rota of sessions shared by the different organisations for children in long-term care and day patients at the hospital school. The garden has also worked with teenagers with emotional and behavioural difficulties at a local residential hospital and provides sessions for adults with learning difficulties on site, adapted from their formal education programme. When developing these projects the botanic gardens tends not to work with communities directly, instead they tend to be approached by the gatekeepers, by artists and project developers "rather than it being the actual community group". They are not at the stage yet where they are directly approaching community groups to find out how the botanic garden can best meet their needs.

Eden on the other hand works directly with communities to tackle pressing social and environmental issues, although they are not located in an urban environment

like many botanic gardens. In the post-industrial rural environment in which Eden is located, communities are having to come to terms with a great deal of change; unemployment, low aspirations and poverty are common social concerns. As a social enterprise organisation – an organisation driven by a social mission and which applies market-based strategies to achieve a social purpose - Eden sees their role as working with communities to come to terms with these changes and ameliorate the effects of exclusion. Juliet Rose, Community Development Manager, explained:

“We’re part of a rural programme of research and we were very interested in how you engage with communities to talk about change and particularly to talk about things that we’re going to have to let go of, things that we want to keep, where we’re going in the future”.

Clay Futures- Meeting the needs of communities

In a future which will be radically altered by climate change there will be many new challenges. Communities will need to be more resilient and more flexible to adapt to change. Those communities that are already facing difficulties are especially vulnerable and ill-equipped to deal with these changes.

What role might botanic gardens have to play in supporting communities, especially some of the most vulnerable, to become more resilient and more able to adapt to the challenges of climate change? Juliet Rose Community Development Officer from the Eden Project suggests that cohesive communities are going to be key to this future:

“when facing some significant challenges in the future and the best way for us to face them is together, that we’re probably going to have to share more things, we’re going to probably have less personal freedom possibly, but equally, if we want to cope with a lack of, dwindling resources or climate change, then probably our best way of doing that is to try to do that cohesively. We’re going to be more successful if we can do it that way.”

Drawing on a set of values that look towards a sustainable future, Eden is working with post-industrial communities around St Austell that have been blighted by the demise of china clay industry. Here the landscape is physically shaped and scarred by extraction, and where the economic focus of the community has disappeared leaving a legacy of many people who are deprived and dislocated from a thriving future. Eden is using ‘Clay Futures’, an in-depth consultation with local communities, as a real opportunity at grass roots level for communities to think about how their community could be and to shape their own future. Rather than thinking about the future in an abstract way, the process makes it more concrete and real and specific to that place and those people. Rather than feeling that things are done to them, where people feel they have little power or influence, this is a process of communities taking hold of their own future. By framing the consultation Eden has been able to ask communities questions about their future which relate directly to sustainability.

‘Clay Futures’ draws on the experiences of interpretation at Eden’s main site, engaging people not by overwhelming them with information but through clear

messaging and giving them a chance to say what they think and feel:

“So we ran a process that had the look and feel of a village fete... that created a convivial space in which people felt confident to put across their true thoughts and feelings. So we used a lot of look and feel as part of the process, to make sure that people felt confident and familiar with what they were doing” (Juliet Rose, Community Development Manager).

The desire for green space emerged as a big issue; all sorts of green spaces like allotments, community gardens, wild spaces, trails. The community wanted lots of safe green spaces for children to play in, but not just for young people also accessible green spaces for elderly people and people who found it difficult to get out and about. Simple things. Juliet went on to say that:

“actually I don't think there's anything surprising that came out of the whole [consultation] but what was important is that we needed to evidence it”.

What is clear is that people value green spaces and botanic gardens can play a key role in meeting these community needs. This is the most obvious link with botanic gardens - creating positive ways forward for the future.

The event ran across five parishes. Commissioned by Cornwall County Council it included the development of parish plans and was part of the consultation of The St Austell Eco town development.

Projects at Eden work with a range of vulnerable groups both on and off site. 'Growing for Life' works with prisoners, providing them with the skills and tools to garden so that local disadvantaged communities can benefit from fresh food. The 'Great Day Out' programme is aimed at groups whom Eden most wanted to visit but who were (in practice) the least likely to visit. Through the programme 'tailor-made' experiences were offered as small group visits - either one-off or a series of visits - to agencies working with some of the most vulnerable people, including homeless people, people addicted to drugs and young people in care. The programme aims at building the confidence of participants, encouraging their self-esteem and igniting their passion, providing something different from the negative experiences in their lives and exposing them to the positive thinking and energy of the Eden project. The 'Great Day Out' programme has reported many benefits for participants including:

Exposure to new experiences (being taken out of challenging situation for the day)

- Positive role models
- Sparking the imagination
- Increasing motivation
- Enjoyment
- Therapeutic
- Something to do
- Positive activities e.g. that stop participants thinking about addiction to drugs and alcohol
- Participants often want to repeat visits.

Participants have often gone on to do more as a result of their involvement in the programme, for instance volunteering, education courses, gardening, and conservation courses to name a few.

Dave's story: The Eden Project and finding a way out of homelessness

Dave (not his real name) visited the Eden Project at Christmas time 2008 with the Shilhay Community in Exeter, which provides hostel accommodation for homeless people and offers new ways of helping them to get back on track. A series of circumstances and events had led to Dave's life becoming increasingly chaotic; he had experience of mental ill health which involved him being in the mental health care system, he had serious disputes with his family and had been in prison. At the age of 23 he was homeless, with very few prospects for the future.

Dave's visit to Eden was organised as part of 'The Great Day Out' programme, a chance for individuals to get away from everyday life and to experience something completely different, to be inspired and see things from a new perspective. 'Great Day Out' offers socially excluded groups the chance to be involved in tailor-made days which support the work of Eden's partners. The aim of the project is to break down barriers, build confidence, and encourage people to make positive steps forward (Eden 2010).

Dave really enjoyed his visit to Eden like the vast majority of people who participate in the programme (98%). It offered him a chance to be taken out for a day from the challenging and bleak situation he was in as a homelessness person. Through a personalised tour for the group and activity workshops, Dave began to get a sense of what Eden was about. He was exposed to a new environment, which was inspiring and absorbing. The environment was therapeutic; he met different members of staff and was exposed to a whole new range of jobs - gardeners, horticulturists, sky monkeys – providing him with a host of new possibilities. Like most who visit on the Eden as part of a 'Great Day Out' it was a memorable experience for Dave, which he valued.

Here are some comments from participants in the programme:

"My visit to Eden got me out for the day, so I didn't have my mind on doing negative things".

"It has helped my confidence".

"I did not know I could have so much fun without drink and drugs".

"Thank you for treating me like a human being".

For Dave this was to be more than a visit; his imagination was sparked when the group were offered the opportunity to volunteer at Eden. Whilst really keen, many people in Dave's situation find the challenges of travelling by public transport to Eden thwart their intentions to even attend the volunteer induction sessions. Dave has shown real commitment however and now volunteers regularly. He leaves Exeter at 5.30am for a two hour train journey and he stays overnight in a bed and breakfast in St Austell to ensure he gets there on time. Dave is a tough guy, but needed lots of support, attention and care and lots of reassurance. Over a year after his initial visit Dave has volunteered in a range of areas. He began by pot

washing – a horrible hard job- as well as front of house activities on-site like serving drinks in the café.

Through volunteering Dave has blossomed. He loves being part of Eden, he turns up on time, is committed and engaged. He has responded well to positive structured activities. Dave has gained an enormous amount from the experience. He has developed his customer service skills and learnt to listen to other people, not just talking about himself which he was preoccupied with doing. He has made new friends and he feels valued. Dave is now much more engaged and confident and he has aspirations which are realisable. He is motivated and focused on the future.

Dave's circumstances are changing too. He is now living in more independent accommodation, and he has had an interview with a high profile Michelin-starred restaurant in Exeter, getting an interview on the strength of his experience at Eden. He has also talked to 'The Great Day Out' groups about volunteering.

Whilst still on his journey, the Eden Project has enabled Dave to make some very positive, and critical, steps forward.

The Great Day Out programme is funded by the Department for Communities and Local Government.

Edinburgh has worked with a number of hard-to-reach groups including through their 'Branching Out' project where they targeted five specific groups to "bring them in and find out why they didn't use the garden" (David Rae, Curator). The groups included elderly people, the Chinese community, young mums and their children. As David Rae explained, workshops and events were targeted at the groups:

"to bring them in to find out what the barriers were to see if we could break down those barriers."

They found that one of the main barriers was people thinking the garden was not for them;

"It's a lot about perceptions yes. Oh this is just not for me. They go flowers are just not for me".

The project was successful from the botanic garden's perspective; although a short-term project some of the participants continued to visit once the project had ended. This project, at the beginning of meeting community needs, is much less engaged however with the real needs of communities. It is still more focused on organisational priorities to increase audiences. It is therefore very unclear what the strategic implications of projects like 'Branching Out' are for organisations and if they have any impact on the way in which the botanic garden is organised to meet the needs of vulnerable and hard-to-reach groups.

Meeting organisational needs before community needs

Botanic gardens are working with vulnerable and hard-to-reach groups in a variety of ways; however they could be doing so much more to meet the needs of communities. With the exception of Eden – whose work is embedded with values, is extensive, effective and confident - at the moment it tends to be from the perspective of the needs of the organisation rather than a real and in-depth engagement with the needs of communities; much of the work is reactive rather than proactively seeking to engage with communities which do not fit into traditional visitor patterns. They clearly want to be 'all things to all people' but many gardens struggle to make themselves relevant to those who are excluded. Many lack the capacity or motivation to develop work in that area; some of those who are working towards becoming more inclusive are hampered by a lack of clarity over the extent of the social role they desire to have. Many projects therefore labelled as 'socially inclusive' are more relevant to audience development.

One of botanic gardens' clear values is a belief in a sustainable future where the biodiversity of plants is valued by wider society and the contribution that plants make to human life is understood and appreciated. Botanic gardens often begin with the premise that everyone, no matter their life circumstances, can be interested in plants because plants are so vital to us as a species. This vision is important across the whole of society but can seem abstract and its relevance is not always apparent especially to communities who are already facing many social and economic challenges. At the moment botanic gardens are only relevant and accessible to a particular section of society; research and anecdotal evidence from gardens reinforces that white, middle class, older people are over-represented. Socio-economic groups ABC1 make up roughly 51% of the population but over 80% use and visit botanic gardens; C2DE are an estimated 49% of the population but less than 20% visit or use botanic gardens.⁴ The young, minority ethnic groups and rural residents (most botanic gardens are situated in urban areas) are also excluded. They are not accessible to everyone. Botanic gardens need to put themselves more effectively into the mindset of people who do not visit botanic gardens, who are not always interested or engaged by plants or gardens or nature, who cannot freely access or participate in society in the same way that more traditional garden visitors can. This requires an ongoing, in-depth understanding of community need and very clear articulation of the values, social role and responsibilities that the organisation wants to have.

5.3 Education

Botanic gardens are well established as providers of education; formal and informal, from nursery-age children through University students to adult. Through the research we identified education programmes that are teaching the more traditional science subjects - plant classification, botany, ethnobotany and so on - but also sessions that engage with contemporary issues such as climate change, the impact on plant biodiversity, environmental issues, the need to live more sustainably and becoming an active citizen. Education programmes ranged from simple, easily replicable sessions – such as the 'Waste Free Lunch' at Oxford – to programmes carried out on

⁴ These percentages have been calculated from the following figures suggested by Lang (2006): A (3%); B (20%); C1 (28%); C2 (21%); D (18%) and E (10%).

a large scale, like the 'Fairchild Challenge'. The types of learning programmes offered by botanic gardens varies greatly, however we saw an emphasis placed on holistic, open-ended and lifelong approaches. Learning was often multi-sensory, practical and hands-on by the very nature of what botanic gardens do; they provide first-hand contact with the natural world.

The role of education in the organisation varies as to how embedded it is. Most gardens have some education provision, mainly programmes for schools. Some gardens like **Edinburgh** has a substantial team and provides education opportunities across the whole range of learners:

"I have about ten staff working in education and we also hire in quite a few part-time lecturers who come in and do evening classes, weekend classes, all that sort of thing. So we have a whole range. We do some distance learning as well, but we've got, as I say, what we call our sort of formal programme... It's primary, secondary... full-time HNDs, BSc and also MSc in taxonomy" (David Rae, Curator).

Education techniques that emphasise the 'whole child' and cater for creative, physical, intellectual, spiritual and emotional needs, have long been linked to the benefits of having early experiences in the natural world. Engaging children with living plants has long been held as a valuable means of supporting their learning through a 'discovery-based pedagogy' (Saunders 2007:1219-1220). As Emma Williams from **Oxford** explained:

"we've got real things that people can touch and they can feel, and we've got those sensory elements and a lot of our collection to a certain extent we can cut bits off, we can show people, they can touch it, we can squidge it, we can sniff it, we can taste it and for me that's a real bonus because... it's firing up all of those sensory processes... it's the senses with the stories with the facts and activities which I think make a really great kind of learning pocket experience".

Oxford offers learning programmes for primary and secondary schools and the public. Their programmes are more about contemporary issues and developing a socially responsible attitude towards the planet rather than focusing on traditional subjects like botany:

"It would be very easy just to teach the kind of very basic core plant biology... and is expected of through the curriculum but we're really about creating people who are interested and engaged with and care about habitats and environment and plants and conservation and living sustainably" (Emma Williams)

One of the sessions that is underpinned by this philosophy is 'Green Inspectors', developed by Oxford for Key Stage 2 Primary School pupils. Pupils actually become 'inspectors' for the day, looking at what we as a society can do to live more sustainably. Using the botanic garden as the basis for their exploration, the pupils are given badges and clipboards. As they make their way around the garden with their teachers they award marks based on how sustainable garden practice is. Areas they look at include use of water, dependency on fossil fuels, transport (Oxford has a land-rover that runs on chip fat), energy consumption and recycling.

Children also go home with ideas as to what they can do at school and home to live more sustainably. Another popular session with schools is the 'Waste Free Lunch', a simple idea that the garden 'borrowed' from the RHS Garden, Rosemoor:

"it's basically can you bring your packed lunch to the botanic garden without leaving any waste behind".

Oxford is very hands-on, and like to get children and young people "actively doing things" in the garden; for instance if they are doing a session about sourcing food locally they might get the children to sow some seeds in a pot for them to take home. The aim is to have a positive effect on how young people view the natural world and the importance of biodiversity. Engendering an impulse towards wanting to do more to protect the natural world is an outcome that Emma Williams felt was particularly important to the education programmes:

"Children that are engaged and adults that are engaged with how they think about how they live in the world, how they behave to the natural world but most importantly having a kind of joy and inspiration in being in natural environments and habitats or even a place like this which is not really a natural habitat but surrounded by living things and enjoying those, relishing those and feeling empowered enough to go on and do positive acts because of that".

The **University of Leicester Botanic Garden** teaches children about how plants from all around the world contribute to our diets through the 'Whole World Cake', a two-hour workshop that sends children in search of 'ingredients' throughout the garden to make a cake they can then try a piece of. **Eden** has created a living network of schools - 'Gardens for Life' - which encourages young people across four continents to explore the world through gardening and growing food, exploring issues like food security, sustainable development and global citizenship. There are five different lesson plans for different age groups, 'Plants like Me' covers the following topics:

- What have plants got to do with me?
- Plants link us to people and places
- Plants and my place
- Actions for plants – garden designers
- Exchanging information
- Comparing information with other countries.

The **Chelsea Physic Garden** similarly takes a hands on approach to learning, and engages with contemporary issues - their senior education officer is an ecologist by background:

"he'll get the kids to weigh up their school dinners that they bring and look at how much they've eaten, how much they've thrown away".

Even the more 'traditional' subjects can also be taught in the same, hands-on way, making it more enjoyable and relevant for children. For instance teaching plant classification to children by using their own school bags as an aid to explanation:

“we've got this great history of being a place where plants were identified, classified and understood. And children come in and Michael [senior education officer] has this idea of looking at all their bags and he'll classify them in number of zips, colours, and then they'll go out to the order beds and say okay all these plants are the same family like your bag, but they're all in the same bed because there are characteristics which differ and they understand it completely. And they talk about all those things. And so it's about ways of connecting things”.

Creating active, environmentally minded citizens for the future: The Fairchild Challenge

‘At Fairchild we measure success by the number of species saved and lives changed’ (Lewis 2006)

The Fairchild Challenge is an ambitious, large-scale outreach education programme which aims to create environmentally aware, critical and active citizens for future. It is a competitive, multi-disciplinary programme that involves teachers and students – from pre-Kindergarten to High School - across South Florida taking part in different activities to earn points and win the ‘Fairchild Challenge Award’ for their school. The programme was devised and developed by Caroline Lewis, former Director of Education at the Fairchild Tropical Botanic Garden (2003-2010) in Coral Gables, Miami-Dade County, South Florida, USA; what started off as a programme only for High School students to fill a gap in the garden's educational provision has since grown to involve students of almost every age from Elementary and Middle schools and the ‘Fairchild Challenge’ has been adopted by other botanic gardens in North and South America as satellite partners to Fairchild.

Targeting young people who are at a stage of development in their lives was important to the programme – they are working out who they are and who they want to be, what they want to do in life. As Caroline Lewis wrote in 2006:

‘Often they are looking for something bigger than themselves to embrace, and, when their voices are heard, they feel important and needed’.

Lewis wanted to give a voice to young people, to make them feel that they could ‘make a difference’ around issues that are important to them. She wanted to give them the message that ‘your opinion matters!’ (Lewis 2006). Through the Fairchild Challenge students can choose from a menu of ‘challenge options’ developed around the theme of environmental awareness. These include ‘fun’ activities such as art, designing logos and campaign messages and performance, hands-on and practical activities like cooking, conservation work and gardening, alongside more formal education activities such as essay writing, report writing and debating. The challenge options are designed to:

‘appeal to students’ sense of play and creativity, to empower them to seek information and voice opinions, and to encourage them to experiment with ideas, projects and skills’ (Lewis 2006).

The optimal outcome is for the activities to stimulate young people's interest in contemporary environmental issues and encourage them to become actively

engaged citizens who are not afraid to (for instance) write to their local political representatives to praise or show their concern about state environmental policy:

“we were encouraging civic engagement among these older students who are now getting into voting age and the stage where they will be making some important decisions in their communities” (Netiva Kolitz, Challenge Satellite Programs Coordinator).

If purely in numerical terms the programme has gone from strength to strength. In the first year of the challenge 1400 High School students from 10 schools participated. Middle schools were added due to high demand from teachers. By 2008-2009 over 45,000 Middle and High School students from 112 schools participated. This success has prompted Fairchild to carry out a pilot programme for Elementary schools. Whilst most of the activity takes place in school, Fairchild tries to ensure that some activities are connected to the garden; winning students also receive a complimentary family pass so that they can make a return visit.

The learning outcomes evidenced from the project provide the testimony to the positive impact on students and teachers. Urban teenagers are coming into contact with nature and are thinking critically about how society should treat the natural world. Teachers have reported an increase in environmentally-minded behaviour in their students; 75% of high school and 76% of middle school students agreed that they could ‘convince others to take action to help the environment’ (FTBG 2009:5):

“[Kids] are now saying that they are engaging their family members in all different types of environmental activities that they normally would not have even thought to do, like such as getting their family members to recycle or to have greater awareness about other environmental issues that they didn’t previously” (Netiva Kolitz, Challenge Satellite Programs Coordinator).

The Fairchild Challenge plays an important role in encouraging young people (the citizens of tomorrow) to become socially and environmentally responsible citizens. It is itself a socially responsible programme in that it specifically targets ‘Title 1’ schools as they are called by the US Department of Education – schools that may be under-resourced, that are in disadvantaged areas, that have high numbers of students eligible for free school meals, that lack parent support, that have low academic records. Fairchild provides additional support for these schools through the programme, like providing additional resources which would otherwise exclude them from taking part. The range of activities is also designed to ensure that it appeals to students with ‘diverse interests, abilities, talents and backgrounds’ (FTBG 2010). Activities are placed in a real-world context that is meaningful to young people, using contemporary environmental issues that are both local and global. The seriousness with which the competition is carried out – the panel of ‘experts’ who judge the young people’s entries; the celebration around the ceremony at the end of the annual programme when the winners are announced – suggests that the young people’s contributions are valued by the botanic garden as well as by their teachers. Community involvement is also integral to some of the activities, and young people are encouraged to share their environmental awareness with their families and wider community.

The Fairchild Challenge and education programmes at Fairchild Tropical Botanical Garden are sponsored by a number of state, corporate and private donors including America Honda Foundation, Bank of America, U.S. Department of Education's Magnet School Assistance Programme and Publix Supermarkets Charities.

5.4 Research which has socio economic impact locally and globally

Globally botanic gardens have a potentially huge social role. Research that has socio-economic impact is a key area of activity for many botanic gardens: developing hardier or drought resistant plants; to better understand the storage of seeds and germination qualities; working with farmers to better crop yields; helping communities to conserve disappearing species or ensuring plant biodiversity are only a few of the applications that can be made through plant research. Based on the information we have gained from the case studies and interviews, the way in which research is used to directly benefit communities is stronger internationally than in the UK itself, especially in the developing world where the impact of climate change and other environmental concerns is much more critical and more connected to everyday lives. Constance Okollet, writing in *The Guardian*, described the worsening effect that climate change is having upon her village in eastern Uganda (2009):

'There are no seasons any more in eastern Uganda. Before, we had two harvests every year, but now there's no pattern. Floods like we've never seen came and swept up everything. It rained and rained until all the land was soaked and our houses were submerged in the water. This forced us to move to higher ground, where we sought refuge. By the time we came back home, all the houses had collapsed, our granaries were destroyed and food was washed away. The remaining crops were rotten, and our food was no more.'

Whilst developing countries are facing rapid industrialisation and urbanisation, more people still tend to be involved in agriculture and so see their connection to the natural world more obviously. Botanic gardens in the developing world are often more engaged socially with these communities, as Sara Oldfield from BGCI described:

"It's much more apparent in botanic gardens in Africa for example, they have a really direct connection to those communities... and really are involved in them. And I think people understand there more clearly what their reliance is on plants. I think we've detached ourselves from that, I mean inevitably".

In Uganda the Tooro Botanic Garden in Fort Portal, for instance, is working with:

"the very poor local communities, to help to improve the ways that they can grow their own medicinal plants and experiment with different kinds of vegetables and so on and growing plants to make dyes from so that they can improve the colours of the basket weave".

Some UK botanic gardens are working much more closely with communities in the developing world than they are with communities in the UK. They are able to see a greater application for their knowledge and research expertise. For instance Kew

are carrying out a lot of research in developing countries, looking at the sustainable management of plants used in food, clothing, and medicine:

“It’s very much about working with local people to look at what they can grow to help sustain them either for food purposes and in some cases it’s actually medicinal plants that are being brought into cultivation” (Professor Angela McFarlane, Director of Content and Learning)

5.5 Contributing to public (and political) debates on the environment

Organisations like botanic gardens are closely linked with conservation and biodiversity of plant species, many of which are endangered by environmental issues such as climate change and over-use of natural resources. The botanic gardens we spoke to all agreed that issues like climate change are a serious issue; as scientific institutions they tended to agree with the scientific consensus that climate change is posing a significant threat to the natural world. Simon Toomer, Director of Westonbirt was preparing an adaptation plan to meet the challenges head on:

“I would say that it’s highly likely climate change is going to be an extremely important factor in the future of our garden and therefore we can’t afford to sit on the fence and do nothing”.

‘Big Answers to Big Questions’ - Botanic Gardens Trust Sydney

‘Big Answers to Big Questions’ was, for Botanic Gardens Trust Sydney, an innovative and experimental programme of open-air debates, dinner debates and associated activities, exhibitions and information around contemporary environmental issues. For six months in 2005, visitors were invited to the botanic garden as “a safe place to explore contentious ideas”; over 1400 people participated in a diverse programme of activities that focused on the use of water; the management of heritage landscapes (inspired by the garden’s locally controversial decision to cut down an avenue of trees); and genetically modified plants. The issues were chosen for being relevant and up-to-the-minute:

“The value behind Big Answers to Big Questions is what are the environmental issues that people are talking about now? How can we help them make their mind up better by providing them with sound knowledge, understanding, of what’s out there” (Janelle Hatherly, Public Programs Manager)

Activities themed around these topics included weekly public, open-air Debates in the Domain at lunchtimes, which looked back to when public debates were held there regularly before the advent of radio and television. A range of speakers were invited and the public were invited to join in with the debates as they passed through the park. A programme of evening Dinner Debates was aimed at adults who wanted to ‘join in the dialogue in a relaxed atmosphere, facilitated by entertainers as well as experts’ (Botanic Gardens Trust Sydney 2007). There were day and evening lectures, weekend family fun days temporary displays school workshops, outdoor theatre and a whole host of online resources to accompany the programme.

The programme was funded by a \$50,000 grant from the Environmental Trust; most activities were free of charge and centrally located to ensure accessibility. Capitalising on the expertise of staff and trust invested in Botanic Gardens by the public, the programme of activities aimed at facilitating public participation in discussion and debate, providing access for visitors to good quality environmental information, encouraging critical thinking and enabling visitors to explore contemporary issues in a relaxed, informal environment and make informed decisions about their lifestyle behaviours and attitudes towards environmental issues. They found that some activities were more popular than others, for instance they achieved larger audiences for debates with local relevance. The programme asked whether it was possible for Botanic Gardens to tackle the big, contentious and complex questions that are connected to the environment. For Botanic Gardens Trust Sydney the answer was 'YES'! A summative evaluation found that:

- 94% of visitors thought the venue was suitable
- Most visitors thought speakers got their message across effectively
- 75% of visitors thought the speakers presented balanced viewpoints
- 68.75% of visitors made changes to their lifestyles following their participation in the programme including water reuse or become more active
- 100% of visitors felt they had the opportunity to participate in the discussions, and 50% felt confident enough to express an opinion (Hatherly 2009).

What contributed to the programme's success was the perception of the botanic garden by the public as authoritative institutions with integrity in environmental matters. They are grounded in scientific research and horticultural expertise:

“As a botanic garden, we are an ideal venue, we're an ideal group of people, this group of scientists... who are perceived as objective and impartial. We have people who could give people knowledge. We have an environment where we can hold fun things... And we had an education team who could facilitate the exploration of these ideas in a safe way”.

They are safe, non-threatening venues that are accessible to the public:

“We value people's opinion. We value everybody will make up their own minds and have their own opinions about things.”

As a result of the programme the 'best' interpretive strategies were incorporated into wider programmes.

Whilst botanic gardens were agreed on the existence and seriousness of climate change how they interpret and communicate that message for visitors was very varied. Only **Eden** is proactively and explicitly engaged in social change, embedding explicit messages throughout their practice. Looking at the three big themes of People, Plants and Planet creates a clear focus for their work, their mission

encapsulating the importance of plants, which is embedded in everything they do, but in relation to their relationship with people. Their social role is fundamental:

'To promote the understanding and responsible management of the vital relationship between plants, people and resources, leading to a sustainable future'.

They are a place for debate about the future, willing to be experimental and creative in imagining how society has to change. They are ambitious and their projects are not easily replicated elsewhere - they are led by ideas first and foremost. Eden believes in 'learning by doing' and they run their operation in ways that help to address some of the big questions that society is having to face, for instance 'how do we manage food supply and waste?' Messages are embedded across the whole site; in the restaurant and café there are messages about the food and how it is locally sourced, items in the shop fit into the same model of sustainability and values as the rest of the site. Whilst they are concerned to get their messages across, Eden is also careful to prioritise the visitor experience, as most of their visitors will come whilst they are on holiday. They start from the premise that visitors are not interested in the natural world or engaged with it. Eden is a 'shop window' for ideas, a place for conversations and ideas about how we as a society can develop alternatives to our current, unsustainable lifestyles. To meet the challenges of the 21st century, we need to be a part of nature rather than apart from nature and Eden has made the communication of that message an integral part of the visitor experience.

Oxford too is willing to take a stand over climate change, as part of the University of Oxford, who's research supports the consensus on climate change, it is an issue that they need to address:

"I would say we do take a stance. We're certainly not neutral"
(Louise Allen, Curator)

Though their programmes they were willing to merge science with art, to use less rigidly scientific, more creative methods such as story-telling, music and performance to convey a message if they considered it would be effective - to have an emotional (as well as intellectual) impact:

"I suppose for me if you want people who are geared up and keen and proactive to actually make positive choices in their lives you've got to be able to understand the subject matter and maybe that's where botanic gardens have kind of stopped in the past, you know, understanding the process of how a plant works. But you've got to have this emotional attachment to your subject matter as well... And without kind of wanting to care about the natural world... why would you take all these positive actions?" (Emma Williams, Primary and Families Education Officer)

Some saw themselves as holding strong environmental values, were happy to engage with debates but were still reluctant to bombard visitors with negative messages of 'doom and gloom' or impose their values upon people. For some gardens the scale of the crisis was potentially too much to expect visitors to handle; they did not want to spoil or interrupt the visitor experience with a message of

'doom and gloom', which some felt had been over-dramatised by the environmental lobby. They therefore tended to focus on the positive messages around plant conservation and biodiversity, and the role that people can play in ensuring these are protected:

"[What] we don't want to do is make someone's visit to a Botanical Garden a doom-laden experience you know everything's about to fall apart... We do talk about behaviour changing which we sometimes use and I think you have to do that very carefully" (Simon Toomer, Westonbirt Arboretum)

There was a sense that botanic garden staff did not want to offend visitors or be confrontational with them about their lifestyles and consumption habits. Simon Toomer was concerned about going too far in 'blaming' visitors for climate change, it made him uncomfortable to hear such messages being used elsewhere:

"I sometimes have interesting discussions with our interpretation manager, good natured, but he's very activist and he's very much you know, let's tell people their actions are no good they need to change and I'll say well hang on a minute let's tone this down a bit... I remember going to Eden one day and the bloke said, he was showing us a cocoa plant... most of the chocolate was produced for [Cadbury's] that was fair-trade was slave labour, he didn't leave any room for doubt in what he was saying, he was overtly saying you shouldn't be doing this".

Whilst Rosie Atkins from **Chelsea** agreed that botanic gardens can be "a forum for debate about climate change" and were not in theory afraid to confront their visitors and "shock them out of their complacency" they were concerned not to 'bombard' people with negative messages about climate change:

"I think just trying to make it so that you don't give everybody a guilt trip and it's a misery".

These gardens were much more comfortable with being essentially 'conduits' for scientific information, which they could feed to visitors, or engage them in debates but without being seen to take a stand. Being 'open minded', taking different perspectives into account, was regarded as the right and proper way for a scientific and educational institution:

"I think when you try and influence people one way or the other, they see through it pretty quickly. And it really just helps them reinforce their own belief system" (Janelle Hatherly, Botanic Gardens Trust Sydney).

They were careful not to make an emotional engagement with visitors about climate change, valuing rather a sober, dispassionate, objective viewpoint which was seen as more scientific - appealing to reason and intellect rather than to the heart. Botanic garden staff were keen to make the distinction, for instance David Rae, Curator at Edinburgh:

"we don't take sides... but we try to give impartial, precise information. So it's completely, you know, information driven".

Despite the activist thrust of the Fairchild Challenge, the programme does not “promote any type of particular messages or any standpoints.” The aim was to get students to ‘think for themselves’:

“it’s critically important to see that students are really getting all of the information that’s out there. There’s so much available and coming at them in so many different directions nowadays and we think that it’s critically important for the students to get the information they need, to be able to really make wise informed decisions, and especially now that they are the ones who are stepping into that role” (Netiva Kolitz, Challenge Satellite Programs Coordinator).

Neither are **Kew** activists; their interpretation of their status as a government body is that it prevents them from taking a stand:

“We are not a campaigning organisation and that’s partly because we are part government funded... so we can’t campaign in the way that a non-governmental organisation could” (Professor Angela McFarlane, Director of Content and Learning).

Like some botanic gardens the **Natural History Museum** prides itself on being an authoritative, scientific and evidence-led institution. Because human-induced climate change is recognised as a significant threat by a consensus of scientists the museum is starting to think about how it will embed the message into its public programmes and communication. However like most botanic gardens they were very cautious about the notion of debating climate change in a way that would be relevant and accessible for visitors. They were also keen to avoid controversy, e.g. by pitching a climate change supporter against a sceptic:

“I don’t think there’s much to be gained and it’s not that rewarding for an audience to be witnessing something like a boxing ring. But what we might do is have people who had a whole range of views and people who could discuss where the evidence was firm and where the evidence was you know ... still being evaluated or indeed evidence that we’ve now dismissed and that would be kind of a more interesting and real debate really I think” (Honor Gay, Head of Education).

If botanic gardens wish to motivate people into action is it enough to just give information? Are visitors really engaging enough with these ideas to actually take positive action? There is little opportunity made for dialogue between botanic gardens and their visitors at the moment; it is mostly one-way and without any in-depth understanding of what their visitors (and non-visitors) do and do not understand about climate change they are essentially second-guessing, diluting the message in the process to make it palatable. It is an issue that is complex and needs to be debated, the uncertainties and processes of science made plain:

I think what we need to do... is to mature the relationship between scientists who have to be better at explaining risk and uncertainty, the media that transmits that message to the wider public and the people of the country themselves who have to learn to understand about risk and uncertainty’ (Lord

Krebs, Royal Society Fellow, speaking to John Humphries on the Today programme, Radio 4, Tuesday 24 March 2010).

Around the issue of climate change, Dilling and Moser (2007) advocate for a form of communication between organisations and their communities that is:

'a continuous and dynamic process unfolding among people that facilitates an exchange of ideas, feelings, and information as well as the forming of mutual understanding and common visions of a desirable future' (15).

5.6 Modelling sustainable behaviour

Botanic gardens are relatively unique in their relationship with climate change in that they can not only show the impact that it will have upon the natural world, they can model some of the necessary adaptations in the form of 'sustainable behaviour'. Some would say this is essential if the organisation is to have a role in communicating to visitors the link made between human activity and climate change e.g. James, Smith and Doppelt (2007) consider it is important to cultivate a climate of 'ethical responsibility, concern and humanity' (310). Rosie Atkins from the Chelsea Physic Garden was clear about this too:

"Now if we're not doing it right, why should we expect other people to do it right?"

Eden has embedded messages about the necessity of sustainable behaviour throughout its site; they are not afraid to emotionally engage their visitors either. All their food is locally sourced and the books in the book shop cover themes such as energy saving, gardening, being a small-holder, the practical uses of plants and the global crisis of climate change. They have a waste neutral programme, compost and recycle materials frequently, for instance they have incorporated recycled materials into their new play equipment for children:

"We also do a lot of recycling. So we've got this big percussion set made by Big Beat, which is made out of plastic drums basically and plastic bits of pipe" (Philip Waters, The Eden Project).

In **Sydney** staff ensure that water is not wasted and recycled and does not return to the water supply in a degraded manner. Consumption and waste is minimised and recycling is encouraged. Sustainable forms of energy are used where possible. In **Oxford** staff are proving that older botanic gardens can be made sustainable. They have changed their land-rovers to take chip fat as fuel and made their heating systems more sustainable. They are creating a publicly accessible composting area so visitors can come and see how they are producing their compost. In the longer-term they are starting a water cleaning project. For Oxford an important issue was sharing this information with visitors, not only through education workshops like 'Green Inspectors'. The public often doesn't physically see the changes so it is important to keep educating people as to why they have been made - and that includes botanic garden staff as it should not be assumed that they value (or understand the need for) sustainable living. **Chelsea Physic Garden** is working on becoming more sustainable but they have been running compost clinics. In

Edinburgh the staff are very much into sustainable living and their values permeate the organisation:

“most people here are actually very socially and environmentally aware. Most people either walk or cycle or take public transport... when it comes to social justice, the same sort of things apply. Most people are sort of lefty greens” (David Rae, Curator).

Westonbirt is modelling for visitors the impact that climate change will have on the arboretum; to create a ‘2050 Glade’ that will “recreate the traditional landscape but with trees that we can [use to] tell stories about climate change” (Simon Toomer, Director). These trees are more resistant to drought compared to the Japanese maple, which draws lots of visitors to Westonbirt in autumn for their colours:

“Now we know from work that our scientists have been doing that Japanese maples are quite drought intolerant so it's one of the trees that we would expect not to do very well if the worst case scenarios come about... so what we're trying to do is for example to talk about trees which might fulfil the same landscape function but have greater drought tolerance”.

Through their interpretation and site management Westonbirt is keen to support ‘behaviour changes’ to more sustainable methods for visitors as well as long as it is done carefully. As mentioned previously, Simon Toomer preferred not to take a more direct, potentially confrontational approach with visitors over their consumption habits:

“We certainly talk about... advising people to look for wood products that [are sustainably made]... thinking about the use of timber in buildings... where they source their barbecue... all those sorts of things... also sourcing plants, where they grow plants... how they can conserve water... we're not shy about those”.

Modelling inclusive behaviour was another feature of Westonbirt. Simon Toomer, the Director, has not come up through the traditional route (through Science, academia) but became Director from starting with the organisation as a volunteer, demonstrating that the traditional route is not the only one:

“I came here in 2000. I actually started work here as a volunteer and then a contractor. I was curator for seven years until the middle of last year. So I've only been director for seven months”.

“I had worked previously in forestry, so I did a few days a week volunteering... then took on a self-employed role here doing contract work, surveying trees, mapping, doing botanical recording, health and safety inspections and all those sorts of things. And then I took up the curator's job when it became available and did that for seven years”.

As this section shows, the botanic gardens we spoke to were engaging in a great deal of sustainable behaviour. What they were less good at doing, with a few exceptions, was demonstrating and communicating that work to their visitors. Most of what botanic gardens are doing is hidden from the casual visitor. To have a more

meaningful social role, botanic gardens might need to think about how they can create a dialogue with their visitors around being sustainable and thinking about society's relationship with the natural world – how they can share their knowledge and expertise.

5.7 Actively changing attitudes and behaviour

Botanic gardens talked about the importance of changing the attitudes and behaviour of visitors -and society in general - towards the natural world. For botanic gardens this was particularly the significant role that plants play in our lives. For many people who work in botanic gardens it is almost seen as a crisis that society has, through the combined effects of industrialisation and urbanisation, become completely detached from the role that plants play in our lives. Sara Oldfield, Director-General of BGCI, spoke generally of how in post-modern, urban societies we are:

“so removed from the necessity to sort of grow our own food and, you know, go out and fell our own timber and so on”.

This lack of connection with the sources of our food, clothing, medicine and so on means that we barely think about where they come from as we consume them. At **Chelsea** they find that children rarely understand the role that plants play in their lives:

“[Our education officer] says who has a plant for breakfast and the children look at him with puzzlement... We've lost touch... completely lost touch with medicines and plants, and still 80% of the world's medicines are plant based”
(Rosie Atkins, Curator)

This disconnection from the natural world is seen, by radical thinkers such as James Lovelock, as one of the reasons why we are endangering ourselves and the planet by continuing to over-use resources, cause extinction to flora and fauna and heat up the atmosphere so that it becomes too toxic:

‘To be truly green we have to rid ourselves of the illusion that we are separate from Gaia [the Earth] in any way’ (Lovelock 2009:148).

Many of the staff we spoke to in botanic gardens saw one of their objectives as re-connecting people with plants. One way in which botanic gardens seek to convey the relevance of plants to their visitors is through making the connection between their daily lives and how much of what they eat, buy, medicate with and wear is derived from plants.

Seeds, Soup and Sarnies at The Eden Project

‘Seeds, Soup and Sarnies’ is a three-year Big Lottery funded project working with families who live in post-industrial communities around the Eden Project and in Middlesbrough. Families will work together to ‘learn to grow their own’, sharing knowledge of what to grow, when to plant and how to use the produce through

food preparation and healthy eating.

The aim of 'Seeds, Soup and Sarnies' is to develop the families' skills and knowledge around small scale growing of fruit and vegetables, supporting healthy food choices and food preparation. The project began in the autumn of 2009, running hands-on courses how to 'plant, grow, cook, share and eat'.

Eden is working in some of the most deprived and run-down areas, including social housing estates, where unemployment is high, aspirations low and opportunities limited, and there is little community activity. This project focuses on families learning together, learning to make and create spaces to eat, in a structured way at a table. They are learning across generations about food, experimenting with new recipes, and also learning to grow the food they eat, by developing vegetable gardens for example on land which is currently wasteland at the back of a parade of shops.

Part of the aim of the project is to build community spirit; to give people something purposeful to do, to learn new skills, and to motivate people and encourage communities to move forward in positive sustainable ways. The project sets out to actively change behaviour, for people to experience and be part of the process of growing food and learning how to cook it, so that diets are fresh and healthy.

At **Chelsea** there is an ongoing exhibition called 'Shelf-life' which conveys to people how their daily consumables all come from plants:

"We've had an ongoing exhibition called shelf-life where Michael [our senior education officer] grows the plants in the packaging from the supermarkets. Instant recognition, you know, you've got a packet of coffee and a coffee plant growing out of it. It's so basic and simple."

It was important to change the attitudes and behaviour of their visitors who, because of their affluence, do not think that climate change will affect them:

"here we are in an almost affluent part of London where I should think very few people round here are affected by climate change... these people are influencers round here and if you can get them to realise how important plants are to our lives, you know, it will make the difference".

The perception is that visitors exposed to these messages will start to modify their behaviour when they realise the implications of how much we rely on plants:

"That example of... 90% of the world's food crops are only a few species and they're vulnerable and makes mankind vulnerable. And okay, you may think in your smart flat across the road there, oh doesn't affect me, but you know, as soon as you stop going to Waitrose and your favourite beans from South America are not there, it begins to make you think".

At **Edinburgh** the staff have embedded key messages from the Global Strategy for Plant Conservation into everything they do, particularly in their learning courses and

interpretation around the site. David Rae, Curator, suggested that a similar process could be done with climate change:

“we've made the decision that within every course, whatever course it is, will be a mention of the Global Strategy for Plant Conservation somewhere. And even though we haven't said the same about climate change yet, we're getting to the situation where probably we'll say, you know, there must be something to do with climate change in every single course that we run. So that every student of any size, shape or form, that comes through the gardens, is aware of the issues. So we haven't done that yet, but I think virtually every course that we have will have a bit of climate change in it, and also many of our interpretive panels”.

Whilst the climate change message was important to gardens like Edinburgh, they were more comfortable with encouraging visitors to change their attitudes and behaviour in a more subtle manner than by directly confronting them about their consumption or lifestyle choices. As David Rae reiterated,

“A lot of people just do come to the botanic gardens because they want to recreate, and they don't necessarily always want to come and be told things, but we hope that we can subliminally even, you know, even if people just engage with the plants, then in some ways it becomes second nature that they value them perhaps more”.

Oxford took a similar tack, believing that the relaxing atmosphere of the garden was “conducive to learning”, using messages subtly so that visitors are not aware that they are learning:

“Almost sort of doing quite a lot of education without them understanding that they're being educated”.

There was the perception that if only people could understand how important plants are to our lives and to our continued existence on Earth, how important biodiversity is, they would develop the impulse towards respect for, protection and conservation of plants.

“it's not that difficult when you're dealing with plants because our existence as a species is so intimately linked to the plant world” (Professor Angela McFarlane, Royal Botanic Gardens, Kew).

The connection that people could make with plants was often spoke of in terms of an emotional connection - a contrast to the need to remain 'impartial' and dispassionate about the science of climate change - that could be made. The starting point seemed to be that everyone can find something interesting in a plant - what Louise Allen from Oxford calls “the pulling power of plants”. Botanic garden staff agreed on the importance of getting this message across, however it was only articulated directly through formal education programmes for schools. For the public and recreational learners, messages about plant conservation and biodiversity tended to be conveyed much more subtly. There is little research which tells us whether visitors to botanic gardens pick up these messages – or how they respond to them - but there was a belief that more direct interpretation would

'interfere' with the visitor experience as an 'aesthetic experience'. As Professor Angela McFarlane (Kew) explained, the skill was to combine the two:

"[It's] about bringing together a beautiful aesthetic experience for the visitor with some key messaging... trying to subtly interweave our messaging around the important plant conservation messages which are at the heart of what we do".

Much of this approach ties in with what is suggested by the literature, for instance Ballantyne, Packer and Hughes (2008) suggest that because most visitors to botanic gardens are not there to learn, it is not effective to appeal to them through activities with a 'strong educational emphasis' (443). Instead interpretative activities should be 'designed to be consistent with the need for a peaceful, relaxing and reflective experience' (443). Does this approach work? Is this too subtle? If Botanic gardens want to play a proactive role in communicating the significance of climate change they may need to be more forceful and clearer in their aims.

In taking this approach botanic gardens have to make a decision, is communicating issues of climate change key to their role? At the moment, botanic gardens mostly come across as fairly passive in their approach towards changing attitudes and behaviour, wanting to soothe over some of the more negative implications of human activity - and the impact this has on plants - as well as the social and environmental implications of maintaining our current high levels of consumption in the West. As we have seen, there was resistance to giving 'gloomy' messages or focusing too much on what humans have done (or are doing) rather than what they could be doing to resolve the impact of climate change. There was also some resistance to the term climate change and its negative connotations:

"Climate change is a flavour of the moment slogan. What it really refers to is getting people to live sustainably, to reuse resources" (Janelle Hatherly, Botanic Gardens Trust Sydney).

Tailoring the message for vulnerable and hard-to-reach communities

In the literature, working with non-traditional audiences raises lots of challenges for thinking about communicating messages of conservation / biodiversity and changing attitudes / behaviour. Disadvantaged and vulnerable groups in society are often thought not to be concerned about environmental issues but research in the US has revealed this to be misleading. Low income and disadvantaged communities are actually more likely to live in areas with higher exposure to natural and man-made disasters but have far more limited resources to protect themselves. Research in the UK has also showed that low-income groups find it challenging to take part in sustainable living initiatives because they:

'have fewer household recycling facilities, rely on landlords for housing repairs and, in some areas, have infrequent, unsafe public transport' (Stevenson 2003 in Shea and Montuillaud-Joyel 2005:11).

Working with disadvantaged and vulnerable communities should therefore be a priority for organisations, helping them to protect themselves and raising their awareness of resources that can help them. The literature makes it clear however

that this should be done in collaboration with the community, so that messages are conveyed in a way that is relevant and accessible to them, the organisation considers the needs of the group first and foremost, engages them in open and equal dialogue and develops trust. Organisations need to understand community values, needs and priorities, be able to communicate sensitive information effectively and find ways in which the skills and assets of group members can be harnessed effectively to involve them as part of the solution (Agyeman *et al* 2007:134-135). This approach was being taken by **Eden** very effectively.

We questioned the perspective of a worker from another garden that was working with disadvantaged and hard-to-reach groups. This member of staff suggested that “caring for the environment is really a luxury of those of us who have sorted out how to meet our basic life needs”, in other words the more affluent and secure classes. Disadvantaged individuals and communities were seen as much more focused on ensuring that their basic needs are met to be able to show concern about how those needs are met:

“they're too busy just surviving, they're too busy clothing their kids, trying to find a job, trying to get out of bed in the mornings... they aren't going to think at that sort of esoteric level that we who are in the comfort and security of our good quality of life can do.”

Community gardening programmes were therefore considered appropriate for disadvantaged communities whereas engaging in debates about local and global issues would not be:

“To ask people with social disadvantage to sort of measure their carbon footprint, they ain't going to do it that way, though they will take great pride in growing vegetables, improving the gardens around their place, building, you know, an area where kids can play etc., and then if they can say and we're doing good things for the environment”.

Although this worker had a lot of experience working with socially disadvantaged communities, we questioned the assumption they made about these communities not being able to engage with environmental issues on anything except an everyday, visceral level. This is doing communities a disservice and comes across as patronising, which the worker probably did not intend. It assumes that there is only one way to work with vulnerable and hard-to-reach groups. It conveys the importance of not taking groups for granted, of not making assumptions; of engaging audiences directly and allowing them to communicate their needs. If the result is that communities want direct, practical help to help them to overcome issues of climate change then that is the route to take, but assuming that they are not interested in other approaches means that the organisation is failing to look outside their own perception and really getting to understand how they can be socially relevant and socially responsible.

5.8 Conclusion

As organisations botanic gardens fulfil many roles:

'[They] provide immersion in the natural environment in an otherwise urbanized world... [and] are places for rejuvenating the human spirit... [They] are also museums of natural and cultural heritage. They specialise in long-term collections of living plants as well as house millions of preserved plant specimens' (Hatherly 2006:2).

In terms of their social role our research showed that botanic gardens are actively seeking to diversify their audiences away from their traditional older, white, middle class visitors. Gardens like Oxford and Edinburgh provide a range of activities - exhibitions, performances, picnics, themes programmes - that run alongside the more traditional use of the garden as a place to relax and recuperate. A few gardens like Eden and Westonbirt were seeking to be more strategic by directly targeting vulnerable and hard-to-reach groups, although this work was often reliant on short-term project funding. Generally however botanic gardens were quite passive about widening their audiences, relying on the belief that botanic gardens offer something for all and it is negative perceptions that prevent people from coming.

One of the key messages that botanic gardens want to convey is the belief that people in the developed world have become more and more disconnected from plants and the natural world. Whilst all botanic gardens agreed that this disconnection was a threat to plant conservation and biodiversity, and climate change was a further threat, they did not agree on the way in which these messages - and the content of the messages - should be communicated to visitors and the methods that should be used. Whilst some botanic gardens were comfortable with using sites as forum for debates they were not comfortable with taking a 'stand' on climate change as they were concerned this would compromise their scientific 'objectivity' or interfere with visitors making up their own minds. Overt messages that were negative or 'gloomy' about environmental issues were avoided for positive messages about plant conservation and biodiversity, or the positive behaviours that people can adopt. Most gardens were again quite passive in their approach to interpretation, claiming that it was often enough to bring people into contact with plants for them to find something special about them, despite have little or no evidence that contact with plants in a botanic garden leads to greater respect or stewardship of the natural world.

Botanic gardens are currently doing a lot to develop the accessibility of their site and programmes and convey important messages to their visitors; however they could do so much more. They have no or very limited evidence of the impact that they are having with their current programmes. They have little or no evidence even of who their visitors are. Without clarity of vision their efforts can seem piecemeal. Gardens need to ask themselves some important questions - are they clear about the desired outcomes for the visitors and the communities they work with? Do they want to change the attitudes and behaviour of visitors or enhance visitors' wellbeing? The core values and mission should underpin what the garden wants to achieve (Furse-Roberts 2009).

In the next section we turn to the 'forces for change' and the 'change inhibitors' which are driving and militating against botanic gardens developing their social role and responsibility.

6. 'Change inhibitors' and 'Forces for change'

6.1 Introduction

From our findings we presented the ways in which botanic gardens are demonstrating a greater social role, relevance and responsibility. However we concluded that as a sector there is some work going on but more could be done to make botanic gardens truly relevant to a broader and more diverse audience than they currently attract. It is pertinent to draw some parallels with museums which have been through a process of change over the last 25 years and repositioned themselves with a more defined and more confidently articulated social role. In the UK this has given museums the opportunity to demonstrate their potential to contribute to national government policy such as social inclusion, community cohesion, and the lifelong learning agenda. This has been achieved through the Museums, Libraries and Archives Council (MLA) and strategic funding and was largely driven initially by innovative and pioneering work done at local authority level.

However Robert Janes argues that despite the changes in museum thinking towards their audiences and non-audiences, still:

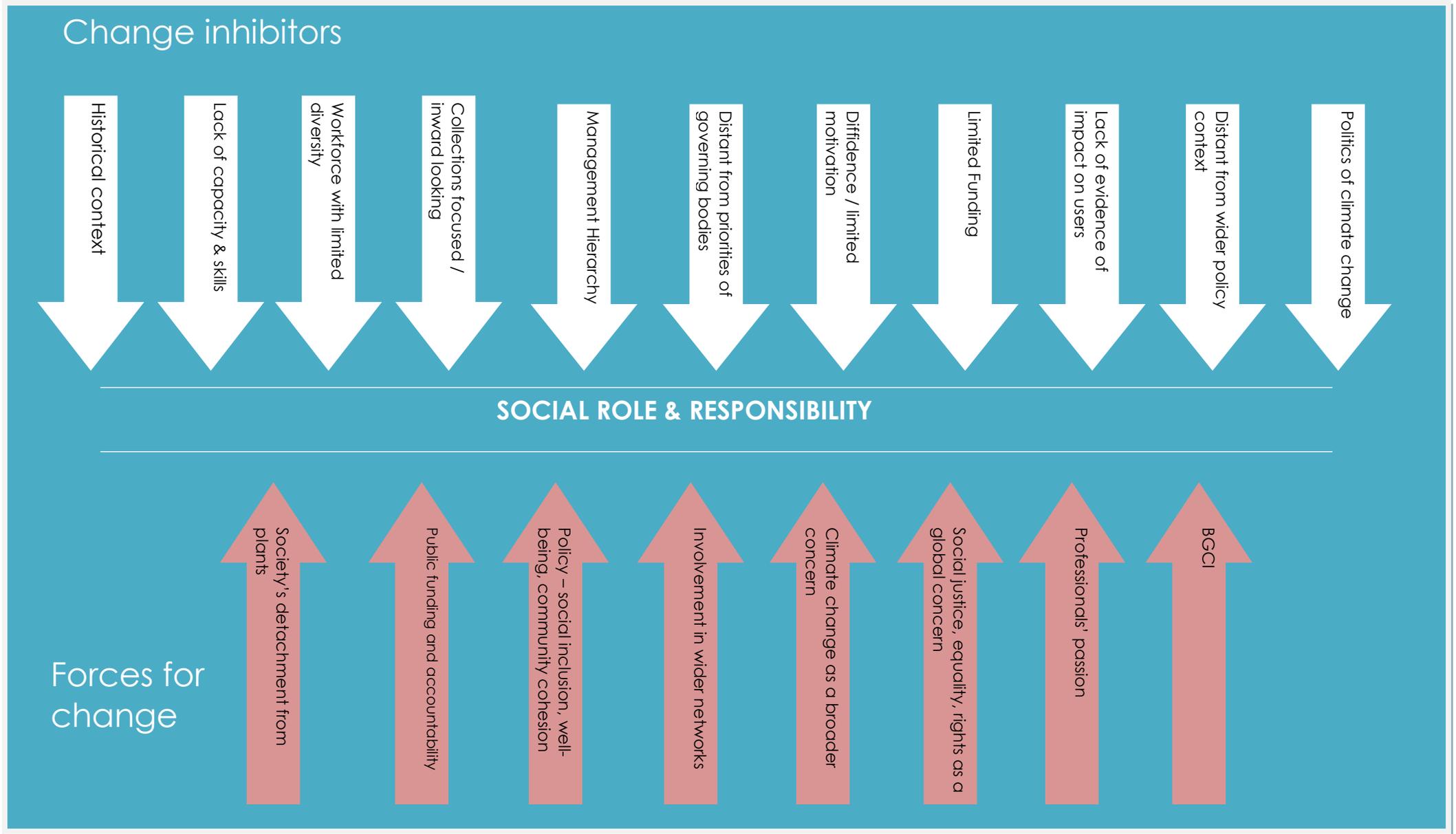
'the majority of museums, as social institutions, have largely eschewed, on both moral and practical grounds, a broader commitment to the world in which they operate' (2009:13)

Although he focuses on museums in North America and Canada, Janes' argument is very relevant to museums *and* botanic gardens in a time of great uncertainty over the future. Janes is advocating for a broader reassessment of what museums are for in response to a changing, uncertain world - a re-imagining, reinvigoration of the museum's purpose - a repositioning and clarity of mission. It is time for museums - and botanic gardens - to examine their 'core assumptions' (Janes *ibid*).

Here we look at the underlying forces for change which both inhibit and encourage botanic gardens to take more of a social role and responsibility

What are the underlying factors that prevent further development in this area?
Where is the impetus for botanic gardens to adopt a broader social role?

Figure 10: 'Change inhibitors' and 'forces for change' towards botanic gardens having a greater social role and responsibility



6.2 Change inhibitors

The following 'inhibitors' prevent or discourage botanic gardens from taking on a greater social role and responsibility:

- 6.2.1 Historical context
- 6.2.2 Lack of capacity and skills
- 6.2.3 Workforce with limited diversity
- 6.2.4 Collections focused / inward looking
- 6.2.5 Management hierarchy
- 6.2.6 Distant from priorities of governing bodies
- 6.2.7 Diffidence / limited motivation
- 6.2.8 Limited Funding
- 6.2.9 Lack of evidence of impact on users
- 6.2.10 Distant from wider policy context
- 6.2.11 Politics of climate change

6.2.1 Historical context

Over a long history botanic gardens have rarely had to consider their public role. Many gardens were privately owned or were set up to teach and provide plants for specialist groups such as academics, doctors or aspiring botanists (Furse-Roberts 2009). Historic practices and traditions continue to exclude particular groups or appeal to the 'social elite', for instance the use of scientific rather than local names on plant labels is 'generally associated with the privileged, privately educated classes' (Edwards 2006). Founded in 1673, Chelsea Physic Garden, for instance, was not open to the public 30 years ago:

"It was founded in 1673 by the Worshipful Society of Apothecaries in order to teach their apprentices how to identify plants... For many, many years in the 20th century it was called London's Secret Garden because it wasn't until 1983 that it actually opened its gates to the general public" (Rosie Atkins, Curator)

Westonbirt - The National Arboretum was part of a private estate in the nineteenth century, which then passed to the Forestry Commission. The University of Oxford Botanic Garden - the oldest botanic garden in the UK – opened in 1621 with the mission 'to promote learning and glorify the works of God'. However its learning remit was only applicable to members of the University for most of that time:

"We were very late developers when it came to public education, and so you know, until very, very late 1980s, early 1990s, it was literally only undergraduate studying biological sciences at Oxford" (Louise Allen, University of Oxford Botanic Garden).

Although some botanic gardens have accepted their public role, there are others that wish to remain elitist institutions:

'with hidden fears about what would happen to their manicured landscapes and precious collections if they became too popular' Edwards 2006).

6.2.2 Lack of capacity and skills

Botanic gardens have small workforces and very few workers with the appropriate kinds of skills for working with communities. It limits what they can do. Whilst gardens like Chelsea have increased their workforce since opening to the public, they are still a very small organisation:

“It’s grown recently... but it was always very small. When I first came here eight years ago, it was me, a bookkeeper and a front-of-house person, three of us. And five gardeners, an education person with a funded post as an education officer part-time... [There] is now about 15 but not all full-time” (Rosie Atkins, Curator)

The social role of botanic gardens is rarely prioritised in organisations. Compared to activities like gardening and horticulture, community work is often given a low value in terms of the amount of staff and budget allocated to it. Work is short-term and linked with discrete projects rather than the cultivation of ongoing relationships. The ‘Branching Out’ programme at Edinburgh employed a community-co-ordinator but that post came to an end with the project and has not resulted in a dedicated post:

“our current events coordinator, who followed that person, has also got in her remit... a follow-through on that particular programme. So it’s not her entire role” (David Rae, Curator).

At Kew they have one community outreach post for the entire organisation of around 800 people. The post is externally funded by Historic Royal Palaces and Heritage Lottery Fund and is time-limited. At Westonbirt they employ teachers who work on community projects and with excluded groups, but the Director, Simon Toomer, was clear that they “don’t try to do more than we can with the resources we’ve got”.

Community and education work can be isolated with little connection to the rest of the organisation. As Professor Angela McFarlane admitted community work at Kew is often not ‘joined-up’ across the organisation:

“Lots of pockets of good activity grow up throughout the organisation... and they’re not always co-ordinated”.

Only Eden had a critical mass of their workforce engaged on community related projects; compare Kew’s 1 community post out of a workforce of 800 with Eden’s team of approximately 30 people out of a workforce of 450. At Oxford too they have worked hard to embed education across the organisation so that is valued as an integral part of what everybody does:

“it’s a much more sort of lively and dynamic place than it used to be” (Louise Allen, University of Oxford Botanic Garden).

6.2.3 Workforce with limited diversity

Botanic garden workforces are characterised by limited diversity. There are few routes into a career into botanic gardens, dominated by courses that focus on traditional subjects like botany and horticulture. Very few courses incorporate

education or community work, even courses run by large botanic gardens. Botanic gardens are drawing from a very small pool of people who share the same world-view.

Louise Allen from Oxford described how her early interest in education was discouraged by others in the sector:

“I remember people [saying] what a waste that you're going into education, and people didn't make that connection between conservation and education”.

The workforce lacks diversity in other ways; few botanic garden workers are from BME groups or disabled people. Volunteers too represent the same characteristics as botanic garden visitors, being older, white and middle class. As part of their HLF bid Westonbirt are developing a plan to diversify their volunteers from this narrow base.

Limited diversity can inhibit change. With nothing to challenge traditional practices, the same ways of thinking are perpetuated. Patterns of practice and ways of thinking are not questioned. Innovation and creativity may not flourish in such an atmosphere or may even be discouraged. Introducing change may be met with resistance and hostility.

Hostility to a new post

In 1993 the Director/Superintendent of Oxford Botanic Garden created a new post of Education Officer, an addition to the staff which would enable them to work in new ways with new audiences, bringing a new direction and new possibilities to the organisation. It was with that sense of optimism for the future that the first post holder, Louise Allen, took up the post, but the reality could not have been more different. Instantly she found herself working in what she describes as “a pretty hellish kind of environment” with only the Director offering support. She was joining staff who were a long-standing group of people, the majority had been in post for twenty years plus.

“[On] my first day I went to have my coffee and I was told there wasn't a seat... there wasn't space... some members of staff didn't speak to me for 18 months.”

The group mentality was to resist change and in continually challenging ways, leading to considerable personal unpleasantness. The staff did not like children and they had come to work in a botanic garden to get away from people. Some members of staff thought the introduction of an education post was the worst thing in the world that could have happened.

At the time, there was very limited diversity of any kind in the staff. People were focused specifically on curatorial and horticultural roles and it had led to staff who were very inward-looking, resistant to change and deeply confrontational to the needs of a public organisation.

Change did happen. The Director made it very clear that the garden was for the

public and this was not a negotiable position. Some staff who most resisted the change, reacted by choosing to leave. Today, education is embedded across the organisation and all staff have education in their job descriptions. The organisation welcomes a great breadth of audiences and the workforce is much more diverse. Moreover, significantly Louise Allen with her background in education is now the Curator.

Where diversity is encouraged organisations are more suited to a broader social role because of the range of skills and interests of staff. Simon Toomer, Director of Westonbirt described how The Forestry Commission has seen “enormous change over the last few years”, going from a very male, rigid structure “pretty much set up along military lines” where around 50 to 60 per cent of the workforce were “working on the trees” to a much more diverse organisation drawing on a range of skills. It is now an organisation where a volunteer like Simon can become the Director in just over 7 years:

“They've changed radically now... we have a very high female ratio of employees... tend to be very much younger than they were... more mobile... nowadays we've got quite a large administration department, we've got people working on marketing and PR, the education's team grown... we've got a franchise restaurant... so actually the tree thing is now relatively small”.

As a social enterprise organisation, Eden purposefully set out to create a much more diverse workforce, as Tony Kendle, Foundation Director, explained:

“We right from the start had a much, much more mixed culture, we had artists on the staff, we've had a whole blend of science backed by education, backed by arts, backed by people who were interested in community work, it's a whole pallet... very different”.

It is implicit in all that Eden does that plants are important; however it is their relationship with people - the social role of plants - that is most important. This necessitated a different kind of world-view to that espoused by most botanic garden staff:

“If you're trying to keep one rare thing alive... it's a different type [of growing]... rather than trying to produce a crop of wheat every year that looks good, uniform and all that sort of stuff...”

Although they do draw some of their workforce from traditional sources, they are more about finding people with the skills to match the job:

“The biggest cadre would probably be from Kew or Edinburgh botanics... but the others we would get from all sorts of different sources. There are some people who have been small holders, there are some people who have been parks department people... coming in with different experiences”.

6.2.4 Collections focused / inward looking

Botanic gardens are very inwardly-focused, viewing their collections as their purpose rather than their connection with society. A traditional way of thinking persists which views plant collections as so intrinsically important that their existence does not have to be justified by their social benefit. Botanic gardens are resistant to working in an in-depth way with excluded communities and hard-to-reach groups because they do not see it as part of their remit. Both Simon Toomer from Westonbirt and Sara Oldfield from BGCI linked this to a 'traditional' manner of thinking;

"I think there is quite a traditional mindset within horticultural and the botanic garden community... the staff within the gardens could be quite resistant to taking on that kind of activity" (Sara Oldfield, BGCI)

"I do think there's something... ingrained in the cultural sort of make-up of... the more traditional people who manage botanic gardens, that they have this deep seated feeling that just being there makes it worthwhile regardless... I do think there are a lot of people who do believe that... [they] are doing real conservation work just by actually having those plants".

Tony Kendle from Eden also thought the resistance to working with communities was part of the culture in botanic gardens:

"people thinking it is not our job, our job would be about science or it would be about the collections".

Some botanic gardens are interested in education and community work, but as Sara Oldfield of BGCI commented, it very much:

"depends to a certain extent who's driving the organisation".

She agreed that to outsiders, botanic gardens can appear "elitist" and inaccessible. Janelle Hatherly from Sydney similarly described old-fashioned botanic gardens as "purists", giving an example from the 'Community Greening' project where some staff had not been happy about allowing compost to go outside the botanic garden. Simon Toomer believed that in the sector there is:

"a deep seated conservatism in some ways... we're always juggling with this, trying not to throw out the traditional values with change".

However he commented that "for most people there is ... plenty of opportunity to find a balance".

In setting up the Eden Project, Tony Kendle explained how they purposefully set out to recruit no more than half of their team from botanic gardens. People tend to have very narrow views about plant collections and different skills and interests to what Eden need:

"they come in with a tendency to see the collections as more important than the experience or the collections as more important than the message and they have certain habits, they tend to be collectors and they actually don't have some horticultural skills that we need".

Eden is rare in that they place a higher value on their social role, deliberately setting up to build a plant collection that has no other value than the human stories it can tell. And despite his passion for plants, Simon Toomer was also aware that visitors gave Westonbirt its purpose:

“the real value is the people that come to visit... there would be absolutely be no point to us being here without visitors”.

For many botanic gardens though, community work remains low on the list of priorities. Presently, Kew are looking to “move the focus of our core funded activity more towards having a social inclusion agenda” but at the moment they have only been able to secure one, externally funded post:

“within any organisation there are always competing demands and it is quite difficult... the science and conservation that is being done within Kew is so important... our survival as a species could depend on that work so you have to have a really strong argument to actually say no that £50,000 should not go into the Millennium Seed Bank it should go into funding another community outreach officer. You've got to have a really, really strong argument for that” (Professor Angela McFarlane, Director of Content and Learning).

Will most botanic gardens be capable of adapting to the demands of the current century or will they continue to navel-gaze? In an interview with *Museums Journal*, Tim Smits of the Eden Project questioned the imagination and ability of most organisations to contribute to social change (Stephens 2009:39):

‘My personal obsession is, if we have x amount of years in which to organise ourselves in a different way in order to be able to thrive in the conditions that are coming towards us, we have got to create organisations and institutions that are capable of adapting; but hardly any of our organisations and institutions are adaptable’.

Robert Janes has written about the similar reluctance of some museums to reposition themselves as socially relevant organisations. The picture he draws is very reminiscent of the situation in botanic gardens. Janes argues that museums are ‘preoccupied with method and process, getting better and better at what they are already doing well’ (2009:13) rather than thinking about new ways of working. Tim Smits is reported by Stephens (2009) to holding very similar views:

‘Institutions tend to develop certain ways of doing things that they endlessly repeat. Many museums successfully attract lots of visitors, he says, but this success prevents them from thinking how they can do things even better’ (39).

Like these museums, botanic gardens are not very good at reflecting on their social purpose. They rarely question why they do things, only how they do things. Janes suggests that this hinders organisations from engaging in the critical self-reflection which is an essential requirement of change, change which leads to a ‘heightened awareness, organizational alignment and social relevance’ (2009:16). Internally there is little motivation for botanic gardens to think differently about their purpose.

6.2.5 Management hierarchy

Botanic gardens are very hierarchical organisations. Traditional ways of working reinforce traditional ways of thinking. Typically there are few routes to the top of the hierarchy. The leadership of botanic gardens is usually dominated by horticulturalists and scientists:

“Botanic gardens usually have a power hierarchy... they would have especially taxonomic or increasingly these days molecular genomic scientists at the top of the power baseline” (Tony Kendle, Eden Project).

Robert Janes is not very positive about the domination of science in organisations, because it is often at the expense of the humanities. The divide between the science and the humanities is, in his view, hampering our ability to respond to pressing social and environmental challenges:

‘Disciplinary boundaries and intellectual silos are mostly in the service of those who benefit from them - academics and scientists in universities and research institutes’ (2009:181).

The tendency towards a narrow world view is not replicated in all botanic gardens. There are alternatives to the top. Louise Allen at Oxford became a curator through the route of education officer, although in many ways Oxford is an unusual organisation:

“Most curatorial staff wouldn't have front-of-house [as a responsibility]... that is the first thing someone sees and it's really, really important that those people are willing to engage... We've only had that in place for about two and a half years. I think that was quite a groundbreaking moment to put [responsibility for] front-of-house in [to the job description of the Curator]”.

Simon Toomer is another example of someone who circumvented traditional routes; he became Director after starting as a volunteer for the organisation. Eden, whose Director is an anthropologist, decided purposefully to not replicate the traditional management hierarchy of a botanic garden but to turn it on its head:

“Fundamentally the place was not set up with any curatorial role at all which is where I see the biggest distinction between us and [botanic gardens]... we deliberately set out to build a plant collection that had no value other than the human stories that it [told] so everything here is only here because it somehow holds a mirror up to us and what we do” (Tony Kendle, Foundation Director).

Most botanic gardens however retain rigid management structures, within which there is very little impetus for change. Staff may come in with new ideas and ways of doing things but if there is no connection between their world-view and the rest of the organisation when they are gone, their ideas go with them:

‘Individuals staff members can be insightful and innovative, yet these qualities may never be translated into institutional reality’ (2009:19).

Without a significant change in the organisation, or a sympathetic Director, organisations continue to function in the only way they know how. Disinterest from the top can be disheartening; one member of staff talked about how they struggled with the lack of leadership from their board of trustees, some of whom were only concerned with the economic status of the garden:

“they come with a business background and really they want to sleep at night and make sure that we’re not running the garden into the ground”.

Janes (2009) believes that organisations that have very rigid management structures tend to be less creative and innovative. They are less flexible and rely on stability and predictability rather than being receptive to – or expecting – change. Such organisations need new mindsets, more flexible patterns of thinking and perspectives to meet future challenges head on. For instance the reliance on a ‘lone director’ at the top of the hierarchy is problematic because it places too much emphasis on their role at the expense of thinking how leadership can be developed throughout the organisation. He suggests a greater focus on ‘collective intelligence’ and ‘flatter’ management structures.

‘Hierarchy can be replaced with self-organization... Decisions are made at the most local level in the organization where they can be made well... this requires managers respect and nurture the so-called informal leaders - those individuals who exercise influence and authority by virtue of competence and commitment and not because of any formal position in the hierarchy’ (2009:75)

The aim is to foster responsibility, interdependence and work teams that are:

‘egalitarian, mobile, adaptive, and responsive to individual and collective needs, and leaders emerge according to the skills required for the task at hand’ (2009:73).

6.2.6 Distant from priorities of governing bodies

The priorities of governing bodies of public institutions are much more socially focused than botanic gardens. Whilst organisations like universities and local authorities have targets and indicators which require they demonstrate their social and public benefits, the botanic gardens in their care have sometimes managed to avoid the same pressure or even reject the claim that they should a broader social purpose. As Simon Toomer from Westonbirt explained:

“the danger is that sometimes because of the dedicated nature of some of the more traditionally run botanic gardens is that they come over as being rather precious and almost get very frustrated with those kinds of questions – why should I be having to answer these ridiculous questions?”

It is not only the small gardens that are isolated from the priorities of their governing bodies. In a recent Independent Review undertaken at Kew for Defra (Department for Environment, Food and Rural Affairs), the review team were concerned about how Kew’s activities did not support the objectives of Defra and other government departments (OGD) because:

'Kew is not getting its message across effectively to them. The result is that Kew is seen to be only marginally contributing to Defra's and OGDs objectives' (Defra 2010:39).

Neither Kew nor Defra considered that they were 'sufficiently in touch' with each other. It was recommended that a dedicated external affairs unit be established to improve the effectiveness with which Kew interacts with Defra and other stakeholders, allowing frequent contact at several levels.

Simon Toomer recognised that Westonbirt is quite distinctive in having a broader sense of their social purpose than most botanic gardens, being closely aligned with the priorities of their governing body, the Forestry Commission:

"we do meet many of the more broad Forestry Commission aims to do with access, inclusion, information, all those sorts of things, but within the framework of a botanic collection and the Forestry Commission accept that and recognises our distinctive contribution to their work".

Westonbirt was directly working towards becoming more accessible and more inclusive following the expectations of the Forestry Commission:

"We tend to be A, B, C1 so that's the other thing... it's not what [they want], ideally [the Forestry Commission] would like us to be engaging with a broader range of people... one of our framework documents is something called ['A Strategy for England's Trees, Woods and Forests'] and it sets out the various aims. One is climate change, one is quality of life, one is business and markets and one is natural environments".

At Oxford there was a close relationship between the priorities of the University and the botanic garden, both organisations aware of their relationship with the community and the need for greater engagement:

"We have a five year rolling plan and that ties in very, very closely with the University's corporate plan" (Louise Allen, Curator).

6.2.7 Diffidence / limited motivation

The people that work in botanic gardens are described as nice, gentle, reserved, and helpful. These are very positive characteristics to have in a workforce but they are also holding botanic gardens back and limiting their full potential. The sector is a nice, comfortable world to operate in and there is little motivation for this to change.

The characteristics of people who work in botanic gardens contribute to the lack of a proactive social role. Janelle Hatherly from Sydney (who came to botanic gardens from a museum background) describes the people who work in botanic gardens as quite reserved, very 'nice' people but who are not necessarily good at promoting what they do or locating it in the mainstream. They:

"aren't sort of engaging in sort of active debate and championing things... People in botanic gardens are nice, pleasant, calm people, who sort of go with the flow more".

Botanic gardens as a sector were described by some of the people we interviewed as hesitant to engage with broader audiences or open up their spaces to different types of use from the conventional visit and went so far as to describe some in the sector as elitist, purist and precious. As an example, despite it being well-established now the sector has been slow to accept the value of education, a point which Simon Toomer from Westonbirt made:

“I think we've been slow to grasp the real [contribution to] conservation which for most of us is actually in information and education and learning to do with conservation, that's the real [one] for us”.

Neither do education programmes always show a great deal of ambition, as Louise Allen from Oxford noted:

“I suspect that for most botanic gardens, they are perfectly content with just doing primary school kids and old ladies... and because they're very short staffed, and because very often education officers work in isolation, I suspect they don't see it as their moral responsibility”.

Despite their concern about the gulf between people and plants and the impact of climate change, botanic gardens are reluctant to take a strong stance on these issues. They hide behind their scientific authority and objectivity. So whilst some people like Janelle Hatherly believe that botanic gardens are,

“becoming far more relevant than a lot of museums because of the global focus on the environment”.

We have the situation where botanic gardens could be leaders in environmental sustainability, looking at ways of reducing our impact on the environment and reversing the loss of biodiversity, but there is no impetus from within the sector to 'lead the way'.

What makes gardens like Oxford different? They have tried hard to be more accessible to a wider audience because they regard it as their social responsibility:

“[We] are the University of Oxford. We're in an incredibly privileged situation and this garden is a waste if it's not being used for that incredible diversity of people. And I think especially in Oxford, where there is this gap, an immense gap that have and those that have not, then I think it's particularly relevant and pertinent that we engage” (Louise Allen, Curator)

As Louise Allen explained; “my passion has always been that this should be for everyone rather than the chosen few”:

“it's very important that you don't just educate the people who rock up on your doorstep, cos they're actually, as a general rule, the ones who don't need it”.

But is there a real passion to engage with non-traditional and hard-to-reach audiences? Botanic gardens are more comfortable with targeting the vague notion of 'everyone' rather than specific groups. There was some reticence towards using

terms like 'social exclusion' because it implies focusing on some groups at the expense of others. A member of staff from a botanic garden explained that:

“it sounds a bit... worthy and a bit earnest and oh let's include the poor people and I don't like that. I like the fact that this garden should be for everybody and I suppose that's all we ever wanted to do. We didn't necessarily want to go and help someone deprived. We just wanted it to be somewhere that isn't just for [middle-class] people”.

There is a concern that focusing efforts on hard-to-reach audiences will be at the expense of traditional audiences:

“there's a role to play for having a garden that attracts old people, and you know, sometimes I think gardening's tried too hard to not cater for the naturally interested”.

So whilst staff want to broaden access they are less passionate about repositioning the social purpose of their organisations. They are committed in principle, like this member of staff of a national botanic garden, but are not very good at articulating what they believe or ensuring that the whole organisation is committed:

“I think here at the gardens we'd like to feel that we weren't doing it just because it happens to have been written in... government policies now, because actually we've been trying to do it for a long time. But I'm not saying we've been successful particularly, but I think most people who work here actually feel it's the right thing to do, even if it hasn't necessarily been manifest on the ground”.

Such views can potentially come across as lacking ambition and vision about what is possible.

6.2.8 Limited funding

As would be expected, there is no one, central source of funding to motivate botanic gardens to work with excluded communities. Funding for social agendas is linked to organisations that are directly supporting projects in the community such as regeneration or housing. To gain access to funding it needs to be embedded in partnership working and making the social agenda a priority. For most botanic gardens this will require a very different organisational structure, which is much more challenging.

As a sector botanic gardens already rely on a mosaic of funding for their community and education work, from trusts (private and charity), private sponsors and donations, corporations, charities, the Heritage Lottery Fund and Big Lottery. Robert Janes despairs at the 'fickle' funding organisations that 'encourage mission drift through their insistence on short-term funding' (2009:19) but project funding is often the only way that community and education work can be done. Core funding rarely covers it, for instance Oxford gets an annual grant of £560,000 from the University but that does not even cover their staff costs:

“So we go into the year having to make up that extra money, which is a challenge” (Louise Allen, Curator).

Oxford used diverse sources of funding to support their work, including the PF Charitable Trust, Clore Duffield Foundation, Garfield Weston, and the Arts Council; small local charities like the Helen Roll Charity; private individuals and donors; and initiatives like the Landfill Tax. They were also involved in a number of local initiatives and projects to enhance their work around learning and audience development:

“We beg, borrow, steal. We make a charge in the summer to come in and a massive proportion of my time is spent fundraising. So our education programmes are nearly all funded externally” (Louise Allen, Curator)

It is a full-time job however ensuring that the funding is maintained, especially in the present climate of economic difficulty and threatened cuts:

“the pressure's on. There's no denying, you know, the next few years are going to be very interesting for the garden. We know that the cuts are coming to the University”.

Unless gardens are very committed to doing work in this area are they going to put in the necessary effort to ensure a steady stream of funding? Organisations like Westonbirt have to make very hard decisions about what they can fund. Botanic gardens are often opened up to commercial events to raise money, even if it is not what they want to do. Rosie Atkins from Chelsea commented that:

“Well it's not our core objective to have, you know, wedding parties in the garden, but without them... we wouldn't be able to pay the salaries”.

Corporate funding is also an option but these can come with ethical implications:

“I'm very worried about who we get into bed with... I mean for instance we wouldn't take money from tobacco companies and stuff like that. So there's an integrity there and an ethos”.

6.2.9. Lack of evidence of impact on users

The lack of evidence that botanic gardens have of the impact on their users is a serious impediment to developing their social role. Without understanding the impact they have, botanic gardens will not see the real value of the work they do or be able to communicate their value to external audiences.

Currently the sector does not have any collective, robust evidence to draw upon to demonstrate its value. At a basic level, botanic gardens lack essential information about their audiences:

‘Visitor numbers may be known for some gardens because of gate receipts, but the profiles of who visits botanical gardens, the primary reasons for visiting, the levels of satisfaction they obtain from the various offerings, and how they compare to other public green spaces is largely unreported’ (Ward, Parker and Shackleton 2010:50).

With education and community work supported by short-term, project funding without a strong culture of evaluation the skills and knowledge built up over time are at risk of being lost. Work ends up being repeated and impact takes a long time to surface or remains hidden. Learning cannot feed back into new programmes or used to improve practice.

Places like Oxford are hampered by a lack of knowledge about their visitors and rely on an intuitive approach. Although as a small team they are confident that they “get to know regular faces” they found it difficult to articulate the actual impact of their programmes:

“[It's] quite hit and miss... It's fairly informal. From a schools perspective it's really obvious whether something's working or not. Slightly harder when it's community based stuff” (Louise Allen, Curator).

They are familiar with the process of evaluation, using questionnaires with schools and they have been involved with some quite innovative evaluations to measure the impact of public programmes. But what is lacking is the systematic collection, analysis and reporting of data.

Botanic gardens in the US and Australia seemed more used to evaluating the impact of their programmes. It was a prerequisite of funding for ‘Community Greening’, as Janelle Hatherly explained:

“And the reason for [the evaluation] was the people would say well how do you know it does good, how can you measure it?”

However they still lack the resources to be able to carry out what Janelle interprets as good quality, rigorous evaluation:

“We don't have the resources to do good evaluation... We did the best we could with the resources we had”.

A strong example of evaluation from the sector comes from the US, where the Department of Agriculture Forest Service has built up a bank of knowledge over 45 years of studying participation rates and the experiences of ethnically diverse groups at outdoor recreation sites. This resource was the first of its kind in the Forest Service and it bridged the gap between research and practice. The research has informed the service that people from culturally diverse backgrounds were not accessing the national forests and public lands in representative numbers. It also helped them to understand why people did not use the forests; how different communities place value on the land; how different communities make use of recreational space; what people from different cultural backgrounds care about and why; and how that changes over time as societies become more industrialised, more urban (Roberts, Chavez, Lara and Sheffield 2009). Whilst this is a very sophisticated research example, the concern in the UK is that some botanic gardens do not have even the most basic of visitor information.

6.2.10 Distant from wider policy context

Very few botanic gardens engage with, or articulate the language of, the wider policy context of government, for instance social inclusion, community cohesion, well-being and active citizenship. This can be compared to the museums sector, which is much more used to demonstrating and articulating the objectives of local authority and government. Despite the drive over the last ten years towards evidencing the social impact of cultural organisations, most botanic gardens have remained very distant from the need to engage:

“I think... the further you get away from those direct influences of government probably the slower it is to arrive... I know that small private [gardens] probably aren't touched really largely by things like the need to communicate climate change... engage disadvantaged audiences and disabled people, all those things” (Simon Toomer, Westonbirt – the National Arboretum).

There are few statutory obligations placed on botanic gardens to encourage them to engage with the wider social policy context. Despite the widespread adoption of a conservation role, for instance, unlike zoos botanic gardens are not “legally obliged to have a conservation role” (Sara Oldfield, BGCI). A few gardens mentioned the DDA (Disability Discrimination Act) which they are legally obliged to take into account.

Even botanic gardens which are directly funded by government like Edinburgh and Kew were not able to articulate strongly how their work fitted into the priorities of their governing bodies. For instance, Edinburgh's Corporate Plan is linked to the Scottish Government's National Outcomes. This list highlights in bold the areas that they have particularly responded to:

- **Business**
- Employment opportunities
- **Research and innovation**
- Young people
- **Children**
- Healthier lives
- **Sustainable places**
- Environment
- **National identity**
- Environmental impact
- **Public services.**

Outcomes like healthier lives, environment and environmental impact have been omitted from the plan when these could be very relevant to the social role of botanic gardens.

The Eden Project and The Botanic Gardens Trust Sydney were much clearer about the way in which their work connected with policy. As a social enterprise organisation, Eden has a strong social mission and their work to tackle real social problems through combining social and environmental goals happens within a policy context. Yet their combination of vision, skills and aspiration also potentially locate them at the forefront of many policy developments as the government can

be as constrained and hesitant in the face of complex social and environmental issues as other public bodies.

Sydney too was explicit about the policy links for their 'Community Greening' programme:

- Brings the community closer together / community spirit / improved social cohesion
- Makes a difference in the local area- crime reduction
- Builds community resilience
- Ownership of previously barren open space and common land
- People become part of efforts to lower man-made CO2 emissions by planting trees and scrubs
- Improves self confidence
- Improves vocational opportunities
- Improves public health
- Greens the urban environment and promotes sustainable lifestyles.

Through making direct links to policy botanic gardens not only demonstrate the impact of their programmes but articulate that impact to external audiences in a language that will be understood.

6.2.11 Politics of climate change

As scientific institutions botanic gardens agree with the notion that human-induced climate change presents a significant threat to the natural world. However they are extremely hesitant to engage with the politics of climate change, taking shelter behind the veneer of authority and objectivity conferred upon them by science. They therefore present a contradictory attitude to climate change. Most staff we spoke to were concerned – professionally and personally – about climate change. Honor Gay of the Natural History Museum called it the "the biggest threat man has faced to our planet". However when it came to communicating climate change to visitors, it was a very low priority:

"it's more of an underlying theme we do things on climate change [it's] probably kind of quite ... buried in something on evolution and extinction".

Most gardens were very uncomfortable about confronting their visitors with what they saw as the 'doom and gloom' of climate change or presenting the controversial aspects like the views of climate change sceptics. They were reluctant to confront visitors over their lifestyle behaviours in a direct way, preferring a much more subtle approach.

Some botanic gardens did take a stronger role towards communicating the public about climate change, like holding debates around contemporary issues, giving people the tools to understand environmental issues and supporting communities to become more sustainable. Some were driven by the need to do something to counteract the damage before it was too late. Simon Toomer of Westonbirt pointed out that it was better to do something about climate change now than to leave it until it was too late:

“if someone said to me is climate change definitely [happening] I would say we don't know. The fact is we do know from the evidence that we have there's a very high likelihood and with that sort of level of likelihood you have to do something. I think we do because by the time it's [happened it's too late]. And if it turns out in twenty, thirty years time that actually our fears were misplaced then great, none of the work we will have done will jeopardize the future”.

Climate change is a very political issue, which made many staff uncomfortable and uncertain how to tackle it. Recent scandals involving scientists refusing to hand over their data for scrutiny has given extra weight to the sceptics. The science of climate change is very uncertain and although scientists like Lord Krebs have called for greater attempts by scientists and the media to convey the uncertainty of science to the public, the way in which science is perceived is much more authoritative in practice. People expect it to give them the answers. Louise Allen, Curator at Oxford, was certain that the politics of climate change was off-putting for many botanic gardens:

“there was a climate change conference quite recently in Liverpool that the Botanic Garden Education Network did. And there were a lot of people there who didn't look confident enough to take it on.”

A more basic hurdle to climate change is ensuring that the science is 'right' in the first place, as Emma Williams (Oxford) explained:

“you're still thinking about well how do I phrase this about the carbon cycle and that sort of thing or how do we talk about CO₂ being released and greenhouse gases”.

Some gardens interpreted their role as public or government organisations as not enabling them to campaign about environmental issues like climate change. But this applied to Eden too and they were openly taking a stance over climate change:

“we've got [boundaries] as well that we have to be careful about, our trustees can be very aware of the fact that within our charitable framework we must not be political and we have to walk this line” (Tony Kendle, Foundation Director).

The hesitancy and reticence to engage directly with issues of climate change in botanic gardens reflects a wider social paralysis towards meeting the social and environmental challenges of climate change. At Eden they have already accepted the inevitability of change, as Tony Kendle explained:

“it always makes me smile when people think how are we going to get anyone to change – change is not avoidable... in one way or another, we are hurtling towards it like a train”.

One of the key disadvantages to interpretation around climate change from Eden's perspective is that organisations are not honest about the scale of the changes that need to be made; they shy away from the reality:

“part of the issue is I think a lot of people have a sense of that and so if you actually read the stuff that tells you how frightening it might all really be and then you turn round and look at the stuff that tries to tell you what you should go home and do, the disjunct [sic] between the two things is so huge that what can you expect other than confusion... If this is the greatest challenge to our civilisation and then you say what should I do and then they say change your light-bulb – is that it? Is that all?”

From Eden's point of view social change needs to be much more radical:

“It's really easy to go on at people about go home and change a light bulb but actually the real problem is how do we change the power station?”

In the UK the confusion and conflict over climate change is preventing any meaningful dialogue from taking place:

“At the moment things are so conflictual that the politicians are paralysed... everyone gets frustrated, they don't talk about it”.

Unlike Eden, as Janes (2009) argues, very few cultural organisations are challenging the status quo, which has contributed to climate change through endorsing high levels of consumption, reverence of technology and over-use of natural resources. Responsibility does not lie with the politicians either, as Rosie Atkins from Chelsea commented:

“And I think that's politically true of the government as well. I think, you know, they're only here for five, ten years. They think oh bugger it, I'll leave it to someone else to do. And it's not good enough”.

The enormity of the issue makes a significant contribution to the paralysis and inaction. What is the message? How can that message be communicated in an accessible and compelling way to visitors?

“Because if you have to learn a whole new language and a whole new kind of set of science and facts before you can actually make your mind up about how to maybe make changes in your own life which you perceive to be either... negative or not desirable or hard work or boring or not really relevant to me then you've kind of got like a double whammy. First of all you need all the language and tools to help you understand the situation and the concept of climate change and then you're actually going to have to do all of that added work as well if you are hoping to make a change” (Emma Williams, University of Oxford Botanic Garden)

Getting people to act was also a concern for botanic garden staff. They were almost at a loss over how to reach people who understand the messages around climate change but who still fail to act on those messages:

“people from say North Oxford are probably going to be very aware of issues and actions they can take but might choose to still drive around, taking all the kids to school and that sort of thing... so it might be needed to target them even more” (Emma Williams, University of Oxford Botanic Garden)

One impediment was the anxiety expressed by botanic garden staff towards confronting or provoking their visitors with negative messages about climate change and other environmental issues. They want to avoid making people feel like it is a 'guilt trip'. Eden is the only organisation which has managed to find a balance between addressing their mission and professional commitments and presenting the messages in a way that will not cause them to haemorrhage visitors. They started with the premise that their visitors were not engaged with, or even interested in, the environment:

“we work on a model of our [visitor] as someone who absolutely is not interested, not engaged, doesn't care about anything [about the environment]... and if we feel like we're coming up with things that hopefully are both engaging and meaningful then we feel like we're on track” (Tony Kendle, Foundation Director).

The reluctance to take a stand may – in the long-run – be damaging for the environmental issues that botanic gardens seek to improve understanding about. The government's limited action and the misinformation and confusion in the media may mean that for public institutions like botanic gardens not to take a strong stance on the issue may mean that the public remains unconvinced that they must act at all.

6.3 Forces for change

The forces for change are factors that can motivate botanic gardens to reconsider their social role and responsibilities more broadly:

- 6.3.1 Society's increasing detachment from plants
- 6.3.2 Public funding and accountability
- 6.3.3 Policy - social inclusion, wellbeing, community cohesion
- 6.3.4 Involvement in wider networks
- 6.3.5 Climate change as global concern
- 6.3.6 Social justice, equality, human rights as a global concern
- 6.3.7 Professional's passion with increasing accessibility and relevance
- 6.3.8 BGCI

6.3.1 Society's increasing detachment from plants

In the 'post-modern', urbanised Western society people have become more and more detached from the natural world. Botanic gardens recognise that they can contribute to restoring that connection through communicating to visitors and wider society the significant role that plants have to play in our lives (food, medicine, clothes, shelter). Botanic gardens have come to realise that dialogue and communication with the public about the need for conservation of natural resources represents an important social - and even moral - responsibility. Until recently this was not always the case:

“It used to be seen that conserving plants was important but not educating people about conservation and about why plants are important” (Louise Allen, The University of Oxford Botanic Garden).

Broadening the audiences of botanic gardens brings more of society into contact with the natural world, and with plants in particular. Education programmes at Oxford stress the importance of conservation and biodiversity of natural resources from primary school-age; programmes like the Fairchild Challenge encourage teenagers to become activists for environmental issues. Community garden programmes like that of Sydney support communities in growing their own produce from scratch on un-used or waste land. On-site interpretation at Eden is successful at getting across a strong message about the need to live in more sustainable ways whilst maintaining a successful visitor experience.

The unique role that botanic gardens can play in the communication of environmental issues is that they can tell and show the impact that climate change will have on the natural world, and demonstrate approaches that communities can take towards sustainable living.

6.3.2 Public funding and accountability

More than ever public organisations are being asked to be accountable for their funding and demonstrate their wider relevance to society. Botanic gardens increasingly recognise that they have a role to play in society above and beyond the collection and conservation of plants. They have a responsibility to educate, to communicate and to work with more representative audiences:

“I think it's out there in society more, that we're government funded and I personally feel we have a huge responsibility being publicly funded” (David Rae, Royal Botanic Garden Edinburgh).

Botanic gardens are developing their sites and expanding their activities to increase and diversify their audiences. The need for public accountability has encouraged some botanic gardens to think more about what they offer to visitors. At Westonbirt reductions in income from admissions and a budget freeze by the Forestry Commission has meant that they have had to really consider how to diversify for the future. They are developing a £10 million bid to the Heritage Lottery Fund (HLF), which has enabled them to look at the site in a more holistic way and develop a more coherent visitor experience. With the focus on a new visitor centre, learning hub, new interpretation and heritage vantage point which will enable visitors to see the site in its entirety, the HLF project is a real catalyst for change.

Alongside the capital developments, Westonbirt is also thinking about how it can work with vulnerable and hard-to-reach groups like young people who are not in education, employment or training (NEETs). They can no longer be so reliant on their traditional audiences, who tend to come at particular times at year, especially to see the Autumn colours. This means the site is very dependent on the weather, as Simon Toomer explained:

“A very important factor for us is that although we have 350,000 visitors most of the time we're very quiet. We have... enormous fluctuations in our visitor numbers. We have over 100,000 people in October for our, our big season is Autumn colour. It almost gets too busy. On the other hand we're too quiet for much of the rest of the year apart from the Spring where it's about right...

if you're reliant on four Sunday afternoons in the year it makes you very, very vulnerable to fluctuations in the weather".

Despite some complaints from current visitors, Simon Toomer is adamant that they must diversify their audiences or face further financial difficulties:

"[The] financial landscape has changed and we can't any longer rely on our traditional visitors, who don't actually give us enough money to maintain the place. The Forestry Commission's finances are not what they used to be".

As an organisation funded by the Scottish Government, Edinburgh is committed through their corporate plan to delivering the National Outcomes of the Scottish Government, as well as 'key performance indicators', targets and outcomes to reach. As David Rae, Curator, commented:

"the only way you can find out about those is actually to engage with visitors".

Reflecting the increasing concern for socially relevant work by public organisations has been an increase in funding for social inclusion projects, which gardens like Oxford had been able to take advantage of:

"some of the social inclusion projects, there is that benefit because people will fund you to do social inclusion and you can, if you can justify your staff costs, and we do, we're very determined when it comes to staff costs. So we make sure that they are covered, but at the same time, that's not the only reason we do it. You know, it is sort of quite an in-built belief that we all have, so it has to be done" (Louise Allen, University of Oxford Botanic Garden)

Demonstrating public benefit is becoming increasingly essential for botanic gardens as well as increased competition for funding, as Rosie Atkins from Chelsea made clear:

"Because if we can't demonstrate public benefit, we're not going to be able to get the funding that we need and compete with other people after that same pot".

6.3.3 Policy – social inclusion, wellbeing, community cohesion

Since 1997 the UK government has released a raft of policies addressing inequality, deprivation and other social problems. These have covered social inclusion, community cohesion, health and well-being; national frameworks safeguarding the interests and rights of children, young people and families; government strategies to ensure a society for all ages; and the promotion of active citizenship, to name but a few. Such policies have been an attempt to confront the many social changes that have taken place as we move into the so-called 'knowledge economy'. The tertiary, service industries have largely replaced the manufacturing and construction industries and people need new sets of skills, literacies and knowledge to compete in an increasingly globalised market. Greater understanding of poverty, exclusion and disadvantage as a 'vicious' circle of interrelated factors have also given rise to

changes in how the government has sought to tackle both the causes and outcomes of disadvantage.

Within this context, cultural organisations like museums have been encouraged to harness their latent capacities for lifelong learning, community wellbeing and development and contribute to the government's achievement of its aims. Botanic gardens too are expected to demonstrate their social relevance, although there is far less evidence for their sector than for others. The focus on community cohesion, for instance, enabled many cultural and heritage organisations to make major interventions and play a key role in their local communities (see, for example: Ngyou 2009). The language of social policy – of targets, indicators, outcomes – has been infused across government and adopted by funding bodies like Heritage Lottery Fund and Big Lottery. Evidence-based practice is increasingly valued by government as a means of measuring public benefit; not just 'hard' statistics but also 'soft' outcomes including attitudes, perceptions and impact on behaviour. Government has also taken a 'joined-up' approach to social policy, bringing departments together to work towards solving interrelated issues. For instance, the Social Exclusion Unit (established in 1997) worked across government departments and external organisations, including representatives from the police, business, voluntary sector and civil service.

It is not only the UK government that has adopted the language of social exclusion, cohesion and well-being, it is increasingly a global phenomenon. In Europe the EU have been developing their strategy for combating poverty and social exclusion since the late 1970s. They have a broad range of policy areas (EU 2010):

- Human rights, democracy and the rule of law
- Cultural Diversity as part of a common European heritage
- Energy - secure and sustainable supplies, towards a low carbon economy
- Environment - 'protecting, preserving and improving the world around us' - main priorities are climate change, preserving biodiversity, reducing health problems from pollution, using natural resources more responsibly.

The World Health Organisation (WHO) has used the language of social exclusion:

'Poverty and social exclusion increase the risks of divorce and separation, disability, illness, addiction and social isolation and vice versa, forming vicious circles that deepen the predicament people face' (Wilkinson and Marmot 2003: 16-17).

The UN has shown a commitment to alleviating the worst effects of poverty through its Millennium Development Goals (MDG) when in 2000, 189 heads of state pledged to 'eradicate extreme poverty and its root causes' (UN 2010a). The deadline to achieve the MDGs is by 2015 (UN 2010b).

The Millennium Development Goals

- End Poverty and Hunger - halve between 1990 and 2015 the proportion of people whose income is less than \$1 a day (extreme poverty) / halve the proportion of people who suffer from hunger / achieve full and productive

work employment and decent work for all, including women and young people

- Achieve universal primary education - for boys and girls
- Promote gender equality and empower women e.g. Gender parity in education (primary and secondary), political representation
- Reduce child mortality
- Improve maternal health
- Combat HIV / AIDS, malaria and other diseases
- Ensure environmental sustainability - reduce greenhouse gases, reduce biodiversity loss, more efficient use of water, improve the life of the urban poor
- Develop a global partnership for development

Recently the language of 'sustainable lifestyles' – once the preserve of environmentalists - has entered into the vocabulary of governments. In Australia for instance the government has produced 'Healthy Spaces and Places' a national guide to planning, designing and creating sustainable communities that encourage healthy living' (Planning Institute of Australia, 2009).

6.3.4 Collaboration in broader networks

Botanic gardens involved in wider networks are less isolated and tend to be more confident at addressing issues like reaching a broader audience or communicating climate change to their audiences. Working in partnership, however, clearly has huge benefits for gardens and might be one way of reducing the isolation of other gardens and widening their perspective. Oxford for example is, through the University, part of a group of Museums & Collections which gives them additional responsibilities outside the world of the garden:

"We're part of University [Museums, Collections and Services]. So a very good place to sit. We sit alongside the Ashmolean, the Pitt Rivers, the Natural History Museum, Bodleian Library, Computing Services... And we're all about objects, which is great. We're not part of Estates. That's very, very important for us" (Louise Allen, Curator).

Along with the other collections they are responsible for developing activities with targeted groups, for instance the children's school at the John Radcliffe Hospital which they do on a rota system. Working with other organisations has meant a lot to Oxford as it has enabled them to collaborate with other cultural organisations, to learn from other educators and to share ideas. The relationship with museums has been supportive - especially when museums are open-minded about what can be achieved at the gardens – through the peer evaluation scheme. Whilst Oxford have their own support networks in the botanic garden sector, working with museums has given them a wider sphere of reference and enabled them to work on joint projects, giving them ideas for new ways of doing things and being exposed to the different priorities that other collections have, for example interpretation, project delivery. Instead of being isolated in the narrow world-view of the botanic garden they have connected with the wider world. The willingness with which Oxford has become involved in events and programmes across the city shows organisations what

botanic gardens are capable of and how they can contribute to broader social agendas. However the will has to be there.

Eden is a great advocate of the potential of working in partnership and the potential to find solutions to problems that affect society. As Eden states in its publication material:

“we work in partnership with organisations from every sector, corporate, statutory and voluntary”.

Eden also want to stimulate conversations in answer to the 'big questions' that issues like climate change, poverty and high levels of consumption throw up. The Eden Forum therefore brought together 'thinkers' and 'doers' from a range of backgrounds and experiences to tackle some of the major challenges society faces and address issues such as food security, energy supply, resource depletion and changes in demographics. As Juliet Rose, Community Development Manager, commented, there is a huge body of expertise that organisations like botanic gardens can contribute to answering some of these 'big questions':

“botanic gardens or museums are all involved in engaging people around something... Well it's a huge scale, a huge body of expertise, and it can be employed in all sorts of ways. It's a shame we don't make more use of it really”.

Like Eden, Oxford and the government have realised, organisations need to work together in order to resolve the issues that face society as we go into the next decade of the 21st century. Robert Janes (2009) notes these are social issues and so they need a concerted approach. Finding like-minded organisations can help botanic gardens to work towards more socially beneficial aims and give them access to people already working in the communities they want to reach. As Emma Williams from Oxford commented “we're not trying to re-invent the wheel and be the experts”.

6.3.5 Climate change as a global concern

Over the course of the 20th century, the impact that humans are having on the natural world has increasingly become a cause for concern. Once the preserve of a few scientists and radical environmentalists, by the start of the 21st century the threat of climate change and the recognition that it will have far-reaching consequences for the planet has become a mainstream, global political issue. James Lovelock, scientist and exponent of the Gaia theory, equates the coming to terms of governments with climate change with the manner in which a sick person comes to terms with their illness:

‘Scientists, who recognize the truth about the Earth's condition, advise their governments of its deadly seriousness in the manner of a physician. We are now seeing the responses. First was the denial at all levels, then the desperate search for a cure. Just as we as individuals try alternative medicine, our governments have many offers from alternative businesses and their lobbies of sustainable ways to ‘save the planet’, and from some green hospice there may come the anodyne of hope’ (2009:46)

As scientists and researchers into the natural world, botanic gardens are inevitably tightly linked with environmental issues, their activities often focused on the conservation of rare plants and seeds; research into and protection of disappearing habitats; and working with communities to live more sustainably. Botanic gardens have seen something which they have been quietly concerned about for years suddenly thrust into the limelight:

“I think there's no denying that the whole environmental movement has stopped being the slightly beardy-weirdy bunch, to being much more mainstream” (Louise Allen, University of Oxford Botanic Garden)

“Certainly it's something that's, you know, come up the agenda very rapidly in the last couple of years” (David Rae, Royal Botanic Garden Edinburgh)

As the interpreters and communicators of the natural world, botanic gardens - alongside other cultural organisations like museums - will be expected more and more to address environmental issues like climate change. Such issues present a huge opportunity for botanic gardens to put their knowledge and expertise to socially relevant use, as Sara Oldfield of BGCI recognised:

“I think it's an opportunity for botanic gardens to be relevant to one of the big concerns of the time. I think it's a way to demonstrate to people what's actually happening to our changing climates, because plants are such good indicators of what's going on... And I think there's a way for botanic gardens to demonstrate, you know, sustainable responses to climate change and also adaptation to climate change. And I think there is a real opportunity and I think also just to reinforce the messages that people are getting bombarded with all the time in the media about climate change”.

She considered too that botanic gardens have a 'duty' to try “and encourage people to change their behaviour”. But as we have discussed, botanic gardens tend to be hesitant over what form their message should take, how far they should go. Some botanic gardens have been more proactive than others. Has it been effective to focus on climate change as an isolated issue?

Climate change is often approached as a scientific or technical problem, something to be solved through new types of technology or a matter of reducing carbon emissions. However climate change can also be seen as a social issue, one of a series of interconnected issues that requires an holistic approach to solving them, one which gets to the heart of how we want our society to be rather than making 'superficial' technological changes which fail to address those underlying issues. Robert Janes lists the five 'tectonic stresses' which Thomas Homer-Dixon believes are causing great pressures within societies (2009:28):

- Population stress - unequal population growth rates
- Energy stress - diminishing natural resources
- Environmental stress - degradation of the natural world
- Climate stress - global warming and changes to the atmosphere
- Economic stress - unstable economic systems and growing inequality between rich and poor.

It is difficult to focus on one 'stress' as a singular without seeing its connection to the other four, for instance population stress - with different growth rates amongst the rich and the poor - puts pressure on natural resources and energy, which contributes to further climate stress.

Neither is climate change 'equitable' in the way it will impact; those communities who are already exposed to or who are more vulnerable to disadvantage or poverty will be at greater risk from its effects. It is a moral as well as a social problem when our actions in the West could be causing increased drought and loss of habitats in the developing world. It is not only what we do as a society that counts but what we value. In the West there is a growing concern over the amount we consume, the amount of natural resources we have to use to fuel our increasingly urbanised and industrialised societies. There is concern over the reverence given to science and technology to provide us with 'the answers' and the inequalities that we permit to the minority to maintain the present living standards for the majority. It is argued that we can only effectively meet and resolve the challenges posed by climate change by addressing the whole of society:

'Ultimately it is a matter of which type of future society we want to create' (Sandell, Öhman and Östman 2003:235).

The Eden Project would agree with this statement. Of the botanic gardens we spoke to, only Eden is currently seeing climate change as a problem to be resolved by the whole of society, rather than left in the hands of scientists or governments. Juliet Rose, Community Development Officer, explained the rationale behind this view:

"What we advocate for is that we are going to be facing some significant challenges in the future and the best way for us to face them is together, that we're probably going to have to share more things, you know, we're going to probably have less personal freedom possibly, but equally, if we want to cope with a lack of, you know, dwindling resources or climate change, then probably our best way of doing that is to try to do that cohesively. We're going to be more successful if we can do it that way. So anything that contributes to, helps us understand how we create those opportunities to discuss how they could do that better, is good".

Eden's Foundation Director, Tony Kendle, further enhanced the view that of adaptation to climate change is going to be meaningful it has to involve more than 'technical' changes to our lifestyles:

"Loads of the challenges that we face [like environmental pollution] and how to change the world we live in are societal problems, they're not an individual problem, they're not a technical problem... For example it's really easy to go on at people about go home and change a light bulb but actually the real problem is how do we change the power station?"

The concern is that people will not want to make those changes to their lifestyles. Unless botanic gardens can - along with other organisations - give a compelling alternative to people, an alternative 'good life', then what will convince people to make the necessary changes?

“If you’re trying to go down the road of getting people to be less consumptive, for people to use less resources then it’s easy to wave your finger and say you should drive less or buy less... but actually for most people that’s a huge part of what their lifestyle these days is you know that’s the culture we’ve built and you can’t simply have a vacuum, you can take away what they have got and not have any idea of what is a good life now. If a good life is no longer a fast car and a [?] TV and all that, what is a good life?”

What we choose to focus on is therefore very important. Advocating for a concept of sustainable social justice’ the new economics foundation (nef) argues that our present society is too unequal and too divided to effectively meet the challenges presented by climate change. Writing for nef, Coote and Franklin (2009) argue that:

‘A high degree of social solidarity is needed to tackle the profound economic and environmental crises that confront us all today’ (2009:1).

If they go unchecked, climate change will only exacerbate the current inequalities in our society. Those who are vulnerable already to poverty and disadvantage will become even more vulnerable as resources become scarcer, costs rise and there are shortfalls in public provision. The disadvantaged will be the first to lose their jobs, their homes, their livelihoods, and, on a global scale, will be more prone to the ill-effects of drought, floods, and natural disasters. Coote and Franklin (2009) highlight the need for a new set of values to support the social changes that are necessary, developed around the idea of sustainable social justice. These are (adapted from Coote and Franklin 2009:12-15):

- Well being for all so everyone can flourish
- Prevention before cure
- Growing the core economy to include human and social resources (e.g. time, wisdom, energy, knowledge and skills)
- Co-production of public services based on the principle of equal partnership rather than consumers or users of services
- More green collar jobs in insulation, renewable energy sources, green technologies
- Sustainable public services.

As Johnson, Simms and Cochrane (2008) demonstrate (also writing for nef) social and environmental concerns are not separate, they are interrelated. Lifting people out of poverty and creating a sustainable environment are not mutually exclusive aims:

‘People suffering the effects of environmental damage need to know what rights they have and how to exercise them. When people know about their rights and are empowered to use them, they can act to improve the environment in which they live’ (2008:5)

Botanic gardens can be part of the solution. Botanic gardens around the world have already demonstrated that they can use their skills, expertise and knowledge in horticulture to help communities work towards and develop more sustainable ways of living. They can support community understanding of our reliance on plants and what it would mean to be without them. They can help us to understand what a

planet without a diversity of plants would be like and what we need to do to conserve them for the future.

6.3.6 Social justice, equality, human rights as a global concern

The growing international influence of discourses around human rights, social justice and equality provides another compelling context for the increasing demands for public facing organisations like botanic gardens and museums to demonstrate their value to society. The language of rights, including right to culture, is a particularly powerful argument and is one that is becoming increasingly global; it has been used in numerous contexts, and, if only in abstract terms, the notion of rights enjoys relatively widespread mainstream support across many cultures (Cowan, Dembour and Wilson 2001). Sandell (2007) summarises the trends which have contributed to a growing questioning and re-positioning of cultural organisations like museums over their social role and purpose:

'These include the growing global influence of human rights discourses; the changing demographic composition of many Western societies; the 'new social movements' of the last fifty years that have led to a proliferation of previously marginalised voices; heightened international interest in multiculturalism, cultural diversity and an approach to the politics of difference which rejects assimilationist policies in favour of those which affirm cultural and ethnic differences; and the introduction of increased demands for accountability' (2007:6).

The term 'social justice' - which has come to mean the recognition and esteem of difference and equity of participation in social and political life – has also entered political discourse in the UK recently. Although social justice has been core to centre-left politics for some considerable time, it came to the fore in terms of current social policy as a result of the inquiry by and final report from the Commission on Social Justice (1994:10). The think-tank, ippr, have identified the four key elements of social justice as being (Miller 2005:5):

- Equal citizenship
- The social minimum – 'All citizens must have access to resources that adequately meet their essential needs, and allow them to lead a secure and dignified life in today's society.'
- Equality of opportunity
- Fair distribution – of 'resources that do not form part of equal citizenship or the social minimum'.

In Scotland, this work has been called 'social justice' from the start (Scottish Executive 1999:17) although it has been less used in England. There may be some hesitancy over using terms like 'social justice' because as Miller argues:

'To pursue social justice is to believe that society can be reshaped – its major social and political institutions changed – so that each person gets a fair share of the benefits ... Neo-liberals reject this idea because they believe it is destructive of a free market economy' (2005:3).

Social justice has also been linked to the concept of 'environmental justice', the right to a healthy environment.

6.3.7 Professional's passion and concern with increasing relevance and accessibility

The passion of professionals for increasing the social relevance and purpose of their organisations can be a strong motivating force, particularly when it permeates the values and mission of the organisation. From the case studies and interviews came examples of where professional passion was manifested in the activities of the organisation. This was particularly evident at Eden; Sara Oldfield of BGCI expressed an admiration for their approach, particularly as she considered it could be replicated in other botanic gardens:

"Eden Project is inspirational and hugely impressive. And I think there were certainly elements of what they've done that could be replicated in other botanic gardens. I mean I think they are good at the messaging and they're good at the story-telling and they're very good at the links for example through the displays and the products that they sell in their shop and the sort of, you know, sustainability aspects. they are very, very good at that".

It is the strong clarity of their mission and values that is so impressive about Eden. Whilst some botanic gardens are passionate about plants, and want to communicate what engenders this passion, this does not always translate into a similar desire to work with society in order to make plants more relevant and meaningful in peoples' lives. Whereas Eden are passionate about their social purpose:

"I think on a philosophical level we're very much of the school of thought that things like sustainability are not technical challenges really they're more cultural, they're a huge question for, of society and the nature of society"
(Tony Kendle, Eden Project)

They use their skills and expertise - not just as horticulturalists but as artists, community workers, gardeners, storytellers - to benefit society, with the intention of creating a society that is more sympathetic to the natural world and more aware of our place within it. A society with a culture that:

'knows how to sustain the things that sustain us and at the same time nurtures creativity, imagination and adaptability' (Eden Project 2010b).

People who work for Eden know that they are committing themselves to a strong set of values. Tim Smits, Chief Executive of Eden Project is outspoken about his beliefs in how organisations should operate, for instance in an interview with the *Museums Journal* he described his own role thus:

'I don't see my role as being autocratic, saying do this, do that, do the other. I provoke thought, prod people and get them excited about stuff' (Stephens 2009:39).

There were other botanic gardens we spoke to where staff displayed a similar passion towards increasing the social relevance and accessibility of their

organisations, although, as we have described in previous sections, they are working within the particular constraints of their organisations and may face various hurdles on the way. Eden is a very new organisation compared to somewhere like Oxford which was founded in 1621. Supportive senior management and trustees were often essential for progress to be made.

6.3.8 BGCI

BGCI have done much already to raise awareness and working practices through a number of publications like:

- The International Agenda for Botanic Gardens
- Plants and Climate Change: which future?
- Education for Sustainable Development: guidelines for action in botanic gardens
- Roots and BG Journal – both have had a themed issue on climate change.

The growing mainstream acceptance of climate change and the need to find workable and acceptable solutions to the challenges it poses presents botanic gardens with a real opportunity to have a renaissance – a new purpose, a new sense of direction. In many ways it is a continuation of the activities in which they are already involved only directed to new social ends, particularly targeting those who are more vulnerable to the coming impact of climate change because of disadvantage. As Sara Oldfield, Director-General of BGCI, described,

“the traditional role of botanic gardens in many countries was... to trial new agricultural crops in different parts of the world to see what would grow well in different climatic conditions, and it's almost that opportunity again with climate change.”

The role of BGCI - the single organisation responsible for botanic gardens as a sector - as a focus for this renaissance is critical:

“as a kind of focal point, BGCI kind of absorbs that sense of what's going on and spreads it back out to the botanic garden community”.

Sara Oldfield agrees that botanic gardens not currently reaching enough people through their activities:

“I do fundamentally think that botanic gardens don't yet reach out to a broad enough spectrum of the community, and I think there's so much scope for them to do that”.

Part of the process would be to challenge some of the assumptions that botanic gardens make, “probing into what they could do differently or what we could do.” Re-positioning themselves as organisations would need new ways of thinking, and new ways of working:

“I know everyone's got budgetary constraints, but they are great places and there's always things that people could do differently or connect up with different groups and think things through in a different way.”

BGCI is well placed to be part of this process. It is an international network through which international best practice and policy is shared and ideas exchanged. BGCI also promotes new ideas and encourages new ways of thinking. It brings people together through regular congresses and conferences and inspires them through practical examples.

BGCI and the Global Strategy for Conservation have been instrumental in the adoption of plant conservation as one of the key purposes of botanic gardens, despite there being no legal obligation for botanic gardens to promote conservation unlike other organisations such as zoos. Louise Allen from Oxford describes the impact it had across the sector:

“It’s a slow change and in some ways there’s no denying for this organisation that the Global Strategy for Plant Conservation was really, really key... we had been doing education anyhow... but I think we now see within the botanic garden world there are now directors who go to conferences and talk on education, whereas ten years ago nobody would have done that” (Louise Allen, University of Oxford Botanic Garden)

The gradual realisation of the importance of being a public-facing organisation in terms of conservation and education suggests that there is no reason why botanic gardens cannot be more proactive around climate change.

“I think we’re immersed in the sort of biodiversity conservation community. So we feel surrounded by information on what’s happening to the world and so on, that we kind of... it’s probably quite difficult for us to step outside that... So I mean I think we are all within our small staff and within the botanic garden community in general, we’re quite sensitive to what people are saying about the environment and whether it’s in the scientific literature... we’re quite porous. We absorb all that... I mean we’re not being instructed by government or government policy in a lot of cases” (Sara Oldfield, BGCI)

The Global Strategy for Plant Conservation provides a framework for ‘safeguarding the world’s plant diversity’ through shared objectives, targets and actions that enhance the possibility for collaboration at local, national and (most importantly) international levels. A similar strategy which outlines the social roles and responsibilities of botanic gardens could be a possible way forward.

6.4 Conclusion

In this section we have described the ‘forces for change’ which are motivating botanic gardens to reconsider their role and purpose in society, and the ‘change inhibitors’ which have prevented many from so far realising that role to a significant extent. Small workforces, limited funding and diversity of workforce have created hurdles for most gardens; lack of motivation for a social purpose and a focus on collections have ensured that some gardens are content to remain as they are despite the increased pressure for cultural organisations to demonstrate their social benefit. One significant area where botanic gardens are lagging behind other sectors is in evidencing their impact on their visitors. Many botanic gardens do not even collect basic information about their visitors, which makes it very difficult for

them to understand how they can have a greater social role. We need to understand what that role would be and what benefits it could bring to society in a time of deepening social and environmental crisis. The role of organisations like BGCI therefore is to start the conversation - the question is:

What does the social role (and responsibility) of botanic gardens look like?

Section Three Future Developments

7.1 Redefining their purpose – values, mission, vision

To combine their social and environmental goals botanic gardens need to re-define their purpose. They need to think about the kind of mission, vision and values a socially relevant organisation would have. At the same time they need to make the decision about whether they are taking a stand on environmental issues like climate change.

The values, mission and vision need to be embedded across the organisation. Everyone will need to be committed to them because they will become the building blocks for activity.

In redefining their values, mission and vision, botanic gardens need to ask themselves the following questions:

- Why we exist - Purpose
- What we believe in - Values
- Who we do it for - Audience
- What we want to achieve – Goals.

Robert Janes (2009) gives some examples of what he considers to be suitable values for socially relevant organisations, values which:

'reflect the commitment required for effective participation in the broader world. The list might include idealism, humility, interdisciplinarity, intimacy, interconnectedness, resourcefulness, transparency, durability, resilience, knowing your community and knowing your environment' (Janes 2009:167).

A successful mission will combine social and environmental goals; compare Eden's mission to that of the Botanic Gardens Trust Sydney. Eden's mission tells us what they are doing, who for and why. Sydney's mission has none of that information and is much more vague.

'To inspire the appreciation and conservation of plants'
(Botanic Gardens Trust Sydney)

'To promote the understanding and responsible management of the vital relationship between plants, people and resources, leading to a sustainable future'
(The Eden Project)

Flexibility and dialogue are also crucial characteristics of socially relevant organisations. Flexibility is a must when the context in which botanic gardens operate in is constantly changing. The territory of climate change and community needs will be constantly shifting and organisations will need to be proactive and responsive. Organisations should not be too rigid or constrained by their values but should be nimble and flexible to change.

Being clear about their own values will enable botanic gardens to be much more confident about engaging in dialogue with their users. To be a force for change botanic gardens need to enable dialogue with their users, become places where people can test their views and perceptions. At the moment botanic gardens are hesitant to put across their values for fear of leading or manipulating people into thinking particular things. They prefer to hide behind scientific objectivity. However this is misleading because even objectivity is based on a particular set of values. Botanic gardens need to be confident and open to debate with their users; they can still be clear about their values and enable users to have their own views.

7.2 A lengthy process of change across the whole organisation

In his critique of museums, Robert Janes argues that:

‘[The] status quo allows the bulk of museums to remain immune from the pressing issues of our day - avoiding involvement in the guise of moral and intellectual neutrality’ (Janes 2009:20).

Parallels can be drawn here with botanic gardens. They have the potential to take on a broader social role but they are limited by a combination of factors. As natural habitats shrink and urbanisation increases across the world, coming into contact with nature through botanic gardens may be the only opportunity for some communities. At the moment botanic gardens are only relevant to a select audience; they need to become more socially relevant.

The process of organisational change for botanic gardens to become more socially relevant will not be a quick and easy process. It will be a lengthy one which will involve much debate, conversation across and outside the sector, collaboration with familiar and new partners. It will be an incremental and evolving process that may take botanic gardens into new and unfamiliar territory.

It is a process that will affect the entire organisation. Social relevance is not just confined to education or community roles but will involve working in new ways across the whole organisation. Everyone will need to be committed and engaged for it to work.

But it will also be an inspiring process. Botanic gardens will be better prepared to meet the changing needs – and the challenges – of the 21st century and play an active role in a society which is better equipped to deal with these demands.

Here we present the key stages that we believe need to take place in order for botanic gardens to re-position themselves as socially relevant organisations.

7.3 Botanic gardens are uniquely placed to address climate change but they aren’t taking a visible and active role

In a society that has become detached from plants botanic gardens are uniquely placed to communicate their value to society. They can use their knowledge and expertise of plants, of sustainable practices (recycling, re-use, alternative energy) to

benefit and support communities. Botanic gardens not only tell us about the connection between human and plants but they can show us too the impact of climate change and the effect it will have on the natural world and the social world.

But despite their passion for plants and belief in climate change the paradox is that botanic gardens are not doing very much to take an active and visible role. Instead they are unclear and tentative about their social role. They have much latent potential but despite the timeliness of increased interest around environmental issues in mainstream politics and media their efforts are small-scale and invisible. Plants have a critical role to play but botanic gardens are not getting their messages across effectively. They need new ways of getting their message across to a broader and more representative audience.

At the moment their core values – the focus on collections, research and conservation – do not always take into account their wider social role. Botanic gardens are often hesitant to move outside their comfort zones and work with their non-traditional users. But botanic gardens need to be bolder in their relationship with wider society.

Like with other cultural organisations, the 'pressure is mounting' (Janes 2009:16) on botanic gardens to re-position their role in society. They are rooted in a purpose that is rarely questioned internally, constrained by tradition and lack of diversity. But change is possible. Parallels can be drawn with conservation, which was recently embraced by the botanic garden sector after a process of redefining the values and mission of botanic gardens. They need to go through a similar process to define their social role and responsibilities. This is a conversation that needs to be had across the sector, led by a central organisation like BGCI in partnership with others.

7.4 Botanic gardens should combine their social and environmental roles

The threat of climate change is one of the most significant challenges that society faces in the 21st century; however it is often treated as an environmental problem to be solved by technology. But climate change is a social problem - it will have an effect on the way in which we live and how we rely on natural resources such as plants. It is an issue of social and environmental justice as climate change will have more of a devastating impact on the vulnerable and disadvantaged people in society who are much more ill-equipped to meet the changing weather patterns, rise in energy prices and increased scarcity of natural resources that are anticipated if global temperatures continue to rise. For people to understand the importance of their relationship with the natural world it needs to be presented to them as a social issue.

For botanic gardens to be more socially relevant, to contribute effectively to the debate on climate change, they need to combine their social and environment goals. These should not be seen as separate but as interconnected. Combining the two roles is critical to reinvigorating their fundamental purpose. These are not challenges to be left in the hands of scientists and governments or resolved through technology. Increasingly it is realised by the mainstream that the challenges like climate change can only be resolved by the whole of society working together.

At the moment society is largely paralysed, not knowing what to do to face the challenges presented by climate change. There is little leadership from politicians and other public organisations. It is very timely for botanic gardens to look at their core values and take the opportunity to re-position themselves as a voice of authority on climate change, presenting solutions through sustainable behaviour and using their knowledge and expertise to respond to community need.

7.6 Communicating, evidencing and advocating

Once botanic gardens have re-positioned their values, mission and vision they need to effectively communicate their new purpose both internally to the whole organisation and externally to the wider world.

The re-invigorated social purpose of the botanic garden needs to be communicated and understood by staff across the whole organisation. It needs to be embedded in everything they do; in practice, in interpretation on-site, in education and learning programmes and in external communication. Staff need to be working collectively in the same direction for the new values and mission to be effective.

Effective external communication is essential. Botanic gardens need to collectively and confidently articulate what they are doing to the wider world. They need to come out from the margins and make their work visible to a wider audience including other cultural organisations, public bodies and government bodies. To convince others of why they have a unique and valuable role to play they need to gather evidence to demonstrate and advocate for their value. Rigorous and quality evidence will also help to convince the sceptics both in their own organisations and in the sector.

7.7 Finding a third way between the model of the traditional botanic garden and the Eden Project

The characteristics of a socially relevant botanic garden will only emerge after a process of discussion within the sector. From the research, however, we can suggest that it will be somewhere between the model of a traditional botanic garden and the model represented by the Eden Project, which defines itself as a social enterprise organisation.

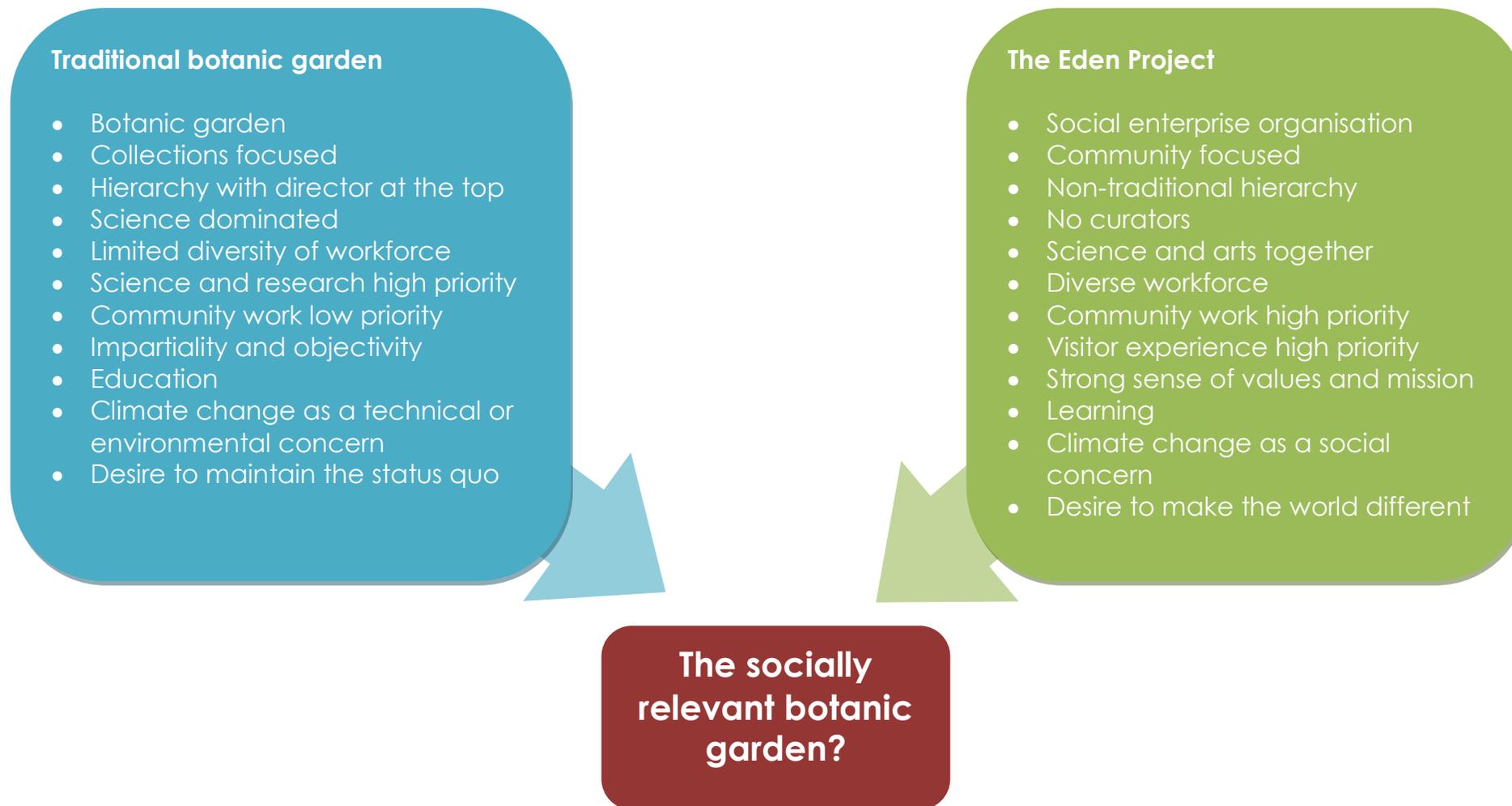
Figure 11 represents the two extremes we found through the research. On the left is the traditional model of the botanic garden which is not focused on its social role and operates within a very rigid and hierarchical structure. On the right, Eden is given as an example of an organisation that is very clear about its social role and relevance. It is much more focused on community engagement and advocates for social change to meet the challenges presented by climate change.

Eden set out purposefully to be different from a botanic garden so it is not a model that we expect to be replicated or emulated by other botanic gardens because its organisational structure is too different. Botanic gardens have a long history and have strengths of their own which can be retained even if their core values are

repositioned. However there are many elements of Eden's practice which could be adopted effectively by botanic gardens.

Combining both these models could enable the creation of a new model, a third model representing the socially relevant botanic garden.

Figure 11: Finding a third way between the traditional botanic garden and the Eden Project



Appendix 1- References

- Abraham, J. and Lacey, C. (1990) 'Introduction', in Abraham, J., Lacey, J. and Williams, R. (eds.) *Deception, Demonstration, and Debate: Towards a critical environment and development education*, London, Kogan Page: 13-25
- Adam, D. (2009) 'Apocalyptic climate predictions' mislead the public, say experts' *The Guardian*, <http://www.guardian.co.uk/environment/2009/feb/11/climate-change-misleading-claims> [accessed 30 03 2010]
- Ballantyne, R., Packer, J. and Hughes, K. (2008) 'Environmental awareness, interests and motives of botanic gardens users: Implications for interpretative practice' *Tourism Management* 29: 439-444
- BGCI (2010a) 'Our members' <http://www.bgci.org/global/members/> [accessed 25 03 2010]
- BGCI (2010b) 'Definition of a botanic garden' <http://www.bgci.org/resources/1528/> [accessed 24 03 2010]
- BGCI (2006) 'Growing Young People from the Ground Up', *Roots* 3:1
- BGCI (2000) *The Gran Canaria Declaration calling for a global program for plant conservation*, Richmond, UK, BGCI <http://www.cbd.int/doc/meetings/cop/cop-05/information/cop-05-inf-32-en.pdf>
- Blowers, A. (2003) 'Introduction', in Hinchliffe, S., Blowers, A. and Freeland, J. (eds.) *Understanding Environmental Issues*, Chichester, Wiley (The Open University)
- Botanic Gardens Trust Sydney (2010) *Cultural Diversity Statement* http://www.rbg Syd.nsw.gov.au/about_us/corporate_plans_and_policies/cultural_diversity_statement [accessed 15 03 2010]
- Botanic Gardens Trust Sydney (2007) *Big Answers to Big Questions* http://www.rbg Syd.nsw.gov.au/_data/assets/pdf_file/0009/88038/2007_babq.pdf [accessed 17 03 2010]
- Burnett, J. (2004) 'Community, cohesion and the state', *Race & Class*, 45 (3): 1-18
- Byrne, D. (2005) *Social Exclusion*, second edition, Maidenhead, Open University Press
- Cato Institute (2010) 'Patrick J. Michaels: Senior Fellow in Environmental Studies' <http://www.cato.org/people/patrick-michaels> [accessed 30 03 2010]
- Convention on Biological Diversity (undated) *Global Strategy for Plant Conservation*, Quebec, Secretariat of the Convention on Biological Diversity
- Commission on Social Justice (1994), *Social justice: strategies for national renewal*, London, Vintage Books
- Convention on Biological Diversity (undated) *Global Strategy for Plant Conservation*, Quebec, Secretariat of the Convention on Biological Diversity

Coote, A. and Franklin, J. (2009) *Green Well Fair: Three economies for social justice*, London, new economic foundation

The Countryside Agency (2000) *Not seen, not heard? Social exclusion in rural areas*, London, The Countryside Agency

Cowan, J., Dembour, M. and Wilson, R. (2001) *Culture and Rights: Anthropological Perspectives*, Cambridge: CUP

Craig, G. (2009) 'The limits of compromise? Social justice, 'race' and multiculturalism', in G. Craig, T. Burchardt & D. Gordon (ed.) *Social justice and public policy: seeking fairness in diverse societies*, Bristol, The Policy Press: 231-249

Cribb, A. and Gewirtz, S. (2003) 'Towards a sociology of just practices: an analysis of plural conceptions of justice,' *Social Justice, Education and Identity*, in Vincent, C. (ed.) London and New York, RoutledgeFalmer: 15-29

Defra (2010) *Independent Review of the Royal Botanic Gardens at Kew*, London, Defra

Delingpole, J. (2009) 'Meet the man who has exposed the great climate change con-trick' *The Spectator*, <http://www.spectator.co.uk/essays/all/3755623/meet-the-man-who-has-exposed-the-great-climate-change-con-trick.html> [accessed 30 03 2010]

Department for Work and Pensions (2009), *European Year for Combating Poverty and Social Exclusion: UK National Programme*, London, Department for Work and Pensions, <http://www.dwp.gov.uk/docs/ey2010-uk-national-programme.doc> [accessed 29 03 2010]

Dilling, L. and Moser S. (2007) 'Introduction', in Moser, S. and Dilling, L., (eds.) *Creating a climate for change: Communicating climate change and facilitating social change*, Cambridge, Cambridge University Press: 1-27

Eden Project (2010a) 'Great Day Out' <http://www.edenproject.com/our-work/people/great-day-out/index.php> [accessed 19 04 2010]

Eden Project (2010b) <http://www.edenproject.com/our-work/index.php> [accessed 23 04 2010]

Edwards, I. (2006) 'Social Integration for all', *Roots*, 3 (1), <http://www.bgci.org/resources/article/0247/> [accessed 18 04 2010]

EU (2010) 'Policy areas of the European Union' http://europa.eu/pol/index_en.htm [accessed 18 04 2010]

Fainstein, S. S. (2001) 'Competitiveness, Cohesion and Governance: Their implications for Social Justice,' *International Journal of Urban and Regional Research*, 25(4):884-888

FTBG (2010) <http://www.fairchildgarden.org/education/fairchildchallenge/overview/> [accessed 07 04 2010]

FTBG (2009a) 'The Fairchild Challenge 2008-2009 Annual Report for Middle and High School Programmes' http://www.fairchildgarden.org/uploads/docs/Education/Challenge/2009/2008-2009_Fairchild_Challenge_MS-HS_Annual_Report.pdf [accessed 07 04 2010]

- Furse-Roberts, J. (2009) 'Interpretation master planning: creating holistic narrative experiences' *Roots: Botanic Gardens Conservation International Education Review*, 6 (1): 5-8
- Gamarnikow, E. and Green, A. (2003) 'Social Justice, identity formation and social capital: School diversification under New Labour,' Vincent, C. ed., *Social Justice, Education and Identity*, London and New York, RoutledgeFalmer: 207-222
- Glesne, C. and Peshkin, A. (1992) *Becoming qualitative researchers: an introduction*, White Plains, NY, Longman
- Global Greens (2001) *Charter of the Global Greens, Canberra, 2001*, Canberra, Global Greens <http://www.global.greens.org.au/Charter2001.pdf> [accessed 29 03 2010]
- Global Warming Policy Foundation (2010) 'Who we are' <http://www.thegwpcf.org/who-we-are.html> [accessed 30 03 2010]
- Goldenberg, S. (2009) 'Copenhagen climate change talks must fail, says top scientist' *The Guardian*, <http://www.guardian.co.uk/environment/2009/dec/02/copenhagen-climate-change-james-hansen> [accessed 29 03 2010]
- Harloe, M. (2001) 'Social Justice and the City: The New 'Liberal Formulation'', *International Journal of Urban and Regional Research*, 25 (4): 889-897
- Hatherly, J. (2009b) *Big Answers to Big Questions: Are our tranquil green spaces the perfect places for public debate?*, PowerPoint to accompany presentation given at the 7th International Congress on Education in Botanic Gardens 1-5 November 2009 (Internal document)
- Hatherly, J. (2006) 'Beyond the Garden Walls: greening cities and cultivating communities' <http://www.museumsaustralia.org.au/dbdoc/Conf%2006%20Hatherly%20Concurrent%20.pdf> [accessed 30 03 2010]
- Honderich, T. ed. (2005), *The Oxford Companion to Philosophy*, Second edition, Oxford, Oxford University Press
- Institute of Community Cohesion (2009) 'Faith, Interfaith and Cohesion: The Education Dimension - a toolkit for practitioners: Overview', <http://www.cohesioninstitute.org.uk/Resources/Toolkits/Faith> [accessed 29 03 2010]
- Janes, R. (2009) *Museums in a Troubled World: Renewal, Irrelevance or Collapse?* London and New York, Routledge
- Jenkins, R. (1990) 'The need for a concentric education', Abraham, J., Lacey, J. and Williams, R. eds., *Deception, Demonstration, and Debate: Towards a critical environment and development education*, London, Kogan Page:105-118
- Jones, K. R. and Wills, J. (2005), *The Invention of the Park: Recreational Landscapes from the Garden of Eden to Disney's Magic Kingdom*, Cambridge and Malden, MA, Polity Press
- Kazepov, Y. (1998) *Citizenship and poverty: The role of institutions in the structuring of social exclusion*, EUI Working Paper EUI No. 9811, Florence, European University Institute

- King, S. (2010) 'Staring at a new age of austerity' *The Independent*, <http://www.independent.co.uk/news/business/comment/stephen-king/stephen-king-staring-at-a-new-age-of-austerity-1913797.html> [accessed 30 02 2010]
- Lang, C. (2006) 'The Public Access Debate', in Lang, C., Reeve, J. and Woollard, V. eds, *The Responsive Museum: Working with audiences in the twenty-first century*, Aldershot, Burlington VT, Ashgate: 29-38
- Levitas, R. (2005) *The Inclusive society? Social exclusion and New Labour*, second edition, Basingstoke, Palgrave Macmillan
- Levitas, R. (2004) 'Let's hear it for Humpty: Social Exclusion, the Third Way and Cultural capital,' *Cultural Trends*, 13 (2): 41-56
- Lewis, C. (2006) 'The Fairchild Challenge: Engaging Teenagers, Schools and Communities, *Roots*, 3:2, <http://www.bgci.org/education/article/0526/> [accessed 08 04 2010]
- MacInnes, T., Kenway, P. and Parekh, A. (2009), *Monitoring Poverty and Social Exclusion 2009*, Joseph Rowntree Foundation, <http://www.jrf.org.uk/publications/monitoring-poverty-2009> [accessed 10 06 2010]
- Maloutas, T, and Malouta, M. P. (2004), 'The Glass Menagerie of urban governance and social cohesion: Concepts and stakes/concepts as stakes,' *International Journal of Urban and regional research*, 28 (2): 449-465
- Mason, J. (1996) *Qualitative researching*, London, Sage
- Michaelis, L. (2007) 'Consumption behaviour and narratives about the good life' Moser, S. and Dilling, L. eds, *Creating a climate for change: Communicating climate change and facilitating social change*, Cambridge, Cambridge University Press: 251-265
- Miller, D. (2005) 'What is social justice?', in N. Pearce & W. Paxton (ed.) *Social justice: building a fairer Britain*, London, Politico's Publishing:3-20
- Monbiot, G. (2006) *Heat! How to Stop the Planet Burning*, London, Penguin
- Moser, S. (2007) 'More bad news: the risk of neglecting emotional responses to climate change information' Moser, S. and Dilling, L. eds, *Creating a climate for change: Communicating climate change and facilitating social change*, Cambridge, Cambridge University Press: 64-80
- Moser, S. and Dilling, L. (2007b) 'Toward the social tipping point: creating a climate for change' Moser, S. and Dilling, L. eds, *Creating a climate for change: Communicating climate change and facilitating social change*, Cambridge, Cambridge University Press: 491-516
- Moss, S. (2007) 'Back to Nature', *The Guardian*, <http://www.guardian.co.uk/environment/2007/jun/05/healthandwellbeing.conservaion> [accessed 19 04 2010]
- Ngyou, J. (2009) *Museums, libraries and archives - supporting new communities and responding to migration trends*, London, MLA http://www.mla.gov.uk/what/policy_development/communities/~/_media/Files/pdf/2009/New_Communities_Position_Piece [accessed 22 04 2010]

NHM (2010) <http://www.nhm.ac.uk/research-curation/policy-strategy/science-review/index.html> [accessed 07 04 2010]

Nordhaus, T. and Shellenberger, M. (2009) 'Apocalypse fatigue: Losing the public on climate change', *The Guardian*, <http://www.guardian.co.uk/environment/2009/nov/17/apocalypse-public-climate-change> [accessed 30 03 2010]

Number10.gov.uk (2007) 'Gordon Brown outlines his security strategy', <http://www.number10.gov.uk/Page12678> [accessed 29 03 2010]

Okollet, C. (2009) 'Climate change is killing our people' *The Guardian* - <http://www.guardian.co.uk/commentisfree/cifamerica/2009/sep/22/united-nations-climate-change-uganda> [accessed 20 04 2010]

Oldfield, S. (2009) 'Botanic gardens and the conservation of tree species' *Trends in Plant Science*, 14 (11): 581-583

O'Neill, M. (2010), speaking during a panel discussion 'A Question of Faith – the museum as spiritual or secular space at 'From the Margins to the Core - an international conference exploring the shifting roles and increasing significance of diversity and equality in contemporary museum and heritage policy and practice', Wednesday 24 – Friday 26 March 2010, Sackler Centre, V&A

Palmer, G., MacInnes, T. and Kenway, P. (2008) *Monitoring poverty and social exclusion 2008*, York, Joseph Rowntree Foundation

Pantazis, C., Gordon, D. and Levitas, R. (2006) 'Conclusion' in Pantazis, C., Gordon, D. and Levitas, R. eds, *Poverty and social exclusion in Britain: The millennium survey*, Bristol, The Policy Press:459-469

Parker, J. and Preston, C. (2002) 'Botanic gardens, biodiversity... and brilliant days out' *Osmosis*, 22, <http://www.saps.plantsci.cam.ac.uk/osmos/osmosis22.pdf> [accessed 30 03 2010]

Paugam, S. (1996) *A new social contract? Poverty and social exclusion a sociological view*, EUI Working Paper RSC No. 96137, Florence, European University Institute

Paugam, S. (1995) 'The spiral of precariousness: A multi-dimensional approach to the process of social disqualification in France', in Room, G. ed. *Beyond the Threshold: The measurement and analysis of social exclusion*, Bristol, The Policy Press:49-79

Percy-Smith, J. (2000) 'Introduction: The contours of social exclusion' in Percy-Smith, J. ed. *Policy responses to social exclusion: towards inclusion?* Buckingham, Philadelphia, The Open University Press: 1-21

Planning Institute of Australia (2009) *Healthy Spaces and Places*, <http://www.healthyplaces.org.au/userfiles/file/Social%20Inclusion%20June09.pdf> [accessed 29 03 2010]

Roberts, N.S, Chavez, D.J., Lara, B.M. and Sheffield, E.A. (2009) *Serving Culturally Diverse Visitors to Forests in California: A Resource Guide*, Forest Service, Pacific Southwest

Research Station General Technical Report PSW-GTR-222, United States Department of Agriculture

Robson, C. (2002) *Real world research*, second edition, Oxford, Blackwell

Ryken, A. E. (2009), 'Interpreting nature: connecting to visitor understandings', *Roots: Botanic Gardens Conservation International Education Review*, 6 (1): 9-13

Sandell, K., Öhman, J. and Östman, L., (2003) *Education for sustainable development: Nature, School and Democracy*, Malmö, Studentlitteratur

Sandell, R. (2007) *Museums, Prejudice and the Reframing of Difference*, London and New York, Routledge

Saunders, D. L. (2007) 'Making public the private life of plants: The contribution of informal learning environments' *International Journal of Science Education*, 29 (10): 1209-1228

Scottish Executive (1999), *Social justice ... a Scotland where everyone matters*, Edinburgh, Scottish Executive <http://www.scotland.gov.uk/Resource/Doc/158142/0042789.pdf> [accessed 29 03 2010]

Scottish Museums Council (2000), *Museums and Social Justice: How museums and galleries can work for their whole communities*, Edinburgh

Shea, L. and Montuillaud-Joyel, S. (2005), *Communicating Sustainability: How to produce effective public campaigns*, Nairobi, United Nations Environment Programme (UNEP)

Social Exclusion Task Force (2009) 'Context for social exclusion work', http://www.cabinetoffice.gov.uk/social_exclusion_task_force/context.aspx [accessed 29 03 2010]

Social Exclusion Unit (2001), *Preventing social exclusion: a report by the Social Exclusion Unit*, London, Cabinet Office http://www.housing.infoxchange.net.au/library/ahin/housing_policy/items/00054-upload-00001.pdf

Stephens, S. (2009) 'Growth Plan' *Museums Journal*, December, London, Museums Association

Thrive (2010) <http://www.thrive.org.uk/> [accessed 19 04 2010]

UN (2010a) 'Millennium Development Goals Review Summit September 2010' http://www.endpoverty2015.org/en/2010_mdg_review_summit [accessed 18 04 2010]

UN (2010b) 'We can end poverty 2015: Millennium Development Goals' <http://www.un.org/millenniumgoals/bkqd.shtml> [accessed 30 03 2010]

Ward, C. D., Parker, C. M. and Shackleton, C. M. (2010) 'The use and appreciation of botanical gardens as urban green spaces in South Africa' *Urban Forestry and Urban Greening*, 9:49-55

Waylen, K. (2006a) *Botanic Gardens; Using biodiversity to improve human well-being*, Richmond, UK, Botanic Gardens Conservation International

Waylen, K. (2006b) 'Botanic Gardens: using biodiversity to improve human well-being' *Medicinal Plant Conservation* 12: 4-8

Whelan, B. J. and Whelan, C. T. (1995) 'In what sense is poverty multidimensional?', Room, G. ed. *Beyond the Threshold: The measurement and analysis of social exclusion*, Bristol, The Policy Press

Wilkinson, R. and Marmot, M. eds. (2003), *Social determinants of health: the solid facts*, second edition, Copenhagen, World Health Organisation

Willison, J. (2008), 'Taking a leaf out of Darwin's book' *Roots: Botanic Gardens Conservation International Education Review*, 5 (2): 2-4

Willison (2001) 'The uniqueness of botanic gardens' *provided by the author*

Willison, J. (undated) 'The socio-educational value of botanic gardens' *provided by the author*

Wilson, R. (1997) *Human Rights, Culture and Context: Anthropological Perspectives*, London: Pluto.

Winckler, V. (ed.) (2009), *Equality issues in Wales: a research review*, Manchester, Equality and Human Rights Commission

Appendix 2 – Questionnaire to BGCI members



Botanic Gardens and social inclusion: a research project by the Research Centre for Museums and Galleries (RCMG) for Botanic Gardens Conservation International (BGCI)

I am writing to request your help in a research project looking at the social role of botanic gardens in the UK. The project is being carried out by the Research Centre for Museum and Galleries (RCMG) at the University of Leicester on behalf of Botanic Gardens Conservation International (BGCI).

Over the past decade there has been increasing focus on social inclusion and access amongst other major visitor-based cultural centres in the UK (especially museums and galleries). However there appears to be a gap in this area within the botanic garden community. BGCI would like to challenge the traditional way of thinking and encourage botanic gardens to examine their purpose and reevaluate their own mission and policy within a framework of social responsibility.

The aim of this research, therefore, is to investigate the current situation in botanic gardens and to make the case for social inclusion - within the context of plant conservation - and to provide a platform for further dialogue and debate around this important issue.

A range of different data is being collected for the research, including the enclosed questionnaire which we are asking botanic gardens to complete. It consists of just ten questions which will take a short time to answer. The details at the beginning outline the dimensions of social exclusion which we hope will give you some context for this work. If you require any further details or would like to discuss either the questionnaire or research project in more detail, I would be very happy to discuss these. Please find my contact details below.

Please could you return the completed questionnaire to Ceri Jones by email – cj36@le.ac.uk.

I do hope that you are able to support this important study, the first of its kind in the UK; we would really appreciate your involvement.

Yours sincerely

Jocelyn Dodd
Director, RCMG
Jad25@le.ac.uk
0116 252 3995

Botanic gardens and social inclusion: self-completion questionnaire for botanic gardens

A definition of social inclusion

Social inclusion targets those individuals and groups who are most excluded from society. There are a number of 'dimensions' which can lead to people becoming excluded from society; these can be complex and are sometimes interlinked: ⁵

- Economic (e.g. long-term unemployment; workless households; income poverty)
- Social (e.g. homelessness; crime; disaffected youth)
- Political (e.g. disempowerment; lack of political rights; alienation from/lack of confidence in political processes)
- Neighbourhood (e.g. decaying housing stock; environmental degradation)
- Individual (e.g. mental and physical ill health; educational underachievement)
- Spatial (e.g. concentration/marginalisation of vulnerable groups)
- Group (concentration of above characteristics in particular groups, e.g. disabled, elderly, ethnic minorities).

ABOUT YOUR ORGANISATION

1. Details of your organisation

Name of organisation

Address

Your name

Position

Email

Telephone number

⁵ Janie Percy-Smith (ed) *Policy responses to social exclusion: towards inclusion?* Open University Press, 2000

2. What is the governance of your organisation?

Please tick the appropriate box

- National
- Local Authority
- University
- Privately owned
- Other – please specify below

3. Number of visitors per annum

Please tick the appropriate box

- Up to 10,000
- 10,000 – 50,000
- 50,000- 100,000
- 100,00 – 250,000
- 250,000- 500,000
- Above 500,000 – please specify below

THE FOCUS OF YOUR ORGANISATION

4. Does your organisation have a mission statement?

- Yes – please specify below

- No – please briefly describe your key roles as an organisation below

ACTIVITIES AND EVENTS

5. Events

Please tick the boxes of those groups you deliver programmes and events to:

- Schools
- Special events for the general public
- Leisure groups e.g. church groups/ University of the Third Age (U3A)
- Special interest groups e.g. gardening groups/ horticulture/ environmental
- Community groups – please specify below:

6. Facilities

Please tick the boxes which describe the facilities you provide on-site for visitors

- Cafe
- Room for School groups
- Meeting rooms for other groups
- Other – please specify other relevant facilities below:

HARD-TO-REACH GROUPS

7. In your opinion, are botanic gardens relevant to the whole of society including those who are under- represented in the current visitor profile of botanic gardens, for example lower social economic groups (C2, D, E), Black and Asian communities, disabled people etc?

- Extremely relevant to all
- Relevant to all
- Neutral/no opinion
- Not relevant
- Not at all relevant
- I don't know / not applicable

8. Does your organisation work with hard-to-reach groups who do not normally visit botanic gardens?

- No
- I don't know / not applicable
- Yes – please give some details of the groups and types of activities below:

CLIMATE CHANGE

Climate change and global warming are increasingly seen as key issues in the twentieth-first century.

9. Importance of these issues to your organisation

How important are the issues of climate change and global warming to your organisation?

- Extremely important
- Important
- Neutral / No opinion
- Not important
- Not at all important
- I don't know / not applicable

10. Importance of educating the wider public about these issues

How important is it for your botanic garden to educate the wider public about issues of global warming?

- Extremely important
- Important
- Neutral / No opinion
- Not important
- Not at all important
- I don't know / not applicable

PARTICIPATING IN FURTHER RESEARCH

We are looking for organisations that would be willing to take part in in-depth case studies looking at botanic gardens and social inclusion. Would your organisation be willing to participate as a case study in this research? If yes, please provide details below:

Key contact name

--

Email

--

Telephone number

--

Thank you very much for completing this questionnaire.