

Ethical Guidelines



INQUIRE

**Inquiry-Based Teacher Training
for a Sustainable Future**





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- University of Innsbruck, Austria
- Royal Botanic Gardens, Kew, UK
- King's College London, UK
- Museo delle Scienze, Trento, Italy
- University of Sofia, Bulgaria
- Agencia Estatal Consejo Superior de Investigaciones Cientificas, Spain
- University of Bremen, Germany
- Jardin Botanique de la Ville de Bordeaux, France
- National Botanic Garden of Belgium
- Schulbiologisches Zentrum, Hannover, Germany
- Natural History Museum Botanical Garden, Norway
- Coimbra Botanic Garden, Portugal
- Moscow State University Botanical Garden, Russia
- University of Lisbon, Portugal
- Botanischer Garten, Rhododendron - Park, Botanika, Bremen, Germany
- Botanic Gardens Conservation International, UK
- Universidad de Alcala, Spain



INQUIRE Ethical Guidelines



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About the INQUIRE Project

INQUIRE was a three year project (2010 -2013), within the 'Science in Society' Programme of the European Commission, focusing on inquiry based science education and involving 17 partners in 11 European countries. The project was generously funded by the European Union under the 7th Framework Programme. Fourteen botanic gardens were involved in the project and individually developed and evaluated their own IBSE teacher training course. INQUIRE was coordinated by Innsbruck University Botanic Garden, Austria, with support from Botanic Gardens Conservation International (BGCI), King's College London, UK and the University of Bremen, Germany.

For more information about INQUIRE visit: www.inquirebotany.org





1. The INQUIRE Project

INQUIRE (Inquiry-Based Teacher Training for a Sustainable Future) is a EU FP7 project that supports the development of science literacy in Europe by planning and delivering one-year practical training courses promoting Inquiry-Based Science Education (IBSE) in the context of biodiversity loss and climate change. Botanic gardens act as a stimulating environment, training and supporting teachers and garden educators to develop their proficiency in IBSE and to become reflective practitioners. To support this process, teachers and garden educators are given opportunities to participate in a variety of professional development experiences to foster their understanding of IBSE and their motivation for teaching and learning activities in outdoor learning environments.

Teachers and educators work together in Communities of Practice (CoP) to develop their proficiency in IBSE. Botanic garden educators and teachers jointly develop IBSE activities and modules and test them with school classes. This necessitates agreement on the working process, shared goals and evidence collected, as well as a critical rethinking and reflection on the individual's own practice. Teachers and garden educators are encouraged to develop a critical relationship with their own practice and feel empowered to act as 'reflective practitioners'. To ensure excellence, INQUIRE applies a reflective practitioner approach on two levels:

- (1) at the consortium level within the CoP between Partners, *and*
- (2) at the school and botanic garden level, when training course participants apply IBSE activities at schools and in botanic gardens. Since this learning environment involves children, it needs to be handled with particular care.

2. Why do we need ethical guidelines?

The development, delivery and evaluation of the INQUIRE project raises ethically sensitive issues that require the definition of shared INQUIRE ethical guidelines. Responsibility for this process has been lead by UniHB, which has coordinated and discussed INQUIRE-specific ethical guidelines with consortium Partners at consortium meetings, and refined the guidelines accordingly.

The Cambridge Dictionary of Philosophy (Audi, 1995) argues that the word 'ethics' is "commonly used interchangeably with "morality" ... and sometimes it is used more narrowly to mean the moral principles of a particular tradition, group, or individual." The principles underpinning the INQUIRE ethical guidelines are an ethos of respect to the person, knowledge and democratic values. Individuals should be treated fairly, sensitively and with dignity and this should apply to everyone participating in the INQUIRE project. The aim of the ethical guidelines is to enable INQUIRE Partners and course participants (teachers and educators) to weigh up all aspects of the process of designing, conducting and evaluating the INQUIRE courses, within their national contexts, and to reach an ethically acceptable position in which they are considered justifiable and sound.



INQUIRE Partners sharing IBSE activities at Obergugl, Austria

In guiding INQUIRE Partners and their course participants (teachers and educators) on their conduct within the framework, we set out the guidelines under the following headings:

- Ethical principles for reflective practice
- Ethical principles for working with plants
- Ethical principles for learning outdoors/learning in out-of-school environments

2.1. Ethical principles for reflective practice

Within the INQUIRE project, INQUIRE Partners (teacher trainers) and INQUIRE training course participants (teachers and botanic garden educators) will either evaluate their national training courses or their IBSE learning activities with children. The goal is to enable individuals to act as reflective practitioners. The ethical considerations dealt with here are based on European as well as national principles.

2.1.1. Data protection

Legislation on data protection in all European countries is based on the EU Directive 95/46/EC of the European Parliament and the Council of 24th October 1995 on the protection of individuals in respect of the processing of personal data and on the free movement of such data (<http://eur-lex.europa.eu>), which contains basic rules for research and science.

Good practice in educational research

The European rules mentioned above are supplemented by the ethical principles contained in the European Charter for Researchers (<http://ec.europa.eu/euraxess/index.cfm/rights/europeanCharter>), which is a set of general principles and requirements, which specifies the roles, responsibilities and entitlements of researchers.

In the UK, the British Educational Research Association (BERA) has designed guidelines to support



educational researchers to operate to the highest ethical standards in whatever context is needed. They are summarised as Ethical Guidelines for Educational Research (www.bera.ac.uk/system/files/3/BERA-Ethical-Guidelines-2011.pdf) and form the basis of the INQUIRE ethical guidelines.

National legislation to ensure good practice in educational research is also relevant. In Germany, the German Association of Research (DFG) published the recommendations *Self-control in Research and Safeguarding Good Scientific Practice* to ensure high quality. In Austria, the directives of the former Austrian Rectors' Conference (now Universities Austria) safeguard good scientific practice. Based on these and other principles, the Directives to safeguard good scientific practice of the University of Innsbruck, was published in a revised version in the Official Journal of the University of January 5, 2011 (<http://www.uibk.ac.at/fakten/leitung/forschung/regeln>). These are binding for academic research and establish specific procedures in cases of infringement.

2.2. Ethical principles for working with plants

Since the INQUIRE courses are run in botanic gardens, global, national and regional regulations concerning working with plants are relevant. Botanic gardens are important environments to protect our natural heritage. In 2002 the UN Convention on Biological Diversity (CBD) adopted the Gran Canaria Declaration for a Global Strategy for Plant Conservation (GSPC). This has to be applied in the INQUIRE project. The GSPC promotes action towards a better understanding of species that are most at risk. It includes international targets for the conservation of threatened species. It also promotes education and the awareness of plant diversity (<http://www.cbd.int/decision/cop/?id=7183>). Additionally, the INQUIRE Partners and participants follow the ethical considerations of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). This aims to protect listed species of plants and animals against over-exploitation caused by international trade.

2.3. Ethical principles for learning outdoors/learning in out-of-school environments

Under the aegis of the INQUIRE project, learning outdoors and in botanic gardens should be an enjoyable experience for children, teachers and garden educators. Guidelines developed by the Royal Botanic Gardens, Kew, offer an example of how to manage visits to a botanic garden safely and ethically, and provide an important foundation for the development of INQUIRE ethical principles in this area. The guidelines are based on European safeguards to protect children and teenagers from abuse, physical, sexual or emotional mistreatment or neglect (<http://www.childsafetyeurope.org/index.html>). In addition, the Health and Safety at Work Act (<http://ec.europa.eu/social/main.jsp?catId=148>) and national guidelines, including the UK's Protection of Children Act, require all organisations to check those who are involved in "caring for" or "supervising" minors.



3. Developing the guidelines framework

3.1. Guidelines adopted:

3.1.1. BERA Guidelines underpinning the INQUIRE ethical principles concerning reflective practice

The INQUIRE project is a Co-operation Support Action and therefore not dedicated to research activities. However to evaluate work in progress and secure evidence about whether the consortium has reached given goals, a systematic approach to evidence collection is applied. In addition, knowledge within the project is generated in a participatory process and is presented publicly. To this end, the INQUIRE project mirrors an evaluation process and has therefore adopted ethical principles.

The use of the BERA guidelines to define INQUIRE's ethical guidelines is based on European Commission recommendations. In short, the framework of the BERA guidelines is to enable educational researchers to evaluate all aspects of the process of conducting educational research in any given context (from student research projects to large-scale funded projects) and to reach an ethically acceptable position in which their actions are considered justifiable and sound.

(<http://www.bera.ac.uk/researchers-resources/publications/ethical-guidelines-for-educational-research-2011>)

3.1.2. How to handle children with care

When working with children, vulnerable young people and adults, BERA requires researchers to comply with Articles 3 and 12 of the United Nations Convention on the Rights of the Child. Article 3 requires that in all actions concerning children, the best interests of the child must be the primary consideration. Article 12 requires that children who are capable of forming their own views should be granted the right to express their views freely in all matters affecting them, commensurate with their age and maturity. Children should therefore be facilitated to give fully informed consent. (<http://www.unicef.org/crc/>)

3.1.3. How to protect personal data

INQUIRE complies with the legal requirements in relation to the storage and use of personal data as set down by the Data Protection Act (<http://www.admin.ox.ac.uk/dataprotection/>). That includes the confidential and anonymous treatment of data and the respect of privacy. Partners and participants are entitled to know how and why their personal data is stored, to what use it is put and to whom it may be made available.

3.1.4. How to handle intellectual property rights

By making the outcomes of the INQUIRE project public, we follow the BERA research writing guidelines: Good practice on Educational Research Writing (<http://www.bera.ac.uk/researchers-resources/publications/good-practice-in-educational-research-writing-2000>). The right of the INQUIRE Partners to publish their own findings independently is considered the norm.



Students' inquiry activity at UBG, Bulgaria

3.2. Royal Botanic Gardens, Kew: ethical guidelines for educational programmes at Botanic Gardens

It is essential to safeguard the wellbeing of children visiting botanic gardens. The Royal Botanic Gardens, Kew, has a comprehensive range of policies and guidelines in place to ensure the health and safety of its young visitors. Guidelines on appropriate and inappropriate behaviour by Kew staff, when working with minors, is intended to protect and prevent these young people from becoming the victims of abuse (see *Annex 1*). At Kew, every educational activity requires a prior written plan of the educational objectives of the proposed activity and a prior written risk-assessment of the activity that includes a general risk assessment, together with a risk assessment for indoor workshops and outdoor activities (see *Annex 2*). Teachers who want to visit the botanic garden with their pupils are provided with their own risk-assessment, with guidelines about plant protection and working with plants (see *Annex 3*). For detailed handouts, visit the Kew website on www.kew.org/learn.

3.3. National guidelines about teacher ethics

The professional conduct of teachers is governed by national guidelines and these may vary in detail from one country to another. But they all address the duty of care that teachers owe to their students. INQUIRE Partners rely on teachers to follow these guidelines when working with their students in Learning Outside the Classroom (LOtC) venues such as botanic gardens. The emphasis that countries place on ethical issues also varies – in the UK, for example, health and safety considerations are regarded as particularly important – so the challenge for INQUIRE has been to find an ethical standard appropriate to all Partner countries. However INQUIRE does not insist that its Partners and course participants adhere to these guidelines but they are recommended, not least for reasons of good practice, as a framework in which ethical issues are considered.

4. Process for developing the guidelines



An IBSE activity on the growth of plants at NBGB, Belgium

INQUIRE's ethical model was developed, through an iterative process, by the INQUIRE Consortium. Relevant issues were identified at an inaugural meeting in Meise, Belgium, in which a development framework encompassing plant protection, child protection, safety and data protection was agreed. The UK's BERA guidelines were adopted as a template and Partners were asked to augment these with their national guidelines. At a Consortium meeting in Wakehurst Place England, an expanded version of the model was discussed. While this was accepted by the UK, German and Austrian Partners, other Partners felt either that some of it was not relevant to their situation or that responsibility lay elsewhere, for example with the school authorities or headteachers. Partners were then invited to comment in detail on each ethical question. The results were summarised in Deliverable 9.1, the draft Manual of Ethical Issues. Following the Pilot INQUIRE Course, at the Consortium meeting in Madrid, Partners were asked whether they engaged with ethical issues on their courses and what, if any, changes they would recommend. The final version of Ethical Issues is reported here.

4.1. Ethical principles for reflective practice

Reflective Practice is a model of lifelong learning in which a practitioner analyses experiences in order to learn from them. It is based on the work of John Dewey (1933) who developed concepts about reflective practice with exploration, experience, interaction and reflection. Schön (1983) defined Reflective Practice as "the capacity to reflect on action so as to engage in a process of continuous learning". He introduced concepts such as 'reflection on action' and 'reflection in-action', where professionals meet the challenges of their work with a kind of improvisation learned in practice.



Reflective practice is now widely accepted as an important tool in professional learning, with individuals learning from their own professional experiences, rather than just from formal teaching or knowledge transfer. “Reflection is an important human activity in which people recapture their experience, think about it, mull it over and evaluate it. It is this working with experience that is important in learning.” (Boud et al., 1985)

In the INQUIRE project, Reflective Practice is used to promote independent professionals who are continuously engaged in reflecting on situations that they encounter in their INQUIRE Communities of Practice (Wenger, 1998). Ethical principles for reflective practice within the communities of practice are addressed on three levels:

- (1) The INQUIRE Consortium Level (addresses the INQUIRE Quality Management)
- (2) The INQUIRE course Trainer’s level (addresses mostly the INQUIRE consortium Partner) and
- (3) The INQUIRE course Participant’s level (addresses teachers and educators).

4.1.1. General ethical principles

Reflective practice in the Communities of Practice is founded on the belief that effective change is only possible in cooperation with all the participants – it cannot be achieved against their will. Therefore democratic and co-operative relationships between consortium Partners and INQUIRE course participants (teachers and educators) and between the course participants and the course trainer should be developed. The process is governed by the following general ethical principles:

4.1.2. Consent of those involved

Evaluation and reflection techniques may only be used with the consent of those concerned. In practice this means that INQUIRE’s Quality Management team and the course trainer have to inform the participants (consortium Partners or teachers and educators) about the aims of the evaluation and ask for their cooperation. This process of informing and asking for cooperation has to be repeated at every project stage.

Participants (consortium Partners, teachers and educators) are encouraged to offer their own ideas, concepts and strategies for reflection and to negotiate them with the other participants, together with the course trainer and the quality management. If any of the evaluation methods are deemed unacceptable by the participants, alternative methods have to be negotiated.

The evaluation and reflective processes remain open for negotiation throughout the INQUIRE project. Even if those concerned have fully agreed from the start, misunderstandings and conflicts can emerge later. In the event of conflict, existing agreements must be open for further negotiation.

Consortium Level

- The INQUIRE Quality Management team must take all steps necessary to ensure that all the Consortium Partners understand the aims and objectives of the INQUIRE project and why



their participation is necessary, including their involvement in the evaluation process.

- The INQUIRE Quality Management team recognises the right of any Partner to withdraw from the evaluation process, for any or no reason and at any time, and they must inform them of this right. In all such circumstances the INQUIRE Quality Management team must examine their own actions to assess whether they have contributed to the decision to withdraw and whether a change of approach might persuade the participants to re-engage.

Partners' Level (Trainer's Level)

- The INQUIRE course trainer must take all steps necessary to ensure that all the participants (teachers and garden educators) understand the aims and objectives of the INQUIRE project and why their participation is necessary, including their involvement in the evaluation process.

- The INQUIRE course trainer recognises the right of any participant (teacher, educator, child) to withdraw from the project, for any or no reason and at any time, and they must inform them of this right. In all such circumstances INQUIRE course trainers must examine their own actions to assess whether they have contributed to the decision to withdraw and whether a change of approach might persuade the participants to re-engage.

Course Participants' Level (Teachers' And Garden Educators' Level)

- Consent needs to be obtained from all parents and children participating in the INQUIRE project. Without parental permission, no child can take part in the INQUIRE project.

- The participating teachers – supported by the Partners - must take the steps necessary to ensure that all the children (including their parents) understand the aims and objectives of the INQUIRE project aims and why their participation is necessary, including their involvement in the evaluation process.

4.1.3. Honesty and openness

Professionalism in teaching involves the acceptance of the value-laden character of practice and allows the INQUIRE Partners and course participants to reflect on it. Reflection is seen as an element of professional practice. In reflecting on their teaching-learning strategies and in the light of a set of aims and principles, participants will ask whether such strategies constitute a valid interpretation of them (Elliott, 1998). Honesty and openness are required by all participants to create an atmosphere of trust and respect in order that reflection on a very personal level can develop.

Consortium Level

- The INQUIRE Quality Management team must recognise that participants may experience distress or discomfort in the evaluation process and must take all necessary steps to reduce the sense of intrusion and to put them at ease.

Partner's Level (Trainer's Level)

- The INQUIRE Partners must recognise that participants (teachers, garden educators) may



Students' inquiry outdoors at NBGB, Belgium

experience distress or discomfort in the evaluation process and must take all necessary steps to reduce the sense of intrusion and to put them at ease.

Course Participants' Level (Teachers' And Garden Educators' Level)

■ Teachers, who conduct evaluation in their own classroom, are required to be aware that they have ethical responsibilities towards their research participants and be aware that complications may arise from the potential abuse of power of the privileged position the teacher holds in his or her own class/school.

4.1.4. Anonymity of those involved

The data is the property of those from whom it originates. It may not be passed to others without permission. The Quality Management team and course trainers must ensure that reports and case studies are not published without first giving the participating Partner or teachers and educators the opportunity to comment. Their comments and suggested changes have to be incorporated in the writing. The Quality Management team and course trainers are responsible for ensuring the anonymity of the data. If individuals can be identified, their consent must be secured before the data is published.

Consortium Level

■ The confidential and anonymous treatment of participant data is considered the norm for the conduct of evaluation. The INQUIRE Quality Management team recognises the participant's



IBSE activity in the classroom, part of the INQUIRE course at NBGB, Belgium

entitlement to privacy and must accord them their rights to confidentiality and anonymity, unless they specifically and willingly waive that right. In such circumstances it is in the INQUIRE Quality Management team's interest to have such a waiver in writing.

- Data collected for evaluation will be used for this purpose only.
- Images taken at consortium meeting will be securely stored and used only by those authorised to do so. Images may only be used publicly after permission has been given by those appearing in them.

Partner's Level (Trainer's Level)

- The confidential and anonymous treatment of participant data is considered the norm for the conduct of evaluation. The INQUIRE course trainer recognises the participant's entitlement to privacy and must accord them their rights to confidentiality and anonymity, unless they or their guardians or responsible others, specifically and willingly waive that right. In such circumstances it is in the INQUIRE Partner's interests to have such a waiver in writing.
- Data collected for evaluation will be used for this purpose only. If data is exchanged between INQUIRE Partners (including the Quality Management team) the names of participants will be changed to ensure confidentiality.

Partner's Level And Course Participants' Level (Teachers' And Garden Educators' Level)

- Images will be securely stored and used only by those authorised to do so, particularly if images of children are to be used on the Internet.
- The INQUIRE Partners, participating teachers and educators, will not use photographs or video



footage which clearly identifies the child, school, college or institutions. This will be achieved by blocking out school ties, badges, crests or any other identifying features.

■ The INQUIRE Partners and participants will avoid using real names of any child. Where a child has been named, under an approved agreement, INQUIRE Partners and participants will avoid using linked photographs or video footage.

4.1.5. Access to findings

The INQUIRE Quality Management team, course trainers and participating teachers and educators keep control of the evaluation process and its products. This ethical principle is of great importance in building trust between people involved. According to Stenhouse (1975) control over the evaluation process, and any changes resulting from it, should be in the hands of those who have to live with the consequences.

4.1.6. Working with children and young people

Based on the Convention of the Rights of the Child in all actions concerning children, the best interests of the child must be the primary consideration (*Article 3*). INQUIRE trainers and participants shall support children, who are capable of forming their own views and ideas, to express their views freely in all matters affecting them, commensurate with their age and maturity (*Article 12*). They comply with all legal requirements in relation to working with school children.

Partner' Level (Trainer's Level)

■ Each INQUIRE Partner institution may need to obtain permission from the school's local education authority for conducting evaluations with teachers and children. Where appropriate in the country, the local education authority needs to approve schools, teachers and student participation in the INQUIRE project, particularly in relation to data collection and data protection.

Partners (Trainer's) And Course Participants' Level (Teachers' And Garden Educators' Level)

■ In the case of pupils whose age, intellectual capability or other vulnerable circumstance may limit the extent to which they can be expected to understand or agree voluntarily to participate in the INQUIRE project, the INQUIRE course trainer, in close co-operation with the participating teachers and educators, must fully explore alternative ways in which pupils may be enabled to make authentic responses. In such circumstances, the collaboration and approval of those who act in guardianship roles (e.g. parents) has to be acquired.

Course Participants' Level (Teachers' And Garden Educators' Level)

■ Every teacher participating in the INQUIRE project must obtain permission from their head teacher in order to carry out evaluations with children. The school head teacher must confirm their support of the teacher and grant permission for school trips to the botanic garden. The head teacher has overall responsibility for the communication and dissemination of the INQUIRE project in the school.

■ For the participation of children in the INQUIRE project, parental permission is required prior to any



specific INQUIRE work/evaluation and before each visit to the botanic garden or science centre. Wherever possible, it is recommended that the school secure a single, comprehensive permission from parents for their children to participate in the entire INQUIRE project. Parents and children need to be informed about the potential risks their children may face, as well as give their permission for the use of any images, videos etc., that may be used in publications or for public relations activities linked to the project.

4.1.7. Compliance with the laws of the host country

The ethical principles that are set out in the INQUIRE Ethical Guidelines may only be applied when they are in accordance with the host country's regulations.

Partner's Level (Trainer's Level)

- The INQUIRE Partners must ensure that they, the participating teachers and any collaborators or research assistants and students under their supervision, comply with legal requirements in relation to working with school children or vulnerable young people and adults.
- Wherever legally required, the child protection policy of the INQUIRE Partner organisation should be in place and available for examination on request.

4.2. Ethical principles for working with plants

4.2.1. Botanic gardens as biodiversity hotspots

"Botanic gardens are institutions holding documented collections of living plants for purposes of scientific research, conservation, display and education" (Wyse Jackson, 1999: 27). There are an estimated 2,178 botanic gardens in the world, in 153 countries. Some 42 million herbarium specimens are held in botanic garden herbaria and 6.13 million accessions in living collections. Botanic gardens are widely recognised as major repositories of plant material – in their living collections and seed banks, as well as preserved plant specimens in their herbaria.

The global botanic garden community operates as a closely co-operating network, working to implement the International Agenda for Botanic Gardens in Conservation (Wyse Jackson & Sutherland, 2000), an agreed global policy for botanic gardens prepared by Botanic Garden Conservation International (BGCI).

The agenda identifies the general characteristics of botanic gardens thus:

- being open to the public, with adequate labelling of the plants
- having an underlying scientific basis for the collections, including a proper documentation of the collection, including wild origin
- exchange seeds or other materials with other botanic gardens, arboreta or research stations (within the guidelines of international conventions and national laws and customs regulations)
- long-term commitment to, and responsibility for, the maintenance of plant collections



IBSE activities at Cambridge University Botanic Garden

- communication of information to other gardens, institutions, organisations and the public
 - promoting conservation through extension and environmental education activities
- (IUCN-BGCS and WWF 1989:5)

While botanic gardens have traditionally acted as ex-situ repositories of wild plants, many are now undergoing a fundamental shift in focus and role by becoming botanical resource centres for the study and conservation of biodiversity. They possess the techniques, equipment and expertise required to protect threatened plants and are hotspots of biodiversity, with broad knowledge in botany, horticulture, ecology, and species conservation.

Education has a key role to play in ensuring plant conservation in the future. Botanic gardens provide an important link in the education of future generations (Oldfield & McGough, 2007). They help to overcome the so-called “plant blindness” of younger generations, who, it is argued, are failing to see, take notice of, or focus attention on plants in everyday life (Wandersee & Clary, 2006).

4.2.2. General information about the European guidelines for plant protection

There are global, national and regional regulations in place to conserve, protect and manage our natural heritage. The 1993 Convention on Biological Diversity (CBD), enshrined in international law, for the first time, the principle that the conservation of biological diversity is "a common concern of humankind" and is an integral part of the development process. The agreement covers all ecosystems,



Students investigate seeds from fruit at NHM, Norway

species, and genetic resources. It links traditional conservation efforts to the economic goal of using biological resources sustainably (<http://www.cbd.int/convention/>).

In response to the need for a greater focus on plants in the CBD agenda, the Global Plant Conservation Strategy (GSPC) was agreed in 2002. Its purpose was to motivate action to save plant diversity from extinction on national, regional and international levels and it adopted a 16-point plan aiming to slow the rate of plant extinctions around the world by 2010 (CBD, 2002). The Strategy includes actions to maintain ecosystems as carbon sinks and promotes action towards a better understanding of which species are most at risk. It includes international targets for the conservation of threatened species. As a further goal, it promotes education and the awareness of plant diversity. (<http://www.cbd.int/decision/cop/?id=7183>).

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) aims to protect listed species of plants and animals against overexploitation caused by international trade. CITES has been in force for more than 30 years, but shares similarities with the GSPC. GSPC Target 11 calls for “No species of wild flora endangered by international trade”. This is consistent with the CITES objective “No species of wild fauna or flora subject to unsustainable exploitation because of international trade”. Botanic gardens play an important role in the implementation of CITES for plant species and in raising awareness of the aims and requirements of the Convention. They provide a

unique resource in collections and expertise and their contact with visitors and local communities contributes to, and promotes, sustainable international trade in plants (Oldfield & McGough, 2007:05). In order to safeguard biodiversity and combat the extinction of species, the European Union has set up a network of protected areas – the Natura 2000 network – and made the protection of biodiversity one of the key objectives in the Sixth Environment Action Programme. Launched in 2013, the European programme Living Well with the Limits of our Planet draws on a number of recent strategic initiatives in the field of environment, including the 2020 Biodiversity Strategy. It should secure the commitment of EU institutions, Member States, regional and local administrations and other stakeholders to a common agenda for environment policy action up to 2020. (<http://ec.europa.eu/environment/newprg/index.htm>)

National Biodiversity Strategies and Action Plans (NBSAPs) are the principal instruments for implementing the GSPC at the national level. They require countries to prepare a national biodiversity strategy (or equivalent instrument) and to ensure that this strategy is mainstreamed into the planning and activities of all those sectors whose activities can have an impact (positive and negative) on biodiversity. Here you will find examples for national strategies for the implementation of the UK Biodiversity Action Plans (<http://uk.chm-cbd.net/default.aspx?page=6865>) or the German Biodiversity Action Plans (http://www.umweltbundesamt.at/umweltsituation/naturschutz/naturrecht/int_konventionen/biodiv_konvention/).

4.2.3. INQUIRE ethical issues in respect of plant protection

Partner's Level

- All INQUIRE Partners should work within required European, national and local regulations and follow best-practice guidelines wherever possible.

Course Participants' Level (Teachers' And Garden Educators' Level)

- Project participants need to be aware of any plant-protection issues that could, in terms of activities, fall within the remit of this project. INQUIRE Partners should ensure that teachers and educators understand these issues and communicate them to their audiences. Such issues, which may include plant collection and management policies and CITES legislation, should be addressed in order to:
 - ◆ Avoid the collection of or damage to rare and endangered species either in the wild or in the botanic garden
 - ◆ Minimise disturbance of habitats
 - ◆ Ensure that 'alien' plants are not introduced to the wild
- Project participants (teachers and/or garden educators) should ensure that, before visiting the botanic garden, the children are informed about any nature protection rules.



'CO2 in the world: production and absorption' activity at NBGB, Belgium

4.3. Ethical principles for learning outdoors/out-of-school environments/botanic gardens

4.3.1. General information about working with children outdoors

Learning outdoors in botanic gardens should provide a stimulating and enjoyable educational experience. It is essential, while providing this experience, to safeguard the wellbeing of the young visitors.

Botanic garden educators and teachers have to work together to protect the children and to prevent possible risks. Working outdoors involving plant material, soil and pond creatures has to be planned carefully. The planning starts in the school, where the teacher has to ask the children for any potential allergic responses to plant materials, including sap. In that case the outdoor learning should be modified (e.g. change of plants). Sun exposure, stings and bites are potential hazards while working in grassland. The children must be advised to wear suitable clothing, covering legs and arms and protecting against direct sunlight. They should take enough drinking water with them. In woodland, children should be advised to wear suitable footwear and to move through the woodland with care. Children undertaking examination of pond creatures, leaf litter or soils may be exposed to water or soil pathogens. This is particularly relevant when cuts or grazes are present on hands.

If the outdoor environment is unfamiliar to pupils and their supervising teachers, they should all be alerted to potential hazards and advised about suitable ways of responding. Children should also stay in their groups, within sight of their group leaders, so that no child gets lost.

Working with children outdoors should be planned carefully by garden educators and teachers. Safe-

guards exist under European law to protect children and teenagers from abuse, the physical, sexual or emotional mistreatment or neglect of the young person (<http://www.childsafetyeurope.org/index.html>). In addition, the Health and Safety at Work Act (<http://ec.europa.eu/social/main.jsp?catId=148>) requires every employer to protect the health, safety and welfare of their employees, official visitors and the public on their premises. In the UK the key legal framework for these guidelines is the Protection of Children Act (1990), which requires all organisations to check those who are involved in “caring for” or “supervising” minors. For example, RBG Kew seeks to ensure that all minors are protected and kept safe from harm while they are with staff. No educational activity in the botanic garden should be arranged without a prior, written, risk-assessment of the activity. An example of this may be seen in *Annex 3*.

4.3.2. INQUIRE ethical guidelines in respect of learning in botanic gardens, including safety and risk management

INQUIRE Partner’s Level

- The INQUIRE project Partner will clarify responsibility for the safety and risk management in close co-operation with local school authorities, schools and botanic gardens.
- The INQUIRE project Partner is required to undertake a risk assessment for any INQUIRE activity which involves children visiting the botanic garden or any other outside learning site, such as a Natural History Museum, or conducting laboratory work or completing any other task developed for the project. If possible, the risk assessment will be held on file and be available for local inspection.

Course Participants’ Level (Teachers’ And Garden Educators’ Level)

- Parents need to be notified, either by the teacher or by the garden educator, that visiting a botanic garden includes activities done outdoors. In cases where a child is allergic to pollen, insect stings, particular types of food, sunlight etc., parents are responsible for ensuring that their child carries first-aid equipment or medicine in case an allergic reaction occurs. The child/parent needs to inform the teacher where this equipment will be located in the event of an emergency.
- Strategies for locating lost children should be developed by INQUIRE’s participating garden educators, in line with their own garden’s security procedures. This may involve helping the children with spatial orientation and offering advice on what to do if they find themselves lost. Telephone help-lines may be made available, where appropriate and permissible, for children to use in case of an emergency (e.g. the mobile telephone of the teacher or garden educator or signs with a phone number on it that indicate how to get help in case you need it).
- If children have inquiry-based tasks that require them to leave the full school group, they must work in small groups with other class-mates. They should not be required to carry out any task where they are left alone.
- In certain cases, risk assessment for the journey from the school to any INQUIRE site may be required, e.g., ensuring the use of coaches with seat belts, unless this is the explicit responsibility of the school authorities.



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Annexes:

Annex 1. Kew: Parental Consent Form For Children Under The Age Of 16 Years Participating In A Project



Parental Consent for Children under the age of 16 years participating in a project

I (adult's name)
 of (address)

being the child/children's parent or legal guardian, hereby give permission for my child/children to participate in a project run in association with the Royal Botanic Gardens, Kew and permission for Kew to take and use publicity photographs/film of

(child/children's name/s).....Age of child.....
Age of child
 Age of child

I understand that the child's/children's name/s will not be given to press or public without my consent. I also understand that I may cancel this permission in writing, and that RBG Kew will take all reasonable steps to ensure that the any sensitive information and or any photograph/film is withdrawn from future use.

I further understand that I shall receive no remuneration for this assistance.

Signed:..... Date:

Annex 2. Kew: Health And Safety On Your Visit



PLANTS PEOPLE
POSSIBILITIES

Health and Safety on your visit

Useful Information

Emergency

In the event of a **FIRST AID EMERGENCY ONLY** please contact the nearest member of Kew staff or a Kew constable. The emergency number on an internal telephone is 333, and on an external telephone dial 020 8332 5121.

Please do not call 999 as ambulance crews may take time to find your location. This is best coordinated through Kew's own police force.

Supervision

You are responsible for your students' supervision and behaviour while at Kew. If your pupils are disruptive there will be follow-up contact with the headteacher.

These guidelines allow you to do your own risk assessment.

Please discuss suitable behaviour in Kew Gardens, and the importance of showing respect to everyone else in the Gardens (especially the disabled and small children), particular attention in glasshouses where pathways are narrow.

We take great care of our plants and the wildfowl, please do the same.

Take care

To protect themselves some plants have sharp leaves or spines, so take care.

Remember, plants can be poisonous or have irritant sap, so do not touch them unless Kew staff say it is safe to.

Don't forget to wash your hands before eating.

Do not climb the trees, you could damage them and harm yourself.

Groups should be accompanied by the correct number of adults.

SEN 1:1 ; Reception - 1:2; Key Stage 1 - 1:5; Key Stage 2 - 1:8; Key Stage 3 - 1:10; Key Stage 4/5 - 1:10

Kew is a busy working garden.

Keep clear of horticultural equipment and watch out for moving vehicles.

It is very dangerous for students to try and climb on, or run alongside, the slow-moving Kew Explorer.

What to wear

Wear layered clothing to cope with the contrast between hot houses and the weather outside.

You will need to be prepared for all types of weather and a waterproof jacket is essential for the British climate.

Students may find trousers more comfortable for some of our activities, eg: working in long grass, and may wish to use insect repellent.

Comfortable shoes will help as there is lots of walking during the day.

On sunny days remember to wear a hat and use sun protection, and bring water bottles.

www.kew.org



Annex 3. Kew: Health And Safety Risk Assessment



HEALTH AND SAFETY RISK ASSESSMENT

Risk assessment ref no:	1	Name of responsible person:	Amber Waite
Date risk assessment completed:	25 June 2009	Review date:	May 2010
Task/Activity:	Visiting school parties		
Department:	Education visits	Location:	Royal Botanic Gardens Kew
Persons at risk:	Members of public, RBG Kew staff, Contractors, visitors		

Risk/Hazard	Existing Control Measures	Risk Level * (tick one)			Further Action needed to reduce risks (provide timescales and initials of person responsible)
		High	Med	Low	
Welfare facilities	<ul style="list-style-type: none"> Public toilet blocks are available (with disabled facilities). All public toilets are regularly supervised and cleaned. Cafeteria facilities are available in the Gardens offering a selection of snacks, hot food and drinks. An internal eating area "Munch Box" (open between 12 – 2 pm) is provided for school parties within the Climbers and Creepers building – by prior booking only. 			Low	<ul style="list-style-type: none"> Leaders of school parties to provide supervision for all persons within their groups.



HEALTH AND SAFETY RISK ASSESSMENT

Risk/Hazard	Existing Control Measures	Risk Level * (tick one)			Further Action needed to reduce risks (provide timescales and initials of person responsible)
		High	Med	Low	
First aid and medication	<ul style="list-style-type: none"> Qualified first aiders are in the Gardens at all times in the event of an emergency. <p>Note: Group leaders must accept responsibility for first aid requirements of their pupils or staff should they arise.</p>			Low	<p>Leaders of school parties to:</p> <ul style="list-style-type: none"> Provide first aid cover for persons within their supervision. Carry a portable first aid kit.
Security	<ul style="list-style-type: none"> RBG Kew Constabulary based in the Gardens. RBG Kew Constabulary periodically drive / walk-through / cycle around the Gardens. CCTV strategically sited within the Gardens. CCTV monitored by RGB Kew Constabulary 24/7. All reasonable measures are taken to ensure RBG Kew staff who may be left alone with children or be in a position of substantial access with children have been subjected to Criminal Record Bureau checks. 			Low	<ul style="list-style-type: none"> Leaders of school parties to provide supervision for all persons within their groups.
Emergency evacuation	<ul style="list-style-type: none"> Emergency evacuation procedures are in place in all buildings. RBG Kew staff and RBG Kew based contractors are familiar with and regularly practice emergency evacuations. Emergency notices are posted within the site and in all buildings. Dedicated assembly points are indicated on the evacuation notices. 			Low	<p>Leaders of school parties to ensure:</p> <ul style="list-style-type: none"> Persons within their supervision evacuate buildings upon hearing the alarm. Assemble at the dedicated assembly points.

* See attached sheet for definition of Risk Level

HEALTH AND SAFETY RISK ASSESSMENT

Risk/Hazard	Existing Control Measures	Risk Level * (tick one)			Further Action needed to reduce risks (provide timescales and initials of person responsible)
		High	Med	Low	
Slips, trips and falls	<ul style="list-style-type: none"> Access and egress routes (footpaths and driveways) around Gardens maintained. Moss and lichen removed from walkways / paved areas as required to help prevent slips trips and falls. 			Low	-
Falls from height – Climbing trees	<ul style="list-style-type: none"> Climbing trees is not permitted. (Refer to RBG Kew regulations). Active tree management programme in place. 			Low	<ul style="list-style-type: none"> Leaders of school parties to provide supervision for all persons within their groups.
Water courses – lakes, water features, ponds – Drowning Slips, trip and falls	<ul style="list-style-type: none"> Buoyancy aids provided as required and regularly checked. Grassed/paved areas adjacent to water maintained. Areas considered unsafe, due to uneven surface, bad cracking etc. fenced off by use of temporary barriers installed until area made safe. 			Low	<ul style="list-style-type: none"> Leaders of school parties to provide supervision for all persons within their groups.
Legionella	<ul style="list-style-type: none"> Water management system in place. Legionella testing carried out. Risk assessments completed. 			Low	-
Moving plant/equipment – Vehicular traffic – tractors, grass cutters, electric buggies, bicycles etc	<ul style="list-style-type: none"> Garden speed restriction of 10 mph in force. Movement of all non-gardening related vehicles is restricted to a minimum during the Gardens opening hours. Vehicle access restricted to specific routes. Only authorised RBG Kew staff operate horticultural vehicles. 		Med		<ul style="list-style-type: none"> Leaders of school parties to provide supervision for all persons within their groups.

* See attached sheet for definition of Risk Level

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HEALTH AND SAFETY RISK ASSESSMENT

Risk/Hazard	Existing Control Measures	Risk Level * (tick one)			Further Action needed to reduce risks (provide timescales and initials of person responsible)
		High	Med	Low	
	<ul style="list-style-type: none"> Safe working procedures in place to monitor drivers/vehicle movement within the Gardens. In the event of an emergency, non-gardening vehicles are provided with escorts (RBG Kew Constabulary or pedestrian). All equipment maintained to comply with health and safety legislation. Keys removed from ignition switches. Work equipment removed upon completion of work. RBG Kew staff and contractors competent to undertake tasks. On-going supervision provided. RBG Kew staff identifiable by branded clothing and photo security passes. RBG Kew (on site) contractors identifiable by their company branded clothing. Specific risk assessments and method statements in place prior to work commencing. 				
Moving plant/equipment – Work equipment – chain saws, trimmers, vegetation shredders etc	<ul style="list-style-type: none"> All equipment maintained to comply with health and safety legislation. Warning signage (as appropriate) displayed prior to work commencing. Barriers installed to prohibit access to unauthorised person in the working area. No work equipment left unattended. Keys removed from ignition switches. Work equipment removed upon completion of work. 		Med		<ul style="list-style-type: none"> Leaders of school parties to provide supervision for all persons within their groups.

* See attached sheet for definition of Risk Level

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HEALTH AND SAFETY RISK ASSESSMENT

Risk/Hazard	Existing Control Measures	Risk Level * (tick one)			Further Action needed to reduce risks (provide timescales and initials of person responsible)
		High	Med	Low	
	<ul style="list-style-type: none"> RBG Kew staff and contractors competent to undertake tasks. On-going supervision provided. All REG Kew staff and contractors wear high visibility clothing and personal protective equipment. Specific risk assessments and method statements in place prior to work commencing. 				
Hazardous substances	<ul style="list-style-type: none"> Use of hazardous substances is only undertaken by competent persons. Hazardous substances are kept in secure environments. Appropriate signage is displayed. 			Low	
Tree Top Walkway - Falls from height Falling objects	<ul style="list-style-type: none"> Height of protective barriers on staircase and walkway built to Building Regulations specification. Exclusion zone immediately underneath walkway. Emergency telephones located at the base and top of treetop walkway stairs. Emergency telephone located within treetop walkway passenger lift. Signage displayed adjacent to emergency telephones on action to take in the event of an emergency. <p>Note: RBG Kew staff do not provide supervision on the Tree Top Walkway.</p>			Low	<ul style="list-style-type: none"> Leaders of school parties to provide supervision for all persons within their groups.

* See attached sheet for definition of Risk Level

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HEALTH AND SAFETY RISK ASSESSMENT

Risk/Hazard	Existing Control Measures	Risk Level * (tick one)			Further Action needed to reduce risks (provide timescales and initials of person responsible)
		High	Med	Low	
Equipment/Play Equipment	<ul style="list-style-type: none"> All equipment is regularly checked to ensure it remains "fit for purpose" and results of inspections are recorded in an equipment log. All play equipment within dedicated play areas i.e. Climbers and Creepers (for children aged 3-9 years) conforms to current British and European Standards and is subject to regular inspection. Supervision of visiting school parties provided by school leaders. <p>Note: RBG Kew do not provide supervisory staff for school parties.</p>			Low	<ul style="list-style-type: none"> Leaders of school parties to provide supervision for all persons within their groups.

* See attached sheet for definition of Risk Level



HEALTH AND SAFETY RISK ASSESSMENT

Risk/Hazard	Existing Control Measures	Risk Level * (tick one)			Further Action needed to reduce risks (provide timescales and initials of person responsible)
		High	Med	Low	
Harmful/poisonous plants/fungi (mushrooms & toadstools)	<ul style="list-style-type: none"> Group leaders of school parties must advise all persons within their supervision that they should not pick or eat any parts of any plants in the Gardens. If prepared plants are to be touched or consumed for educational reasons, the group leaders must check persons within their supervision for any known allergic reactions to plants prior to visiting the Gardens. 			Low	Prior to visiting the Gardens, leaders of school parties to: <ul style="list-style-type: none"> Inform persons within their supervision they should not pick or eat any parts of any plants in the Gardens. Check persons within their supervision for any known allergic reactions to plants.
Plants with sharp spines or thorns	<ul style="list-style-type: none"> Many plants within the cactus areas of some glasshouses have sharp spines/thorns – some are placed behind protective screens and warning notices displayed “do not touch”. <p>Note: Plants with sharp spines/thorns can be found throughout the Gardens.</p>			Low	<ul style="list-style-type: none"> Prior to visiting the Gardens, leaders of school parties should ensure persons within their supervision are made aware of the dangers of touching plants with sharp spines/thorns.

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HEALTH AND SAFETY RISK ASSESSMENT

Risk/Hazard	Existing Control Measures	Risk Level * (tick one)			Further Action needed to reduce risks (provide timescales and initials of person responsible)
		High	Med	Low	
Lost / disorientated persons	<ul style="list-style-type: none"> Signage displayed at key intersections of Gardens identifying locations of places of interest. Full-time RBG Kew Constabulary carry out periodic patrol of the Gardens. RBG Kew staff wear branded clothing/uniform and/or photo security passes. All RBG Kew Constabulary and many other staff carry communications aids. An emergency contact number is advertised in the visitor map for anyone who needs help. <p>Note: Group leaders must supervise persons in their party to ensure they do not become lost or disorientated.</p>			Low	<ul style="list-style-type: none"> Leaders of school parties to provide supervisory cover for persons within their groups.
Access / services for persons with special needs	<ul style="list-style-type: none"> Ramped access to public buildings. Paths accessible for wheelchair use. Lift access available in public buildings. Hearing loop systems in place within entrance Gate Boxes. Limited wheelchair facilities available at entrances to the Gardens (first come basis). Limited number of mobility scooters available (must be booked in advance); training provided. Ramped access to RBG Kew Explorer Bus (internal tour of Gardens only – tickets purchased at point of tour). 			Low	<ul style="list-style-type: none"> Prior to visiting the Gardens, leaders of school parties should discuss with RBG Kew's Education Department any individual needs of members of their group.

* See attached sheet for definition of Risk Level



HEALTH AND SAFETY RISK ASSESSMENT

Risk/Hazard	Existing Control Measures	Risk Level * (tick one)			Further Action needed to reduce risks (provide timescales and initials of person responsible)
		High	Med	Low	
	<ul style="list-style-type: none"> Disabled access to RBG Kew Discovery Bus (internal tour of Gardens only – private hire by prior arrangement). 				
Insurance (Public Liability)				Low	<ul style="list-style-type: none"> School parties should provide Public Liability insurance cover for their groups.

* See attached sheet for definition of Risk Level



HEALTH AND SAFETY RISK ASSESSMENT DEFINITION OF RISK LEVEL

		Hazard Severity					Action Priority Table		
		Negligible Negligible injury, no absence from work	Slight Minor injury requiring first aid treatment	Moderate Injury leading to a lost time accident	High Involving a single death or serious injury	Very High Multiple deaths	Risk Level Rating	Action	Priority
Likelihood of Occurrence	Very Unlikely A freak combination of factors would be required for an incident to result	LOW	LOW	LOW	LOW	LOW	High	Significant risk	Immediate Action Required
	Unlikely A rare combination of factors would be required for an incident to result	LOW	LOW	LOW	MEDIUM	MEDIUM	Medium	Rsk must be reduced where further actions identified	Action Required
	Possible Could happen when additional factors are present, otherwise unlikely to occur	LOW	LOW	MEDIUM	MEDIUM	HIGH	Low	Risk is controlled but monitor the control measures	Ongoing Monitoring Required
	Likely Not certain to happen but an additional factor may result in an accident	LOW	MEDIUM	MEDIUM	HIGH	HIGH			
	Very Likely Almost inevitable that an incident would result	MEDIUM	MEDIUM	HIGH	HIGH	HIGH			
LOW RISK		May be acceptable; review task to see if risk can be reduced further.							
MEDIUM RISK		Task should only proceed with appropriate management authorisation after consultation with Health and Safety Team. Where possible, the task should be redefined to take account of the hazards involved or the risk should be reduced further prior to task commencement.							
HIGH RISK		Task must not proceed. It should be redefined or further control measures put in place to reduce risk. The controls should be re-assessed for adequacy prior to task commencement.							

* See attached sheet for definition of Risk Level



Ethical Guidelines

Supported by

