



roots

BOTANIC GARDENS

Education for Sustainability

- Education and the WSSD
- Training mountain guides
- Green fingers and healing hands
- Connections with the community
- People and Plants: training Darwin mentors
- Encounters with naturalists

Botanic
Gardens

Conservation

International

Education

Review

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Networking and
Partnerships

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Forthcoming Issue

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Networking and Partnerships

■ Editorial

We all know that our education programmes are significantly more effective when networks and partnerships work well. Information and ideas flow freely and everyone benefits from the different interpretations and learning styles available. The more diverse the network or partnership, the greater the number of relationships and range of solutions we can find for the same problem. In fact, recognition of the vital role of partnerships was a key outcome of the World Summit on Sustainable Development (WSSD) with The Commission on Sustainable Development (CSD) charged with fostering partnerships to support the outcome of the WSSD. It is timely, therefore, that this issue of Roots addresses networks and partnerships.

At the 5th BGCI International Congress on Education in Botanic Gardens, held recently in Sydney, networking and partnerships was also one of the key themes. Speakers articulated the benefits of identifying and working with partners to develop education programmes that address issues of sustainability. Several excellent papers from the Congress are presented in this issue of Roots. Pat Irwin and Heila Lotz-Sisitka highlight the challenges, benefits and lessons learned in building a professional community of educators. Their article discusses the need to nurture innovation and creativity and consider the relationship between policy and practice. They challenge us to reflect on the kinds of partnerships we are engaged in. Also forging strong links with the local community through partnership programmes has proved to be immensely beneficial for the Royal Botanic Gardens, Kew. Gail Bromley describes the challenge of realising 'Our Living Heritage', a large collaborative project to celebrate the historic and environmental

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Nous savons tous que nos programmes éducatifs fonctionnent de façon nettement plus efficace quand nous avons de bons réseaux et des partenariats vivants. Les informations et les idées circulent librement et chacun peut bénéficier des différents types d'interprétations et de pédagogies. Plus les réseaux et les partenariats sont diversifiés, plus nombreux seront les échanges et plus variées les solutions trouvées pour résoudre un même problème. En fait, la reconnaissance du rôle vital des partenariats fut l'un des points clé qui est ressorti du Sommet Mondial pour le Développement Durable (WSSD) où la Commission pour le Développement Durable (CSD) a d'ailleurs été chargée de promouvoir les partenariats pour soutenir la réalisation du WSSD. Et donc il est bien opportun que ce numéro de Roots soit consacré aux réseaux et partenariats.

Au 5^{ème} Congrès International du BGCI sur l'Education dans les Jardins Botaniques, qui a eu lieu récemment à Sydney, « réseaux et partenariats » est également ressorti comme un thème clé. Les intervenants ont montré le réel bénéfice que constituait l'identification de partenaires puis le travail en commun lors de la réalisation de programme d'éducation qui abordent les problèmes du développement durable. Plusieurs excellents articles de ce Congrès sont présentés dans ce numéro de Roots. Pat Irwin et Heila Lotz-Sisitka mettent en évidence les défis, les bénéfices, et les leçons à tirer de la construction d'une communauté professionnelle d'éducateurs. Leur article discute de la nécessité d'alimenter l'innovation et la créativité et de tenir compte des relations entre la théorie et la pratique. Ils nous incitent à réfléchir sur les types de partenariats dans lesquels nous nous sommes engagés. Forger des liens

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Todos somos conscientes de que nuestros programas educativos son mucho más efectivos cuando los contactos y los convenios de colaboración funcionan bien. Si la información y las ideas fluyen libremente todos nos beneficiamos de los diferentes modelos de aprendizaje y de su interpretación. Cuanto más diversa es la red de contactos y las colaboraciones, mayor es el abanico de soluciones que podemos encontrar para un problema concreto. El reconocimiento del papel fundamental de los convenios de colaboración fue una de las conclusiones fundamentales de la Conferencia Mundial sobre Desarrollo Sostenible (WSSD) con la Comisión (CSD) encargada de promover las colaboraciones para apoyar los resultados de la conferencia. Es por tanto oportuno que este número de Roots se dedique a las redes de contactos y convenios de colaboración.

En el recién celebrado 5^º Congreso de Educación en Jardines Botánicos, que ha tenido lugar en Sydney, la redes y los convenios fueron temas centrales. Los conferenciantes destacaron los beneficios reales de disponer y trabajar con socios colaboradores para desarrollar programas educativos que atiendan los temas de la sostenibilidad. Varios excelentes artículos del Congreso son publicados en el presente número de Roots. Pat Irwin y Heila Lotz-Sisitka destacan los desafíos, beneficios y lecciones que se desprenden de la experiencia de establecer una comunidad de educadores profesionales. Su artículo discute la necesidad de alimentar la innovación y la creatividad e indaga en la relación entre teoría y práctica. Nos retan a pensar acerca del tipo de convenios en que estamos comprometidos. La forja de fuertes vínculos con las comunidades locales por medio de programas de colaboración ha demostrado ser muy beneficioso para el

■ Editorial

heritage within Kew. She concludes with a number of useful hints and suggestions for anyone wishing to set up a similar project. Viewing teachers as partners in raising environmental awareness, is very much an aim of People and Plants: Training Darwin Mentors, a collaborative project between BGCI and the Centre for Biodiversity and Biotechnology, St Xavier's College in southern India. Dr Seeni et al, describe the project and the many partnerships formed as well as outlining the challenges and outcomes to date.

This current issue also includes two articles that highlight the value of global partnership to environmental education. In the first of these, Loic Ruellan from the Conservatoire Botanique National de Brest, describes how children from Brest have been exchanging information about gardens with children from all over the world using the internet and how this flow of information has changed their perceptions of how a garden functions. Steve Meredith outlines the Encounters with Naturalists project run by the Adelaide Botanic Gardens, the State Herbarium of South Australia and the Jardin Botanique de la Villa Thuret in France. Through re-enactments with local school students of the first Europeans to explore Kangaroo Island 200 years ago, the project proved an exciting way of bringing history alive and left a legacy of environmental understanding.

This issue of Roots celebrates the diversity of partnerships that exist in botanic gardens. The international network of botanic garden educators is a vibrant network and marvellous opportunities exist for sharing information, cultivating ideas and promoting sustainable development.

- English
- ▲ French
- Spanish

▲ Editorial

solides dans les communautés locales à travers des programmes de partenariat s'est révélé extrêmement bénéfique pour le Jardin Botanique Royal de Kew. Gail Bromley décrit le défi que fut la réalisation du grand projet de collaboration « Notre Patrimoine Vivant » qui célébrait le patrimoine historique et biologique de Kew. Elle conclut avec nombre de conseils utiles et de suggestions pour ceux qui voudraient monter un projet similaire. Voir les enseignants comme des partenaires pour élever la conscience environnementaliste est tout à fait l'objectif de « People and Plants : Training Darwin Mentors », un programme de collaboration entre le BGCI et le Centre pour la Biodiversité et la Biotechnologie du Collège de Saint Xavier en Inde. Dr Seeni et al. décrit ce projet et les nombreux partenariats formés, et il souligne les défis et les résultats obtenus à ce jour.

Ce numéro comporte également deux articles qui mettent en évidence la valeur des partenariats internationaux pour l'éducation à l'environnement. Dans le premier, Loic Ruellan du Conservatoire National Botanique de Brest, décrit comment les enfants de Brest ont échangé des informations sur les jardins avec des enfants du monde entier en utilisant Internet, et comment ce flux d'informations a changé leurs perceptions sur la manière dont un jardin fonctionne. Steve Meredith expose le projet « Rencontres avec des Naturalistes » mené conjointement par le Jardin Botanique d'Adélaïde, l'Herbier National d'Australie du Sud et le Jardin Botanique de la Villa Thuret en France. A travers une reconstitution théâtrale de l'exploration des premiers Européens sur l'île des Kangourous il y a deux cents ans, les élèves d'écoles locales ont trouvé un moyen stimulant pour rendre l'histoire vivante et ont acquis une compréhension de l'écologie.

Ce numéro de ROOTS célèbre la diversité des partenariats qui existent au sein des jardins Botaniques. Le réseau international des animateurs de jardins botaniques est un réseau vivant et il existe de merveilleuses opportunités pour partager l'information, cultiver des idées et promouvoir le développement durable.

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Jardín Botánico Real de Kew. Gail Bromley describe el desafío de llevar a cabo 'Our Living Heritage', un amplio proyecto de colaboración para celebrar el legado ambiental e histórico de Kew. Ello compendia un buen número de sugerencias y propuestas útiles para quien quiera desarrollar un programa similar. La complicidad con los profesores como colaboradores en la concienciación medioambiental es un objetivo de 'People and Plants: Training Darwin Mentors', un programa de colaboración ente el BGCI y el Centro para la Biodiversidad y la Biotecnología de St Xavier College en el sur de la India. Doctor Seeni describe el proyecto y las colaboraciones, los problemas y resultados a fecha de hoy.

El presente número también incluye dos artículos que resaltan la importancia de la colaboración internacional en educación ambiental. En el primero de ellos Loic Ruellan, del Conservatoire Botanique National de Brest, describe cómo los niños de la ciudad han intercambiado información con niños de todo el mundo sobre jardines haciendo uso de Internet, y cómo ha cambiado su percepción acerca del funcionamiento de un jardín. Steve Meredith expone el proyecto 'Encounters with Naturalists' de los Jardines Botánicos de Adelaide, el Herbario del Sur de Australia y el Jardin Botanique de la Villa de Thuret en Francia. Este proyecto posibilitó una mejor comprensión ambiental por medio de la teatralización por grupos escolares de la primera exploración por europeos de la isla Kangaroo hace doscientos años, y fue una excitante manera de revivir la historia.

Este número de Roots celebra la diversidad de colaboraciones que existe en los jardines botánicos. La red internacional de educadores en jardines botánicos es vibrante y ofrece oportunidades formidables para compartir información, cultivar ideas y promover el desarrollo sostenible.

News up date

■ News

Education Congress in Sydney

In October, The Royal Botanic Gardens Sydney hosted the 5th BGC International Congress on Education in Botanic Gardens. 144 delegates from 20 countries attended the congress, which was lively, stimulating and informative. The theme of the congress was *Connecting with Plants – Lessons for Life*. This included a review of how botanic gardens can contribute to the implementation of the *International Agenda* and the *Global Strategy for Plant Conservation* (see below). With six keynote speeches, 54 workshops, papers and demonstrations, 13 posters, two theatre performances and six discussion groups, delegates were not short of educational subjects and issues to discuss! At the close of the Congress, delegates completed an evaluation form. The feedback collected in these forms confirmed that most delegates consider meeting educators from other parts of the world and sharing ideas and experiences to be significant factors in a successful

Right: Rosa Muoio and Bruno Menale display their poster at the congress on the Naples Botanical Garden

Below: During the Education Fair, delegates participated in an award-winning play called Captain Compost. The play explores the workings of an open compost heap - how to make one, what goes into it and what lives there. For which character Lucy is playing, see page 20



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Congrès pour l'éducation à Sydney

En octobre, le Royal Botanic Gardens Sydney a accueilli le 5^{ème} congrès international du BGC sur l'Éducation dans les Jardins Botaniques. 144 délégués de 20 pays différents ont assisté à ce congrès qui s'est révélé animé, stimulant et instructif. Le thème du congrès, « Renouer avec les Plantes : Leçons pour la Vie », a permis de faire un bilan sur la manière dont les jardins botaniques peuvent contribuer à la mise en place de *l'Agenda International* et de la *Stratégie Mondiale pour la Conservation des Plantes* (voir ci-dessous). Avec six discours clés, 54 ateliers, communications et manifestations diverses, 13 posters, deux spectacles de théâtre et six groupes de discussion, les délégués n'ont pas manqué de sujets et de questions éducatives à discuter. A la fin du congrès, ils ont rempli un questionnaire d'évaluation dont les réponses ont confirmé l'importance de différents facteurs contribuant à son succès : les rencontres entre éducateurs de différentes régions du monde, les échanges d'idées et d'expériences ainsi que la participation à des ateliers. Chris Hobson, un bénévole du BGC, prépare actuellement les Actes qui seront publiés sous format électronique en 2003 sur les sites Internet du BGC et du RBG Sydney.

Le BGC et le RBG Sydney tiennent à remercier les organisations suivantes qui ont généreusement soutenu le congrès et les délégués, en aides financières et en ressources : Conservatorium High School, HSBC, Armsign Pty Ltd, Metal Sign and Label,

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Congreso de Educación en Sydney

En octubre el Jardín Botánico (RBG) de Sydney fue la sede del 5o Congreso Internacional de Educación en Jardines Botánicos de la BGC. A este asistieron 144 delegados de 20 países. Todos los participantes convivieron de manera muy animada contribuyendo con estimulante información. El tema del Congreso fue "Conectándose con las Plantas – Lecciones por Vida" En este se incluyó una reseña de como los jardines botánicos pueden contribuir en la implementación de la *Agenda Internacional* y la estrategia global para la conservación de plantas (véase abajo). Se llevaron a cabo seis conferencias magistrales, 54 talleres, presentaciones y demostraciones, 13 paneles, dos obras teatrales y seis

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congress. Chris Hobson, a BGCI volunteer, is currently editing the proceedings of the congress. These will be published electronically in 2003 on the BGCI and RBG Sydney web sites.

BGCI and RBG Sydney would like to thank the following organisations for their support of the congress and congress delegates in terms of generous donations and resources: Conservatorium High School; HSBC; Armsign Pty Ltd; Metal Sign and Label; Australian Agency for International Development (AusAID); Dr Margaret Keay Fund; Cambridge University Botanic garden, UK; Friends of the Albury Botanic Gardens, Australia; Friends of the Australian National Botanic Garden, Australia; Friends of the Orange Botanic Garden, Australia; Friends of the Royal Botanic Gardens Sydney; Sir Dorabji Tata Trust, India. Thanks are also due to Elizabeth Richards Pty Ltd for donating a puppet as a prize and Phil Parsons, President of The Tasmanian Arboretum Inc. for donating \$AUS50 towards funding a delegate from a developing country.

Investing in Nature

Investing in Nature update

An excellent and productive start has been made to the BGCI *Investing in Nature* programme during 2002. (see *Roots* 24: p. 4). The *Investing in Nature* initiative is a US \$50 million dollar partnership involving BGCI, Earthwatch and WWF, with funding from HSBC. Several important milestones have been reached by BGCI during 2002. The most significant of these is the realisation of a *Global Plant Conservation Strategy*, established through the Convention on Biodiversity (see below). The publication of the *Global Plant Conservation Strategy* provides a framework within which the *Investing in Nature* programme can be implemented over the coming four and a half years.

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Australian Agency for International Development (AusAID), Dr Margaret Keay Fund, Cambridge University Botanic Garden (Royaume-Uni), Friends of the Albury Botanic Gardens, Friends of the Australian National Botanic Garden, Friends of the Orange Botanic Garden, Friends of the Royal Botanic Gardens Sydney (Australie), Sir Dorabji Tata Trust (Inde). Merci également à Elizabeth Richard Pty Ltd pour le don d'une marionnette comme prix, ainsi que Phil Parsons, président du Tasmanian Arboretum Inc. qui a donné 50 \$AUS pour financer un délégué d'un pays en voie de développement.

Des nouvelles du programme « Investir dans la Nature »

Le programme du BGCI « *Investing in Nature* » a connu un début excellent et fécond en 2002 (voir *Roots* 21 p1). Cette initiative est un partenariat de 50 millions \$US qui implique le BGCI, Earthwatch et WWF, avec un financement du HSBC. Pendant cette période, le BGCI a franchi plusieurs étapes importantes dont la principale a été la réalisation de la *Stratégie Mondiale pour la Conservation des Plantes*, établie au travers de la Convention sur la Diversité Biologique (CBD voir ci-dessous). Cette étape prépare le terrain pour le travail qui suivra dans la mise en place du programme « *Investir dans la Nature* » dans les jardins botaniques, pour les quatre années et demi à venir. Pour un

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Left: Participants at the Congress build natural sculptures during a workshop

grupos de discusión. Los delegados tuvieron bastantes temas diversos a discutir. En la cierre clausura del Congreso, los participantes llenaron un formulario de evaluación, los resultados de la misma, confirmaron que el reunir a los educadores de diferentes partes del mundo para compartir sus ideas y experiencias, tanto como su participación en los talleres fueron los factores significativos para el éxito del congreso. Chris Hobson, voluntario de la BGCI, se encuentra editando las memorias del congreso, éstas serán publicadas electrónicamente en 2003 en las paginas web de la BGCI y RBG Sydney.

La BGCI y RBG Sydney agradecen a las siguientes instituciones las generosas donaciones y recursos con los que apoyaron al congreso y a los delegados del mismo, estas son: Conservatorio de la Escuela Superior, HSBC, Armsign Pty Ltd, Metal Sign & Label, Agencia Australiana para el Desarrollo Internacional (AusAID), Fondo Dr Margaret Keay, Jardín Botánico de la Universidad de Cambridge, Reino Unido, Amigos de los Jardines Botánicos de Albury, Australia, Amigos del Jardín Botánico Nacional de Australia, Amigos del Jardín Botánico de la Naranja, Australia, Amigos del Jardín Botánico Real de Sydney, Fundación Sir Dorabji Tata, India. Se agradece también a Elizabeth Richards Pty Ltd por el donativo de una marioneta para premio y Phill Parsons, Presidente del Tasmanian Arboretum Inc. por el donativo de \$AUS50 para dar apoyo a un delegado proveniente de un país en desarrollo.

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For a full report of the programme's activities see this current issue of BGCNews (Volume 3 No. 9 December 2002). Public awareness and education are an essential component of the programme. Many of these activities are already underway and include:

CBD adopts Global Strategy for Plant Conservation

The 6th Conference of the Parties (COP6) to the Convention on Biological Diversity (CBD) adopted a *Global Strategy for Plant Conservation* (GSPC) on 19 April 2002 in The Hague, The Netherlands. The GSPC, endorsed by 183 governments, provides a framework for actions designed to address the drastic loss of plant species at global, regional, national and local levels. BGCI input and support for the development of the GSPC is a key part of the *Investing in Nature* partnership.

16 outcome-orientated targets are included in the GSPC. These are aimed at achieving a series of measurable goals by 2010. Education is crucial for ensuring that each target is achieved. In particular target 'd' promotes education and awareness about plant diversity. It states that '*The importance of plant diversity and the need for its conservation incorporated into communication, educational and public-awareness programmes*'. A background paper on this target was prepared by Wendy Goldstein, Head of Education, IUCN-The World Conservation Union. An article on the development and adoption of the Global Strategy for Plant Conservation appears in BGCNews (3(8): 25-32) and the text of the strategy will shortly be published and will be available from BGCI. It can also be found at: <http://www.biodiv.org/doc/decisions/co-p-06-dec-en.doc>.

Development of a new Internet site

A new Internet gateway site for botanic gardens is being created to support the dissemination of information on botanic gardens, plant conservation, environmental education and sustainable development. The site will include two online databases: one with

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rapport complet des activités du programme, voir le numéro actuel du BGCNews (Volume 3 no9 - décembre 2002). La sensibilisation du public et l'éducation sont des éléments essentiels du programme. Beaucoup de ces activités sont déjà en cours et comprennent :

La CBD adopte la Stratégie Mondiale pour la Conservation des Plantes

La Stratégie Mondiale pour la Conservation des Plantes a été adoptée à la Hague (Pays-Bas), le 19 avril 2002, par la 6^{ème} Conférence des Parties (COP6) de la Convention pour la Diversité biologique. La Stratégie, approuvée par 183 gouvernements, donne un cadre pour les actions contre les disparitions massives d'espèces végétales au niveau mondial, régional et local. La contribution et le soutien du BGCI dans le développement de cette stratégie est un élément clé du partenariat « Investir dans la Nature ». Seize objectifs sont fixés dans la Stratégie et doivent permettre de mesurer les résultats d'ici 2010. L'éducation est un élément essentiel pour atteindre les différents objectifs. En particulier, l'objectif (d) encourage l'éducation et la sensibilisation à la diversité végétale : « L'importance de la diversité végétale et la nécessité de la conserver seront pris en compte dans les programmes de communication, d'enseignement et de sensibilisation ». Une communication de fond sur cet objectif a été préparée par Wendy Goldstein, responsable de l'éducation à l'UICN, Union Internationale pour la Conservation de la Nature. Un article sur le développement et l'adoption de la Mondiale pour la Conservation des Plantes a paru dans le BGCNews (3 (8) : p25-32) et le texte de la Stratégie sera publié sous peu et sera disponible auprès du BGCI. Il peut également être consulté sur le site Internet : <http://www.biodiv.org/doc/decisions/co-p-06-dec-en.doc>.

Développement d'un nouveau site Internet

Un nouveau portail Internet pour les jardins botaniques est en cours de création pour diffuser des informations

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Novedades sobre "Invirtiendo en la Naturaleza"

El programa Invirtiendo en la naturaleza ha tenido un comienzo excelente y productivo en el año 2002 (véase Roots 24: p 4). La iniciativa de Invirtiendo en la Naturaleza es de 50 millones de US\$, la cual comparten la BGCI, Earthwatch & WWF, con subvención de HSBC. Varias metas fundamentales se cumplieron para la BGCI durante este periodo, la más significativa ha sido la realización de una Estrategia Global en la Conservación de las Plantas, establecida a través de La Convención de Diversidad Biológica (véase abajo). Se ha obtenido como resultado un marco reserencia a fequir por los Jardines Botánicos durante los siguientes cuatro años y medio en el programa de implementación de Invirtiendo en la Naturaleza. El informe completo de actividades del programa puede verse en este numero de BGCNews (Volumen 3 No. 9, diciembre-2002). La conciencia y educación pública son un componente básico del programa. Muchas de las actividades a realizar en éste ya se encuentran en práctica e incluyen:

La Convención de Diversidad Biológica (CBD) adopta La Estrategia Global para la Conservación de las Plantas.

Una Estrategia Global para la Conservación de las Plantas (GSPC) fue adoptada en la 6a Conferencia de los Partidos (COP6) a la Convención de Diversidad Biológica (CBD) el 19 de abril, 2002, en La Haya, Holanda. La estrategia es refrendada por 183 gobiernos. Ésta proporciona una red de trabajo de acciones a discutir sobre la drástica pérdida de especies vegetales a niveles global, regional, nacional y local. La BGCI provee y apoya el desarrollo de esta Estrategia, que es una parte clave de la iniciativa 'Invirtiendo en la Naturaleza'. La Estrategia incluye 16 puntos, los objetivos de los mismos son una serie de metas medibles para el 2010. Educación es un factor crucial para asegurar el logro de estas metas. En particular el inciso (d) que promueve y crea conciencia acerca de la diversidad

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information on 2,200 botanic gardens world wide and a second to enable users to access an on-line library of resources relevant to botanic gardens throughout the world. One of the zones being developed is *education for all*. This will include a resource centre of environmental education materials suitable for; educators in botanic gardens; teachers and policy makers.

Education training course in Brazil

In September 2002 a national training course on botanic garden education was held in Rio de Janeiro. The aim was to build capacity among botanic gardens in Brazil for environmental education and public awareness of plant conservation issues. 30 people attended the course. Guidelines for a national grants programme in support of education for plant conservation were prepared and distributed. Gail Bromley, Education Manager of the Royal Botanic Gardens, Kew, UK, was one of the principal tutors on the course. For further information contact: Tania Sampaio Pereira, Rio de Janeiro Botanic Garden, Jardim Botânico do Rio de Janeiro, Rua Pacheco Leão 915, 22460-030 Rio de Janeiro, Brazil. Tel: 55 (0)51 236 1479.

sur les jardins botaniques, la conservation des plantes, l'éducation à l'environnement et le développement durable. Le site comprendra deux bases de données accessibles en ligne : l'une avec des informations sur quelques 2200 jardins botaniques à travers le monde, l'autre pour permettre aux utilisateurs d'accéder en ligne à une bibliothèque des ressources spécifiques aux jardins botaniques. Un des aspects développés est « l'éducation pour tous » qui comprendra un centre de ressources sur des supports d'éducation à l'environnement adaptés aux éducateurs des jardins botaniques, enseignants et décideurs.

Formation en pédagogie au Brésil

Une formation nationale sur l'éducation dans les jardins botaniques s'est déroulée à Rio de Janeiro en septembre. Elle avait pour objectif de développer les compétences dans les jardins botaniques au Brésil en matière d'éducation à l'environnement et de sensibilisation du public aux questions de conservation des plantes. Trente personnes ont suivi la formation. Des directives pour un programme national de subventions à l'éducation en matière de conservation des plantes

vegetal. En éste se puntualiza que: 'La Importancia de la diversidad vegetal y la necesidad por su conservación sea incorporada dentro de la comunicación, de los programas educacionales y de la concientización pública. El documento antecedente de este inciso fue preparado por Wendy Goldstein, Jefa de Educación de la IUCN-[Unión mundial de Conservación] The World Conservation Union. El artículo de desarrollo y adopción de la Estrategia Global para la Conservación de las Plantas se encuentra en BGCNews (3(8): 25-32); el texto de la Estrategia será publicado y disponible posteriormente por la BGCI. Este mismo puede ser consultado en la siguiente página web. <http://www.biodiv.org/doc/decisions/cop-06-dec-en.doc>.



Desarrollo de un nuevo sitio de Internet

Una nueva conexión del Internet para el sitio de jardines botánicos esta siendo creada con la finalidad de apoyar a la diseminación de información de jardines botánicos, conservación de plantas, educación ambiental y desarrollo sustentable. El sitio incluye acceso en línea a dos bases de datos: una con la información de 2,200 jardines botánicos alrededor del mundo y la segunda que permite a los usuarios acceso en línea a la biblioteca de recursos relevantes de los mismos jardines botánicos. Una de las áreas en desarrollo es 'educación para todos', en ésta se incluye como recurso un centro de materiales educativos del medioambiente adecuados para educadores en jardines botánicos, maestros y responsables políticos.

Initial designs for the new internet site. Right: Main Homepage Below Right: The Education for All Zone Homepage

News

Chinese workshop on environmental education

Right: Participants taking a break during the national training course on botanic garden education at Rio de Janeiro Botanic Garden, Brazil

The 1st National Workshop on Biodiversity Conservation and Environmental Education was held in Beijing in November 2002. A range of international and national tutors and speakers were included in the programme and about 50 representatives from Chinese botanic gardens attended. The workshop was held in collaboration with the Chinese Academy of Sciences and hosted by the Beijing Institute of Botany. For further information contact: Anle Tieu, BGCI Project Officer for China (anle_tieu@bgci.org.uk).

We acknowledge the generous donation from HSBC for this programme, which includes support for the publication of this magazine.



Above: Primary school teachers at one of the evaluation workshops in southern India

Developing Darwin Mentors in India

Earlier this year almost 200 local primary school teachers were trained in environmental education. A series of two-day workshops are being run in five districts of Tamil Nadu, in the Western Ghats region in five districts of Tamil Nadu. To evaluate this training. Teachers are reporting back on the development of EE in their schools and the impact the training has had on EE at the school and community levels. They are also assessing the draft activities in a teachers' medicinal plant handbook, which will be published early in 2003. The workshops are part of a larger project entitled People and Plants: Training Darwin Mentors in

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ont été préparées et diffusées. Gail Bromley, responsable de l'éducation au Royal Botanic Garden Kew (Royaume-Uni), était l'une des principales intervenantes dans cette formation. Pour plus de renseignements, contacter Tania Sampaio Pereira au Jardin Botanique de Rio de Janeiro, Rua Pacheco Leao 915, 22460-030 Rio de Janeiro, Brazil. Tel: 55 (0)51 236 1479.

Rencontres sur l'éducation à l'environnement en Chine

Les premières Rencontres nationales sur la Conservation de la biodiversité et l'éducation à l'environnement se sont déroulées à Pékin en novembre. Différents intervenants internationaux et chinois étaient au programme et environ 50 représentants de jardins botaniques chinois étaient présents. Ces rencontres étaient organisées en collaboration avec l'Académie des Sciences de Chine et se déroulaient à l'Institut de Botanique de Pékin. Pour plus d'information, contacter Anle Tieu, Chef de Projet du BGCI pour la Chine (anle_tieu@bgci.org.uk).

Nous sommes reconnaissants de l'aide financière du HSBC pour ce programme, qui comprend un soutien pour la publication de cette revue.

Former des Mentors Darwin en Inde

Une série d'ateliers de deux jours sont organisés dans la région des Ghats de l'Ouest dans cinq districts du Tamil Nadu pour évaluer la formation en éducation à l'environnement suivie par presque 200 enseignants du primaire, plus tôt cette année. Les enseignants rendent compte du développement de l'éducation à l'environnement dans leurs écoles et de l'influence de cette formation sur sa mise en place au niveau de l'école et de la collectivité. Ils évaluent également les activités proposées dans un manuel pour les enseignants sur les plantes médicinales, qui doit être publié en 2003. Les ateliers font partie d'un projet plus large intitulé : « Des Hommes et des Plantes : la Formation de Tuteurs Darwin en Inde », financé par le Darwin Initiative du

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Curso de Capacitación para la Educación en Brasil

En septiembre se llevó a cabo un curso nacional de capacitación en Rio de Janeiro, con el objetivo de desarrollar y capacitar entre los Jardines Botánicos de Brasil los aspectos de educación del medio ambiente y conciencia de la conservación de las plantas. Las guías para las becas nacionales del programa de apoyo de educación para la conservación de las plantas fueron preparadas y distribuidas, treinta interesados asistieron al curso. Gail Bromley, Jefa de Educación de los Jardines Botánicos Reales de Kew, Reino Unido, fue una de los tutores principales del curso. Para mayor información comunicarse con: Tania Sampaio Pereira, del Jardín Botánico de Rio de Janeiro, Rua Pacheco Leao 915, 22460-030 Rio de Janeiro, Brazil. Tel: 55 (0)51 236 1479.

Taller de educación ambiental en China.

El pasado noviembre se llevó a cabo en Beijing el 1er Taller Nacional en Biodiversidad y Conservación. Instructores y conferencistas nacionales e internacionales fueron incluidos en el programa, conto con la participación de cerca de 50 representantes de los Jardines Botánicos de China. Los talleres se llevaron a cabo en colaboración con la Academia de Ciencias de China, la Institución anfitriona fue el Instituto de Botánica de Beijing. Para mayor información comunicarse con: Anle Tieu, BGCI, Oficial de Proyectos de China (anle_tieu@BGCI.org.uk)

Aquí se agradece la donación generosa de HSBC para este programa, la cual incluye apoyo para la publicación de esta revista.

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India, sponsored by the U.K. government Darwin Initiative. For further information contact: Dr Seeni, Project Officer, Centre for Biodiversity and Biotechnology, St. Xavier's College, Palayamkottai - 627 002, India. Email: tvl_cbbsxc@sancharnet.in

Lucy leaves BGCI

Many of you will have heard that Lucy Sutherland has left BGCI after four years with the education programme. As co-editor of *Roots*, she also organised and ran international congresses and training courses as well as presenting papers on education in botanic gardens. During her time with BGCI Lucy travelled extensively, working on projects in France, India, Mexico, Morocco, Peru, Poland, The Netherlands and USA. Her most recent work involved the training of around 200 teachers in environmental education in southern India. The fruits of this work are evident in the many programmes that are being developed in schools and local communities throughout the region. Lucy is currently completing her PhD on tourism in botanic gardens and we are sure you will join us in wishing her every success in her future career.



Education and the WSSD

At the recent *World Summit on Sustainable Development*, held in Johannesburg, governments agreed on two main texts. These were: *The Plan of Implementation* which sets out a programme of action on sustainable development issues, and the *Political Declaration* which sets out general principles in support of sustainable development. However it is noticeable that many of the agreed actions have

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gouvernement anglais. Pour plus d'information, contacter : Dr Seeni, Project Officer, Center for Biodiversity and Biotechnology, St. Xavier's College, Palayamkottai – 627 002, Inde, courriel: tvl_cbbsxc@sancharnet.in

Lucy quitte le BGCI

Beaucoup d'entre vous aurons appris le départ de Lucy Sutherland du BGCI après quatre années au service du programme d'éducation. En temps que co-éditrice de *Roots*, elle a aussi organisé et mené à bien des congrès internationaux et des formations, présenté des communications sur l'éducation dans les jardins botaniques. Durant ses années de travail au BGCI, Lucy a beaucoup voyagé, travaillant sur des projets en France, en Inde, au Mexique, au Maroc, au Pérou, en Pologne, aux Pays-Bas ou aux Etats-Unis. Sa mission la plus récente comprenait une formation en éducation à l'environnement pour environ 200 enseignants dans le sud de l'Inde. Les résultats de ce travail se lisent dans les nombreux programmes qui se développent depuis dans les écoles et communautés de cette région. Lucy prépare actuellement une thèse sur le tourisme dans les jardins botaniques et nous sommes sûrs que vous vous joindrez à nous pour lui envoyer nos meilleurs vœux de succès dans sa future carrière.

L'Education et le Sommet Mondial

Au Sommet Mondial sur le Développement Durable qui s'est tenu récemment à Johannesburg, les gouvernements se sont entendus sur deux textes principaux, la « Déclaration Politique » qui définit les principes généraux soutenant le développement durable et le « Projet de Mise en Place » qui définit un programme d'action sur les questions de développement durable. Le programme d'action se décline en une série de paragraphes sous différents titres thématiques. Il est manifeste que beaucoup de ces actions entendues ne sont pas associées à des engagements financiers ou à des mécanismes détaillés de mise en place. Il n'y a pas

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Desarrollando Mentores Darwin en India

Una serie de talleres de dos días se está llevando a cabo en la región Oeste de Ghats en cinco distritos de Tamil Nadu, estos son para evaluar la capacitación ya impartida en educación ambiental a casi 200 maestros de escuela. Los maestros están reportando el desarrollo que ha habido en educación ambiental en sus escuelas y el impacto que esta capacitación ha tenido en la implementación de su comunidad y escuela. Asimismo están poniendo a prueba el bosquejo del manual de actividades del cuaderno de plantas medicinales de un maestro, mismo que será publicado a inicios del 2003. Los talleres son parte de un proyecto mayor cuyo título es 'Gentes y Plantas': Entrenamiento de Mentores Darwin en India, apoyado por el gobierno del Reino Unido bajo la iniciativa Darwin. Para mayor información comunicarse con: Dr Seeni, Oficial del Proyecto, Centre for Biodiversity and Biotechnology, St. Xavier's College, Palayamkottai - 627 002, India, email: tvl_cbbsxc@sancharnet.in

Above: Primary school teachers in southern India participating in a session on medicinal plants

Left: Lucy enjoying the Education Fair at the congress

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no associated funding commitments or detailed implementation mechanisms. There is also no clear way for agreements to be enforced. Nevertheless, education is highlighted within these documents as an important mechanism for achieving sustainable development. The main drive is for universal primary education, but outside this governments are urged to *Integrate sustainable development into education systems at all levels of education in order to promote education as a key agent for change*. The *Plan of Implementation* also recommends that the United Nations General Assembly adopt a decade of education for sustainable development, starting in 2005. Further information can be found on education and the WSSD at the following web sites: www.wssd-education.org.uk and www.earthsummit2002.org and www.johannesburgsummit.org.

European Education Congress

The 2nd European Botanic Gardens Education congress will be held from 21-25 July 2003 in Meise, Belgium. It will coincide with EuroGard 3, which will be held from 23-26 July 2003 at the same venue. The aim of running the two meetings simultaneously is to ensure harmony between education and other aspects of botanic garden work in Europe. For further information contact: Gert Ausloos, Nationale Plantentuin van België, Domein van Bouchout, 1860 Meise, Belgium. Tel + (0)2 260 09 62. Fax + (0)2 260 09 45. Email: Gert.Ausloos@BR.fgov.be

Studying in the UK

A guide to possible sources of funding for international students wanting to study in the UK has been produced jointly by the British council, UKCOSA: The Council for International Education and the Foreign and Commonwealth Office (FCO).

Copies of the guide are available from: The British council, Information Services Management, Bridgewater House, 58 Whitworth Street, Manchester M1 6BB, UK. www.britishcouncil.org.

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non plus de moyens clairs pour faire appliquer ces accords. Toutefois, le document souligne l'importance de l'éducation comme moyen pour atteindre un développement durable. L'éducation primaire pour tous est le principal enjeu mais les gouvernements sont également appelés à « intégrer le développement durable à tous les niveaux dans les systèmes éducatifs pour promouvoir l'éducation comme un facteur clé du changement ». Les jardins botaniques sont bien placés pour aider les gouvernements à remplir leurs engagements dans ce « Projet de mise en place ». Ce projet recommande également que l'Assemblée Générale des Nations Unies lancent une décennie de l'éducation pour le développement durable à partir de 2005. Vous pourrez trouver plus d'information sur l'éducation et le Sommet mondial sur les sites suivants : www.wssd-education.org.uk, www.earthsummit2002.org et www.johannesburgsummit.org

Congrès européen sur l'Éducation

Le 2^{ème} Congrès Européen pour l'Éducation dans les Jardins Botaniques se tiendra du 21 au 25 juillet 2003 à Meise en Belgique. Il coïncidera avec Eurogard 3 qui se déroulera au même endroit du 23 au 26 juillet. La tenue simultanée de ces deux rencontres a pour objectif de mettre en concordance l'éducation et les autres missions des jardins botaniques en Europe. Pour plus d'information, contacter : Gert Ausloos, Nationale Plantentuin van België, Domein van Bouchout, 1860 Meise, Belgique. Tel : (0)2 260 09 62. Fax : (0)2 260 09 45. Courriel : Gert.Ausloos@BR.fgov.be

Etudier au Royaume-Uni

Un guide des possibilités de financements pour les étudiants internationaux souhaitant étudier au Royaume-Uni vient d'être produit conjointement par le British Council, par l'UKCOSA : le Conseil pour l'Éducation Internationale et par le Foreign and Commonwealth Office (FCO). Des copies du guide sont

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Despedida de Lucy de la BGCI
Muchos de ustedes sabrán que Lucy Sutherland ha dejado la BGCI después de cuatro años con el programa de educación. Como editor asistente de Roots, ella también organizó y condujo congresos internacionales y cursos de capacitación, asimismo presentó conferencias en educación en jardines botánicos. Durante su tiempo en la BGCI, Lucy viajó extensivamente, trabajo en proyectos en Francia, India, México, Marruecos, Perú, Polonia, Holanda y los EEUU. Su más reciente trabajo incluyó entrenamiento de unos 200 maestros en educación ambiental en el sur de India. Los frutos de su trabajo son evidentes en numerosos programas que se han desarrollado en escuelas y comunidades locales en toda la región. En la actualidad Lucy se encuentra escribiendo su tesis de doctorado sobre turismo en jardines botánicos. Nosotros estamos seguros que a Ud. le gustará unirse a nosotros en desear a Lucy el mejor de los éxitos en su futura carrera.

Educación y la Cumbre Mundial del Desarrollo Sustentable (WSSD)

Durante la reciente cumbre (WSSD) en Johannesburgo, los gobiernos se pusieron de acuerdo sobre dos textos principales --- el 'Plan de Implementación' que presenta el programa de acción sobre los temas de desarrollo, y la 'Declaración Política' que presenta principios generales de apoyo para el desarrollo sustentable. No obstante, hay que notar que muchas de las acciones del acuerdo no tienen garantía de subvenciones asociadas, ni mecanismos de implementación detallados. Además no existe un modo categórico para hacer respetar los acuerdos. Sin embargo, se destaca la capacitación dentro del documento como mecanismo importante para lograr el desarrollo sustentable. La campaña principal es para la enseñanza primaria universal, pero fuera de esto se insta a los gobiernos a que 'Se integre el desarrollo sustentable en los sistemas de enseñanza a todos los niveles, para que así se promueva la enseñanza como agente fundamental de cambio'.

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Council for International Education, 9-17 St Albans Place, London N1 ONX. www.ukcosa.org.uk. The Foreign and Commonwealth Office, Cultural Relations Department, King Charles Street, WH537, Whitehall, London SW1A 2AH, UK. www.fco.gov.uk.

Cameroon

Training Mountain Guides

In September 2002, Limbe Botanical and Zoological Gardens (LBZG) provided training for 20 guides working for Mount Cameroon Ecotourism Organisation (Mt CEO). The aim of the course was to sensitise guides to the flora and fauna of Mt Cameroon as well as principles and practice of nature interpretation in the wild. On the first day wildlife specialists, botanists and educationalists from the botanic garden shared their knowledge and experience and gave guided walks. On the second day, the guides (who are mostly former traditional hunters) gave a tour to the trainers and debated the application of their training from the previous day.

Mt Cameroon is the highest mountain in West and Central Africa. It plays a significant part in national and local economics and culture and has been

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disponibles au British Council : Information Services Management, Bridgewater House, 58 Whitworth Street, Manchester M1 6BB, Royaume-Uni. www.britishcouncil.org. UKCOSA : The Council for International Education, 9-17 St Albans Place, London N1 ONX. www.ukcosa.org.uk. The Foreign and Commonwealth Office, Cultural Relations Department, King Charles Street, WH537, Whitehall, London SW1A 2AH, Royaume-Uni. www.fco.gov.uk

Cameroon

Former des guides de montagne

En septembre 2002, le Limbe Botanical and Zoological Gardens (LBZG) a dispensé des formations auprès de 20 guides travaillant pour le Mount Cameroon Ecotourism Organisation (Mt CEO). Le but de ce cours était de sensibiliser les guides à la flore et à la faune du Mt Cameroon, de même qu'aux principes et aux pratiques de l'interprétation en pleine nature. Le premier jour, des spécialistes de la faune sauvage, des botanistes et des animateurs du Jardin Botanique ont partagé leurs connaissances et leurs expériences en faisant une visite guidée sur le site. Le deuxième jour, les guides (qui sont pour la plupart des chasseurs traditionnels) ont encadré une visite pour les formateurs et ont débattu des applications de leur formation du jour précédent.

Le Mt Cameroon est la plus haute montagne de l'Ouest et du Centre de l'Afrique. Il joue un rôle significatif dans l'économie nationale et locale, ainsi que d'un point de vue culturel et a été classé comme l'un des 25 hauts lieux de la biodiversité dans le monde. Chaque année, une course de renommée internationale se tient sur ses pentes. Escalader la montagne est une attraction aussi bien pour les touristes que les pour populations locales, et la faune sauvage exerce une forte attraction pour les chasseurs. L'écotourisme a été identifié comme une source alternative de revenus et permet d'assurer un salaire pour les chasseurs locaux. La mission du LBZG

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Los jardines botánicos se encuentran en una posición ideal para ayudar a los gobiernos a cumplir sus acuerdos sobre este Plan de Implementación. El mismo que también aconseja a la Asamblea General de las Naciones Unidas adoptar una década de enseñanza para el desarrollo sustentable a partir del 2005. Para mayor información consultar: www.wssd-education.org.uk y www.earthsummit2002.org y www.johannesburgsummit.org

Congreso de Educación Europea

El 2o congreso de Educación en Jardines Botánicos Europeos se efectuará del 21-25 julio 2003 en Meise, Bélgica. Esto coincide con el EuroGard 3, que se llevará a cabo del 23-26 julio 2003 en la misma sede. El propósito de las dos reuniones simultaneas es asegurar una armonía entre la capacitación y otros aspectos del trabajo en jardines botánicos de Europa. Para mayor información comunicarse con: Gert Ausloos, Nationale Plantentuin van België, Domein van Bouchout, 1860 Meise, Bélgica. Tel + (0)2 260 09 62. Fax + (0)2 260 09 45. Email: Gert.Ausloos@BR.fgov.be

Estudiar en el Reino Unido

Una guía de recursos de financiamiento para estudiantes internacionales que desean estudiar en el Reino Unido ha sido producida por el British Council en colaboración, con el UKCOSA: The Council for International Education y con el Foreign and Commonwealth Office (FCO). La guía se encuentra disponible por el British Council, Information Services Management, Bridgewater House, 58 Whitworth Street, Manchester M1 6BB, UK. www.britishcouncil.org. UKCOSA: The Council for International Education, 9-17 St Albans Place, London N1 ONX. www.ukcosa.org.uk. The Foreign and Commonwealth Office, Cultural Relations Department, King Charles Street, WH537, Whitehall, London SW1A 2AH, UK. www.fco.gov.uk.

Left: Front cover of the guide to Studying in the UK

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classified as one of the 25 biodiversity hotspots in the world. Each year an international race takes place on its slopes. Climbing the mountain is an attraction for both tourists and locals and its wildlife is a strong attraction for hunters. Ecotourism has been identified as an alternative source of income and livelihood for local hunters. The mission of the LBZG is to provide facilities, information and services to support biodiversity and improve livelihoods in the Mt Cameroon region and beyond. For further information contact: Ndzen Benjamin Serkfem, Head of Education and Training, Limbe Botanical & Zoological Gardens, P.O. Box 437, Limbe, Cameroon. Email: bserkfem@yahoo.co.uk



Above: During the holiday workshops, children visited roadside flower vendors

Right: Children at the closing ceremony of the holiday environmental education workshops

Holiday Environmental Education Workshops

50 children aged between four and 15 years of age participated in the *Children's Holiday Environmental Education Workshops* held at Limbe Botanic Garden during July and August. The theme for the workshops was *Flowers and the Environment* and involved four topics – *What are flowers, How people use flowers, How to grow flowers and The environmental importance of flowers*. One topic was taught each week and involved children in hands-on activities and garden walks. Children prepared flowerbeds and planted flower seeds

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est de fournir des facilités, des informations et des services pour maintenir la biodiversité tout en permettant aux populations de gagner leur vie dans le Mt Cameroun et au-delà. Pour plus d'information, veuillez prendre contact avec : Ndzen Benjamin SERKFEM, Head of Education and Training, Limbe Botanical & Zoological Gardens, P.O. Box 437, Limbe, CAMEROON. Email: bserkfem@yahoo.co.uk

Ateliers de vacances d'Education à l'Environnement

50 enfants âgés de 4 à 15 ans ont participé aux ateliers de vacances d'Education à l'Environnement qui se sont tenu au Jardin Botanique de Limbe durant les mois de juillet et août. Le thème des ateliers était « fleurs et environnement » et comportait quatre thèmes : « qu'est-ce qu'une fleur », « comment les gens utilisent les fleurs », « comment faire pousser des fleurs » et « l'importance environnementale des fleurs pour l'environnement ». Un sujet était abordé chaque semaine et les enfants étaient impliqués au travers d'activités manuelles et des visites



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Camerún

Entrenamiento para guías de la montaña

En septiembre de 2002, el Jardín Botánico y Zoológico de Limbe capacitaron a 20 guías que trabajan en la Organización Ecoturística Monte Camerún (MtCEO). El objetivo del curso fue sensibilizar a los guías sobre la flora y fauna de Monte Camerún así como brindarles algunas bases y aspectos prácticos de interpretación en áreas silvestres. El primer día, especialistas en vida silvestre, botánicos y educadores del jardín botánico compartieron su conocimiento y experiencia efectuando visitas guiadas. El segundo día, los guías (quienes eran en su mayoría cazadores tradicionales), dieron un recorrido a los instructores, discutiendo la aplicación de su capacitación del primer día.

Monte Camerún es la montaña más alta de África Occidental y Central. Juega un importante papel en la economía nacional, local y en la cultura y se considera uno de los 25 centros de mayor biodiversidad en el planeta.

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and seedlings. Excursions were organised for the children to explore their community and visit a botanic garden, roadside flower vendors and a flower shop. In the final week the children prepared plays, poems, songs and demonstrations (bouquets) which they presented to parents and the public during the closing ceremony.

These workshops usually attract around 300 children. However due to the drying up of a grant to the garden which previously helped to subsidise the workshops, it was necessary to levy a charge. As a result only 50 children attended. The Education and Training Programme of the garden is keen to continue and develop these workshops and is seeking local and international partners. For further information contact Ndzelen Benjamin SERKFEM, Head of Education and Training, Limbe Botanical & Zoological Gardens, P.O. Box 437, Limbe, CAMEROON.

Email: bserkfem@yahoo.co.uk

Mexico

Networking for interpretation

Education and interpretation was the focus of this year's annual meeting of the Mexican Association of Botanic Gardens, which took place in the desert area of Torreon. On the first day of the meeting Lucy Sutherland, BGCI's Education Officer, gave an address on the International Agenda for Botanic Gardens in Conservation and spoke about how botanic gardens can implement and register their commitment for the agenda. During the day botanic gardens staff also had the opportunity to showcase the work they were doing in the areas of education and interpretation. This ranged from developing interpretive signs, evaluating interpretation and education services to strategic interpretation. On the second day of the meeting Lucy Sutherland ran a workshop on interpretation. The workshop covered the why, who, what, where and how of interpretation. The third and last day of the meeting gave delegates an opportunity to experience face-to-face interpretation and visit the cactus,

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dans le jardin. Les enfants ont préparé des plates-bandes et ont planté des graines et des jeunes plants. Des excursions ont été organisées pour les enfants afin de leur faire découvrir leur commune et le Jardin Botanique, les vendeurs de fleurs sur les bords des routes et une boutique de fleuriste. La dernière semaine a permis aux enfants de préparer des jeux, des poèmes, des chansons, et des démonstrations (confection de bouquets) qu'ils ont présenté aux parents et au public au cours de la cérémonie de clôture.

Ces ateliers habituellement attirent environ 300 enfants. Cependant, suite à l'arrêt du versement d'une subvention auprès du Jardin qui permettait auparavant de financer ces ateliers, il a été nécessaire de rendre cette activité payante. De ce fait, seulement 50 enfants y ont participé. L'équipe en charge du programme d'éducation et de formation du Jardin est fermement décidé à poursuivre et à développer ces ateliers et elle est à la recherche de partenaires locaux et internationaux. Pour plus d'information, veuillez prendre contact avec : Ndzelen Benjamin SERKFEM, Head of Education and Training, Limbe Botanical & Zoological Gardens, P.O. Box 437, Limbe, CAMEROON. Email: bserkfem@yahoo.co.uk

Mexique

Création d'un réseau sur l'interprétation.

« Education et interprétation » a été le thème central de la rencontre annuelle de l'Association Mexicaine des Jardins Botaniques qui s'est tenue dans le désert de Torreon. Le premier jour des rencontres, Lucy Sutherland, Education Officer au BGCI, a fait une communication portant sur le rôle des Jardins Botaniques dans la Conservation dans le cadre de l'Agenda International, et a abordé la manière dont les Jardins Botaniques peuvent mettre à exécution et réaliser leurs engagements dans le cadre de l'Agenda. En journée, les personnels des Jardins Botaniques ont eu également l'occasion d'exposer le travail qu'ils mènent dans le domaine

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Cada año se efectua una carrera internacional en sus laderas. Escalar la montaña es un atractivo tanto para turistas como para la población local y su fauna es un fuerte atractivo para los cazadores. El ecoturismo se ha identificado como una fuente alternativa de ingresos y bienestar para los cazadores locales. La misión del jardín botánico y del zoológico es proporcionar las facilidades, información y servicios para mantener la biodiversidad y mejorar el nivel de vida en la región de Monte Camerún y alrededores. Para más información contactar a: Ndzelen Benjamín SERKFEM, Coordinador de educación y capacitación, jardín Botánico y Zoológico de Limbe, P.O. Box 437, Limbe, Camerún, email: bserkfem@yahoo.co.uk

Talleres de Verano de Educación Ambiental

50 niños de entre 4 y 15 años, participaron en los Talleres de Verano de Educación Ambiental, que se llevaron a cabo en julio y agosto en el Jardín Botánico de Limbe. La temática de los Talleres fue "las flores y el Ambiente", y se desarrollaron 4 temas: qué son las flores, cómo usamos las flores, cómo cultivar flores, y la importancia ambiental de las flores. Cada tema se impartía durante una semana, con actividades prácticas y caminatas en el jardín. Los niños preparon juegos, poemas, canciones y demostraciones (confección de ramas) que presentaron a los padres y al público que asistió a la ceremonia de clausura.

Estos talleres generalmente atraen a cerca de 300 niños. Sin embargo, debido a la restricción del apoyo del Jardín que ayudo anteriormente a subsidiar los talleres, fue necesario cobrar una matrícula, por lo que solo 50 niños participaron. El programa de educación y capacitación desea continuar desarrollando estos talleres por lo que está buscando colaboradores locales e internacionales. Para más información contactar a: Ndzelem Benjamin Serkfem, Coordinador de Educación y Capacitación, jardín Botánico y Zoológico de Llimbe, P.O. Box 437, Limbe, Cameroon. Email: bserkfem@yahoo.co.uk



Right: Participants at the annual meeting of the Mexican Association of Botanic Gardens, which took place in the desert area of Torreon

agaves and yucca desert surrounding Torreon and the arid zones of Chapingo University Botanic Garden in Bermejillo, Durango. For further information contact Maite Lascurain, Directora del Jardín Botánico 'Francisco Javier Clavijero', Instituto de Ecología, A.C., Km 2.5 Antigua Carretera a Coatepec, A.P. 63, C.P. 91000 Xalapa, Veracruz, México. Tel: 52 281 86009. Fax: 52 281 86310. Email: maite@ecologia.edu.mx

Spain

A day in the Vegetable Garden

A celebratory day of partnership between children and elderly people, called *A day in the vegetable garden* was held in July at the Juan Carlos I Botanical Garden in Alcalá de Henares (Madrid). The aim of the day was to promote an exchange of ideas and enjoy time together in the vegetable garden. Children aged 4-11 were joined by a group of elderly people from an Old People's Care Centre run by Madrid Council.

de l'éducation et de l'interprétation en montrant leurs panneaux d'interprétation et en évaluant leur travail pour améliorer leurs méthodes d'interprétation et d'éducation. Le deuxième jour, un atelier d'une journée a été conduit par Lucy Sutherland, traitant du pourquoi du pour qui et du comment de l'interprétation. Le troisième et dernier jour de ces rencontres a donné l'occasion aux participants de découvrir par eux-même l'interprétation en place sur le site ou de visiter le désert avec ses cactus, ses agaves, et ses yuccas entourant Torreon et les zones arides du Chapingo University Botanic Garden à Bermejillo, Durango. Pour plus d'information, veuillez prendre contact avec : Maite Lascurain, Directora del Jardín Botánico 'Francisco Javier Clavijero', Instituto de Ecología, A.C., Km 2.5 Antigua Carretera a Coatepec, A.P. 63, C.P. 91000 Xalapa, Veracruz, México. Tel: 52 281 86009. Fax: 52 281 86310. Email: maite@ecologia.edu.mx

Mexico

Trabajando conjuntamente la interpretación

Educación e interpretación fue el tema central de la Reunión Anual de la Asociación mexicana de jardines Botánicos, que tuvo lugar en el área desértica de Torreón. El primer día de la Reunión, Lucy Sutherland, del Depto. de Educación de BGCI, dio una conferencia sobre la Agenda Internacional de Conservación en Jardines Botánicos, destacando cómo los jardines botánicos pueden implementar su compromiso e inscribirse en la Agenda. El resto del día personal de diferentes jardines botánicos tuvieron la oportunidad de presentar el trabajo de educación e interpretación, desde la elaboración de letreros interpretativos, evaluación del trabajo interpretativo, servicios educativos hasta interpretación estratégica que han desarrollado en sus jardines. El segundo día de la Reunión, Lucy Sutherland impartió un taller de interpretación que incluía el por qué, quién, qué, dónde y cómo de la

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Through the course of the day the elderly people told the children about how, years ago, many of them had their own vegetable gardens. They explained which plants they used to cultivate and which plants were new to them. They also recounted past methods of watering, preparing the soil and sowing different types of seeds. The children took advantage of the walk through the vegetable garden to share fruit, such as tomatoes or strawberries, with their companions. Communication between the two groups was excellent, and at the end of the day the children presented each of the elderly people with a gift bag containing a bundle of lavender and a small pot of honey from the garden's hives.

For further information contact: Blanca Olivé, Head of Education, Real Jardín Botánico Juan Carlos I, Oficina Técnica J. Botánico, Universidad de Alcalá, Pza. Cervantes 8. 28801 Alcalá de Henares, Madrid, Spain.
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UK

International diploma course in BGED

The joint Kew / BGCI Diploma in Botanic Gardens Education ran from April 16th to May 10th 2002 and provided an opportunity for training, networking and ideas exchange between 10 participants. The diverse mix of students is a key strength of the course, bringing together a broad range of techniques skills, and experience. This course supported participants from nine countries; Cameroon, Columbia, India, China, Brazil, France, Estonia, Portugal and

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Espagne

Une journée au jardin potager

Une journée festive pour mettre en valeur le rapprochement entre les enfants et les personnes âgées nommée « Une journée au jardin potager » s'est tenue en juillet au Jardin Botanique Juan Carlos I à Alcalá de Henares (Madrid). Le but de cette journée était de favoriser un échange d'idées et d'apprécier le temps partagé dans un jardin potager. Des enfants âgés de 4 à 11 ans ont été rejoint par un groupe de personnes âgées d'une maison de retraite dirigée par la Mairie de Madrid.

Au cours de cette journée, les personnes âgées ont raconté aux enfants comment, autrefois, la plupart d'entre eux avait leur propre jardin potager, quelles étaient les plantes qu'ils cultivaient et quelles étaient celles qui étaient nouvelles pour eux. Ils ont aussi parlé des méthodes utilisées pour arroser, préparer le sol et semer les différentes sortes de graines. Les enfants ont pu profiter de cette balade dans le potager pour récolter des fruits comme des tomates et des fraises afin de se les échanger entre eux. La communication entre les deux groupes a été excellente et à la fin de la journée, les enfants ont remis à chacune des personnes âgées un sac contenant un bouquet de lavande et un petit pot de miel provenant des ruches du jardin. Pour plus d'information prendre contact avec : Blanca Olivé, Head of Education, Real Jardín Botánico Juan Carlos I, Oficina Técnica J. Botánico, Universidad de Alcalá, Pza. Cervantes 8. 28801 Alcalá de Henares, Madrid, Spain. Tel: 34 (9)1 881 9803.
Email: blanca.olive@uah.es

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interpretación. El tercero y último día de la Reunión, los participantes tuvieron la oportunidad de conocer el trabajo de interpretación de las colecciones de agaves, cactus, yucas y vegetación de la zona árida de los alrededores de Torreón en el Jardín Botánico de la Universidad de Chapingo, en Bermejillo, Durango. Para más información contactar a Maite Lascurain, Directora del Jardín Botánico 'Francisco Javier Clavijero', Instituto de Ecología, A.C., Km 2.5 Antigua Carretera a Coatepec, A.P. 63, C.P. 91000 Xalapa, Veracruz, México. Tel: 52 281 86009.
Fax: 52 281 86310.
Email: maite@ecologia.edu.mx

España

Un día en la huerta

Una celebración compartida de niños y gente de la tercera edad, llamada "Un día en la hortaliza" se llevó a cabo en julio en el Jardín Botánico Juan Carlos I en Alcalá de Henares en Madrid. El objetivo del día era promover el intercambio de ideas y disfrutar juntos la hortaliza. Niños de 4 a 11 años recibieron la compañía de personas mayores de un Asilo de Ancianos del Ayuntamiento de Madrid.

A lo largo del día, los mayores platicaban a los niños de cómo hace muchos años ellos cultivaban su propia huerta, cuáles plantas cultivaban y cuáles eran nuevas para ellos. También platicaban de sus sistemas de riego, preparación del suelo y siembra de los diferentes tipos de semillas. Los niños al pasear por la huerta compartían fresas o tomates con sus compañeros mayores. La comunicación entre ambos grupos resultó excelente, y al final de la jornada cada niño obsequió a cada ancianito un regalo con un manojo de lavanda y un frasco de miel de las colmenas del jardín.

Para más información contacta a Blanca Olivé, Jefa de Educación, Real Jardín Botánico Juan Carlos I, Oficina Técnica J. Botánico, Universidad de Alcalá, Pza. Cervantes 8. 28801 Alcalá de Henares, Madrid, España.
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Left: Children and elderly people enjoy time together in the vegetable garden at the Juan Carlos I Botanical Garden, Spain

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Right: Course Participants at International diploma course in Education
 Back row (L to R) Lucy Sutherland (BGCI), Barrie Blewett (RBG, Kew), Robert Hatcher (Adelaide BG, Australia) Henry Ikose (Parents National Education Union, Cameroon), Liz de Keyser (RBG, Kew)
 Front row (L to R) Gail Bromley (RBG, Kew), Ana Tavares (Coimbra BG, Portugal), Helve Meitern (Tallinn BG, Estonia), Mohammed Abdul-Kareem (FRLHT, India), Dongyan Hu (Beijing BG, People's Republic of China), Doris Braunger de Vasconcelos (Instituto Nacional de Pesquisa da Amazonia, Brazil), Solange Lekeanyi (Action Locale pour l'Environnement, Cameroon), Muriel Hernandez (NOMAD, France)
 Not shown Ana Maria Echeverri (Cali BG, Colombia)

Australia and so allowed an insight into many new and exciting education developments planned by the botanic gardens/institutions within those countries.

The course explores the nature of education for sustainability and biodiversity education and also explains a range of approaches to schools, public and professional education programme development. Students are exposed to a number of education programmes in other UK botanic garden sites. The group also had the opportunity to spend a few days at the Eden Project evaluating their interpretation materials.

RBG Kew, BGCI and the students would like to take this opportunity to thank their sponsors, the '*Lennox Boyd Award Trust*' and '*Riotinto Scholarships for Life*' that enabled eight of the 10 participants to attend.

Green fingers and Healing Hands

The University of Oxford Botanic Garden in conjunction with the Museum of the Moving Image Actors Consultancy, has recently developed an interactive promenade performance piece entitled *Green fingers and Healing Hands*. The performance is aimed at school children (aged 7-15), community groups and families. The performance features a 21st century female scientist and Jacob Babart, the Garden's first curator, and explores issues such as biodiversity, conservation and sustainability. The first performances took place in April 2002 and the second performances took place in September 2002. Green Fingers and Healing

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Royaume Uni

Cours pour un diplôme international d'Éducation dans les Jardins Botaniques

Le diplôme d'Éducation dans les Jardins Botaniques mis en place conjointement par Kew et le BGCI s'est déroulé du 16 avril au 10 mai 2002, et a permis aux 10 participants de se former, de travailler en réseau et d'échanger des idées. Le mélange des origines des divers participants est d'ailleurs une des clés de la réussite de ces cours en apportant un large éventail de technique et de compétences ainsi que d'expériences personnelles. Ces cours ont été dispensés auprès de participants de 9 pays (Cameroun, Colombie, Inde, Chine, Brésil, France, Estonie, Portugal et Australie) ce qui a permis d'avoir un aperçu des nouveaux et passionnants programmes éducatifs planifiés par les Jardins Botaniques ou les institutions de ces pays.

Ces cours abordaient les notions liées à l'Éducation au Développement Durable, à l'Éducation à la Biodiversité, et présentaient diverses pistes pour conduire des programmes d'éducation auprès des scolaires, du grand public et des professionnels. Les étudiants ont pu découvrir de nombreux programmes éducatifs réalisés dans d'autres Jardins Botaniques du Royaume Uni. Le groupe aussi a eu l'opportunité de passer quelques jours au Jardin d'Eden pour évaluer leur matériel d'interprétation.

Le RBG Kew, le BGCI et les étudiants veulent profiter de cette occasion pour remercier leurs sponsors, le « Lennox Boyd Award Trust » et « Riotinto Scholarships for life » qui ont aidé financièrement 8 des 10 participants.

Mains vertes et mains guérisseuses

L'Université du Jardin Botanique d'Oxford en partenariat avec le Museum of Moving Image Actors Consultancy, a depuis peu créé une promenade interactive sous forme de pièce de théâtre intitulée « mains vertes et mains guérisseuses ». La pièce est destinée à des scolaires âgés

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Reino Unido

Diplomado Internacional en Educación en Jardines Botánicos

El Diplomado conjunto de Kew/BGCI de educación en Jardines Botánicos, se realizó del 16 de abril al 10 de mayo 2002, y dio la oportunidad de capacitación, colaboración e intercambio de ideas a 10 participantes. El componente tan diverso de participantes es una de las fortalezas del curso, aportando un amplio rango no sólo de técnicas y herramientas, sino también de experiencia. Los participantes del curso fueron de 9 países: Camerún, Colombia, India, China, Brasil, Francia, Estonia, Portugal y Australia, lo que permitió conocer atractivos programas educativos organizados por los jardines botánicos e instituciones participantes de esos países.

El curso explora la naturaleza de la educación para la sustentabilidad y educación sobre la biodiversidad y también explica un rango de aproximaciones para desarrollar programas educativos para escuelas para el público y para profesionales. Los estudiantes conocieron diversos programas educativos de otros jardines botánicos en el Reino Unido –también el grupo tuvo la oportunidad de pasar varios días en el Proyecto Edén evaluando sus materiales de interpretación.

El Jardín Botánico de Kew, BGCI y los estudiantas aprovechan la oportunidad para agradecer a los patrocinadores el "Lennox Boyd Award Trust" y "Riotinto Scholarships for Life" que hicieron posible la asistencia de 8 de los 10 participantes.

Dedos Verdes y Manos Curativas

El Jardín Botánico de la Universidad de Oxford, en colaboración con el Museo de Moving Image Actors Consultancy, montó recientemente un espectáculo interactivo titulado "Dedos Verdes y Manos Curativas". La pieza está enfocada a niños de 7 a 15 años, grupos comunitarios y familias. La obra

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Hands looks set to become a regular part of Oxford's education programme. For further information contact: Louise Allen, Deputy Curator, Oxford University Botanic Garden, Rose Lane, Oxford OX1 4AX, UK. Te/Fax:1865 276920. Email: louise.allen@botanic-garden.ox.ac.uk

Healthy Herbie and Herbie's Dinner

To mark Science Year, Cambridge University Botanic Garden has created a new plant bed in the shape of a person, called Healthy Herbie. The species planted are used in modern prescribed medicine and have either yielded templates on which synthetic molecules have been modelled, are still used as basic raw materials or are the subject of current research programmes to develop new drugs. Each plant has been positioned in relation to the part of the body it is used to treat. Nearby, another plant bed (Herbie's Dinner) focuses on prevention rather than cure. This bed displays *functional food* plants that are now believed to protect us from disease, for example cabbages, tomatoes, linseed and maize. For further information contact: Christine Preston, Head of Education, Cambridge University Botanic Garden, Cory Lodge, Bateman Street, Cambridge CB2 1JF, UK. Tel: 01223 331876. Fax: 01223 336278. Email: cmp25@cam.ac.uk.

Relationships

Relationships was the title of Botanic Gardens Education Network's (BGEN) 2002 annual conference. Hosted by the Royal Botanic Gardens, Wakehurst Place in Sussex, the three-day conference explored how relationships with different individuals and organisations can inspire and support the work of educators. Speakers, poster sessions, and small-group workshops, stimulated much discussion among participants about the different types of relationships educators could develop - with colleagues, with users (schools, community, general public, etc) and with providers (funders, local authorities, colleges, etc).

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de 7 à 15 ans, des groupes ethniques et des familles. La pièce met en scène une femme scientifique du 21ème siècle ainsi que Jacob Babart, premier Conservateur du Jardin, et traite de problèmes comme la biodiversité, la conservation et le développement durable. La première représentation a eu lieu en avril 2002, et la seconde en septembre 2002. « Mains vertes et mains guérisseuses » est appelée à devenir une animation régulière des programmes éducatifs du Jardin d'Oxford. Pour plus d'information prendre contact avec : Louise Allen, Deputy Curator, Oxford University Botanic Garden, Rose Lane, Oxford OX1 4AX, UK. Te/Fax:1865 276920. Email: louise.allen@botanic-garden.ox.ac.uk

Le Bonhomme Guérisseur et le Dîner du Bonhomme

Pour marquer l'année de la science, le Jardin Botanique de l'Université de Cambridge a créé un nouveau parterre ayant la forme d'un personnage, appelé « le Bonhomme Guérisseur ». Les espèces plantées sont utilisées dans les prescriptions médicales modernes ou ont servi de modèles pour fabriquer des molécules de synthèse. Elles sont toujours utilisées comme matières premières ou font l'objet de recherches pour mettre au point de nouveaux médicaments. Chaque espèce est plantée en fonction de la partie du corps qu'elle soigne. A proximité, un autre parterre (le Dîner du Bonhomme) a pour thème la prévention plus que le soin. Ce parterre présente des plantes alimentaires ayant un rôle dans la prévention contre l'apparition des maladies, comme par exemple les choux, les tomates, les graines de lin et de maïs. Pour plus d'information prendre contact avec : Christine Preston, Head of Education, Cambridge University Botanic Garden, bateman Street, Cambridge CB2 1JF, UK. Tel: 01223 331876. Fax: 01223 336278. Email: cmp25@cam.ac.uk.

Relations

« Relation » était, le thème de la conférence annuelle 2002 du Réseau d'Education des Jardins Botaniques (BGEN), et qui a rencontrée un grand

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trata de una científica del siglo 21 y de Jacob Babart, el primer Curador del Jardín y explora aspectos sobre la biodiversidad, conservación y sustentabilidad. Las primeras representaciones se realizaron en abril del 2002 y las segundas en septiembre del 2002. Esta obra pretende ofrecerse regularmente dentro del programa educativo del jardín botánico de Oxford. Más informes con: Louise Allen, Curadora, Jardín Botánico de la Universidad de Oxford, Rose Lane, Oxford OX1 4AX, UK. Tel/Fax:1865 276920. Email: louise.allen@botanic-garden.ox.ac.uk

El saludable Herbie y la merienda de Herbie

Como parte del año de la ciencia, el Jardín Botánico de la Universidad de Cambridge realizó una nueva jardinera en forma de persona llamada el saludable Herbie. Las especies utilizadas se emplean en la elaboración de medicamentos modernos, ya sea que se hayan desarrollado compuestos sintéticos a partir de éstas, aún se



Left and Below: Meet Healthy Herbie at Cambridge University Botanic Garden, UK – a planted bed in the shape of a person!



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For further information contact: Erica Bower, c/o Museum 1, Royal Botanic Garden, Kew, Richmond, Surrey TW9 3AB, UK. Tel/Fax: 020 8241 8915. Email: erica_bgen@hotmail.com

USA

Day of Wonder

Texas Discovery Gardens in Dallas, Texas, joined forces earlier this year, with other non-profit organisations to provide a daylong experience for inner city youth called *Day of Wonder*. TDG lead hands-on activities and exploration of the Gardens, while Arts Partners, an organisation dedicated to providing art and cultural experiences to schoolchildren, organised visits to the Gardens and other destinations in the City. For further information contact: Gail Elia, Director of Education and Entomologist at Texas Discovery Gardens, P.O.Box 152537, Dallas TX 75315, USA.

Open House for teachers

Texas Discovery Gardens is a lead institution in the popular Fair Park Educators Open House. Educators from various museums form part of a network that puts on this one day event to promote science education to teachers throughout North Texas. In 2002, Fair Park educators received a US\$15,000 grant from Bank of America to sponsor the Open House. In addition to information about all the education programmes offered by host organisations, teachers received a free lunch, totebag and chances to win door prizes at each venue. For further information contact: Gail Elia, Director of Education and Entomologist at Texas Discovery Gardens, P.O.Box 152537, Dallas TX 75315, USA.

Environmental Theatre at Fairchild

More than 1,700 children flocked to see *The Never Everglades* an interactive piece of theatre created by Fantasy Theater Factory in collaboration with Fairchild Education Staff. The play focused on the effect people have on the South Florida environment, particularly the Everglades. Children learnt about the

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succès. Cette conférence, d'une durée de trois jours et qui était organisée par le Royal Botanic Gardens, à Wakehurst Place dans le Sussex, a permis aux congressistes de réfléchir à la manière dont les relations entre les différents individus et organisations peuvent inspirer et supporter le travail des éducateurs. Conférences, présentation de posters, ateliers en petits groupes, ont stimulé beaucoup de discussions au sujet des différents types de relations qui peuvent être établies entre animateurs, ainsi qu'entre les animateurs et les utilisateurs (scolaires, groupes ethniques, grand public, etc...) et encore entre les animateurs et les fournisseurs de moyens (financeurs, autorités locales, collèges, etc...). Pour plus d'information prendre contact avec : Erica Bower, c/o Museum 1, Royal Botanic Garden, Kew, Richmond, Surrey TW9 3AB, UK. Tel/Fax: 020 8241 8915. Email: erica_bgen@hotmail.com

Etats-Unis

Jour des merveilles

Cette année, le Texas Discovery Gardens à Dallas au Texas, a associé ses forces à d'autres organisations à but non lucratif pour proposer une journée d'animation, baptisée « Jour des merveilles », aux enfants des quartiers défavorisés. Le TDG a dirigé les activités manuelles et la découverte du Jardin, pendant que « Partenaires Artistiques » (une organisation ayant pour but de fournir des expériences artistiques et culturelles aux enfants des écoles) organisait des visites dans les jardins et dans d'autres lieux de la ville. Pour plus d'information prendre contact avec : Gail Elia, Director of Education and Entomologist at Texas Discovery Gardens, P.O.Box 152537, Dallas TX 75315, USA.

Maison ouverte pour les enseignants

Le Texas Discovery Gardens est l'organisateur principal de la populaire « Fair Park Educator Open House », un événement d'une journée qui fait la promotion de l'éducation scientifique pour les enseignants du Nord Texas. Les animateurs de différents muséums provenant en partie du réseau qui

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usen como materia prima o que estén en investigación para desarrollar nuevos medicamentos. Las plantas se han ubicado en la parte de cuerpo que tratan. La colección muestra también "plantas funcionales" que actualmente se usan para prevenir enfermedades tales como las coles, tomates, linaza y maíz. Para mayor información contactar a Christine Preston, jefa de Educación, Jardín Botánico de la Universidad de Cambridge, Cory Lodge, Bateman Street, Cambridge CB2 1JF, UK. Tel: 01223 331876. Fax: 01223 336278. Email: cmp25@cam.ac.uk

Relaciones

"Relaciones" fue el título de la exitosa reunión anual 2002 de la Red de Educación en Jardines Botánicos (BGEN). Se llevó a cabo en el Real Jardín Botánico de Wakehurst Place en Sussex. La reunión de tres días exploró cómo las relaciones con diferentes individuos y organizaciones pueden inspirar y apoyar el trabajo de los educadores. Ponencias, sesión de paneles y talleres en pequeños grupos promovieron la discusión entre los participantes sobre los diferentes tipos de relaciones que los educadores pueden desarrollar con colegas, usuarios (escolares, comunidad, público en general, etc.) y con proveedores (donantes, autoridades, universidades, etc.). para más informes: Erica Bower, c/o Museum 1, Royal Botanic Garden, Kew, Richmond, Surrey TW9 3AB, UK. Tel/Fax: 020 8241 8915. Email: erica_bgen@hotmail.com

Estados Unidos de Norteamérica

Día maravilla

Los jardines del descubrimiento en Dallas, Texas, unieron esfuerzos este año, con otras organizaciones para ofrecer durante todo un día una experiencia a jóvenes de centro urbano, llamada "Día Maravilla". El jardín de Texas coordinó actividades y caminatas por los jardines, mientras que una asociación de artistas ofrecían actividades artísticas y culturales para escolares, organizando visitas al jardín

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interdependency of life and the fact that an individual has the power to make a difference. The story centred on Dudley, a young roseate spoonbill from Florida who led his migrating relatives from the north to the safety of his Eco-Pond home. On the way, he met characters out of classical fairy tales who took over the Everglades. The Three Little Pigs, for example, were chopping down trees and

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organise cette journée ont préféré réaliser un événement unique, plutôt que neuf journées séparées pour l'accueil des professeurs. Cette journée unique représente une économie de temps et d'argent et constitue une manifestation plus attractive pour les animateurs locaux. En 2002, les animateurs du Parc de loisirs ont reçu 15000 \$ US de subvention de la Banque d'Amérique pour aider la maison ouverte. En plus des informations au sujet de tous les programmes offerts par les organisations invitées, les enseignants ont reçu un repas gratuit, un sac fourre-tout, et la possibilité de gagner une réduction d'entrée à chaque visite. Pour plus d'information prendre contact avec : Gail Elia, Director of Education and Entomologist at Texas Discovery Gardens, P.O.Box 152537, Dallas TX 75315, USA.

Théâtre environnemental à Fairchild

Plus de 1700 enfants se sont rassemblés pour voir « The Never Everglades », une pièce de théâtre interactive créée par le Fantasy Theater Factory en collaboration avec l'équipe éducative de Fairchild, qui a fourni des informations sur les problèmes environnementaux présentés dans la pièce et a révisé le script. Le thème de la pièce portait sur l'influence des activités humaines sur l'environnement dans le Sud de la Floride et plus particulièrement dans les Everglades. Les enfants ont été ainsi sensibilisés à l'interdépendance entre les espèces et au fait que, suivant son comportement, un individu a le pouvoir de changer les événements. Le personnage principal de l'histoire est Dudley, une jeune spatule rose de Floride, qui prend la tête de ses congénères pour migrer du Nord vers un lieu de ponte tranquille. En route, elle rencontre des personnages issus des histoires et des contes traditionnels, mais en dehors de leur contexte classique, qui prenaient la direction des Everglades. Les trois petits cochons, par exemple, abattaient les arbres et asséchaient les marais pour construire leurs nouvelles maisons. Une réaction en chaîne en résulte et chacun, des 7 nains à

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y a otros lugares de la ciudad. Mayor información con Gail Elia, Directora de Educación y Entomóloga en los Jardines del Descubrimiento de Texas. P.o. Box 152537, Dallas TX 75315, USA.

Casa Abierta para maestros

Los Jardines del Descubrimiento de Texas son una institución líder en la Feria del Parque Casa Abierta para Educadores, un evento de un día que promueve la educación científica para maestros en todo el norte de Texas. Educadores de varios museos forman parte de una red que inició este evento, en lugar de ofrecer nueve eventos separados. Esto ahorra tiempo y dinero en la planeación y organización de los eventos y además es una atracción mayor para los educadores locales. En 2002, los Educadores de la Feria recibieron una gratificación de US\$15000 del banco de America para apoyar la Casa Abierta. Además de la información acerca de todos los programas educativos que ofrecen las instituciones organizadoras, los maestros recibían un lunch gratis, una gran bolsa de compras y la oportunidad de ganar premios. Información con: Gail Elia, Directora de Educación y Entomóloga en los Jardines del Descubrimiento de Texas, P.O. Box 152537, Dallas, TX 75315, USA.

Teatro Ambiental en el Fairchild

Más de 1700 niños asistieron a ver "Los nunca más everglades", obra de teatro interactiva creada por la Compañía de Teatro Fantasía en colaboración con el personal de Educación del Jardín Botánico, quienes proporcionaron la información ambiental de los aspectos mencionados y la revisión del guión. La obra trata del efecto de la gente sobre el ambiente del Sur de Florida, particularmente en los Everglades. Los niños aprendieron sobre la interdependencia de la vida y el hecho de que uno como individuo tiene el poder de hacer las cosas diferentes. La obra se centra en Dudley, una joven ave nativa de Florida que abandona a sus parientes en migración del norte para cuidar de su hogar en Eco-Pond.

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draining wetlands to construct new homes. A chain reaction resulted and everyone from the Seven Dwarfs to Goldilocks was affected. Along with the audience, Dudley learnt the value of Florida's natural resources and managed to outsmart the destructive pigs, rescuing his new fairy tale friends and the flock of spoonbills from doom. For more information contact: Carolann Baldyga, Director of Education, Fairchild Tropical garden, 10901 Old Cutler Road, Coral Gables, Miami, Florida 33156, USA. Tel: (305) 667 1651, USA. Email: cbaldyga@fairchildgarden.org

Venezuela

Garden contributes to community education

Seven of the 44 hectares have now been developed at the Botanic Garden of Merida, Venezuela. Different tropical ecosystems are represented, including a cloud forest and a dry forest, as well as a xerophyte garden and an aerial walkway. Programmes of environmental education are offered to schools in the state of Merida enabling children to explore the biodiversity and the natural environment of the region. Horticultural training workshops are run for adults and young people outside the formal education system, as a contribution towards community education. For further information contact: Msc Alejandra Soto-werschitz, Coordinadora Educativa, Jardín Botánico de Mérida. Av. Alberto Carnevali Sector La Hechicera. Apartado Postal 52 Mérida, Venezuela. Email: difabaves@netscape.net. Website: www.botanica.ciens.ula.ve

- *Answer to question on page 4: Lucy is playing the part of the worm - third character from the left!*

▲ Nouvelles

Boucles d'or, en furent affectés. Dudley, ainsi que l'auditoire, apprend au cours de cette histoire la valeur des ressources naturelles de la Floride, et va déjouer le plan des cochons destructeurs, sauvant ainsi ses compagnons des fables et les spatules du mauvais destin. Pour plus d'information prendre contact avec : Carolann Baldyga, Director of Education, Fairchild Tropical garden, 10901 Old Cutler Road, Coral Gables, Miami, Florida 33156. Tel: (305) 667 1651, USA. Email: cbaldyga@fairchildgarden.org

Venezuela

Le Jardin contribue à l'éducation des personnes en précarité

7 des 44 hectares sont maintenant aménagés au Jardin Botanique de Merida, au Venezuela. Différents écosystèmes tropicaux sont représentés, incluant une forêt des nuages et une forêt sèche, ainsi qu'un jardin de plantes xérophytes et un cheminement aérien. Les programmes d'éducation à l'environnement sont proposés aux écoles de l'Etat de Merida et permettent aux enfants de découvrir la biodiversité et l'environnement naturel de la région. Des ateliers de formation horticoles sont conduits pour les adultes et les jeunes en échec scolaire, contribuant ainsi à l'éducation des personnes en difficulté. Pour plus d'information prendre contact avec : Msc Alejandra Soto-werschitz, Coordinadora Educativa, Jardín Botánico de Mérida. Av. Alberto Carnevali Sector La Hechicera. Apartado Postal 52 Mérida, Venezuela. Email: difabaves@netscape.net. Website: www.botanica.ciens.ula.ve

● Noticias

En el camino encuentra personajes clásicos de los cuentos que lo llevan a los Everglades. Los 3 cochinitos, por ejemplo, se encontraban cortando 3 árboles, y estaban secando los pantanos para construir más casas. De esto surge una reacción en cadena que afecta hasta a Blanca Nieves y los Siete Enanos. Junto con la audiencia, Dudley aprendió el valor de los recursos naturales de Florida, manejando inteligentemente a los destructores cochinitos, rescatando a sus amigos personajes de los cuentos y protegiendo la población de aves nativas a la que pertenece. Para más información contactar a: Charolan Baldyga, Coral Gables, Miami, Florida 33156. Tel:(305)667 1651, USA. Email: cbaldyga@fairchildgarden.org

Venezuela

Jardín contribuye a la educación de la comunidad

Se han desarrollado ya siete de las 44 hectáreas del Jardín Botánico de Mérida, Venezuela. Se han representado diferentes ecosistemas tropicales incluyendo el bosque de niebla y la selva seca, así como el jardín xerófito y el sendero de plantas aéreas. Ofrece programas de educación ambiental para las escuelas del estado de Mérida permitiendo a los niños explorar la biodiversidad y el ambiente natural de la región. Ofrece también talleres extraescolares de horticultura para jóvenes y adultos, contribuyendo así a la educación de la comunidad. Para mayor información contactar a: Msc Alejandra Soto-werschitz, Coordinadora Educativa, Jardín Botánico de Mérida. Av. Alberto Carnevali Sector La Hechicera. Apartado Postal 52 Mérida, Venezuela. Email: difabaves@netscape.net. Página web www.botanica.ciens.ula.ve

Etablir des partenariats : un aperçu d'Afrique du Sud

Formando asociaciones: perspectivas desde el sur de África

Forming Partnerships: Insights From Southern Africa

■ Summary

This article explores a range of partnerships influencing the work of environmental education practitioners in the southern African region. The Environmental Education Unit at Rhodes University, South Africa and the partnerships it has engaged with over a 12-year period is presented as a case study. Different kinds of partnerships are also examined, for example with government, NGO's, international organizations, institutions, local communities, and funding organizations.

Through a critical analysis of the Unit's interactions within these different kinds of partnerships, we highlight challenges, benefits and lessons learned, in particular the benefits of strong conceptual/intellectual partnerships in the building of a professional community of educators. Factors such as the need to nurture innovation and creativity, ground interactions in real-life experiences, and the consideration of relationships between policy and practice is discussed. We also illustrate ways in which partnerships influence the political economies of practice and projects, and explore how ideological environments may in turn shape them.

We explore the way in which a framework of mutually beneficial partnerships may vary and we illustrate that in some cases, partnerships may be ambivalent processes, with diverse power relationships at play. In providing this analysis, we hope to challenge botanic gardens educators to reflect on the kinds of partnerships they are engaged in, and on some of the factors that shape and influence their nature and outcomes.

Introduction

One of the major challenges facing the world community as it seeks to replace unsustainable development patterns with environmentally sound and sustainable development, is the need to activate a sense of common purpose on behalf of all sectors of society

(Agenda 21, Chapter 27:197)

Agenda 21 challenges all sectors of society to participate in, and establish meaningful partnerships in achieving social change and sustainable development. It furthermore challenges partners in sustainable development to clarify and recognize the independent roles, responsibilities and special capacities of each.

Recent deliberations at the Johannesburg World Summit on Sustainable Development (WSSD) once again highlighted the importance of meaningful partnerships in achieving sustainable development. Educational interactions during the WSSD provided much evidence of existing and emerging partnerships. For example, the South African Ministry of Education hosted a seminar on *Educating for a Sustainable Future*, in partnership with UNESCO, the theme of which was *Action, Commitment and Partnerships*. Ironically, the seminar tended to profile the existence of partnerships, but did little to review these critically. Several newly emerging partnerships were adopted with little critical debate. At another level, many smaller local level partnerships were secured in interactions between professionals working in the environmental education / Education for Sustainability arena.

The Rhodes University Environmental Education Unit (RUEEU), for example established an informal research-based partnership to work with global *Earth Charter* initiatives.

While networking has been the subject of much discussion in environmental education work (see for example Taylor, 1997), there has been relatively little attention given to the interdependent role and nature of partnerships in enabling and sustaining environmental education processes. It is within this context that we offer some tentative insights from southern Africa.

An Overview of Partnerships at Rhodes University

Partnerships have been central to the success of the Rhodes University Environmental Education Unit's work over the past twelve years. They have also presented us with numerous, often complex, challenges. In reviewing these partnerships for the purposes of opening the conversation, we have identified two macro issues that have shaped almost all of our partnership relationships. These are:

- the tensions that exist within varied power relationships
- the identification and actualizing of mutual benefits.

We examine these two issues in the context of cases which exemplify the range of partner relationships in the RUEEU.

We have identified eight different kinds of partnerships: with corporate funders; government; parastatals; non-governmental organizations (NGO's); international donor agencies; within our own institution; and with our local community in Grahamstown and the

Eastern Cape province. We have also identified the establishment of critical intellectual partnerships as a key element of partnerships at RUEEU.

Partnerships with corporates

Environmental education at Rhodes University has been involved in partnerships with corporates since the establishment of the Murray & Roberts' Chair of Environmental Education in 1990. While initially the partnership was founded (through the good offices of WWF-SA, an NGO), on a funder-recipient basis with assurances of quality delivery and accountability, from the start of its operation it began to take on a different shape. This involved the establishment of a steering committee, which included the funder and prominent members of the local community, in which the general direction of the chair's work was negotiated. This process has ensured continued corporate involvement and financial commitment, linked to the recognition of delivery of quality outputs.

Below:
Partnerships
with the local
community
provide
opportunities
for interaction
with real life
challenges

Over time, and as the chair became integrated into the unit, the mutually beneficial nature of this partnership has become more prominent, particularly since the corporate organizations have started to consider issues of sustainable development as part of their core business.

Of special significance to these relationships has been the RUEEU's ability to offer a viable corporate social investment with tax relief benefits. RUEEU is also rapidly moving to a position of being able to offer professional support to corporate programmes for change towards sustainability. An example is that of industry course materials developed by the Unit being used in Murray & Roberts' own training programmes. We have also been able to draw on the professional resource-base of our corporate relationships in, for example, developing a module on environmental management practices in the mining industry with Gold Fields SA, one of our corporate partners. While the RUEEU has been conscious of some of the ethical dilemmas of engaging corporate partnerships from sectors such as mining and construction, we believe that our ongoing engagement with them has been environmentally beneficial.

Partnerships with government

Since 1994 the RUEEU has been heavily involved in a variety of partnerships with government departments at both national and provincial level. Prior to 1994 partnerships with government were mixed and difficult to maintain due to

the dominant ideological ethos of the time. While our partnerships with government have expanded over the past eight years, and new avenues for environmental education work have opened up as a result, this work has not been easy. The complex challenges of policy development, capacity building throughout the system and the immense challenges of re-orienting society at all levels have provided many intellectual and research challenges to the work of the RUEEU (Lotz-Sisitka, 2002).

Government partnerships are often characterized by unequal power relationships, high levels of bureaucracy, and difficulties of maintaining personal relationships. In addition, largely because of bureaucratic institutional frameworks, the nuances and potential impact of research results are often lost. This is partly because research work in policy contexts tends to require and value more broad-based survey type research. This does not necessarily provide the in-depth perspectives on contextual issues that often influence the nature of change at a local level. This gap between policy and practice has to some degree been bridged by partnership initiatives based on co-operative projects involving state-civil society relationships such as the EECS and EEPI². While pinpointing mutually beneficial relationships with government is often very difficult, the gap between policy and practice has become a catalyst for a number of research initiatives within the Unit. We believe, that through this, we are beginning to make more tangible contributions to the work of government³.

Partnerships with parastatals

In contrast to partnerships with government, we have found partnerships with parastatals to be more accessible and more professionally engaging. We, for example recently formed a partnership with the South African National Parks to engage in a professional development and research programme jointly with them, for the benefit of their staff. This programme has led to tangible outputs, with many members



¹ Murray & Roberts is southern Africa's largest civil engineering and construction company. It has funded the Chair of Environmental Education at Rhodes University since 1990, which is now its longest running corporate social investment programme. In 1997 the work of the Chair was expanded by further corporate funding from Gold Fields SA, a major mining group, which enabled Rhodes to establish the Gold Fields Environmental Education Service Centre (GFEEESC). The Murray & Roberts Chair, the Service Centre, and other environmental education activities in the Department of Education at Rhodes University, constitute the Rhodes Environmental Education Unit which is located physically and administratively within the Department. It is not insignificant that Murray & Roberts have also recently made a large investment as one of the main South African funders of the World Summit on Sustainable Development.

² The Environmental Education Curriculum Initiative (EECI) and the Environmental Education Policy Initiative (EEPI) were two state-civil society initiatives aimed at developing national policy, and implementing national curriculum (Janse van Rensburg & Lotz, 1998; Lotz-Sisitka & Ashwell, forthcoming).

³ The most tangible evidence of our research in this policy-practice arena (Janse van Rensburg & Lotz-Sisitka, 2000; Lotz-Sisitka & Raven, 2001) is the contributions the RUEEU has been able to make to the Ministry of Education's National Environmental Education Project for the General Education and Training Band (DoE, 2002), and some contribution towards the revision of the National Curriculum Statement for General Education and Training.

of staff developing materials, programmes and policy plans to support environmental learning in the South African National Parks. Of benefit to the RUEEU has been the deepening of the research terrain on Environmental Interpretation and Education, and a clearer perspective on the relationship between professional development and institutional development. At a management level, we were able to co-manage this programme through a steering committee, and research results have been fed directly into the organization for consideration in relation to their policy and strategy development.

On the other hand, partnerships with parastatals may also encounter bureaucratic and capacity difficulties, influenced by the less than stable financial position of parastatals in the current fiscal landscape. In this programme, we were able to distill diverse roles and responsibilities, and develop an understanding of the need for different power relationships in co-managing the programme. For example, conceptual power and management power did not necessarily reside in the same place at the same time, but shifted and changed during the life of the project. Partnerships of this kind provide opportunities to optimize the potential of diverse power dynamics in practical programmes.

Partnerships with NGOs

As with parastatals, the RUEEU has found that partnerships with non-governmental organizations are more firmly located in the arena of professional exchange. While NGOs have fewer problems with bureaucratic requirements, they often experience problems with financial stability and staffing as well as competition with each other for both. In the post-apartheid era, NGO groups in South Africa have experienced many such problems as a result of the channelling of funding and human capacity into government bodies. NGOs sometimes have environmental agendas that are not compatible with each other or with those of the RUEEU.

Our partnerships with NGOs have generally been focused on projects that support professional development

and capacity building, in fields as diverse as teaching ecology and conducting research. One particularly fruitful and long running partnership has been with the Wildlife and Environment Society of SA (WESSA) One of our joint projects, known as *The Gold Fields Participatory Course*, supported by one of our corporate sponsors, draws post graduate students to Rhodes University. This course broadens the impact of environmental education professional development, and through Rhodes University, enables WESSA to offer accredited professional development for their own staff, and a range of participating groups nationally. The RUEEU has also drawn heavily on the resources developed for field-based work through Share-Net, a WESSA project. Our partnerships with WESSA have extended to co-funding agreements, co-operative fundraising initiatives, and collaborative research in professional development. Such projects have enabled us to develop a mutually beneficial partnership based on professional and intellectual respect, as well as recognition of the diverse forms of expertise necessary for a professional field to flourish.

Partnerships with international donor agencies

Since 1994 there has been an influx of international development aid to support development and transformation in southern Africa. This has led to numerous donor funded environmental education projects and programmes. This trend has brought new challenges to partnership orientations, notably issues associated with the power dynamics inherent in donor-recipient relationships, where the donor is often most powerful, and is able to set the agenda for change. These agendas are often encapsulated in the form of logical framework plans, which are then more or less imposed in development situations. Such planning frameworks do not lend themselves to participatory evaluation or change in the life of projects. A further challenge has been the changing nature of the political economies in environmental education work. Large scale donor funded projects can change local political economies, and often create false economies that are difficult to sustain after the project has ended.

These partnerships are often ambivalent, as they bring these, and other challenges, as well as the benefits of international interaction, and additional sources of funding.

Partnerships with our local community

An important dimension of environmental education practice, is practicing in one's own back yard such as with schools, municipalities or community organisations. Working within the context of one's local community, provides the opportunity for grounding and interaction with real life challenges. Theories are put to the test, research results may be applied in local contexts, and a sense of community is enhanced. While it is important to interact within local contexts, tangible evidence of results is often slow to emerge, as one interacts with the multi-faceted nature of local community life, politics and bureaucracy, as well as the varying enthusiasm of individuals.

Within-institution partnerships

In this respect, our direct experience is largely limited to Rhodes University, although we inevitably share perspectives with colleagues in other institutions. Partnerships are as varied as the institutions themselves, but a number of common factors seem to determine practice and outcome. The most important of these are scale (size of the institution), the openness of governance and management frameworks within the institution, and in somewhat more general terms, what is called institutional culture. Perceptions of mutual benefit also appear to play a key role in the sustainability of intra-institutional partnerships.

At Rhodes University, a relatively small institution, three key factors have been: an open framework and flexible approach on the part of management and governing bodies; wide accessibility to all interested groups and individuals; and personal relationships. Added to this is a strong corporate culture of making things happen and making them work. Apart from the obvious example of partnerships between academic departments, good working relationships - tantamount to



Right:
Intellectual
partnerships are
very important
in an
educational
context

partnerships - have been formed between academic departments and for example, the Estates Division. An active Senate committee on environmental programmes overviews and encourages symbiotic relationships and partnerships.

On the negative side, even good personal relationships do not necessarily transcend individual and departmental jealousies and inclinations towards turf protection. Innovation is often contested by traditionally powerful groups, either with vested interests, or when they perceive potential benefits as a one way flow. This is where long term vision, well conceived and developed arguments, a track record of delivery and institutional culture are often able to play a major role.

Critical intellectual partnerships

Although of a less concrete nature than the other partnerships listed, this type of partnership is arguably the most

important in an educational context. In the RUEEU it is certainly the heart of the programme, not only in its own right as intellectual stimulation, but in its pervading influence nationally, regionally and even internationally. The Unit views intellectual relationships in terms of sharing and exchange of ideas, mutual critiquing of work, as well as joint research projects, as integral to all partnerships. This is necessary not only at an individual level, but within partnerships, such as AusLinks and some of the conservation agencies in South Africa.

Ideological considerations and the differences in conceptualising and approach that result from them are often very challenging, and at times are potentially debilitating. In South Africa we have at times come close to negating and even foregoing partnerships on ideological grounds and thus there is some sensitivity to the issue. A more fruitful approach is that where differences do exist, they also provide an interface for intellectual growth particularly if there is a mutual

willingness to engage with unlikeminded people, even when the power relationships linked to ideology are or have been patently unequal.

Concluding Comments:

As tentative conclusions we might observe that, following twelve years of interaction within such diverse partnerships as we have described, we are able to look back and identify some of the key themes which reflect the lessons we have learned.

- A recognition of the multi-faceted, dynamic and changing nature of power relationships in partnerships, as well as the diverse political economies associated with different partnerships
- A need and a willingness to engage within different partnerships in different ways. This requires a flexibility of approach, being willing to confront and engage diverse ideological and intellectual challenges, and recognition of the pragmatic and practical dimensions of sustaining these partnerships

- A willingness and need to be accountable and transparent in the arenas of financial management, intellectual debate, organizational requirements and social and personal interactions.

References:

- ➔ Department of Education (DoE), 2002 *Revised National Curriculum Statement, Grades R – 9 (Schools)*, DoE, Pretoria.
- ➔ Janse van Rensburg, E. & Lotz, H. 1998, *Enabling environmental education as a cross-curricular concern in outcomes-based learning programmes: Discussion document*, Share-Net, Howick, South Africa.
- ➔ Janse van Rensburg, E. & Lotz-Sisitka, H. 2000, *Learning for sustainability*, Learning for Sustainability Project, Johannesburg.
- ➔ Lotz-Sisitka, H. & Ashwell, A. (forthcoming) *Policy and praxis: environmental education curriculum development 1992 – 2002*, Rhodes University Environmental Education Unit, Grahamstown.
- ➔ Lotz-Sisitka, H. & Raven, G. 2001 *Active learning in OBE: Environmental learning in South African schools: Report on the National Environmental Education Programme – GET Pilot Research Project*, Department of Education, Pretoria.
- ➔ Lotz-Sisitka, H. 2002 Curriculum patterning in environmental education: a review of developments in formal education in South Africa. In *Environmental education, ethics & action in southern Africa*, EEASA Monograph, Environmental Education Association of Southern Africa / Human Sciences Research Council, Pretoria.
- ➔ Taylor, J. 1997, *Share-Net. A case study of environmental education resources material development in a risk society*, Unpublished Ph.D thesis, Rhodes University, Grahamstown.
- ➔ Wynberg, R. 1993, *Exploring the Earth Summit: Findings of the Rio United Nations Conference on Environment and Development: Implications for South Africa*, University of Cape Town, Cape Town.

▲ Résumé

Cet article étudie un certain nombre de partenariats qui ont des répercussions sur le travail des praticiens de l'éducation à l'environnement dans la région du sud de l'Afrique. L'Unité d'Éducation à l'Environnement de l'Université de Rhodes en Afrique du Sud et les partenariats qu'elle a engagés depuis plus de 12 ans sont présentés comme étude de cas. Différentes catégories de partenariats sont aussi décrites, par exemple avec le gouvernement, les ONG, les organisations internationales, les institutions, les communautés locales et des organismes financeurs.

A travers une analyse critique des interactions de l'Unité avec ces différents types de partenariats, nous mettons en lumière les défis, les bénéfices et les leçons que l'on peut en retirer, en particulier le bénéfice d'un partenariat fort, intellectuel et conceptuel, pour la constitution d'une communauté d'éducateurs professionnels. Des éléments tels que la nécessité d'entretenir l'innovation et la créativité, les échanges directs dans des expériences de la vie réelle, et l'observation des relations entre théorie et pratique sont exposés. Nous abordons aussi les façons dont les partenariats influencent la politique économique en matière de pratique et de projets et nous explorons comment les environnements idéologiques peuvent à leur tour les façonner.

Nous explorons la façon dont une charpente de partenariats à bénéfices réciproques peut être variée et nous illustrons cela par quelques cas. Les partenariats peuvent être des processus ambivalents, avec des relations de pouvoir en jeu. En exposant cette analyse, nous espérons inciter les éducateurs de jardins botaniques à réfléchir au genre de partenariats dans lesquels ils sont engagés, et à quelques-uns des facteurs qui forment et influencent leur nature et leurs résultats.

● Resumen

Este artículo explora una gama de asociaciones que influyen en el trabajo de educadores medio ambientales en el sur de África. Se presenta como estudio a la Unidad de Educación Medio Ambiental de la Universidad de Rhodes, Sudáfrica, y a los socios con quienes han trabajado. Se examinan también diferentes tipos de asociaciones, por ejemplo con entidades gubernamentales, ONGs, organizaciones internacionales, instituciones, comunidades locales, y organizaciones proveedoras de fondos.

A través de un análisis crítico de las interacciones de la Unidad dentro de los diferentes tipos de asociaciones, destacamos los retos, los beneficios, y las lecciones aprendidas, en particular los beneficios de las asociaciones fuertes conceptuales e intelectuales en la construcción de una comunidad profesional de educadores. Se debaten factores tales como la necesidad de nutrir la innovación y la creatividad, las interacciones básicas de las experiencias en la vida real, y la consideración de la relación entre las propuestas y la práctica. También ilustramos las maneras en las que las asociaciones pueden influir en la economía política entre práctica y proyecto, y exploramos como el ambiente ideológico puede moldarlas.

Exploramos como un marco de asociaciones mutuamente beneficiosas puede variar y demostramos que en algunos casos las asociaciones pueden ser procesos ambivalentes, en las que impactan diversos parentescos. En presentar este análisis, desafiamos a los educadores de los jardines botánicos, a que reflejen sobre los tipos de asociaciones en los que toman parte, y sobre algunos de los factores que forman y influyen su naturaleza y sus resultados.

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Making biodiversity conservation more effective

■ Summary

Networks promote the sharing of ideas, methodologies, technologies and results where all partners contribute and benefit. Plant Genetic Resources (PGR) networks are mechanisms for encouraging the collecting, conservation, exchange, evaluation, enhancement and use of genetic resources. The International Plant Genetic Resources Institutes (IPGRI) was established with this purpose. Conservation can only be effective if countries and regions work together in partnership. There are 3 major types of networks: regional PGR networks, crop networks and thematic networks. Examples are the European Cooperative Programme for Crop Genetic Resources (ECP/GR), INIBAP's International *Musa* Testing Programme (IMTP) and the Global Network of Base Collections. The mode of governance should provide members with a balanced opportunity to influence the objectives, strategy and workplan. Monitoring and evaluation are critical to enhance effectiveness. Impact indicators have been used to develop criteria of success for collaborative networks. IPGRI contributes to stimulate the development of networks, provide a coordinating function, and make technical inputs, which would not be possible without the intensive cooperation of a large number of partners.

Introduction

Networks promote the sharing of ideas, methods, tools and results. Networks bring members together in such a way that all partners contribute to and benefit from the network; their efficiency in reaching the network's goal is higher than if each member had attempted to do so on their own.

Networks often pool existing talents rather than adding new staff and use existing facilities rather than building new ones. These principles are crucial in reaching global objectives of biodiversity conservation. Networks are important mechanisms for encouraging the collection, conservation, exchange, evaluation, enhancement and use of genetic resources.

Collaboration and partnership on the conservation and use of plant genetic diversity are vital if we are to meet the world's future development needs. The serious threat of disappearing crop diversity was recognized in the early 1970s. The International Plant Genetic Resources Institutes (IPGRI), formerly the International Board for Plant Genetic Resources (IBPGR), was founded in 1974. It is now the world's largest international institute dedicated solely to the conservation and use of plant genetic resources (PGR). IPGRI is a Centre of the Consultative Group on International Agricultural Research (CGIAR), whose objectives are to reduce hunger and poverty, improve nutrition and human health, and protect the environment.

Since its foundation, IPGRI has concentrated on supporting work on plant genetic resources being conducted by national research and development systems in developing countries. IPGRI's mode of operation is based firmly on working with partners and networks.

Work to conserve plant genetic resources is by its nature trans-boundary. It needs to capture the genetic diversity of crop gene-pools, which cut across national boundaries and regions. Conservation can only be effective if countries and regions work

together in partnership through networks. The interdependency between countries and regions for germplasm calls for collaborative conservation actions.

Without the collaboration of a wide range of partners, IPGRI would not be able to achieve its objectives. IPGRI therefore plays a crucial role in establishing networks, in coordinating some of them and in promoting their establishment by others. IPGRI's networking activities bring together many different kinds of institutions concerned with plant genetic resources; mainly national genebanks and also research institutions, public-sector institutions, farmers and forest dwellers who are the custodians and users of plant genetic resources, NGOs, and international organizations such as the Food and Agriculture Organization of the United Nations (FAO) and several other UN bodies. IPGRI works closely with its donors to identify priorities and to develop and implement projects.

How PGR networks have evolved

Ideas on how networks can best ensure sustainable long-term conservation and use of plant genetic resources have evolved a lot over the last 20 years. In the 1970s, IPGRI's emphasis was on establishing a network of a few centralized collections that would underpin extensive collecting activities. During the 1980s, because of growing awareness of the importance of genetic resources for crop improvement, and the wish of individual countries to hold their own collections, emphasis shifted to the development of national programmes and the promotion of collaboration.

At the end of the 1980s it was recognized that the use of conserved plant genetic resources had been neglected. While continuing the development of regional networks, IPGRI shifted its emphasis again to the development of international crop networks.

Types of plant genetic resources networks

IPGRI takes part in three major types of networks: regional PGR networks, crop networks and thematic networks. While all types of network are effective in furthering plant genetic resources conservation and use, they have very different intermediate objectives and potential impact.

Regional plant genetic resources networks

Regional plant genetic resources networks are geographically based. This means they have a comparative advantage in dealing with the practical conservation of collections, policy, regional task sharing, and species or themes of only regional importance. They can be used as platforms to implement regional projects, increase public awareness, identify trainees, identify partners for research projects, receive feedback on regional strategies, and so on. Several regional PGR networks have been established and IPGRI has been instrumental in creating many, such as:

- Amazonian Network on Plant Genetic Resources (TROIPIGEN)
- Andean Network on Plant Genetic Resources (REDARFIT)
- Central Asian Network for Plant Genetic Resources (CAN/PGR)
- East African Plant Genetic Resources Network (EAPGREN)
- European Co-operative Programme for Crop Genetic Resources Networks (ECP/GR)
- European Forest Genetic Resources Programme (EUFORGEN)
- Genetic Resources Network for Western and Central Africa (GRENEWCA)
- Mesoamerican Network on Plant Genetic Resources (REMERTI)
- Regional Committee for South East Asia (RECSEA)
- SADC Plant Genetic Resources Centre (SPGRC)
- West Asia and North Africa Plant Genetic Resources Network (WANANET).

Example of the European PGR network ECP/GR

The European Cooperative Programme for Crop Genetic Resources (ECP/GR), operational since 1 October 1980, is an example of operation through networks. It links 10 networks that deal with groups of crops or general themes related to plant genetic resources. The overall purpose at its foundation was to establish a network of cooperation for the maintenance of comprehensive, well-documented collections of crop genetic resources and to encourage the more effective use of plant genetic resources in plant breeding. The programme is overseen by a steering committee of country coordinators, while the main implementation of the networks' activities is through twelve crop working groups. Scientists and institutions of the member countries carry out agreed workplans as inputs in kind to the programme, which enables the generation of added value deriving from collaborative initiatives, as opposed to individual actions. 35 countries are participating in the current Phase VI of the programme, which has set among its objectives to facilitate the long-term in situ and ex situ conservation of plant genetic resources in Europe; and to facilitate the increased utilization of PGR in Europe.

Crop networks

Crop networks have a comparative advantage over regional networks in addressing species and themes of global importance and frequently deal with species that are not adequately taken care of by the regional networks. In 1988, IPGRI recommended the implementation of crop genetic resources networks based on the concept of the crop gene pool to bring together specialists from different fields for rapid progress in enhancing use of collections. The following are some well functioning crop networks:

- Coconut Genetic Resources Network (COGENT)
- International Barley Genetic Resources Network
- International Cassava Network
- International Musa Genetic Resources Network
- International Network for Bamboo and Rattan
- International Network for the Improvement of Banana and Plantain (INIBAP)

- International Rice Genetic Resources Network for the Asian Region
- World Beta Network

Example of INIBAP's International Musa Testing Programme (IMTP)

The International *Musa* Testing Programme (IMTP) of the International Network for the Improvement of Banana and Plantain (INIBAP) has been very effective in furthering the conservation and improved use of these crops. IMTP coordinates the development and evaluation of new germplasm, which meets local requirements of small-scale farmers for *Musa* cultivars resistant to major diseases, especially black Sigatoka and *Fusarium* wilt. The spread of these diseases has resulted in serious production losses for many small producers. Before IMTP was set up only limited international exchanges of germplasm had taken place. Very few national programmes have the necessary resources to embark on a *Musa* breeding programme and no system was in place to allow the wide-scale testing and evaluation of promising material.

The *Musa* testing programme is the first systematic global distribution and testing of new banana and plantain cultivars in banana-producing countries. In addition to the testing, the IMTP builds the capacity of national organizations to carry out appropriate research. The success of the IMTP has encouraged several breeding programmes to contribute new and promising resistant germplasm for further evaluation. Disease-resistant germplasm selected as a result of IMTP has already been distributed to many countries for national evaluation programmes.

Thematic networks

A large number of thematic networks have been established to promote collaboration among scientists. Recent examples include the *On-farm Conservation Project*, the *Recalcitrant and Intermediate Tropical Forest Seed Research Network* the *Global Experiment on In Vitro/Slow Growth of Sweet Potatoes*, and Sub Saharan Africa Forest Genetic Resources Network (SAFORGEN). SAFORGEN aims to develop strategies in collaboration with national, regional and

international institutions for effective conservation and sustainable use of forest genetic resources (FGR) in Sub-Saharan Africa. The Network has been endorsed by more than 16 African country members and has catalyzed the development of national programmes in several of the member countries. Two regional training workshops have been held under the network, which resulted in 58 scientists in the member countries being trained in methods and strategies for conservation and sustainable use of FGR. SAFORGEN has also set up three networks of experts on medicinal trees, food trees, and wood and fibre species. They all share common priorities and experiences and these networks serve as a platform for sharing information and developing joint projects.

Governance and coordination of networks

The mode of governance of a network needs to be adapted to its objectives but should in all cases provide members and donors with a balanced opportunity to influence the objectives, strategy and workplan. In commodity-focussed networks, scientific leadership, which can be provided by a scientific committee, needs to be complemented by an institution. The institution then assumes a coordinating function with sufficient time and financial resources to ensure that the network remains active. A prerequisite for the establishment of a network should be the firm, and at least medium-term commitment of an international organization or a national institution to coordinate or facilitate the network. This role needs to be active but should not dominate, in order to foster close relationships between the network partners.

A research network will benefit from flexible governance by a scientific committee, which organizes meetings and supports information flow. Most activities are bilateral and do not require special coordination. Truly common projects are usually externally funded and one member is compensated for taking a coordinating role. In the case of the Recalcitrant and Intermediate Tropical Forest Seed Research Network, IPGRI and Danida Forest Seed Centre provided a coordination role and help to disseminate information among partners of the

network through a project newsletter and the establishment of web page for the network (see www.dfsc.dk).

Experiences within IPGRI over the past 15 years with regional networks show that governance plays an important role. In successful cases, governance is officially recognized and linked to a membership fee, which gives countries a sense of ownership of the network and constitutes a form of national commitment.

Monitoring and evaluation of networks

Monitoring (internal evaluation) and evaluation (external evaluation) are critical to addressing issues related to the everyday management of networks, the quality of the services they offer, and hence to the general satisfaction of members. Networks need to monitor their operations and strategies to ensure continuing relevance and success. In order to monitor and evaluate the effectiveness of networks, impact indicators should be developed.

Impact indicators

The network's impact will reveal whether it has effectively promoted and increased long-term conservation. A list of indicators for the evaluation of a network's impact is provided in an IPGRI internal impact assessment case study, which focused on networks in which IPGRI is involved. These have the ultimate objective to support the long term ex situ conservation and promote the use of genetic resources. These indicators are assessed as degree of change since initiation of the network.

Indicators of network impact:

- The level of awareness of the importance of conserving genetic resources in a particular region or of a particular crop gene pool;
- Increased proportion of the region's genetic resources conserved ex situ;
- The establishment of National Plant Genetic Resources Programmes (in the case of regional networks);
- Increasing level of financial support by countries or international cooperation agencies, in support of the conservation effort;
- Higher level of international cooperation and information exchange in the area through the network;

- Higher level of the science concerned with the conservation of genetic resources in the region (of the crop gene pool);
- Increased exchange and utilization of the conserved genetic resources;
- Increased technology transfer occurring through the network;
- Increased formation of National Programme Committee.

Indicators describing functioning and quality of the networks:

- Proportion of the relevant countries which are involved in the network;
- Status of participants in the network meetings;
- Sustainability of the financing mechanism of the network;
- Countries' willingness to make contributions in kind to the network.

As an example, the SADC plant genetic resources network which is one of the oldest PGR network in Africa has achieved major progress in securing the plant genetic resources in the region ever since its establishment in 1989. It has grown from nine member states to 14, each now with a fully fledged national plant genetic resources programme. Each member regularly undertakes collection missions, characterization and evaluation activities funded under the project and sends duplicate collections to a central base collection at SPGRC in Zambia.

Principles and criteria of success for collaborative networks

Several studies on existing networks have been carried out to develop criteria of effectiveness and success of networks. Plucknett et al. (1990)⁴ summarized 14 principles underlying the overall success of scientific consultation and collaborative research networks. These are the following:

- The focus of the network is clearly defined;
- The problem is widely shared by all the network's participants;
- A baseline study is undertaken to produce an authoritative founding document;
- A realistic research agenda is drawn up;
- Participants are motivated by self-interest;
- Participants are involved in planning and management of the network (to

feel that it is their network – they work in it, not for it;

- Research and management are flexible;
- Leadership is efficient and enlightened;
- The network is constantly infused with new ideas and technologies;
- Regular workshops or conferences are held to provide opportunities for assessing progress and discussing problems;
- Collaborators have sufficient training and expertise to contribute effectively;
- Collaborators contribute resources;
- External funding is provided to facilitate travel, training, and meetings;
- The network's membership is relatively stable.

Conclusions

A network is not an end in itself. It is a mechanism by which participants can address needs and improve collaboration with one another. The network must take full account of and adapt to the changing environment and needs of its members. The impact the network has depends largely on how much is done between meetings. Without major external funding members must be willing to accept extra responsibilities. Practical work plans need to be established during meetings as well as provision for follow-up between meetings. This all takes time and commitment.

During the past thirty years plant genetic resources networks have proven to be effective mechanisms for international collaboration and national programme strengthening. They have stimulated commitment from national programmes and helped raise awareness among policy makers. Research or theme focused networks are expected to play an increasingly important role in international collaboration. IPGRI has made a significant contribution to networks by stimulating their development, providing a coordinating function, and making technical inputs to network activities. There is greater recognition of the importance of building strong national programmes, and ensuring collaboration among them as the best way of building an effective global system. Networking activities have allowed institutes to

reach and collaborate with genebanks and research institutes worldwide. Networks are now a key tool necessary to implement the Global Plan of Action (GPA). These achievements would not have been reached without the intensive cooperation of a large number of partners.

▲ Résumé

Les réseaux favorisent les échanges d'idées, de méthodologies, de technologies et de résultats auxquels tous les partenaires contribuent et tirent bénéfice. Le réseau Ressources Génétiques des Plantes (PGR) sont des organismes qui encouragent la collecte, la conservation, l'échange, l'évaluation, l'augmentation et l'utilisation des ressources génétiques. Les Instituts Internationaux pour les Ressources Génétiques des Plantes (IPGRI) ont été mis en place dans ce but. La conservation n'est efficace que si les pays et les régions travaillent ensemble en partenariat. Il existe 3 principaux types de réseaux : Les réseaux PGR régionaux, les réseaux sur les plantes cultivées et les réseaux thématiques. Par exemple, le Programme de Coopération Internationale pour les Ressources Génétiques des Plantes Cultivées (ECP/GR), le Programme International d'Etude du Musa de l'INIBAP et le Réseau Global des Collections de base. Leur mode de gestion doit permettre aux membres participants d'influencer de façon équilibrée les objectifs, les stratégies et les plans de travail. Le suivi et l'évaluation sont essentiels pour assurer l'efficacité. Des indicateurs d'impact ont été utilisés pour élaborer des critères de réussite de ces réseaux de collaboration. L'IPGRI stimule le développement de réseaux, assure une fonction de coordination et apporte une aide technique, ce qui ne serait pas possible sans l'intense collaboration d'un grand nombre de partenaires.

● Resumen

La redes de comunicación o "networks", benefician el intercambio de ideas, metodologías, tecnologías y resultados donde todos los que colaboran contribuyen y se benefician. Redes de recursos genéticos de plantas

(Plant Genetic Resources (PGR) Networks) son mecanismos para fomentar la recolección, la conservación, el intercambio, la evaluación, la promoción y el uso de los recursos genéticos. El Instituto Internacional de Recursos Genéticos de las Plantas (The International Plant Genetic Resources Institute IPGRI) se creó con este propósito. La conservación solo puede ser efectiva si los países y las regiones trabajan en conjunto. Hay tres principales tipos de redes: las redes regionales PGR, las redes de productos agrícolas, y las redes temáticas. Algunos ejemplos son el Programa Cooperativo Europeo de Recursos Genéticos de las Especies Agrícolas, el Programa Internacional de Pruebas de *Musa* del INIBAP, y la Red Global de Colecciones de Base. La administración de estas redes debe permitir a los miembros una oportunidad nivelada para influenciar a los objetivos, la estrategia, y el plan de trabajo. El control y la evaluación son necesidades críticas para promocionar la efectividad. Los indicadores de impacto han sido utilizados para desarrollar los criterios de éxito para las redes de colaboración. El IPGRI contribuye a estimular el desarrollo de las redes, sirve una función de coordinación, y contribuye técnicamente, lo cual no sería posible sin la intensa actividad de gran número de colaboradores.

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Connections With The Community

Spreading The Impact

■ Summary

Our Living Heritage was a community education project recently completed at Kew. Historic Royal Palaces and Kew education managers worked with a number of local groups to develop and design a celebratory exhibition programme on the historic and environmental heritage within the Kew UK conservation area and Queen's Cottage grounds. The products exhibited included a number of art/science linked artefacts such as 3D models, sculptures of native biodiversity, poetry and paintings. Developing a collaborative project with large numbers of people presented a number of problems, particularly during the initial planning and objective setting phases, however the benefits of the programme proved to be immense – both for the local groups and for Kew / HRP staff, not least of which was the forging of strong ongoing partnerships. For anyone wishing to set up a similar project, a number of generic hints and suggestions of how to support programme development is given.

Right: 3D models created to celebrate *Our Living Heritage*

'Community education' is a phrase much utilised by educators working in the informal sector over the last few years – but what exactly do we all mean by community education? I recently asked a number of educators to define the term and found that peoples' understanding of the phrase varied enormously. Answers I got included 'providing programmes for anyone within the local area', 'working with schools nearby', 'outreach programmes offsite in a local facility', 'Friends of the garden' and so on. All of these are legitimate audiences to label as community groups. However if we hope to work within the context of Agenda 21 and so seek to 'engage and

empower' communities, this requires more than re-labelling our everyday audiences or offering our normal education service offsite.

Recently a new project was developed onsite at Kew, to try a more participative approach to education development. *Our Living Heritage*, was developed during a meeting between the education managers from Historic Royal Palaces (HRP) and Kew. HRP manage a property on site at Kew, The Queen's Cottage (built as a picnic site for George III and his family). Education staff at HRP wanted to use the cottage as a focus for educational activities. At the same time Kew staff were thinking about how they could use the natural conservation area surrounding the cottage to better focus education activities on UK bio-diversity. Both parties agreed that they should set up a programme to celebrate the local heritage, both historic and



environmental, in and around the cottage. The programme was to involve a number of groups local to Kew and would encourage residents from both sides of the Thames to take part. It was hoped this would ensure a rich and diverse ethnic mix. All the participants would be invited to join the initial project development stages and be fully involved in all decision making processes as to what, when and how to deliver a celebratory end product.

We sent out invitations to local community groups and individuals explaining the outline of the project and how we hoped to develop it. Several groups responded positively and agreed to participate. The final participants included:

- Hounslow business and education partnership;
- eight local schools; five primary, three secondary;
- special needs group;
- art department staff and students from Richmond Community College;
- a freelance community artist;
- a London community education trust.

Working together over a number of meetings we drew up the objectives of the project. They were to:

- celebrate UK historical/ environmental heritage on site at Kew;
- create / foster local partnerships
- create a multi-cultural community display;
- increase access to / enhanced use of conservation site in Kew Gardens and an Historic Royal Palace site;
- support the 'Year of Science' and the Arts Council of England's 'Year of Diversity';
- provide a local activity to celebrate the Golden Jubilee year.



We agreed to use a range of media to develop the end products for the final celebratory exhibition. We planned to include live theatre, paintings and sculpture, music, poetry, garden designs and research data. The groups of participants were given tours of the Queen's Cottage site and nearby conservation grounds. We felt this would help them to understand exactly what it was they were being asked to celebrate. HRP and Kew staff gave background information on the habitats, biodiversity and history of the area. Participants were given free access to visit Kew as often as they wished. We hoped this would allow them to explore the diversity of the site and to work with Kew and HRP teaching staff to learn about any aspects of the area they felt appropriate to their needs. We also gave all participants access to relevant library materials, background information sheets and literature on the site. And provided the school groups with free Kew teacher led study days and/or teacher support if they required it.

The *celebration* took the form of an exhibition within the Queen's Cottage and its grounds. This was held from June 1st to June 10th 2002. All the products of the groups were displayed and interpreted for the public. The final display items included: 3D models of dragonflies and newts on site; an electronic visitor interpretation board; leaf banners; plant mosaics; a sculpture of a hidden animal burrow; poems about our native trees; artwork linking UK and exotic mythical creatures; and close-up photography

of the structural framework of Queen's Cottage. A brochure was developed as a trail to guide all visitors around the display with the nominated leader of each participating group providing the interpretation. Kew staff later edited this brochure. It allowed a very personal insight into each individual contribution and proved an effective tool for the visiting public to use. A final day, June 11th, was set aside as an event day where all the participants, their families and friends, project supporters and funders together with HRP and Kew staff met up for a live theatre performance and a presentation ceremony.

Considering the steep learning curve involved in developing any new project or educational approach, the project ran well and was much appreciated and enjoyed by all. We learnt several lessons during the process. The post evaluation carried out afterwards has provided a set of recommendations and resolutions that will no doubt lead to a smoother delivery on any further projects. A few generic points are listed below:

- If you chose to work with a number of mixed groups, try to work with a reasonably small number (15 different groups was rather too large a number to work with easily).
- Ensure each group has one nominated contact person who will be present throughout the duration of the project.
- Stress importance of meetings and set all meetings/display dates well in advance – bringing many diverse groups together can be a major issue e.g. school staff can only attend after school/parents with young children can often only attend during school hours/'volunteering' groups do not always recognise importance of timeliness and attendance at meetings etc.
- Many community groups are not used to a participative approach and feel out of their depth when asked to contribute to decision making - they tend to like constraints to work within or frameworks to work to. It is easier to set up a number of working models and project objectives prior to working with groups and then invite them to change / reconstruct them.
- If working with schools, ensure contact persons are appointed who can maintain continuity outside school hours and term times; some 'school contact' persons may be naturally reticent to give out private contact details but communication can break down very easily at critical points if regular contact is not maintained.
- Remember to evaluate your project – this is one of the few times you have a captive audience and can monitor progress over a long period. This means that you can work through a complete evaluation process from pre-evaluation, through the formative and on to post evaluation.
- Once operating frameworks, schedules and products have been agreed – draw up a contract with each group to ensure that there is full understanding of the project requirements and full commitment to complete it.

Left: School group from Lionel Primary School with their 3D models of local biodiversity

Below: Students from 'Green School' Isleworth performing a living drama piece called 'Secret Places' to celebrate the Queens Cottage site



- If participating groups are working off-site, maintain support and supervision by frequent visits to their institutes / meeting rooms / schools etc.
- Allow plenty of time for setting up display work; many local groups are not familiar with display techniques and will require skills development and support.
- Ensure you have put in place methods for sustaining the contacts and partnership relationships that naturally develop through long-term close communication with your community groups.

Right: Children proudly display their 3D models above: a dragonfly, below: a blue tit

Although there were problems to resolve and adjustments to be made – the benefits of working in such close relationship with local groups far outweigh any issues. All participants found the project thought provoking and exciting and several new partnerships were formed that are now continuing to explore new educational initiatives both at Kew and with HRP. Ideas from one group sparked off others and cross fertilisation was a natural outcome of the programme. All participants felt that the project had met not only the overall objectives but had also met their own personal objectives such as enriching the school curriculum work for the school participants, or realising a planned and implemented piece of construction work on the part of the special needs group. A real feeling from the participants was of having contributed something very personal to the Kew/HRP education programme and many spoke of their sense of pride in having their work on public display. Everyone responded positively in the

Below: Mythological pictures on display near Cambridge Cottage



post evaluation process and indicated that they would be happy to participate in any further initiatives – something some of them have already been taken up on for 2003!

▲ Resumé

“ Notre héritage vivant ” était un projet d'éducation destiné à la communauté, mené récemment à Kew. Les responsables de l'éducation des Palais Royaux Historiques et de Kew (HRP) ont travaillé avec plusieurs groupes proches pour développer et concevoir un programme d'exposition célébrant l'héritage historique et environnemental dans les zones protégées du Royaume Uni et le territoire du Queen Cottage. Les productions exposées comprenaient des sujets liés à l'art et à la science au moyen d'artéfacts tels que des modèles en 3D, des sculptures montrant la biodiversité locale, des poèmes et des peintures. Développer un projet collectif impliquant un grand nombre de personnes pose un certain nombre de problèmes, en particulier au cours de la programmation initiale et de la mise en place des différentes étapes d'objectifs. Quoiqu'il en soit, les bénéfices d'un tel programme sont immenses, que ce soit pour les groupes locaux ou pour l'équipe de Kew et du HRP, en particulier la création de partenariats forts et durables. Pour celui qui souhaite mettre en place un tel projet, un certain nombre de conseils et de suggestions sur la façon de gérer le développement du programme sont donnés.

● Resumen

“Nuestro Patrimonio Viviente” fue un proyecto de educación en la comunidad, recientemente concluido en Kew. Los gerentes de educación en los Reales Palacios Históricos y de Kew trabajaron con algunos grupos locales para desarrollar y diseñar un programa de exposiciones sobre el patrimonio histórico y medio ambiental dentro de la zona de conservación de Kew y los terrenos del Queen's Cottage (Casa de Campo de la Reina). Los artículos exhibidos incluyeron algunos artefactos que unían el arte y la ciencia tales como modelos en 3D,



esculturas de biodiversidad autóctona, poesía y pintura. El desarrollo de un proyecto en colaboración con gran número de gente presentó algunos problemas, especialmente durante las etapas preparativas de determinar fases. Sin embargo, los beneficios del programa demostraron ser inmensos – tanto para los grupos locales como para el personal de Kew y de los Palacios, y se formaron fuertes y duraderos lazos. Se dan un número de indicaciones generales para apoyar tales programas para aquellos que quieran intentar un proyecto similar.

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People and Plants: Training Darwin Mentors

■ Summary

Partnership ventures for grass-root level environmental education in the biodiversity rich parts of India are relatively few and new. A two year (2001-2003) collaborative project entitled *People and Plants - Training Darwin Mentors*, sponsored by the Darwin Initiative for the Survival of Species U.K., was launched at Kodaikanal Botanic Garden in the Palni Hills of the South Western Ghats by the Botanic Gardens Conservation International, UK and the Centre for Biodiversity and Biotechnology, St Xavier's College, Palayamkottai.

The project aims at helping teachers to raise awareness among primary school children and their parents about the importance of native flora and forests and the need to utilise plants sustainably, using the garden as a teaching resource. In early 2002 Dr Seeni established contact posts and held discussions with school teachers and school authorities. In this way 200 teachers spread across the districts of Tirunelveli, Madurai, Theni, Dindigul and Coimbatore were identified to undergo the training.

Initially these teachers took part in one of the eight three-day environmental education workshops. The teachers then went back to their local area and by taking on the role of mentor they were asked to train five of their colleagues in environmental education. The aim was to have 1000 teachers trained and implementing environmental education throughout the Western Ghats. This paper will describe the project, the partnerships formed, the challenges and the outcomes to date.

Introduction and rationale

That India is a land of teeming millions is known to many; but it is also a land of vast resources. Resource conservation and utilization is closely linked to the social and cultural diversity of the people. The country ranks 10th among plant-rich countries of the world and fourth among the plant-rich countries of Asia. Nearly 70% of the population live in over 576 000 villages and the villages are mostly located close to the known centres of biodiversity in the Himalayas in the north and the Western Ghats in the south.

In the post-independence period in particular, the rich bio-resources of the country were injudiciously exploited and depleted at an alarming rate. This state of affairs was compounded by factors such as uncontrolled population increase (current rate 2.3% per annum), illiteracy, poverty, increase in income and material needs of the people. The current deforestation rate is in the order of 27 000 hectares per annum. Forest degradation activities such as conversion into plantations, hydroelectric and irrigation project sites, grazing, fire, firewood collection, tree felling, human inhabitation and over collection of minor forest produce continue unabated.

Among the various biogeographic zones of India, the Western Ghats in peninsular India are a unique 1600 km long unbroken chain of hills extending along the west coast from Kanyakumari in the southern Tamil Nadu to Tapti river in Gujarat. As a mega-endemic centre, they constitute a number of hotspots of endemic species and are a home to at least



4000 species, of which 1500 (37.5%) are endemic. This represents nearly 75% of the total number of species endemic to the whole of peninsular India.

The southern ranges of the Western Ghats consist of certain unique evergreen forests called Shola forests which play distinct ecological role and their species find multifarious use. Both the Nilgiris and Palnis being important tourist destinations, are under severe pressure for human settlements, commercial plantations, power projects, fuelwood and other tourism-related developments. Despite this widespread recognition, awareness of the importance and value of the native flora and natural vegetation is still limited at the local level.

Nearly 50% of the people in Tamil Nadu state are illiterate. Most of the illiterate dwellers inhabiting the fringes of the forests make a living by injudicious collection and sale of non-

Above: 75% of teachers participating in the training were women

Right: Display of medicinal plants by villagers during one of the workshops



wood forest products including firewood, medicinal plants, wild edibles and fruits and rearing of the domestic cattle by grazing on the forest land. Fortunately, largely due to free education and noon meal schemes introduced by the local government, the children of these rural dwellers attend primary and middle schools. An opportunity therefore exists to influence the stakeholders - the school children and their parents about conservation and sustainable uses of natural resources through environmental education programmes at primary level.

Forming a partnership

The Darwin project, *People and Plants: Training Darwin Mentors*, a collaborative venture between BGCI and Kodaikanal Botanic Garden (KBG), India was launched in June 2001 in five districts of Tamil Nadu bordering the Western Ghats. The aim was to impart environmental education to the masses through the primary school teachers and children and thus to the parents. The two year project is expected to create and strengthen grassroots support and to complement the ongoing governmental and non-governmental efforts to protect the remarkably diverse flora and vegetation of the Western Ghats region in Tamil Nadu in general and of Palni Hills in particular.

The main target group of the project is school children via their teachers. It is based on the surmise that children in the age group of 5-12 are most receptive to newer ideas and are easily

motivated to develop concern for others and to lead an environment friendly life in the future. The primary and middle level teachers, equipped with training and newly gained knowledge in EE from the project, will certainly influence the children to adopt new life skills and awareness. This will no doubt have an influence on their parents. The project aims to develop a younger generation which refrains from an exploitative mode of life and to look upon the plants as precious resources that need to be preserved and judiciously and scientifically utilised for the very survival and prosperity of community members. In addition the project aims to promote Kodaikanal Botanic Garden as a model for the development of community and school botanic gardens throughout Tamil Nadu. The project aims to have a real and lasting impact on the capacity of India to meet its obligations under the provisions of the Convention on Biological Diversity (CBD).

Need for partnerships and networks

The Kodaikanal Botanic Garden (KBG) is a two-year old private conservatory garden. It was started with lofty ideas and limited resources in a 100-acre area at Eettippallam (1500 msl) 10 km from Kodaikanal town in the Palni Hills. The Government of India's Ministry of Environment and Forests graciously extended financial assistance to fence the area and also to establish a living collection of over 200 ferns, palms and orchids. Otherwise it was essentially a barren plantation area infested with *Pteridium aquilinum* and *Lantana*

camara together with a disturbed natural forest segment harbouring more than 40 medicinal plants and trees of ethnobotanical importance. When the idea of organising a series of environmental education training courses for capacity building of the teachers was promoted in July 2001 there were no takers. The local school groups from the mountains, as well as those from the plains, largely ignored the garden as they had better alternative tourist attractions in and around Kodaikanal town.

Advertisements were published in the local daily newspapers promoting courses proposed in 2002 but they evoked a poor response. Less than 20 teachers responded although 200 were required. Then it was decided to approach the Christian management schools as they are known for imparting quality education in the region. Although the managers of the schools were impressed with the Darwin project and the proposed training courses, the school teachers were less enthusiastic about their participation as there was no duty leave granted by the State Elementary Education Department. Nobody was interested in participating in the courses during weekends. Women formed the bulk of the teaching staff in all the primary schools showed and most were concerned about being separated from their families during the training period. We had to tread cautiously to mobilise 200 teachers for the EE training courses and an order from the Government was indispensable.

We feared the entangled bureaucracy to obtain permission from the education authorities to release the teachers from the public and government-aided private schools. The learning curve to develop partnerships with the key players in the Education Department was steep. At least five visits had to be made to the office of the Director of Elementary Education, Chennai to pursue the matter and finally, the order to release the teachers from the five districts was issued on 23rd January 2002. The District Elementary Education officers acted immediately on the copies of the order personally handed over to them by the Project Officer. However, the selection of the teachers was made by the

Assistant Elementary Education Officers in nearly 50 unions of different districts. The selection of fairly large number of teachers from the Palni hills area in Theni and Dindigul districts was facilitated by forming partnerships with NGOs such as Literates Welfare Society, Theni; Ideal Trust, Genguarvatti; Palni Hills Conservation Council (PHCC), Kodaikanal; and Primary School Teachers Society, Dindigul. The Sacred Heart College, Shenbaganur was also a helpful partner and a host to the training courses. Since the training course comprised visits to forest segments, the officials of the State Forest Department had to be contacted for necessary permission and assistance from forest guards. Eventually, what was initially conceived as a simple selection of teachers from Christian schools proved to be complex with the networking of education authorities, school managers, school teachers, NGOs and officials of the State Forest Department. The Project Officer played a role in establishing contacts and networking. Without the networking of the various partners needed at different stages of the process the series of training courses organised in March would never have taken place.

The much needed support extended by these institutions and welfare groups varied from provision of classroom, accommodation and boarding facilities, facilitating visits to various forests segments in the Palni hills, selection and release of teachers and on site demonstrations. In fact,

the PHCC took a crucial role in the training and briefed the training course participants about their excellent work in seed propagation and multiplication of endemic and economic trees of the shola forests for afforestation programmes. Needless to say at least some of the NGOs and other self-help groups who worked in tandem with the project were expected to play a significant facilitative role in taking the message down the line to the village communities. As a matter of fact, for many of them this kind of training helped to enrich their knowledge and modify their existing methodologies in tune with the needs and aspirations of the students and communities at large.

Environmental education and training for capacity building

The month long series of 3-day EE training courses was organised in March. 180 out of the 200 teachers selected from the five districts participated. As expected men outnumbered women teachers. Altogether there were eight training courses, with 20-30 teachers attending each course. The teachers found the objectives of EE in generating awareness, knowledge, skill, attitude and participatory tendency very instructive. Though the existing curricula for primary and middle schools touch upon some of the environmental problems and biodiversity aspects, they do not emphasise the interdependency of various ecosystem component functions. Nor do they seem to inspire either teachers or students to get

involved in problem solving mode. Teachers on the courses were convinced of the need for renovating the present education process based on a broader understanding of the environmental problems today and on socio-economic and developmental needs and aspirations of present and future generations. Establishing a link between the present day activities of human beings and the consequences for tomorrow should sensitize young minds to think differently and take environmentally responsible decisions to build a better tomorrow. Establishing such a link and providing skills and attributes also helps individuals to develop a shared vision for biodiversity protection and sustainable living.

Follow up of training in capacity building:

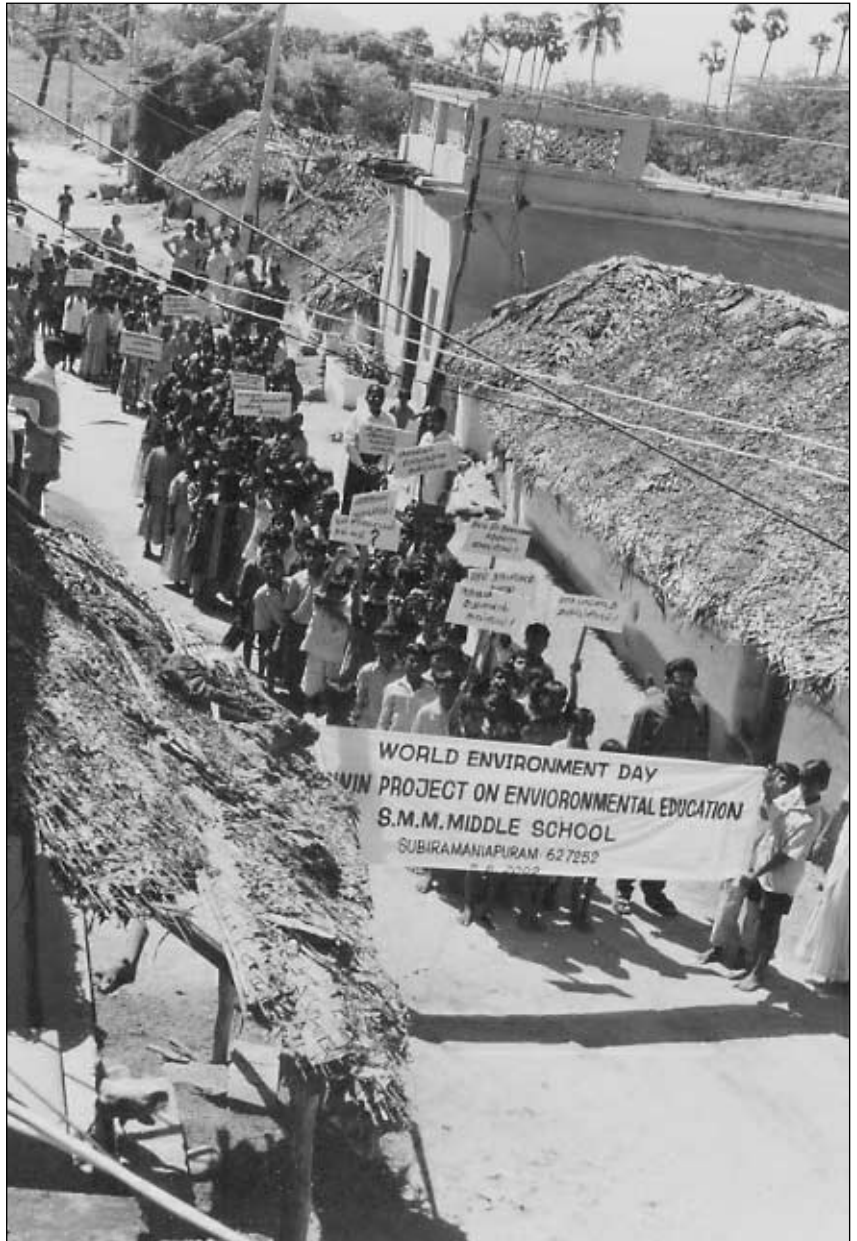
A important feature of the EE training courses for capacity building was the follow up in terms of training of the fellow teachers back in the schools. This was carried out by the Darwin mentors already trained at KBG. Other follow up activities were also organised. These included: school visits to KBG and natural forest segments, establishment of school gardens, participation in remediation efforts in polluted environments, afforestation and other environment friendly activities. These types of secondary level training and activities have truly galvanised the support of the public for the EE related activities of the teachers and the school children involved. Prominent members of the local communities including the municipal chairman and president of the village panchayat, vaidyas, forest range officers, NGOs and Devaswom Board members have all shown interest in the project. Organised under the guidance of the respective Area Environmental Education Officers this has contributed to the strengthening of the networking and grassroot level partnership. A friendly rapport already established by the Darwin mentors with all those who matter in certain unions, truly reflects the revolution in environmental awareness that is taking place slowly but steadily. So far 48 Darwin mentors have trained 371 fellow teachers in nearby schools and in nine unions in Tirunelveli, Madurai, Dindigul and Coimbatore districts.



Left: Botanical bazaar, one of the environmental games organised during the workshops

It should be noted that a single teacher from Vasudevanalloor union in Tirunelveli district organised training for 16 other teachers and six teachers from Palni union in Dindigul offered training to 150 teachers of the union. Each training lasted for one to two days, and comprised lectures by the mentors and project staff, activities and games. The expenses for organising the training including meals or refreshments were met from contributions of local individuals, businessmen and NGOs. In order to encourage the school groups to establish herbal gardens, medicinal plants were freely distributed by the project staff during all the secondary level training programmes.

Apart from the training, the mentors had also taken up several other related activities to spread the environmental message across the public further. Both the ICC Convent and St. Andrews School at Coimbatore and RC school at Tenkasi have now established school gardens with the help of school children. Overwhelmed with the excellent training he received in early March, Mr. Chellappa, a Headmaster and Manager of an Hindu Middle School at Thirukkurungudi in Tirunelveli district organised a visit of his school children to the KBG. The children replayed the environmental games in the lawns of the Sacred Heart College. He had also implemented a novel scheme of providing a plant to each house in his village. These plants are being watered and reared by a student from his school. This has motivated the public to raise greenery in the vacant places available in the village. Mrs. Sivakami of S.M.M. Middle School in Vasudevanalloor union not only planted trees in the school yard but also organised school visits to the nearby Sivagiri forests. She also organised an Environmental Campaign on World Environment Day on June 5 when the school children went on procession carrying placards and raising slogans through the streets of the village. Yet another teacher Mrs. Santhakala, along with other mentors from Palni town successfully influenced the AEEOs, Municipal authorities and Devaswom Board officials to organise meetings, debates and cultural events to impress upon them, the need for curbing use of plastics in this pilgrimage centre.



Right: School children on procession to show their support for World Environment Day

From now on plastics are banned in the town and the shop owners and hoteliers now pack up articles sold in used newspaper. In response to their repeated appeals, the municipal authorities have also arranged trucks to clean the rubbish collected in all the schools of the town every day.

Mention should also be made of the excellent work done by Mr. Veerapathra Babu of Chanarpatti union and Mr. Dhanapal of Reddiar Chatram union both in Dindigul district. On 14th March, Mr. Babu organised an afforestation programme in association with Malappuram Cricket Club. The Panchayat President, Mrs.

Dhanajayarani, school students and village communities participated in this programme and 225 tree saplings were planted in barren lands of Guziliamparai village with the help of the students. The Panchayat President donated Rs.1000 towards providing irrigation facility to the planted area. Regular maintenance is being carried out by his students. Mr. Babu is overflowing with infectious interest and confidence to pursue his pet afforestation activity in other parts of the union with the saplings provided free of cost by the State Forest Department and the Palni Hills Conservation Council. On Independence Day (August 14) he organised another function in which two

tree saplings were supplied for each school in the union. He was largely responsible for organising the secondary level training to 25 teachers in his union. Apart from developing a herbal garden in his school, he is currently preparing a book on EE with details of water harvesting, organic farming, ozone generation and environmental games for distribution to other schools. Mr. Dhanapal of the Panchayat Primary School at Gurusnapatti not only organised a school visit to the KBG but also imparted EE to his school children through cultural events including dance, songs and drama. In one such dance organised in presence of the BGC's Education Officer, Ms. Lucy Sutherland, his children worshipped a tree with devotional songs. In addition, with the help of his fellow teachers including the Headmaster, and the students, he has planted 30 saplings of gooseberry, pongamia and neem in the school yard for which a barbed wire fencing is provided with the assistance received from the local AEEOs and an youth club. Enthused with the support received from the Community, he is optimistic that within 2-3 years the entire area will develop into a greenery and the school children and village folk alike will escape from scorching sun in the summer.

To cap them all, the mentors from Tenkasi union organised a meeting on 15th August at Kattu Bava School, Tenkasi where a decision to register a Darwin Environmental Education Society was unanimously taken with the objectives of networking of school groups in all the five districts, organising model genetic gardens for medicinal plants for demonstration and training and promoting organic farming and green health. The mentors from Palni, Natham, Udamalpet and Reddiar Chatram unions have already lent support to this idea, with the initial establishment of the societies in their own unions before on networking all the societies of the unions in different districts.

The last of these training camps was organised at the Panchayat Middle School in the Pannaipatti village at the foothills of the Palnis by the mentors of Reddiar Chatram union in Dindigul district where partnership was displayed at its best. The mentors together with the school headmaster and teachers worked for at least two weeks to give a facelift to the school and prepare beds and planting materials to raise a small garden in the school premises before the one-day training for fellow teachers could be organised on 18th September. This camp was qualitatively different from others as the local village

community leaders, Panchayat President, Chairman of a welfare group (Annai Trust), and the AEEOs not only contributed to organise the training but also participated in the brief inaugural function and a tree planting programme where the need for environmental preservation and sustainable uses of plant resources of the Palni hills were emphasized again and again. It was a grand event by any standard as 37 participant teachers including the mentors, community leaders, officials from the Education Department and about 300 school children took an oath that they will preserve forests and trees and never resort to injudicious exploitation of the Palni hill flora. A mark of respect for Mother Nature and a shining example of partnership indeed! On this occasion the children themselves had prepared placards bearing messages on environmental preservation including importance of the ozone layer and top soil, tree planting, hygiene and sanitation in the villages and the need for using local medicinal plants for primary health care. A headmaster from the nearby village read out the songs he had composed in appreciation of the diverse uses of easily available medicinal plants. The mentors had also organised a poster presentation with newspaper clippings on local environmental problems, eradication of illiteracy in the area;



Left: Teachers at Jawahar Middle School play the seed race game

relationship between local people and plants and strengthening of local health traditions. There were also writings on the black board projecting the importance of Palni hills and local trees and herbs. Both the Project Coordinator and Project Officer participated in the tree planting event and distributed tree saplings and medicinal plants gifted by the State Forest Department to the villagers and school children. They also addressed the audience assembled in the school on global environmental problems against the background of the just concluded Earth Summit at Johannesburg.

Evaluation and resource Workshops

The success of the EE training in capacity building held in March was evaluated through a second series of workshops in late August. Altogether 99 teachers comprising 22 mentors and their trainees, with more women than men, participated in four workshops of two days each. The evaluation based on a questionnaire prepared for the occasion revealed that the impact of the EE training at school level as evident from such attributes as maintenance of cleanliness in the

classrooms and school premises, planting activity within the school campus, transfer of newly acquired knowledge to the students, generation of new knowledge about local plant species of medicinal and economic important was considerable. In certain cases it was a two way learning process as teachers found new uses for local plants with the help of the children and their parents. However, by and large, the impact of the training at community level was only marginal due to examinations, summer vacation and new school admissions.

What does the future hold?

After the series of workshops and secondary level training back at the schools, we are halfway through the later half of the two year project. We have made significant inroads into the public school system with appropriate partnerships and networking of teachers. One of the main advantages of this project is that it addresses the EE issues to the poorest sections of the society and generates awareness and actions at grassroots. The implementation of the project in an otherwise underdeveloped belt at the

foothills of the Western Ghats, close to the ecologically sensitive Palni hills, has made it all the more relevant and important. With the stated back-up support from the Department of Elementary Education today and the public at large tomorrow, we are bound to scale new heights and fully realise the objectives of the project, perhaps with an extended period of monitoring and evaluation beyond its expiry in March 2003.

Conclusion

Kodaikanal Botanic Garden has an important role to play in raising awareness of the importance of the biodiversity of plants in our everyday lives and in supporting the local community in the sustainable use of local biodiversity. However, as a small growing institution the staff know that this cannot be done effectively without working with partners across the districts bordering the Western Ghats in Tamil Nadu. By working as part of a bigger partnership, on a local and also a national and international scale, a range of skills, expertise and knowledge can be used to build a future generation who have a respect and understanding for the value of plant

Right: Medicinal plants distributed for homestead cultivation





Left: Playing the food web game

biodiversity. In addition, the partnership can help the current generation consider and investigate ways that allow them to sustainably use plant biodiversity while maintaining or working towards a better quality of life.

▲ Résumé

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Les initiatives de partenariat pour une éducation à l'environnement de base sur la richesse de la biodiversité en Inde sont relativement rares. Un projet de collaboration sur deux ans (2001-2003) intitulé Les Hommes et les Plantes – Training Darwin Mentors, financé par le groupe Darwin pour la Survie des Espèces au Royaume Uni, a été lancé récemment au Jardin Botanique Kodaikanal dans le Palni Hills au sud ouest du Ghats par le Botanic Garden Conservation International et le Centre pour la Biodiversité et la Technologie, au Collège St Xavier à Palayamkottai. Le projet vise à aider les enseignants à augmenter la prise de conscience des enfants de l'école primaire et de leurs parents, de l'importance de la flore

locale et des forêts et de la nécessité d'utiliser des plantes que l'on peut renouveler, en utilisant le jardin comme ressource pour leur enseignement. Au début de 2002, 200 enseignants répartis à travers les districts de Tirunelveli, Madurai, Theni, Dindigul et Coimbatore ont été repérés pour suivre la formation suite à des contacts avec des enseignants et des responsables de l'école.

Tout d'abord, ces enseignants ont participé à l'un des huit ateliers de trois jours sur l'éducation à l'environnement. Ensuite, les enseignants sont retournés dans leur région et, en jouant le rôle de mentor, on leur a demandé de former 5 de leurs collègues en éducation à l'environnement avec l'objectif d'avoir 1000 enseignants formés et impliqués dans l'éducation à l'environnement dans tout le Western Ghat. Cet article décrit le projet, les partenariats établis, les défis et les résultats obtenus à ce jour.

● Resumen

Hay relativamente pocas iniciativas de colaboración en la educación básica medio ambiental en las zonas más ricas en biodiversidad de la India. Recientemente, el Jardín Botánico de Kodaikanal en las Palni Hills al Sur de Ghats Occidental, junto con el BGCI

del Reino Unido y el Centro para la Biodiversidad y la Biotecnología del Colegio de San Javier, Palayamkottai, lanzó un proyecto de este tipo de dos años de duración (2000-2003) llamado La Gente y Las Plantas – la formación de Mentores Darwin, y patrocinado por la Iniciativa Darwin para la Supervivencia de las Especies, del Reino Unido.

El proyecto intenta fomentar la capacidad de los profesores para concienciar a los alumnos de los colegios primarios y a sus padres sobre la importancia de la flora y de los bosques autóctonos y la importancia también de utilizar a las plantas de una manera sostenible utilizando al jardín como el recurso educativo. Al comienzo del 2002, 200 profesores de los distritos de Tirunelveli, Madurai, Theni, Dindigul y Coimbatore fueron seleccionados para el programa de formación a través de contactos y conversaciones con profesores y las autoridades escolares.

Para empezar, estos profesores tomaron parte en uno de ocho talleres sobre educación medio ambiental. Luego regresaron a su zona de origen y tomando el papel de Mentor emprendieron la formación en educación medio ambiental de 5 de sus compañeros, con el fin de conseguir un total de 1000 profesores formados y llevando a cabo la educación medio ambiental a través de todo el Ghats Occidental. Este artículo describe el proyecto, las asociaciones formadas, los problemas, y los resultados hasta el día de hoy.

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Promoting biological and cultural diversity via the web

■ Summary

Living in towns, children do not have much opportunity to develop a relationship with nature. As a result they tend to have a partial view of it. Public parks and gardens, places of proximity, could be perceived as an abstract of nature, but when children draw a garden, the principal elements they draw are paths, benches and borders.

Since October 2001, children from Brest have been exchanging information about gardens with children from all over the world - Algeria, Spain, Romania, USA, Ireland, Germany, Great Britain, Burkino Faso, Italy, and Japan - by means of a website (<<http://jardinsdenfants.free.fr>>). Towns in these countries are all twinned with Brest. Together with the help of botanists, naturalists, gardeners, and artists, children have discovered that the conception and development of a garden is governed by ecology.

Each class has created a model of an ideal and imaginary garden, mixing ecological and cultural diversity. Children from eight twinned towns came to Brest in June 2001, to exhibit their models in the City Hall. They also worked together to create a map of the twinned garden that could be constructed in Brest in the future. During the year, this project gave staff of the Conservatoire an opportunity to work with environmental educators in Brest, departments of the City, and children from different parts of the world, using nature and cultural diversity as a focus for collective discovery.

Introduction

From October 2000 to June 2001, the program *Jardins d'Enfants (children's gardens)* brought together 350 children from all over the world. The children came from the French city of Brest and its 10 twinned towns. The aim of this programme, which focused primarily on urban green spaces, was to raise school children's awareness of bio-diversity and urban ecology, and to widen their cultural outlook and stimulate their imagination, their powers of observation and their aesthetic awareness.

The Internet proved the best available tool to communicate across continents to make acquaintances and to exchange views. During the course of the school year, the children at each school built a model of their ideal garden. They then got together in Brest in June 2001 to create the plan of the twinned garden.

The roots of the project

A similar venture had been undertaken the year before with two primary schools from Brest. This had involved a partnership between the Conservatoire Botanique National de Brest, an artist (Gaëlle Kéroullé), environment staff from wildlife societies and City Environmental Services as well as the schools concerned.

This first effort was so successful that Gaëlle Kéroullé decided to develop the scheme at an international level. The aim of the scheme was to involve schoolchildren from Brest and from another 10 towns twinned with Brest.

Supported by the member of the city council responsible for twinning, the education team set up an association

entitled *Jardins d'enfants*. This enabled us to obtain funding specifically for the program and to employ Gaëlle Kéroullé as coordinator for a full year. Once every month or so the Brest education team met to assess the progress of the programme.

Children living in towns often have limited access to and limited knowledge of the environment. This was why we focussed on urban green spaces as the framework for this initiative. Most towns have their own open spaces, which often offer the only bit of nature in the neighbourhood where children can play and express themselves freely. The idea was to show the children that this place they regularly go to, can prove a stimulating place to discover the natural environment, once conditions are provided for doing so.

The scheme started by asking the children to illustrate their best memories of nature. This enabled their teachers and educators to get an idea of the way the children perceived the natural world as compared to their urban environment, as well as to assess their achievements by the end of the programme.

In Brest as well as in the 10 twinned towns, the principle was to have each one of the classes work throughout the year on one particular urban green space near their school, studying it from a variety of different viewpoints, under the supervision of educators with different specialities.

For instance, the two classes from Brest, tackled the following themes:

- The creation and maintenance of an urban green space - with the gardening staff of the city.

- Wildlife - with an educator from a local wildlife trust.
- Plant biology - with an educator from a scientific society.
- Native and exotic trees and plants threatened by extinction - with an educator from the Conservatoire Botanique.
- Energy sources (photosynthesis, wind and hydraulic power) - with a science teacher.
- Using green spaces for artistic purposes and for fun – with an artist.

In the course of these sessions, the children were able to grasp the concept of urban green areas, and their perception of these was broadened and diversified.

Children join in the game

Having grasped various concepts relevant to urban green spaces, the children could then draw up the maps for their ideal garden. We encouraged them to use their imaginations fully when planning the gardens.

In this way, little by little, urban spaces with such names as *The Prehistoric Corner*, *The Colour Garden* and *The Tentacle Garden* began to appear on paper. The playgrounds had names such as *the Bouncy Hills*, *The Orientation Garden* or *The Live Plant Labyrinth*. There were also some special spaces with names like *The Beautiful Grove*, *Water Reflections* and *The Peaceful Garden*.

The children researched the information they needed themselves. They found out about building materials, the objects in the gardens, the plants and the animals they wished to have in their spaces.

They could also ask their various educators for more information, via the Internet.

For example, Audrey wanted a prehistoric corner with owls, The Conservatoire Botanique provided her with a list of ancient plants, such as ferns, conifers, magnolias, and amazing plants such as gunneras.

The wildlife educator gave her hints as to how to attract owls and encourage them to nest in her garden.

From these suggestions, the children picked out those species, which they preferred, and which were also compatible with one another.

When each garden space was clearly defined the children put them all together in an overall plan to create the class garden. With the help of the artist and their teacher, the pupils built a small-scale model of their ideal garden. The classes of the 10 twinned towns worked along the same lines as the two Brest forms.

Internet: Communication and exchanges

The classes were told about The *Children's Gardens* scheme in October 2000. They submitted applications to enter the scheme and this information was put on the children's gardens website and the text translated into French and English.



In November a first virtual meeting took place to enable the children to exchange ideas. Every two months or so a News-letter entitled *Turdus News* was sent to all partners involved in the program, recounting what was being done and how things were progressing in the eleven towns.

A second virtual meeting took place in May so as to prepare for the June meeting in Brest between the twinned towns. The Internet proved the ideal tool for the children to exchange information and, as the web site developed, to follow the progress of the project, and to maintain the interest of the participants.

The Brest meetings

The actual meetings that took place in Brest between the children representing each class involved all the other people concerned as well. Although these meetings were an

opportunity for fun, the children had an important target to reach: to create a plan of a twinned garden which may one day be set up in Brest.

A whole day was needed to achieve this result:

- In the morning, the children representing each twinned town chose the elements they wanted to keep from the different plans drawn up by their colleagues from the other towns,
- In the afternoon each one of the groups presented their proposal and a debate was held as to which elements should go into the final model. This step was particularly arduous since the discussion had to be simultaneously translated into five different languages so that everyone could understand what was going on and express their own point of view.

But we were not building a tower of Babel and we did manage to accomplish this step and design the final model for the twinned garden.

The next day, the children coloured the map of the twinned garden and displayed their model in Brest town hall.

At the end of the day, the city councillors opened the exhibition presenting the different twinned towns and the models built by the children. There the children officially offered the plan for the twinned garden to the city councillor responsible for twinning. The wish that everyone expressed was that one day the map may serve as the basis for the creation of a real garden in Brest.

But the children were not in Brest just to work. This was above all a wonderful opportunity for children aged from 10 to 15 from strikingly different cultural backgrounds to meet, play together and discover our town and our way of life.

Amongst other lively events in the course of that week we hope they will remember:

- A discovery trail in a wooded park
- The unveiling of the models and the official opening at the Town Hall
- The meeting with the city councillors
- The evening party, in a youth hostel
- The twinned garden celebration party itself.

The Twinned Garden Party

On the eve of the children's departure, a party was organised in a public park close to the Town Hall to open this twinning project to the whole population of Brest.

This pleasant afternoon ended with the children planting a young oak to celebrate the meeting and to consolidate the twinned garden project.

Acorns were offered to the authorities of the twinned towns to plant in their respective countries. These acorns were a living symbol of the generous sharing that marked this scheme, and the enduring nature of the relations it established between children of different cultures.

Whether for the children from Denver or those from Saponé, this twinning focussed on environmental education and enabled children and educators to exchange and develop ideas about and deepen their understanding of nature. It did this in a way that was both scientific and imaginative. The Internet made this possible.

This experience also showed that it was possible to bring together children from different origins, cultures and mother tongues and to have them work on a common project, stimulating a desire both to discover and to share with others.

The games, the exchanges, and the debates raised by this meeting in Brest will certainly leave their marks, as the smiles, the laughter and the bright eyes clearly indicated.

Today, the Internet site and the oak planted by these emissaries in the heart of Brest, bear witness to the wonderful scientific and cultural success the meeting produced. Let us hope that this simple and generous action may inspire new initiatives and nurse the desire to bring people together and discover more about each other and the natural world, which surrounds them.

▲ Résumé

Les enfants des villes n'ont pas souvent l'occasion d'entrer en contact avec la nature. De ce fait, ils ont tendance à en avoir une vue incomplète. Les parcs et les jardins publics, espaces de proximité, pourraient être perçus comme un morceau de nature, mais quand les enfants dessinent un jardin, les principaux éléments qu'ils représentent sont les chemins, les bancs et les clôtures.

Depuis octobre 2001, des enfants de Brest ont échangé des informations sur les jardins avec des enfants du monde entier (Algérie, Espagne,

Roumanie, USA, Irlande, Pays Bas, Angleterre, Burkina Faso, Italie et Japon) par l'intermédiaire d'un site web (<http://jardinsdenfants.free.fr>). Des villes de ces différents pays sont jumelées avec Brest. Les enfants, avec l'aide de botanistes, de naturalistes, de jardiniers, et d'artistes, ont découvert que la conception et le développement d'un jardin sont dominés par l'écologie.

Chaque classe a créé un modèle de jardin idéal et imaginaire, prenant en compte la diversité écologique et culturelle. Les enfants des huit villes jumelées sont venus à Brest en juin 2001, pour exposer leur modèle à l'Hôtel de Ville. Ils ont aussi travaillé en commun pour élaborer le plan d'un jardin du jumelage qui pourrait être construit à Brest dans l'avenir. Au cours de l'année, ce projet a donné à l'équipe du Conservatoire l'occasion de travailler avec les éducateurs à l'environnement de la Ville de Brest et des enfants de différentes régions du monde, en utilisant la nature et la diversité culturelle comme support pour une découverte collective. .

● Resumen

Al vivir en las ciudades, los niños no tienen mucha oportunidad para desarrollar una relación con la naturaleza. Así es que suelen tener

solamente una vista parcial de ella.

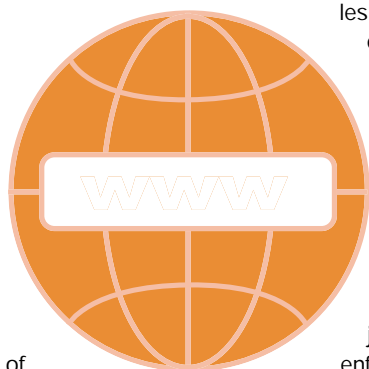
Los parques y jardines, zonas próximas a ellos, pueden ser percibidas como una representación de la naturaleza, pero cuando los niños dibujan un jardín, los elementos principales que dibujan son los caminos, los bancos y los cercos.

A partir de octubre del 2001, los niños de Brest han estado intercambiando información sobre los jardines con niños de todo el mundo – Argelia, España, Rumanía, Estados Unidos, Irlanda, Alemania, Gran Bretaña, Burkino Faso, Italia y el Japón – a través de una página web (<<http://jardinsenfant.free.fr>>). Hay ciudades hermanadas con Brest en todos estos países. Con la ayuda de botánicos, naturalistas, horticultores y artistas, los niños han descubierto que el concebir y desarrollar un jardín esta gobernado por la ecología.

Cada clase ha creado un modelo de jardín ideal e imaginario, combinando la diversidad ecológica y cultural. Niños de ocho de las ciudades hermanadas visitaron Brest en junio del 2001, a exponer sus modelos en el Ayuntamiento. También trabajaron en conjunto para crear un mapa del jardín gemelo para que se construyera en Brest en el futuro. Durante el año, este proyecto le dio al personal del Conservatoire la oportunidad de trabajar con los educadores medio ambientales de Brest, departamentos de la ciudad, y niños de diferentes partes del mundo, utilizando a la naturaleza y a la cultura como foco para el descubrimiento colectivo.

I would like to thank Frantz Hopkins for the translation of this text, and Gaëlle Kéroullé, for the proofreading. Gaëlle Kéroullé, artist, 47, rue Louis Pasteur, 29200 Brest.

By Loïc Ruellan, Head of Education, Conservatoire Botanique National de Brest, Vallon du Stang-alar, 52, Allée du Bot, F-29200 Brest, France. Tel : 33 2 98 41 88 95. Fax : 33 2 98 41 57 21.



Rencontres avec des naturalistes

Encuentros con los Naturalistas

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Encounters With Naturalists



■ Summary

This article outlines the *Encounters with Naturalists* project on Kangaroo Island, South Australia, by the Botanic Gardens of Adelaide, the State Herbarium of South Australia and Jardin Botanique de la Villa Thuret, France. The project involved the re-enactment with local school students of the work of the naturalists, gardeners and illustrators on board the ships of Englishman, Matthew Flinders and Frenchman, Nicolas Baudin who were the first Europeans to explore the island two hundred years ago.

In Australia, students participated in field trips where they collected seed and cutting material. They also visited both the Botanic Gardens of Adelaide and the State Herbarium of South Australia, where they were taught various botanical skills. The main part of the project involved a series of workshops – plant hunting, field collection, botanical illustration and seed collection. Their work was later

displayed in a local Easter Art Exhibition. In France, landscape students created a series of outdoor sculptures and primary school students learnt about French history of exploration. Students also visited the Villa Thuret Botanic Garden where they sowed seeds for the garden's Australian plant displays. Both school and college want to extend their collaboration with Australian students as a result of their work.

The project proved an exciting way of bringing history alive and leaving a legacy of environmental understanding. The partnerships developed have provided many opportunities for ongoing learning.

Many botanic garden education programs are no doubt a little like ours – a relatively small budget, minimal staff, but lots of ideas waiting for a chance to be converted into reality. One way to get around these frustrating roadblocks is to piggyback onto the large number of local and

national events and celebrations that fill our calendars. Such opportunities not only provide smaller gardens with ready made community, government and corporate partners but they can also provide a supportive infrastructure for outreach community programs that are normally beyond the limited resources of most gardens.

Encounter 2002

Encounter 2002 was one such opportunity not to be missed. It was a three month series of community events celebrating the chance meeting 200 years ago of the British ship, *Investigator*, captained by Matthew Flinders and the French ship, *Geographe*, captained by Nicholas Baudin. At the time of the encounter, both ships were involved in the first European exploration and charting of the coastline of South Australia. Though their countries were officially at war, the captains exchanged important scientific and navigational information accumulated on their voyages.

On board both ships were naturalists, gardeners and illustrators collecting and documenting the diversity of Australian plants and animals that were both strange and new to Europeans. Some of the plant material collected on the voyages was dried and sent back to herbaria in France and England for scientific study, while living plant material and seeds were sent back to the Royal Botanic Gardens, Kew in Britain and the Paris Botanic Gardens, in France. Some material collected in the region was also sent to Malmaison, home of Napoleon and Empress Josephine in France. From here it was subsequently sent to gardens in the south of France for display and acclimatisation trials.

Left: The end of a hard day's collecting

This botanical and historic connection between France and Australia enabled a joint international project to be developed by botanic gardens in each country. The collaboration ultimately involved gardens, herbaria, schools, community organisations and national parks working together.

Encounters with Naturalists – the Australian side of the project

Right: Students learn how to use GPS navigation units

The Botanic Gardens of Adelaide and the State Herbarium of South Australia set up the living history project *Encounters with Naturalists* with the Penneshaw Area School and Landcare group on Kangaroo Island. The project aimed to help students gain a greater understanding and appreciation of the local flora of their region by re-creating the activities of the naturalists, gardeners and illustrators who visited their shores nearly 200 years ago.

Penneshaw, a small rural coastal country town on Kangaroo Island in South Australia, was chosen for the project because both ships had anchored in the area. The British had visited and explored the area twice, just before the encounter, from 21-23 March and 1-7 April 1802. One of the pieces of information passed on to the French at the time of the encounter was the presence of water, as well as a safe harbour. However, it was not until the following year that the French visited the island from January 7 to February 1. As a consequence of these visits the naturalists and gardeners from both ships made plant collections and the illustrators drew the plants and animals they saw. The gardeners planted European seeds on the island, none of which appear to have survived.

Below: Students worked in cross aged teams with older trained students acting as mentors to younger students



The French released a rooster, two hens and a boar and sow in the hope that they would multiply and provide food for the next visitors (the bay is now known as Hog Bay!). Here the respective crews from both ships also took on board much needed food, water and firewood.

The other French connection to the area dated back to Empress Josephine who sent some of the living material collected in the region on to the south of France to assess its suitability to local horticulture. Unfortunately some of these plants were a little too successful and have shown the potential to become weeds. The Jardin Botanique de la Villa Thuret near Nice has significant southern Australia plant displays. The Garden joined the project and worked with local Jean Moulin School students and the Antibe Horticultural College to mirror aspects of our shared history and mediterranean climate and flora.

One of the main aims of the project was to act as a trigger for a range of environment related practical projects for local school students in Penneshaw and France. Through this process we hoped to develop longer-term positive values toward local environmental issues. Both schools were highly supportive, as were the management of all the organisations involved.

In Australia our project team was made up of nine staff from scientific, horticultural and education services from both the Garden and the Herbarium. Penneshaw Area School had a number of dedicated staff,

parents and Landcare volunteers who managed the project from their end. Valuable support was also received from the Kangaroo Island National Parks and Wildlife Office and a local island plant expert.

The project began with our first field trip to Penneshaw in early in 2001, a year before the major Encounter 2002 celebrations. This trip began by setting the historical context for the whole school. The early challenge was how to develop manageable field activities for later in the year when we would be working with eighty students aged between five and fifteen. The solution was to have students work in cross age teams with older trained students mentoring younger students. A sequential 12-month calendar of events was developed and aimed at culminating during the official *Encounter 2002* celebrations. Our first field work was with older students in late summer, with the emphasis on collecting seed and cutting material for propagation. The associated collection of voucher specimens for this material served as an introduction to the making of herbarium specimens for the following phases of the project.

Later in the year the same older students visited both the Botanic Gardens of Adelaide and the State Herbarium of South Australia to learn about their work. In the Herbarium they were shown how to mount the specimens they had previously collected and then introduced to some aspects of the work of the Herbarium through the Kangaroo Island collector's quiz. The quiz asked questions whose answers were all to be found on Herbarium sheets associated with Kangaroo Island. In this way they were introduced to:

- the oldest collections from the island
- rare and endangered species
- potential and actual weed invaders
- useful plants, on the island
- the concept of a type species
- voucher specimens
- the concept of the changing names of plants as our knowledge about them increases
- the use of microscopes to study plant structure
- the changing vegetation on the island reflected through Herbarium collections.



Garden scientific staff provided students with an insight into their work with presentations on tissue culture propagation techniques and the value of computer technology in managing plant information. In the garden, students were introduced to the knowledge of our flora held by indigenous Aboriginal people long before it was discovered by Europeans.

The main stage of the project occurred in spring during flowering time on the island. It involved the whole school rotating through plant hunters workshops, field collection work, botanical illustration and seed collection. The school prepared a wonderfully detailed timetable to manage small teams working on these different phases at the same time.

For the fieldwork we identified three different localities within a ten minute drive of the school as sites for the students to make their collections. All of the localities were in areas where either Flinders' or Baudin's expeditions may well have trodden from their anchorages in the Eastern Cove area of the island. The older experienced students assisted younger students with making the collections and filling in modified data sheets.

These collections were to be used in a number of ways. Some were to begin the students own personal herbarium, some were for events involving official *Encounter 2002* celebrations, some were to contribute to a local reference herbarium, and some were for a special exchange with students in the south of France. A duplicate of each collection was deposited in the State Herbarium of South Australia.

While in the field it was interesting to reflect with students on how different our activities were compared to the earlier naturalists. We had mobile phones at the ready to communicate with just about anywhere in the world, GPS navigation units to pinpoint our position and rapid vehicle transport. Fortunately for us we did not have to experience the explorers' personal hardships of hunger, fatigue, disease, cramped living quarters and the ever-present dangers that inevitably arise from sailing into uncharted waters and landing on unknown territory.

Two hundred years ago the work of botanical illustrators was essential in conveying to the people back in Europe just what was encountered on the voyages of exploration. Both the French and the British expeditions had illustrators who were to earn some renown from their depiction of Australian flora and fauna.

During the two field trip days each student received tuition on botanical illustration from the State Herbarium illustrator. Students were soon using pencil sketches and watercolours to record their collections and it quickly became evident that there were many budding young illustrators among the ranks. Their work was later displayed in the local Easter Art Exhibition.

The proposed opening of the new Baudin Conservation Park, near Penneshaw, during *Encounter 2002* celebrations provided a perfect opportunity to integrate a revegetation component into the project. Working alongside our staff, students learnt how to collect, record and store seed from those native plants still present in the area. With the guidance of the local Landcare volunteers, students have now propagated and raised seedlings for re-vegetating areas of the park invaded by weeds and overgrazed by the local wallaby population. This has been done with support from the local National Parks and Wildlife office.

Connecting to the project in France

In France, the Villa Thuret Botanic Garden chose a fusion of art and science to make the historical connections to Baudin's voyage to Australia. The garden, created in 1857 primarily as an acclimatisation garden by scientist Gustave Thuret, has a long history of working with Australian plants. The first director, Charles Naudin, worked with Australian botanists and published the first great papers on Australian eucalypts. *Encounter 2002* provided an opportunity to raise awareness within our community of our garden's Australian flora and the historical connections to the encounter history.

The project started at the beginning of the French school year in September 2001.

Two programs were developed:

- A series of outdoor sculptural installations titled *Regards Croisés* or *Crossing Views* by Antibes Horticulture College landscape students were developed. The garden was offered to the students to create installations that depicted aspects of Australia's unique landscapes and indigenous culture as encountered by French explorer, Nicolas Baudin.

Below:
Specimens and
illustrations
ready for
presentation



Students had the freedom of the garden to create their works as they wished, there were virtually no constraints. They worked alongside an environmental artist who introduced the students to a completely new way of seeing and interpreting the landscape. His guidance helped the students to transform their imaginative ideas into reality. They used the garden with imagination and poetry but also with intellectual rigour. Many of them discovered a new culture and a new flora. A formal opening celebration gave a social value to their work. Students showed their creations and explained their works to official guests, and also to school children who expressed their delight through many spontaneous questions. It was a great moment.

A specific program to sensitise children to the Australian environment was developed with teachers from the Jean Moulin Primary School. This included visits by staff to explain the French history of exploration, the uniqueness of the Australian flora and hands on sessions sowing seeds for the Australian plant displays in the Villa Thuret garden.

The students also visited Villa Thuret to learn about the Australian flora. One of the outcomes of this work was that students developed a much better

understanding of the differences between indigenous French plants and the introduced Australian ones.

The climax of the project in Australia

The program with Penneshaw school helped to open the eyes of students to Australia, in particular Kangaroo Island and the learning flowed through to geography, history and English studies. The project has been received enthusiastically and both the school and college want to extend the collaboration with Australian students through the internet, school gardens and environmental projects.

Celebrations

The official Encounter 2002 celebrations in Australia in early 2002 brought many aspects of the project to fruition. The Penneshaw students work formed a major part of the town's official commemorative event program. With a backdrop of historic sailing ships and representatives of both the French and Australian navies, students presented their mounted plant specimens and botanical illustrations to French officials, local dignitaries, politicians and VIP's including relatives of both Baudin and Flinders. This welcoming ceremony held at historically significant Frenchman's Rock, the site of the water source 200 years ago, was a special occasion for

the whole community to acknowledge the student's re-creation of their botanical history. One Penneshaw teacher commented, "...it really was a once-in-a-lifetime experience for our students." Guests were delighted with the uniqueness of their gifts and the historical relevance of the specimens and illustrations.

Just as the gardeners on board the ships sent plants back to botanic gardens in England and France the material collected on student field trips was also sent 'back' to Adelaide's Wittunga Botanic Garden which has displays of Kangaroo Island's distinctive vegetation. Students assisted garden staff in planting out the material they had collected a year ago into the Kangaroo Island beds. At the same time, a commemorative plaque was unveiled to acknowledge the project and the students' contribution to the plant displays.

Other benefits from the project include the donation of a complete set of identified student-collected specimens to start a regional community herbarium, to be housed in the school library. Since the specimens are duplicated in the State Herbarium, any changes in the names of these plants in the future can be easily checked.

Conclusions

Encounters with Naturalists was an exciting way of bringing history alive and leaving a legacy of environmental understanding. It provided a unique way for plant based institutions to support a regional community that cannot normally access such services easily. The partnerships developed enabled the Gardens and Herbarium to project a greater understanding of their less public role, while within the organisations it encouraged cross department collaboration, team building opportunities and an appreciation of the value of education. The international partnership has provided opportunities for ongoing learning opportunities beyond plants.

Most importantly, the project provided a chance for students to re-create their history in a practical way that gave them insights not normally achievable with a traditional garden or classroom

Right:
Presenting
specimens and
illustrations at
the welcoming
ceremony of the
official
Encounter 2002
celebrations





Botánicos de Adelaide, el Herbario Estatal de South Australia y el Jardin Botanique de la Villa Thuret, de Francia. El proyecto consiste de la representación con estudiantes locales del trabajo de los naturalistas, horticultores e ilustradores embarcados en las naves del inglés, Matthew Flinders, y el francés, Nicolas Baudin, quienes fueron los primeros europeos a explorar la isla hace doscientos años.

En Australia, los estudiantes participaron en salidas al campo donde recolectaron semillas y esquejes. También visitaron los Jardines Botánicos de Adelaide y el Herbario Estatal de South Australia, donde le enseñaron varias habilidades botánicas. La parte principal del proyecto fue la de los talleres – la búsqueda de plantas, la recolección en el campo, la ilustración botánica, y la recolección de semillas. Luego su trabajo fue expuesto en una exposición de arte local. En Francia, estudiantes de paisajismo crearon una serie de esculturas al aire libre y los estudiantes de colegios primarios aprendieron sobre la historia de exploración francesa. Los estudiantes también visitaron el Jardin Botánico de Villa Thuret donde sembraron semillas para la colección de plantas australianas de ese jardín. Como resultado de su trabajo, tanto instituto como colegio quieren extender su colaboración con estudiantes australianos.

El proyecto mostró ser una manera excitante de darle vida a la historia consiguiendo dejar un patrimonio de entendimiento medio ambiental. Las asociaciones que se desarrollaron proporcionaron muchas oportunidades para seguir aprendiendo.

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Steve Meredith, Education Officer, Botanic Gardens of Adelaide, North Terrace, Adelaide, South Australia 5000. Tel: 61 (0)8 8228 2311. Fax: 61 (0)8 8223 1809. Email: Meredith.Steve@saugov.sa.gov.au

Left: Students visit the botanic garden to learn about the knowledge held by Aboriginal peoples about Australian flora

based approach. We hope that in at least some of the students we ignited a long-term passion for plants and the natural environment.

This article has been written with the assistance of:

- Robyn Barker, Honorary Research Associate, Plant Biodiversity Centre
- Libby Barios, Chairperson, Penneshaw School and Community Landcare Group
- Frederique Bellanger, Teacher, Lycee Horticole d'Antibes, Antibes
- Janice Nicholson-Taylor, Teacher, Penneshaw Area School
- Henri Olivier, Artiste Plasticien, Direction Régionale des Affaires Culturelles, Nice

On behalf of Encounters with Naturalists project team.

En Australie, les élèves ont participé à des sorties sur le terrain pour récupérer des graines et des échantillons. Ils ont aussi visité le Jardin Botanique d'Adelaide et l'Herbier d'Etat de l'Australie du Sud où on leur a donné des informations botaniques variées. L'essentiel du projet a consisté en une série d'ateliers : A la recherche des plantes, collections naturelles, illustration botanique et collection de graines. Leur travail a été ensuite présenté dans une exposition d'art local à Pâques. En France, des étudiants en paysage ont créé une série de sculptures de plein air et les élèves de l'école primaire ont étudié l'histoire de l'exploration française. Les élèves ont aussi visité le Jardin Botanique de la Villa Thuret où ils ont semé des graines pour la présentation des plantes australiennes du jardin. Le résultat de ce travail est que l'école primaire et le collège veulent élargir leur collaboration avec les étudiants d'Australie.

Le projet a montré une façon très intéressante de rendre l'histoire vivante et d'apporter la compréhension de l'environnement. Les partenariats développés ont apporté de nombreuses occasions d'apprendre en permanence.

● Resumen

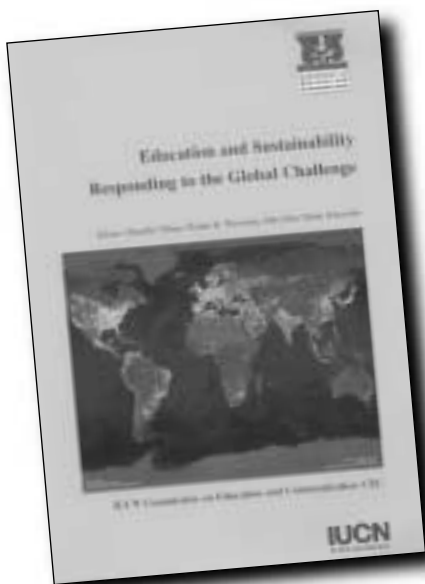
Este artículo trata el Proyecto Encuentro con los Naturalistas en Kangaroo Island, South Australia, llevado a cabo por los Jardines

▲ Resumé

Cet article traite du projet " Rencontres avec des Naturalistes ", sur l'île de Kangaroo, au sud de l'Australie, mené par le Jardin Botanique d'Adelaide, l'Herbier d'Etat de l'Australie du Sud et le Jardin Botanique de la Villa Thuret en France. Le projet vise à faire refaire par les élèves des écoles des environs le travail des naturalistes, jardiniers et dessinateurs embarqués à bord des bateaux de l'Anglais Matthew Flinders et du Français Nicolas Baudin, qui furent les premiers européens à explorer l'île il y a 200 ans.

Recursos Resources Disponibles

■ Resources



Education and Sustainability Responding to the Global Challenge
Tilbury, D, ed. ; Stevenson, R B., ed. ; Fien, J, ed. ; Schreuder, D, ed. (2002), Commission on Education and Communication, IUCN-The World Conservation Union, Rue Mauverney, 28, CH-1196 Gland, Switzerland.
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Fax: +41 22 999 0025.
Email: wjg@iucn.org. Order online: www.iucn.org. Price 14 GBP, US\$21. Also available to download in pdf format.

This inspiring book presents the stories of people who work with communities to motivate them to create a more sustainable future. The book was launched by Daniella Tilbury, one of the editors, in Bali at the Prep Com IV for the World Summit on Sustainable Development.

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Education and Sustainability Responding to the Global Challenge (Éducation et développement durable - réponse à un défi global)
Tilbury, D, ed. ; Stevenson, R B., ed. ; Fien, J, ed. ; Schreuder, D, ed. (2002), Commission pour l'éducation et la communication, IUCN-The World Conservation Union, Rue Mauverney, 28, CH-1196 Gland, Suisse.
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email: wjg@iucn.org. commande en ligne: www.iucn.org. prix 14 GBP, US\$21. Aussi disponible en téléchargement au format PDF.
Ce livre inspirant présente des histoires de gens qui travaillent avec des communautés afin de les motiver à créer un futur plus durable. Le livre a été présenté par Daniella Tilbury, une des éditrices, à Bali lors de la Prep Com IV pour le Sommet Mondial sur le développement durable.

Les deux premiers chapitres donnent un aperçu général sur le concept du développement durable et mettent en évidence le large éventail international d'efforts éducatifs formels et informels pour promouvoir le développement durable. La partie principale du livre est consacrée à 15 histoires organisées par région pour illustrer comment le défi de l'éducation pour le développement durable est pris en main dans les différents environnements culturels de par le monde. Les histoires vont du théâtre de communauté dans le pacifique du sud-ouest à l'éco-tourisme au Népal et au développement de ressources en Afrique du Sud. Le dernier chapitre donne un résumé des différentes histoires et fait l'analyse des sujets qui

● Recursos

Educacion y Sustentabilidad Respondiendo al Cambio Global.
Tilbury, D, ed. ; Stevenson, R B., ed. ; Fien, J, ed. ; Schreuder, D, ed. (2002), Commission on Education and Communication, IUCN-The World Conservation Union, Rue Mauverney, 28, CH-1196 Gland, Switzerland.
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Este libro inspirador presenta las historias de gente que trabaja con comunidades, para motivarlos a crear un futuro mas sostenible. El libro fue lanzado por Daniella Tilbury, uno de los editores, en la Conferencia Preparatoria IV para la Cumbre Mundial sobre desarrollo sostenido.

Los primeros dos capítulos proporcionan una vista general del concepto de sustentabilidad y resaltan el alcance internacional de los esfuerzos en educación formal y no formal para promover el desarrollo sustentable. El cuerpo principal del libro esta dedicado a 15 historias organizadas sobre bases regionales para ilustrar como el reto de la educación para la sostenibilidad está siendo tomada en diferentes establecimientos alrededor del mundo. Historias cuyo rango va del teatro comunitario en el suroeste pacifico, y el ecoturismo en Nepal hasta el desarrollo de recursos en Sudáfrica. El capitulo final provee un resumen de estas historias diferentes y analiza los temas que emergen de ellos, proporcionando temas para futuras reflexiones, debate y acción.

■ Resources

The first two chapters provide an overview of the concept of sustainability and highlight the international scope of formal and non-formal educational efforts to promote sustainable development. The main body of the book is devoted to 15 stories organised on a regional basis. These stories illustrate ways in which the challenge of education for sustainability is being taken up around the world. Stories range from community theatre in the south-west pacific to ecotourism in Nepal and resource development in South Africa. The final chapter provides an overview of the stories and the analyses some of the issues that emerge from them.

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Sandy Tank, Manager of Youth, Teacher & Family Education at the Minnesota Landscape Arboretum says that the Brock Magiscope is '*a great product, easy for kids to use and virtually indestructible*'. Used by botanic gardens, science and environmental centres all over the USA, the 20x magnification is ideal for young children and provides exceptional depth of field for viewing the fine details of leaves, flowers, seeds, etc. as well as prepared microscope slides. The Magiscope has only one moving part and requires no maintenance - but just in case, it comes with an unconditional warranty!

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en résultent en procurant ainsi des thèmes aux réflexions, débats et actions futures.

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 Sandy Tank, directrice de l'éducation des jeunes, des enseignants et des familles au Minnesota Landscape Arboretum dit que le magiscope Brock est 'un produit magnifique, facile à utiliser pour les enfants et quasiment indestructible'. Utilisé par les jardins botaniques, et les centres de science et d'environnement à travers les États-Unis, l'agrandissement de 20x est idéal pour les jeunes enfants et procure une profondeur de champ exceptionnelle pour observer les plus petits détails des feuilles, fleurs, semences, etc. ainsi que des lames de microscope préparées. Le magiscope n'a qu'une seule partie mobile et ne nécessite aucun entretien - et pour tous les cas, il y a une garantie inconditionnelle.

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 Planète Ado est un magazine gratuit pour les jeunes, produit par le programme pour la jeunesse du Programme des Nations Unies pour l'Environnement (PNUE). Trois parutions jusqu'à présent ont couvert les droits des jeunes, la biodiversité et le Sommet Mondial. Produit dans un format multicolore, attrayant, il est disponible en anglais, français, espagnol et russe.

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 El Planeta de los Adolescentes es una revista gratuita para gente joven producida por el programa de la Juventud del Programa del Medio Ambiente de las Naciones Unidas (UNEP). Tres temas han versado sobre los derechos de la gente joven, biodiversidad y la Cumbre Mundial. Producida en formato atractivo a color, esta disponible en Inglés, Francés, Español y Ruso.

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Although aimed at school students in the Missouri area of the USA, this guide provides useful information and practical teaching ideas for botanic gardens worldwide. The guide looks at what biodiversity is and why it is important to save rare native plants. It also examines what plants provide us with and outlines the challenges we face in saving native plants. Four teaching activities are offered together with ideas on how students can take action to protect native plants. There is a section on Missouri natives and a final section on useful resources for educators.

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Plantes en Péril: Un Guide d'Exploration de la Biodiversité et Sur la Conservation des Plantes Rares, Pour les Enseignants des Collèges du Missouri.

Center for Plant Conservation, PO Box 299, St. Louis, MO 63166-0299, États-Unis Tél: (1) 314 577 9450

Email: cpc@mobot.org

Prix: 5 \$ US. Frais d'envoi: 4.75 \$ (USA) ou 6.75 \$ hors USA

Bien que destiné aux écoliers du Missouri, ce guide constitue une bonne source d'informations et d'idées pratiques pédagogiques pour les jardins botaniques du monde entier. Le guide montre ce qu'est la biodiversité et pourquoi il est très important de sauvegarder les plantes rares indigènes. Il montre également ce que nous procurent les plantes et souligne les enjeux auxquels nous faisons face en protégeant la flore indigène. Quatre activités pédagogiques sont proposées en montrant des idées que les scolaires peuvent appliquer pour protéger la flore indigène. Le guide comprend un chapitre sur la flore du Missouri et se termine par une bibliographie utile aux éducateurs.

● Recursos

Reino Unido y alrededor del mundo. Con cerca de 3,000 fuentes de Patrocinadores de Financiamiento de Proyectos, Fundaciones y Compañías en el web, este CD-Rom es invaluable para la búsqueda de otorgadores de financiamiento que puedan estar interesados en tu organización. Este está diseñado para trabajar sobre cada computadora que tenga conexión de internet. No se requiere conocimiento técnico, tu simplemente buscas un patrocinador en particular y después en línea directa se va a su website, el cual contiene información acerca de las políticas para dar financiamiento y como obtener éste y donaciones de ellos. Un extracto del CD-Rom está disponible para verse en el website Chapel & York, <http://www.chapel-york.com>.

Plantas en Peligro: una Guía Para que los Educadores de la Educación Media de Missouri Exploren la Biodiversidad y Conservación de Plantas Nativas

Center for Plant Conservation, P O Box 299, St. Louis, MO 63166-0299, USA Tel: (1) 314 577 9450

Email: cpc@mobot.org

Precio: US\$5. Porte y Envío dentro de USA es US\$4.75, fuera de USA es US\$ 6.75

A pesar de que esta guía está dirigida a los estudiantes de las escuelas en el Area de Missouri en los Estados Unidos, ella provee información útil y enseñanzas prácticas e ideas para los Jardines Botánicos a nivel mundial. La guía investiga lo que es la biodiversidad, y habla sobre el porque es importante salvar plantas raras nativas. Esta también examina que plantas nos proveen con que y delinea los retos que encaramos salvando plantas. Cuatro actividades didácticas son ofrecidas junto con ideas sobre como los estudiantes pueden participar para proteger las plantas nativas. Hay una sección sobre plantas nativas de Missouri y una sección final sobre recursos útiles para educadores.

■ Resources

The Botanic Gardens of Adelaide Indonesian Traditional Use of Plants Access Media, c/o Open Access College, Locked Bag 1, Marden 5070, South Australia, Australia. Email: sales@oac.sa.edu.au Price: Aus \$20 plus postage and packing

This CDROM integrates language learning with cultural and environmental studies. Students navigate a virtual tour of the Adelaide Botanic Garden, Australia, finding Indonesian plants along the way. Twenty plants can be discovered and explored using images and text based on the traditional uses of plants in Indonesia. The uses are divided into environment, daily living, culture, food & drink, and medicine. Having collected the information the user then clicks at each plant station into a series of Indonesian language activities. Each phase is rewarded with an on-screen, animated Indonesian plant or animal. The CD is successfully completed when an Indonesian rainforest scene is filled with a complete set of animations.

Web Resources



www.nc.uk.net/esd

This website provides useful information and resources for school teachers and curriculum coordinators concerned with teaching sustainable development at primary and secondary

▲ Disponibles

Jardin Botanique d'Adélaïde: Usage Traditionnel des Plantes en Indonésie

Acces Media, c/o Open Access College, Locked Bag 1, Marden 5070, South Australia, Australia Email: sales@oac.sa.edu.au Prix: 20 \$ australiens, frais d'envoi en sus

Ce CD-Rom combine l'apprentissage linguistique et les matières culturelles et environnementales. Les étudiants naviguent virtuellement dans le jardin botanique d'Adélaïde en Australie, en rencontrant des plantes d'Indonésie. Vingt plantes peuvent ainsi être découvertes et explorées par le moyen d'images et de textes concernant les usages traditionnels des plantes en Indonésie. Les usages s'articulent sur les points suivants: environnement, vie quotidienne, culture, plantes alimentaires et à boissons, médicinales. Une fois l'information recueillie, l'étudiant peut cliquer sur chaque plante pour en obtenir des informations linguistiques indonésiennes. Chaque étape est récompensée par l'apparition à l'écran d'une séquence animée sur une plante ou un animal. Le CD s'achève par un paysage de forêt indonésienne animé.

Sites internet

www.nc.uk.net/esd

Ce site offre des informations et ressources utiles aux enseignants et coordinateurs de curriculum concernés par l'éducation au développement durable au niveau primaire et secondaire. Bien qu'il cible avant tout les enseignants britanniques, il y a de nombreuses informations sur l'éducation au développement durable qui s'adressent aux éducateurs dans les jardins botaniques de par le monde.

www.mountains2002.org

2002 était l'Année internationale de la Montagne. Ce site contient une richesse d'informations sur les montagnes et leurs habitants. Un assortiment de matériels éducatifs en plusieurs langues a aussi été développé par différentes organisations. Ils sont disponibles en formats électroniques prêts à

● Recursos

Usos Tradicionales de las Plantas de Indonesia en los Jardines Botánicos de Adelaide

Access Media, c/o Open Access College, Locked Bag 1, Marden 5070, South Australia, Australia. Email: sales@oac.sa.edu.au Precio: \$20 australianos mas porte y envío

Este CD-ROM integra el aprendizaje del lenguaje con estudios culturales y ambientales. Los estudiantes navegan por un paseo virtual del Jardín Botánico de Adelaide, en Australia, encontrando plantas de Indonesia a lo largo del camino. 20 plantas pueden ser descubiertas y exploradas usando imágenes y textos basados sobre los usos tradicionales de las plantas en Indonesia. Los usos son divididos en los siguientes encabezados: medio ambiente, vida diaria, cultura, alimento y bebidas, medicina. Habiendo colectado la información los estudiantes entonces hacen clic en cada planta y en obtienen una serie de actividades en lenguaje Indonecio. Cada fase es recompensada con una animacion en pantalla de un animal o planta de origen Indonecio. El CD se completa exitosamente con una escena del bosque lluvioso de Indonesia animado.

Recursos en el Web

www.nc.uk.net/esd

Este website provee información útil y recursos para maestros de escuela y coordinadores de curriculum concerniente con la enseñanza del desarrollo sostenible a nivel primario y secundario. A pesar de que esta dirigido a maestros del Reino Unido, hay mucha información sobre Educacion para el desarrollo sustentable relevante para educadores en jardines botánicos de todo el mundo.

www.mountains2002.org

2002 fue el Año Internacional de las Montañas. Este website contiene una abundancia de informacion fascinante sobre las montañas y su gente. Un rango de materiales educativos en algunas lenguas ha sido también desarrollada por diferentes

■ Resources

level. Although aimed at UK teachers, there is a lot of information on ESD relevant to educators in botanic gardens worldwide.

www.mountains2002.org

2002 was The International Year of Mountains. This website contains a wealth of fascinating information on mountains and their peoples. A range of educational materials in several languages has also been developed by different organizations. They are available in electronic ready-to-print formats. Educators are free to use the materials for not-for-profit purposes to educate children regarding mountain environments and issues.

www.greencom.org

GreenCOM is the Environmental Education and Communication Project of USAID. It conducts strategic environmental communication projects for USAID missions and provides services to environmental educators and communicators worldwide. The magazine Human Nature is published by GreenCOM to share innovative, practical ideas for environmental education and communication. It is published biannually in English, French and Spanish. For a free subscription and to view back issues sign up at the above website.

www.twinside.org.sg

The Third World Network is an independent non-profit international network of organizations and individuals involved in issues relating to development, the Third World and North-South issues. TWN conducts research on economic, social and environmental issues pertaining to the South. It also publishes books and magazines, organizes and participates in seminars and provides a platform representing broadly southern interests and perspectives at international fora such as the UN conferences and processes.

▲ Disponibles

l'impression. Les éducateurs peuvent utiliser gratuitement ce matériel à des fins non commerciales pour l'éducation des enfants au sujet des environnements de montagne et leurs problèmes.

www.greencom.org

GreenCOM est le Projet de communication environnementale stratégique de l'Agence des États-Unis pour le développement international (USAID). Il lance des projets de communication environnementale stratégique pour les missions USAID et offre des services aux éducateurs et communicateurs environnementaux du monde entier. Human Nature est publié par GreenCOM pour partager des idées innovatrices et pratiques pour l'éducation et la communication environnementales. Il est publié deux fois par an en anglais, français et espagnol. Consultez le site mentionné pour un abonnement gratuit et pour consulter les anciennes parutions.

www.twinside.org.sg

Le Third World Network est un réseau indépendant sans profit d'organisations et d'individus engagés dans des projets en rapport avec le développement, le tiers monde et les problèmes nord-sud. TWN conduit des recherches sur les problèmes économiques, sociaux et environnementaux inhérents au Sud, publie des livres et des magazines, organise et participe à des séminaires et offre une plate-forme représentant les intérêts et les perspectives particuliers du Sud dans les forums internationaux, comme les conférences et procédés des Nations Unies.

● Recursos

organizaciones. Ellos están disponibles en formatos electrónicos 'listos para imprimir'. Los Educadores pueden usar esos materiales para la educación de los niños en temas del ambiente de las montañas y sus temas relacionados, siempre y cuando sean sin fines comerciales.

www.greencom.org

GreenCOM es el proyecto de Educación Ambiental y Comunicación de la USAID. Realiza proyectos de comunicación ambiental para las misiones de la USAID y provee servicios a educadores ambientales y comunicadores a nivel mundial. La revista Human Nature es publicada por GreenCOM para compartir ideas prácticas innovadoras para la educación ambiental y comunicación. Es publicada bianualmente en Inglés, Francés y Español. Para una suscripción gratuita y ver números atrasados se debe entrar a este sitio.

www.twinside.org.sg

La red del tercer mundo es una red internacional independiente sin fines lucrativos de organizaciones e individuos involucrados en temas relativos al desarrollo, el Tercer Mundo y asuntos Norte-Sur. TWN conduce investigación sobre temas económicos, sociales y medioambientales concernientes al Sur, publica libros y revistas, organiza y participa en seminarios y provee una plataforma representando ampliamente los intereses del Sur y perspectivas en la flora internacional tales como las conferencias y procesos de las Naciones Unidas.



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