Responsibility and cooperation: The educational cooperation policy of the Conservatory and Botanical Garden Of the City of Geneva (CJB), Switzerland, with southern-hemisphere countries

Didier Roguet[1] and Pierre-André Loizeau[2]

[1]EEC- Conservatoire et Jardin botaniques de la Ville de Genève, CH- 1292 Chambésy – Geneva, Switzerland

[2] Conservatoire et Jardin botaniques de la Ville de Genève, CH- 1292 Chambésy – Geneva, Switzerland

Abstract

This presentation concerns the responsibility of botanical gardens in the northern hemisphere to cooperate with those in the southern hemisphere in their geographical field of floristic expertise. The objective of these projects is to improve the ability of southern-hemisphere botanical gardens to respond to the wholesale loss of natural and cultural diversity. Through programmes such as those in Paraguay and Senegal that the Botanical Conservatory and Garden of the City of Geneva has been running for more than 10 years, this objective is reached through a policy of education in applied ethnobotany and conservation. These programmes have set up an Environmental Education Centre and a themed ethnobotanical garden and developed an information and educational policy in partnership with the municipalities and the players in the local civil society.

French abstract

La présentation abordera la responsabilité des jardins botaniques du Nord à coopérer avec ceux du Sud dans leur domaine géographique de compétences floristiques. L'objectif de ces projets est d'améliorer la capacité de ces derniers à répondre à la perte massive de diversité naturelle et culturelle. A l'exemple des programmes menés depuis plus de 10 ans par les Conservatoire et Jardin botaniques de la Ville de Genève au Paraguay et au Sénégal, cet objectif est atteint par une politique d'éducation à l'ethnobotanique appliquée et à la conservation. Un Centre d'éducation environnementale, un jardin ethnobotanique thématique sont créés. Une politique informative et pédagogique est développée en partenariat avec les municipalités et les acteurs de la société civile locale.

Introduction

The Conservatory and Botanical Garden of the City of Geneva (CJB) is an institution with a great international reputation, and is also the living museum of the City of Geneva. Like most established botanical gardens, it is in the northern hemisphere, outside the belt of tropical biodiversity that encircles the planet. Unfortunately, there is no correlation between the geographical distribution of botanical gardens around the world and the areas of maximum natural and cultural biodiversities.

This situation stems from the history of botanical gardens and above all the extremely unfavourable economic situation in the countries that are home to the tropical forests, which contain 80% of the world's biodiversity.

One of the crucial missions of botanical gardens at the beginning of the 21st century is to try to check the dramatic loss of plant biodiversity that is occurring. The objectives set by the Global Strategy for Plant Conservation (GSPC) have not been achieved in this International Year of Biodiversity (2010) and are going to have to be postponed for at least ten years. This fact must be realised, despite the considerable sums of money being devoted to the protection and conservation of environments and species. Although it appears that the

overall number of species living on Earth has been underestimated, we are continuing to lose numerous species daily, in particular in the intertropical zone.

Even though teams of scientists and botanical gardeners at the CJB in Geneva and many other botanical research institutions around the world are working to record, classify, conserve, reproduce and cultivate these plant species, and even though our specialist educators, writers, botanical editors, and database administrators are informing, educating and publishing papers devoted to this conservation effort, the loss of natural and cultural phytodiversity appears to be rather inexorable.

The CJB's cooperation policy

For more than 10 years the CJB has been attempting in a modest way to provide practical solutions to the very negative state of affairs described above, through a concerted cooperative policy of applied ethnobotany and targeted environmental education. This has taken the form of educational micro-projects set up in those tropical areas where we have floristic expertise (mainly South America and Africa). These projects, based on principles of sustainable development, must fulfil certain conditions and prerequisites if they are to be implemented by us:

- the CJB must have floristic expertise in the geographical area concerned;
- the project must be a local request coming from a municipality, government organisation or local association or club;
- it must be politically and academically approved locally;
- it must involve funding of less than $30,000 per year, if possible shared with a local body or complemented by it;
- it must include the setting up of an environmental education centre (EEC) in the form of some kind of garden open to the public (and if possible frequented) near a large town or city;
- ethnobotanical gardens must be created next to the above EEC;
- the project must be scientifically inspected and approved by a competent local academic authority and/or the CJB;
- a clear timetable must be established for implementation of the three S's (self-determination, self-management and self-sufficiency).

These projects are supported financially through the CJB by the City of Geneva's Solidarity Fund and are encouraged to seek additional funding locally (local municipalities and universities, local associations and clubs, the Swiss Red Cross local office, etc.).

The CJB has developed educational cooperation projects in the following countries:

- in Bolivia, the Kusillo Ethnobotanical Gardens in La Paz, which presented the useful plants and techniques of this Andean country in an interactive museum form in relation to the relevant craft industry and fair trade. This extraordinary educational experiment was unfortunately stopped in its successful tracks by changes in the local political situation;
- in Brazil, the Municipality of Sao Paulo's project for Community Gardens of useful plants on the edge of the Api-Capivari-Monos Nature Reserve, which suffered the same political fate;
- again in Brazil, the Ethnobotanical and Veterinary Gardens at the University of Patos in the state of Paraìba (north-eastern Brazil) are however flourishing. They are part of a project that the CJB continues to support, which aims to promote the traditional knowledge of the veterinary plants of the Caatinga (a type of vegetation typical of north-eastern Brazil). In addition to the gardens, a herbarium and library established by us support the ethno-social element of this conservation project designed to reclaim the local phytoveterinary heritage and its applications;

- in the Ivory Coast, an educational programme about the protection and conservation of Adiopodoumé Forest has been developed, next to the Swiss Centre for Scientific Research. An educational manual of botanical conservation, self-managed by the inhabitants of the villages around the forest in question, has been published. It is very popular in the Ivory Coast and has won prizes in this French-speaking West African country. The manual is applicable to the entire coastal area in this part of Africa;
- in Burkina Faso, in the inner suburbs of Ouagadougou, logistical and methodological support has been given to the Bangr' Weogoo Park Educational Centre, which every day provides several visiting school groups with an introduction to environmental education (EE) in the Sahel.

In addition to these examples, we have been running two "pilot" projects, the development and objectives of which are described below.

The AEPY project in Asunción (Paraguay)

This project, the CJB's longest standing in terms of cooperation with a southern-hemisphere country, is based on the widespread traditional use of medicinal plants in Paraguayan popular culture. Used both for sweetening and flavouring maté and for treating medical complaints, medicinal plants are omnipresent in the markets of this South American country. The trade provides a living for many families of gatherers, peasant farmers, street sellers and market traders. A number of laboratories and dispensaries export these plants, packaged to varying degrees, mainly to Argentina and Brazil. Paraguay is also one of the countries that have seen the highest levels of deforestation in the world in the last fifty years, largely due to forest clearance for timber and coal mining and more recently for growing GM cotton and soya, and pasture.

An ethnobotanical study carried out in the markets of Asunción in 1996 by the first author of this paper showed the richness of the local phytomedicinal heritage, with more than 700 species being used in the country, 70% of which were gathered in the region. In parallel, this ethnobotanical research was used to develop an approach and a methodology for applying ethnobotany to environmental education within the framework of the Asunción Botanical Garden. This programme is governed by an agreement between the municipalities of Geneva and Asunción. It has resulted in:

- the establishment of a Medicinal Garden containing a collection of more than 500 species and varieties used in Paraguay, making it one of the finest medicinal plant collections in South America;
- the publication of numerous works, educational sheets, themed papers, brochures and books;
- themed workshops, tours, classes and courses being offered to the general public;
- the publication of videos, programmes broadcast on local television and radio stations, themed supplements in daily newspapers and exhibitions both in the region (4) and abroad ("Cap au Sud" in 2002 in Geneva);
- the creation of secondary collections (National University of Asunción, Patino Aregua Ethnobotanical Gardens, community gardens, cottage gardens (5), etc.);
- a collaboration, sponsored by the Swiss Red Cross (SRC) with 29 peasant-farmer associations concerning cultivation, domestication and reforestation with Paraguayan medicinal species, including the production of an integrated production manual;
- the creation of *Campotech*, at the request of the peasant-farmer associations and again in collaboration with the SRC. This is a post-school-age technical education establishment that promotes and helps create professional opportunities for adolescents by connecting them with the community and trying to prevent large-scale migration to towns and cities;
- the production in 2009 of a book, the reference work on the medicinal plants used in Paraguay and widely distributed free of charge among groups frequenting the markets (wholesalers, retailers and gatherers) and peasant farmers. This work

contains original taxonomic, ethnobotanical, phytopharmaceutical and horticultural information. It is based on the living collection at the Asunción Botanical Garden and provides a host of information on the toxicity and conservation of the species in question.

This project is currently in the process of becoming self-sufficient through a new independent intermediary association called AEPY (Asociación Ethnobotanica Paraguaya) that has been set up in Paraguay and is championing and promoting the project while seeking funding.

The CEEH project (Hann Environmental Education Centre) in Dakar, Senegal

This Senegalese project is based on the same fundamental principles as the AEPY project in Paraguay.
It is made up of several sections and an extension project:

- the Education Centre itself, which is housed in the restored former Aquarium in Hann Park, the only green space in the entire Dakar conurbation, which is expanding fast. This centre receives numerous school groups and provides an introduction into environmental topics, continuous professional development training for teachers (eco-education) and summer camps;
- the Ethnobotanical Garden, which is home to a very fine collection of Senegalese useful plants, with explanations and classified by use;
- the publication of educational sheets, an environmental education manual for the pre-Sahelian zone (co-published in the CJB's educational series) and various documents published in collaboration with the Ministries concerned (Education and Environment), including a short work for the "Tiny Tots' Hut", a decentralised visitor facility present in the villages;
- the setting up of programmes for the communities in the municipality of Hann (waste management, composting, "family kitchen gardens", environmental music festival, etc.);
- the extension project itself, which involves establishing a second Environmental Education Centre in St. Louis in northern Senegal, at the former INRA (National Agronomic Research Institute) acclimatisation garden.

Responsibility and conservation (Conclusion)

These two examples clearly demonstrate our readiness to work in the southern hemisphere using both our floristic and ethnobotanical expertise and that of our partners to develop together socioeducational micro-projects that meet the requirements of quality sustainable development.

In our opinion, the botanical gardens in the developed countries of Europe, North America and Asia have an obvious – and often post-colonial – responsibility to collaborate and work to restore and use the gardens of the intertropical belt in developing countries. This initial collaboration should be followed by cooperation to establish a concerted ethnobotanical policy applied to environmental education.

The methodology is the same for all our projects:

1. Compilation and validation of ethnobotanical data stemming from traditional learning;
2. Promotion of the heritage value of this popular knowledge and reinforcing the self-esteem of the local populations, in particular in the disadvantaged classes;
3. Raising of awareness of and engendering a process of responsibility with respect to the conservation of plant species;
4. Production of suitable teaching materials, construction of an ad-hoc mediation programme.

In the light of our accumulated experience, projects that are developing positively, the socioeducational impact locally and the impact in terms of environmental policy at regional level, we can surely and definitely encourage and recommend that other botanical gardens form this type of partnership with our colleagues in the southern hemisphere.

The combination of these projects and their promotion by Botanic Gardens Conservation International through the network of their different structures, in addition to providing a form of recognition, would give a clear signal that the federating authority is committed to these north-south collaborations. We sincerely hope so.

Figures

AEPY Medicinal Gardens, Asuncion, PY

Ethnobotanical Gardens, Hann Dakar, Senegal

Veterinary stall, Patos Market, Brazil