

Changing Mission of Botanic Gardens as Living Museums: Tangible and Intangible Aspects of Linking Natural and Cultural Heritage with Human Well-being

Svetlana SIZYKH, Victor KUZEVANOV

Botanic Garden of Irkutsk State University

93 Koltsov Street, P.O.Box 48, Irkutsk, 664039, Russia

Email: svet@bogard.isu.ru; vic@bogard.isu.ru

Abstract

Botanic gardens (BGs) were always recognized as tangible resources for the improvement of human life. As an innovative institutions they can help people via the introduction of new economically valuable plant species, a creation of friendly and secure environment, an improvement and beautification of settlements, a restoration and a repatriation of rare plants, the "horticultural therapy", a continuous education and public awareness, etc. Networks of about 2200 world botanic gardens in 153 countries play an important ecological role in conservation and mobilization of plant genetic resources for the regional, national and international development. BGs have a special environmental, educational, scientific, cultural, aesthetic, and recreational importance. This article emphasizes the fact that intangible aspects of BGs are as important as their tangible resources in relation to human well-being. Both tangible and intangible resources of BGs are equally valuable for the sustainable development and linking biodiversity with public education, secure environment, nutrition, healthcare, poverty alleviation, socio-ecological and economical relations in communities, including commercialization.

Botanic gardens of the world were developed mostly as a result of strong demand from the public and from very influential people interested in exotic, medicinal and beautiful plants collected from remote regions and countries. World BGs made important contributions in the understanding how the mankind benefits from plants and from biodiversity. Currently botanic gardens are defined as "botanic institutions holding documented collections of living plants for purpose of scientific research, conservation, display and education" (Wyse Jackson, 1999). Actual interests of governmental authorities and public to a role of botanic gardens in communities are connected with two main reasons: a problem of conservation and use of biodiversity for the purposes of sustainable development (Convention on Biodiversity, 1992), ecological education and enlightenment of the society.

A traditional view on the BG which served as classical model and an interface between nature and people is changing due to ongoing diversification of BGs and their active involvement in globalization. Moreover, we are seeing a process of the changing paradigm of the BGs especially in tangible and intangible aspects of their functioning (Tab.1) as well as in their concept and practices for the community.

Each BG, based on its available resources and public demand, identifies the strategy and directions of development of scientific and educational projects and also its socio-ecological role and positioning in the region.

Table 1. A list of principal tangible, intangible and human resources of botanic gardens.

Tangibles (material resources)	Intangibles (non-material resources)	Human resources (people, staff)
Plants and derivatives;	Information;	Working time;
Living creatures;	Technologies, traditions;	Intellectual resources;
Land, water;	Ideas, policies;	Skills;
Buildings, facilities;	Educational programs;	Knowledge;
Tools/Machinery;	Public programs/rituals;	Others
Computers+;	Senses;	
Other material resources	Other non-material resources	

Traditionally botanical gardens in Russia (and ex-USSR) were considered as the organizations which are carrying out pretty narrow utilitarian problems of certain departments (the Academy of Sciences, the Ministry of Education or municipality). However, according to ongoing trends, many botanic gardens of the world with the upgraded resources and new developed technologies gradually began to grow out of departmental limits/frameworks and became the important elements of national natural and a cultural heritage. From the fall of the 20th century the role of BGs resources began to grow due to their involvement in development of the regional productive forces connected to economic botany, home gardening and an agriculture, rational use of biodiversity, improvement of habitats/environment and environmental education for people.

For instance, The Botanic Garden of Irkutsk State University (BG ISU) is the only botanic garden in Baikalian Siberia located in Asia's center. Founded in 1940, it is an educational and scientific arm of University. As a living museum, the BGISU serves as a living museum and educational tool for students and public. Being a part of the City's largest forest (>100 hectares) it was nominated as a nature memorial of the city by the Irkutsk City Duma in 2006.

So, at present the principal roles of Botanic Garden as multifunctional living museum of Irkutsk State University are following: an educational and scientific tool for the university and schools, a strictly protected natural territory, a city's nature memorial, a resource for city greening, horticultural innovations, a biodiversity conservation and its rational use, a plant gene bank (and a seed bank), a public park (tourism and recreation), "horticultural therapy" tool, a promoter of international cooperation. Siberia has been always considered as a prospective source of future economic development of Russia due to its vast territory and rich natural resources. The UNESCO nominated the Lake Baikal region as a World Natural Heritage Site in 1996. It brought a new vision and main priorities for sustainable development in the Lake Baikal region: 1) A rational use of natural resources; 2) Development of innovative economics; 3) Creation of tourism and recreation complexes. Obviously, the BG resources fit into all three above priorities.

The mission of BG ISU is "To protect and enrich the flora of the Lake Baikal area and the world through public education, collection, propagation, research, and conservation of plants". Through the accumulation of largest regional collections up to about 3000 plant taxa, the BG ISU works as a plant gene bank and an elite nursery for the Baikalian Siberia. The special attention is given to introduction and cultivation of tolerant and productive plants capable to survive and grow well and sustainably in the severe climate in Siberia. Such policy includes special measures for accumulation and propagation of rare and endangered species of regional flora. At present, the Garden holds about 100 rare plant species from the Lake Baikal region. Many of indigenous Siberian plants of edible and medicinal importance already have an actual or prospective value for the purposes of nutrition, healthcare, environmental monitoring and environmental restoration. So, in this context, the BGs play an important role in introduction of new resistant and tolerant forms of plants for the improvement of traditions and technologies of home gardening.

A dynamics of the development of the university botanic garden resources during last 20 years in a frontier environment of Siberia in times of global changes and a transition to market economy in Russia is shown on the Fig.2. The resource potential (in relative units) was estimated by a group of 5 experts-managers as an integrated parameter of productive forces, including human resources, plant collections, an infrastructure, the basic assets for production and income. Two periods of dramatic decrease of resources are reactions to "perestroika" in the USSR after the "shock therapy" in 1990-1993 and on devaluation of national currency in 1998-1999 are visible. Minor deviations from the general trend are reactions to actions on internal re-structuring and change management activities.

A mission of the BG ISU garden is being changed from the university sub-division with rather narrow functions to the public oriented multifunctional science-based institution, which roles go beyond traditional limits. In new ecological and economic conditions of globalization and transition of Russia to free market economy, the BG ISU is becoming an intellectual and innovative part of regional ecologically significant resources and regional productive forces for human well-being in the Lake Baikal Region.

What exactly do we mean by 'botanic gardens resources'? There are tangible and intangibles aspects of resources. Tangibles: plants and derivatives; living creatures; land, water; buildings, facilities; tools/machinery; computers; other material resource. Intangibles: information; ideas; technologies; educational programs; public programs/events; authority (power); reputation; senses; other non-material resources. And there are human resources: working time, intellectual resources and skills.

Botanic gardens are innovative institutions that can help local people in many ways via plant introduction, a creation of friendly and secure environment, a restoration and a repatriation of rare plants, and a continuous education and public awareness promotion.

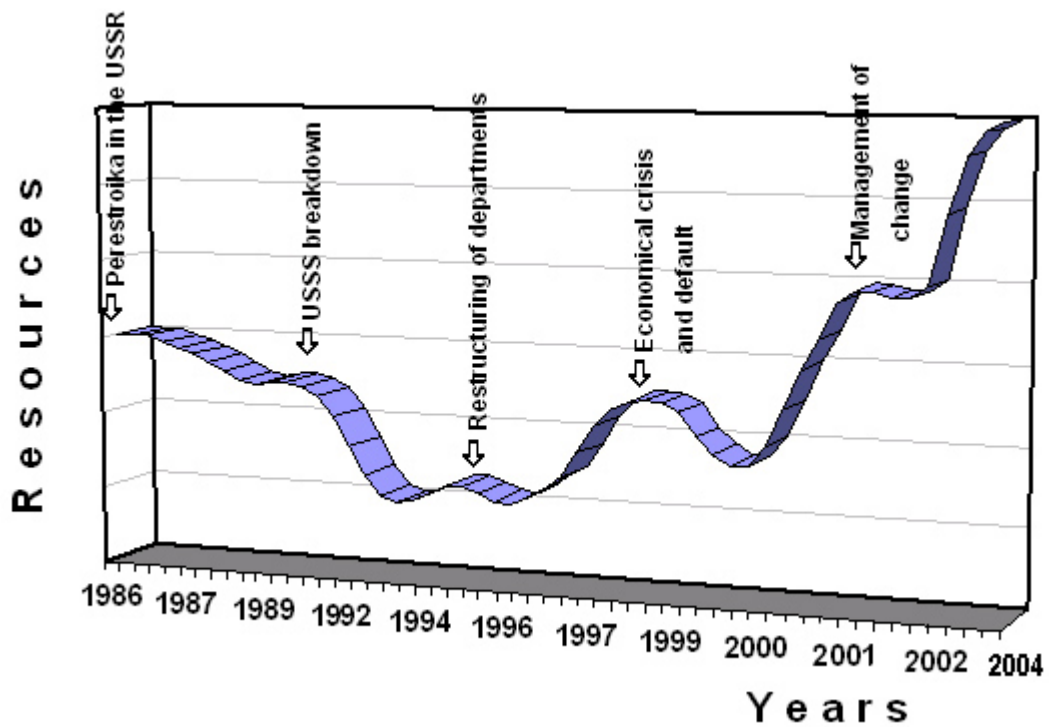


Fig. 2. A dynamics of resource potential of the Botanic Garden of Irkutsk State University during 1986-2004 (Kuzevanov, Sizykh, 2005). The resource potential (in relative units) was estimated by a group of 5 experts-managers as an integrated parameter of productive forces, including human resources, plant collections, an infrastructure, the basic assets for production and income. Two periods of dramatic decrease of resources are reactions to "perestroika" in the USSR after the "shock therapy" in 1990-1993 and on devaluation of national currency in 1998-1999 are visible. Minor deviations from the general trend are reactions to actions on internal re-structuring and change management activities

Any individual tangible resource of the Botanic Gardens (any plant, creature, facility, soil, etc.) can be a source of unlimited number of intangible resources produced by the knowledgeable and experienced garden staff.

Since biodiversity is one of the fundamental cornerstones for human well-being and sustainable development, any institution involved in biodiversity issues should be an important player in biodiversity conservation and use on national or international arenas depending on available resources and its mission. The involvement of any BG in national, inter-regional and international networks makes its position stronger and more flexible, due to ongoing exchanges of resources between world BGs and museums. And both tangible and intangible aspects of BG's functioning are equally valuable for sustainable development and rational use of natural and cultural resources via education, creation of safe environment, nutrition, public health, reduction of poverty, socio-ecological and economic benefits for a society, including commercialization.

Conclusions

1. Both tangible and intangible resources of BGs are equally valuable for linking natural and cultural heritage with public education, secure environment, nutrition, healthcare, poverty alleviation, socio-ecological and economical benefits for communities.
2. University botanic gardens should be considered as unique intellectual and innovative resources providing tangible and intangible benefits for life quality improvement and sustainable development. Their role will be increased substantially due to well developed networks, traditions of free exchange resources, direct involvement in the community and direct contacts to the nature.

References

- Convention on Biological Diversity (1995), Russian edition (UNEP/CBG/94/1 95-03681), Geneva, UNEP
- Jackson, W. P. (1999), Experimentation on a Large Scale- An Analysis of the Holdings and Resources of Botanic Gardens, BGCN News, vol. 3 (3), Botanic Gardens Conservation International, U.K
- Kuzevanov V, Sizykh S. (2005), Resources of Botanic Garden of the Irkutsk State University: Educational, scientific and socio-ecological aspects, Irkutsk, Published by Irkutsk State University
- Victor Kuzevanov, Svetlana Sizykh (2006), Botanic Gardens Resources: Tangible and Intangible Aspects of Linking Biodiversity and Human Well-Being, Hiroshima Peace Science Journal, 28, p.113-134