

DESIGNING THE FUTURE BOTANICAL GARDEN OF "ȘTEFAN CEL MARE" UNIVERSITY OF SUCEAVA

PROIECTAREA VIITOAREI GRĂDINI BOTANICE A UNIVERSITĂȚII „ȘTEFAN CEL MARE” DIN SUCEAVA

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Abstract: *In the present context of the development of "Ștefan cel Mare" University - Suceava, in close accordance with the structure and its future needs, it was necessary to create a new campus. Campus II Moara will be built on a surface of 30 hectares and, in addition to the areas of education and research, polyvalent room, sports field, swimming pools, a culture house, a museum, it will also include a generous botanical garden with numerous sectors on about 17 hectares. The Botanical Garden of "Ștefan cel Mare" University - Suceava will be structured and arranged on the following sectors: the greenhouse sector, the dendrological area and Romania's vegetation, the ornamental plants, rosarium, taxonomic sector, world's flora, rocks vegetation, vegetation of lakes and marshes, useful plants, a nursery. The Urban Area Plan and the Prefeasibility study for this campus have been developed by the University of Architecture and Urbanism "Ion Mincu" Bucharest (fig. 1). By its judicious future systematization the botanical garden will meet scientific and teaching duties, as well as educational, health, recreation and decorative functions.*

Key words: botanical garden, campus, greenhouse, Urban Area Plan

Rezumat: *În contextul actual al dezvoltării Universității „Ștefan cel Mare” din Suceava, în strânsă concordanță cu structura și nevoile viitoare ale acesteia, a apărut necesitatea creării unui nou campus universitar. Campusul II Moara se va ridica pe o suprafața de 30 hectare și care, pe lângă obiectivele cu spații de învățământ și cercetare, sală polivalentă, terenuri sportive, bazine de înot, casă de cultură, muzeu, va cuprinde pe cca. 17 hectare și o generoasă grădină botanică cu numeroase sectoare. Grădina Botanică a Universității „Ștefan cel Mare” din Suceava, va fi structurată și amenajată pe următoarele sectoare: sectorul serelor, sectorul dendrologic și vegetația României, sectorul plantelor ornamentale, rozariul, sectorul taxonomic, sectorul florei Globului, sectorul vegetației de stâncărie, sectorul vegetației de baltă, sectorul plantelor utilitare, pepinieră. Planul Urbanistic Zonal și Studiul de Prefeabilitate pentru acest campus a fost realizat de Universitatea de Arhitectura și Urbanism "Ion Mincu" din București (fig. 1). Viitoarea grădină botanică prin sistematizarea judicioasă a acesteia va fi în măsură să îndeplinească atât funcțiile științifică și didactică cât și funcțiile educativă, sanitară, de recreare și decorativă.*

Cuvinte cheie: grădină botanică, campus universitar, seră, Plan Urbanistic Zona

INTRODUCTION

The progress of both the Faculty of Forestry and the "Stefan cel Mare" University of Suceava in terms of number of students, specializations or study programs, implies the achievement of a multipurpose botanical garden.

The objective of the current investment put forward is creating a proper space to shelter a collection of woody and grassy plants, and to serve as an *in situ* laboratory for students, teachers and specialists, thus enabling them to make simple observations as well as complex studies on the organization and evolution of the living matter, on plant taxonomy, on chorology, on species ecology, on the conservation of rare or endangered species, on the acclimatization of valuable exotic species, on utilitarian purposes, on the value of the landscape etc.

This botanical garden will be an extremely useful training in cultural education and will help people's environmental consciousness to come into shape, by the abundance of information provided by the collections in this unit. At the same time, the establishment of the botanical gardens in the city of Suceava is more than convenient, given that in Bukowina and the north-eastern part of Transylvania there is no such objective, thereby increasing the character of "center of gravity" of the city and the region.

In terms of the flora and vegetation of this region, it is definitely necessary to create such a garden, given the existence of many plant species that are either rare or endangered, which would benefit from an *ex situ* protection as required in this area. For Suceava city, the new unit will compensate for this, becoming a place of recreation and rest for both the local population and those passing through town (Negruțiu Filofteria, 1980).

MATERIAL AND METHOD

Botanical gardens are created for scientific purposes (research, conservation of plant species), teacher-training, cultural education, recreation, aesthetic and health (Diaconescu V., 1985; Negruțiu Filofteria, 1980). Many examples, from the country and especially from abroad, can serve as models for this garden, even if they might differ in their structure and species, due to the climate or relief of the area, or to the institution's orientation which governs this unit. By studying specialised literature, by visiting similar units and following the specific character of the Faculty of Forestry from Suceava, we designed a project which underlies the systematization of the future botanical garden. Campus Il Moara will be built on a surface of 30 hectares, inside of the administrative area of Moara village, and it will include a generous botanical garden of about 17 hectares.

RESULTS AND DISCUSSIONS

The Botanical Garden will have the following specific sectors (fig. 1):

- **The administrative sector** will include the building with offices, the Exicata collection room, seed laboratory, cultures "*in vitro*" laboratory, workshops, warehouses (Leucov M. et al., 1985). It is recommended that this building should be located near the building of the Faculty of Forestry or maybe even be part of the same building, but with separate entrance, and also, that a "green roof" should be arranged on the last terrace of the building, which will help completing the environment and provide a model for future similar arrangements.

- **The greenhouse**, or the complex of greenhouses for exhibition, collection

and research-production greenhouses, will include air-conditioned constructions of metal and glass, with vegetal species from the subtropical, tropical and equatorial areas of the Globe (Diaconescu V. et al., 1982). They will offer the general public, as well as students, teachers and researchers, plant exhibits ranging from the remotest ecosystems of the world, in them selves a rich topic of study and observation (Pop E., 1966).

The Greenhouse Complex will consist of 11 greenhouses, the plant species being distributed by biogeographical and taxonomic criteria (palm-house, Mediterranean and sub-tropical plants, succulent plants, cactuses, covered tanks, epiphytes, tropical and equatorial trees, acidophilic plants, ornamental plants, the research and breeding/propagation and the greenhouse for exhibition). The total useful surface recommended for the complex of greenhouses is 5000 sqm.

The route followed by visitors must be continuous, picturesque, often without intersections, possibly a circular one (with a point of departure and arrival point). The transition should be performed successively from the cold greenhouses (Mediterranean greenhouses and subtropical plants, acidophilic plants) to the warm and humid ones (epiphytes, covered pools, palm-house etc.).

As an element of absolute novelty, in the greenhouses in Romanian botanical gardens there is a system of visiting which includes three pedestrian traffic manners: alleys placed at ground level for most of the greenhouse, a corridor (tunnel) on the glass bottom of the basin or basins for the aquatic ecosystems of Amazon river basin, Asian rivers, rivers of Africa (a first-time construction in Romania, ideal for observation of aquatic vegetation, and why not, the fauna of Amazon), stairs or gangways at different levels for observation from different angles of large plant specimens or plant associations found here (palm-house, equatorial and tropical trees greenhouse) .

- **The ornamental sector** will be placed next to the main entrance area, having the most important impact on the public and will include floral collections (perennial, biennial and annual), which will assure a continuous chromatic harmony. This sector will be arranged geometrically and the species' positioning will be done like in the classic French gardens. The surface we suggested for this sector in 20000 sqm.

- **The rosarium** will be placed after the ornamental sector and will be established geometrically, for an adequate systematic presentation. The suggested surface is 5000 sqm.

- **The taxonomic sector** will be placed on both sides of the main axis. The suggested surface is 40000 sqm.

- **The dendrological sector and aspects from the Romania's vegetation** will be placed on the periphery of the area and will include forest vegetal systems specific to our country (juniper, spruce, fir, larch, pine woods, mixtures, beech stands, durmast stands, oak wood, xerophile boscage, water meadows, marine forest steppe) but also aspects from the herbal vegetation - mezophites, xerophile, eutrophic, oligotrophic meadows, sand lands, saline areas (Mihalache Ana, 1988; Mihalache Ana, 1989; Radu St. et Hulea A., 1964). The surface will have 90000 sqm.

- **The Worldwide Flora Sector** will be placed within the inferior third (from altitudinal point of view) of the central axis, and will include a small Japanese garden. The suggested surface is 15000 sqm.

- **The rocky vegetation sector** will be placed in the sunniest area. The suggested surface is 3000 sqm.

- **The marsh vegetation sector** will include a hydrological establishment with a surface covered by water of minimum 3000-4000 sqm and it will be placed within the microdepression area partially resulted from the excavations. This sector's vegetation will be represented by thicket, cat tail, sedges, water lilies etc. The recommended surface is 5500 sqm.

- **The useful plants sector** will be placed laterally (towards the hostel complex) and will include species of a utilitarian importance (medicinal, nutritious, nectarious, technical, toxic plants, green crops, etc). The suggested surface is 5000 sqm.

- **The didactic-experimental sector and the nursery** will be located laterally too, towards the hostel complex) following the sector of useful plants and will include fields in rotation with various sown fields, experiments, etc. This sector will serve for the laboratories, research, as well as for the production of the material to be engrained and it will not be opened to the public, being delimited by an enclosure (Radu St. et Hulea A., 1964). A platform for the compost will also be available here. The suggested surface is 10000 sqm.

The avenues will allow mainly the pedestrian visitors access into the sectors open to the public but also the access of the cars used for the maintenance or for other specific activities. These are differentiated into two categories: main, secondary alleys and paths for the public and roads for high tonnage equipments.

The access to the public garden will be available through the main entrance from the north – eastern side (for public and equipments) but also through the two secondary entrances (one on the south–west and one in the north–eastern side), for equipments.

The avenues for the pedestrians will be planned according to the mixed style principles, namely: the ornamental sector and the rosarium will be placed on the main perspective axis and will be characterized by the presence of large alleys, mapped out geometrically, ground floors with sod and species of flowers, shrubs, ornamental lakes/tanks, arranged according to a strict symmetry against the main axis, the other sectors opened to the public being arranged according to the English landscape architecture style, with naturally-traced alleys, with sinuous directions, and no strict geometrical shapes.

The road crosses the garden from one end to the other, being located (on the whole) at the limit between the dendrologic and Romania's flora sector and the other adjoining sectors, reaching the limit with the didactic–experimental sector and the nursery. This road follows an optimum direction, which can serve all the sectors of the garden, whenever work is done in the area.

The main entrance building will be placed at the main entrance in the botanic garden and will include a room for the security staff, box–office, a mini-

market and a toilet.

The lightening system and the urban furniture will be distributed on the whole surface of the sectors with public access. The lightening system will include various types of illuminators (pillars, small lamps, floodlights, etc) distributed according to these sectors arrangement. The urban furniture will include benches, kiosks, pavilions, trash cans, explicative panels, informative signs.

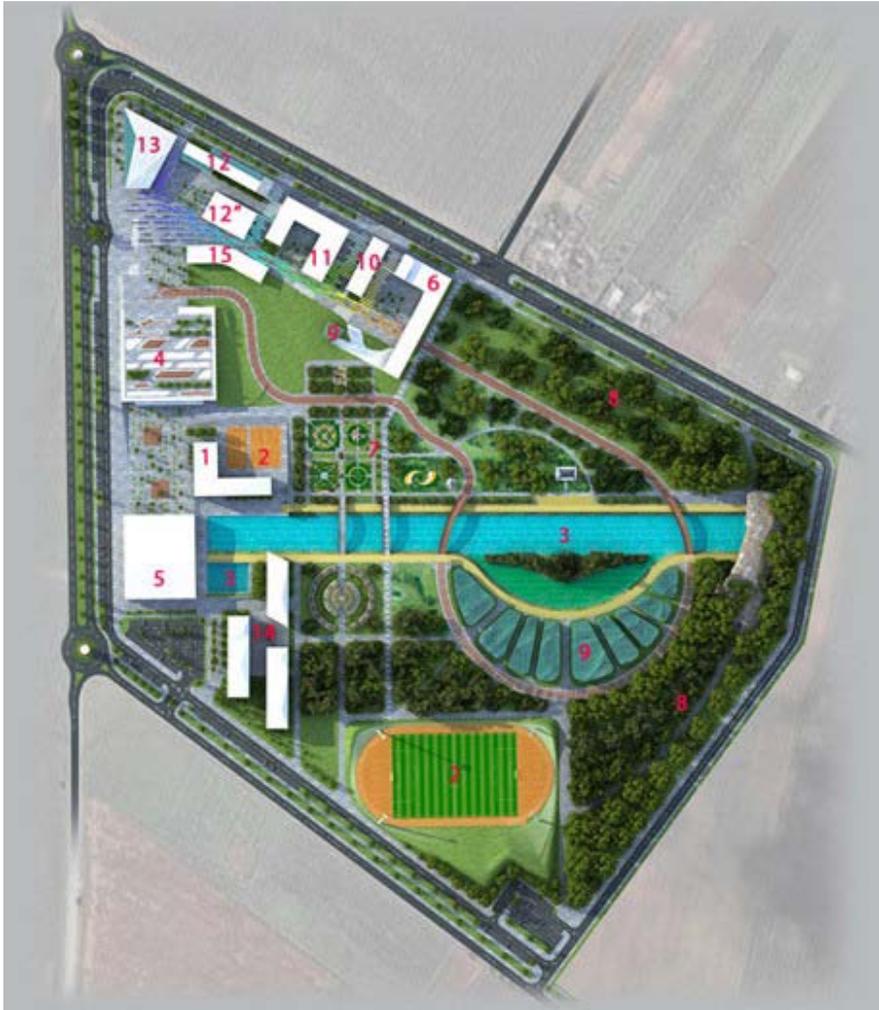


Fig. 1. The situation plan – Campus II Moara, designed by the University of Architecture and Urbanism “Ion Mincu” Bucharest (1 - teaching spaces for Faculty of Physical Education and Sport, 2 – sports, 3 - lake for water sports, 4 - Polyvalent Hall, 5- Olympic swimming, 6 - teaching spaces for Faculty of Forestry, 7 - the ornamental sector and the rosarium, 8 - the dendrological sector and aspects from the Romania’s vegetation, 9 - the complex of greenhouses, 10 - Biotechnology center of excellence, 11 - Nanotechnologies research center, 12 - Rehabilitation center and museum, 12* – Library, 13 – House culture, 14 - student hostels, 15 - student restaurant)

The enclosure of the botanic garden will be done by an aesthetic and strong fence, which will limit the uncontrolled access within the arranged area.

Other installations: electrical energy supply, thermal energy supply, water supply, drainage, toilets.

The parking lot will be located next to the main entrance, outside the enclosed area and will ensure the parking of the cars and buses. The suggested surface is 1500 sqm.

CONCLUSIONS

Campus II of the University "Ștefan cel Mare", located on the administrative area of Moara village, has a generous surface area (30 ha), and will include an area specifically designed for a botanical garden with a rich Dendrological collection.

The future Botanical Garden of "Ștefan cel Mare" University - Suceava comes to meet the natural needs that a university that is developing dynamically has.

The Urban Area Plan and Prefeasibility Study for this campus, conducted by the University of Architecture and Urbanism "Ion Mincu" of Bucharest, were resolved in an appropriate basis for the design requirements for future botanical garden (Fig. 1), following in the future, to cover all stages to achieve this objective.

By its judicious future systematization the botanical garden will meet scientific and teaching duties, as well as educational, health, recreation and decorative functions.

We hope that in the near future, this botanical garden will find their place among botanical gardens in Romania and abroad.

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