

Ecopolis-towards the holistic city:

Lessons in integration from throughout the world

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Rapid urbanization in Russia after the Second World War led to air and water pollution, public health problems and the disappearance of natural habitats in urban areas. That is why searching for a new ecological approach to city planning and design, which could harmonize the relationships between man and nature, was an urgent necessity.

The programme "Ecopolis" was established by Moscow State University in 1978. The word "ecopolis" combines ancient Greek "polis" (one of the most interesting and progressive types of human settlement) and ecology, a comparatively young science. "Ecopolis" introduced a new holistic /interdisciplinary approach. Biologists, sociologists, architects, planners, teachers, physicians, economists and engineers from different research institutions on the one hand and the community and the town administration on the other were involved in this programme.

The town Pushchino was chosen as a case study. Pushchino (population of 20,000 people) was founded in 1963 as the special Scientific Centre of Biological Research of the USSR Academy of Sciences. The idea was to create a special 'ideal' town with clean and green environments that encouraged Soviet scientists to work creatively and productively. There are 6 research institutes at present: Institute of Albumen, Institute of Biological Physics, Institute of Biochemistry and Microorganisms, Institute of Photosynthesis, Institute of Agrochemistry and Soil Sciences and Scientific Computer Center. There is also the Constructor Bureau of Biological Apparatus and the Radio Astronomy Station.

The town of Pushchino is situated on the bank of the river Oka about 120 kilometres south of Moscow. Pushchino urban design conception was very innovative and scientifically based at that time. The town has three parallel zones: institute, working, and living; divided by a broad pedestrian boulevard-green zone. Other functional zones were located in the periphery of the town (Bespalov 1981). The Green Zone (boulevard) is the compositional axis of town. It consists of 5 groves (birch, pine, oak, larch and lime). There are no industries in the town (except power and a heating centre). There are no railways or airport in this town.

Each research investigation of the "Ecopolis" programme was arranged as a tool to educate the townspeople, managers and local authorities.

Pushchino town had a long cooperation with Moscow State University. The branch of the Biological Faculty was opened here. It is not surprising that over 140 students and postgraduates both from Moscow State University and another 22 institutes have taken part in the 'Ecopolis' research programme. The special Ecopolis laboratory staffed by Moscow State University and Pushchino community was opened in 1985.

The main goal of the programme "Ecopolis" was to found a new type of human settlement, while ensuring coherent development between the biosphere and processes of urbanization. In other words the aim was to create an optimal ecological and socio-psychological urban environment and to combine this objective with nature protection in urban areas. Urbanization in the Ecopolis represents an ecologically managed and socially directed process.

The concept of the programme was developed in 1981 by Professor Kavtaradze, ecologist from Moscow State University and Professor A. Brudny, philosopher and social psychologist, incorporating Vladimir Vernadsky's theory of noosphere: "Under the influence of intellect and human labour biosphere changes into a new state-noosphere. In noosphere man for the first time becomes a mighty geological force. He can and must reconstruct his share of life with the help of his labour and intellect." (Florova 1985). The "Ecopolis" concept is based on the idea of a coherent evolution of the biosphere and mankind in terms of dynamics. "Ecopolis" used the principle of constructive ecology that aims to help man manage natural environments as a tool for the coherent evolution of nature and society towards the noosphere.

The "Ecopolis" programme was carried out for 18 years (1978-1996). Broad investigations of different aspects of urban ecosystems were completed (Brudny *et al.* 1981):

- flora and fauna (and their monitoring),
- soils,
- geology of Pushchino and its natural surroundings,
- design and planning,
- social aspects of urban life,
- the impact of water and automobile transport on nature,
- pesticide circulation within urban ecosystems, peculiarities of the ecology of cats and dogs in town conditions,
- residents demand for wild and cultivated plants (for example surveys have shown that each year Pushchino residents gather an estimated 250 tons of mushrooms, pick some 17,000 liters of berries, and catch about 39 tons of fish),
- the impact of summer and winter recreation, the opinions of Pushchino residents on nature conservation and others.

Based on floristic and ecological investigations the principles of ecological design were elaborated. There were a series of experiments with native woody and herbaceous species for wide introduction in landscape architecture. In Pushchino landscape design only 51 (5.6% from all species) native plants were used for green areas. However, more than 98 species of natives were recommended for wide planting in parks, gardens and residential areas (Ignatieva 1987). The conception of "Plant signatures"- the wide use of native plant community images and their composition and structure that was introduced for Pushchino is similar to the New Zealand "Plant signature" conception (Robinson 1993).

The community was actively involved in the programme. People participated in conferences, excursions, lectures, discussion of Pushchino themes, film showings, and simulation games. A series of instructional and methodological brochures

were published: “ Psychological aspects of establishing contacts between individuals, “Nature Reserves near the town of Pushchino”, “Walking Routes in the Environments of Pushchino”, “Methods of Registering Animal Fatalities in Road accidents”, “The Children’s Ecological Station”, “Ecological Education in the Raduga (Rainbow) Family club”.

The practical implementation of the “Ecopolis” programme was unprecedented:

- a special decision concerning nature conservation was adopted at the session of the Executive Council of People’s Deputies
- a network of ten protected natural areas/reserves was set up within the town boundaries;
- the tasks of environmental education (both school and out-of-school) and relevant training of adults were defined (The Children’s ecological club ‘Goodwill, Ecologicity, Cooperation’ was established, (Bukin 1989); Ecological programmes in secondary and high schools were developed.
- a programme of Subbotniks (days of voluntary work without pay) was formed;
- measures were taken to improve the operation of the town’s waste-treatment plant (Agavelov *et al.* 1985).
- “Zarya” passenger-carrying ship was found to produce damaging waves on a lowland river (Oka) resulting in the death of many young fish. As a result of joint efforts of scientists and townspeople a decision was made to stop the operation of this type of ship on the river.

A visible positive change in the urban environment with a wide participation of the people was the most significant practical output of the Ecopolis Programme.

“Ecopolis” was a long-term programme (1978-1996). Economic and political conditions in Russia (after 1991) precluded the wide scaled investigations of the “Ecopolis” programme.

In November 2000 the 3rd International Conference “Ecopolis-2000: problems of urban ecology and sustainable urban development” was held at Moscow State University and highlighted again life-history backgrounds and problems of urban ecology, socio-cultural features of the urban settlements, public participation in forming “of green measures” in policy in urban developments of policy making and how to educate townspeople in the field of nature conservation in cities and towns (biodiversity, habitats and landscapes).

The word “Ecopolis” is also used in the Southern Hemisphere. Ecopolis Pty Ltd is an architectural firm, formed in Australia in 1991 “as a vehicle for the design and development of ecological human settlements”. Ecopolis works in cooperation with the community non-profit organization Urban Ecology Australia Inc (UEA). This is the only national organization in Australia that has a primary focus on urban environment issues. UEA and Ecopolis are based in Adelaide and operate from the Centre for Urban Ecology (CUE).

The main focus of Ecopolis (UEA) is in architecture, planning and design “on the basis of a radical analysis of the physical, social and economic aspects of the urban ecosystem”.

The Ecopolis firm offers a wide range of consultancy expertise such as:

- ecological architecture,
- ecocity design and bio-urbanism,
- allergy neutral building,
- community participatory process
- strategic planning and land assessment.

Ecopolis and Urban Ecology Australia initiated the Halifax EcoCity Project, which is the only example in Australia of a community-based eco-city programme.

Compared to the Russian Ecopolis, the Australian Ecopolis has a more design, architectural and planning approach. The common feature of both Ecopolises is their main emphasis on searching for ecological, economical and socially sustainable human settlements (ecological cities) and their strong community and education orientation. The main motto of Russian Ecopolis was expressed as "Ecopolis is town and its immediate surroundings where humans and nature mutually sustain the life of each other". The main motto of Australian Ecopolis is "The city can save the world".

There are some 440 sites on the internet using the word "Ecopolis" from the field of international marketing to housing plans and CV international consultants and experts. The latest world's interpretation of Ecopolis is "A concept of using ecological knowledge and methods to design ecologically sustainable cities, that promote human quality of life".

References

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For further information on "Ecopolis" see:

<http://www.ecopolis.com.au>

<http://www.urbanecology.org.au>