

Retrospektive analysis of theory and practice of environmental approach in urban planning

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Abstract – Research describes the history of theory and practice of environmental urban development. Presents a historical analysis of domestic and foreign experience in urban environmental planning (from ancient times to the XXI century).

Key words – retrospective analysis, urban environmental planning, megapolitan areas, urboecology, ecosystem, ecopolis, biotic city.

I. Introduction

Cities are the source of civilization and at the same time, they are the main problem of environmental pollution. People all over the world are migrating to cities in search of jobs and cultural advantages. Today, 50% of the world's population lives in cities, and it is anticipated that 70% will by 2050. This has resulted in the formation of huge megapolitan areas and surrounding peri-urban environs. Cities require huge amounts of energy, resulting in large quantities of waste products, causing unsustainable environments. As a result, today urban and territorial planning are needed to new concepts and methods for improving resilience [1].

Environmental urban planning concepts have come a long evolutionary path of development. Et each historical stage of urban development there were problems of environmental pollution. Also the concepts of urban solutions to these problems. Many current research examines the environmental challenges of cities over the last 200-300 years (V. Vladimirov, V. Kolyasnikov, B. Kochurov, A. Kurbatov, E. Lihachova, D. Timofeev, Kucheryaviy, A. Tetior, Ogorodnikov and others), because they began to feel acutely In the XXI century. But the environmental challenges are not formed by 200 and 300 years. Relationship to nature formed over thousands of years. Ultimately, the end of XX century 63% of natural ecosystems on earth destroyed [2]. The interaction of nature and city was relevant throughout the history of mankind. To establish the chronological and semantic relationships of urban environmental development was conducted a retrospective analysis.

II. Main part

Impact on the ecosystem and development of ecological concepts in urban planning (from ancient times to the XXI century) are shown in chronological order:

1. **Ancient times** – Ancient India, Babylon, Egypt, China, slavic culture and others. Characteristics: city had elementary proper planning scheme (oval, circle, rectangle), orientation of the sun and the stars. The

main environmental urban planning theories that time are: “Sthapatia-Veda”, “Chou-li”, iranian “Avesta” etruscan “Libri rituales” and others [3]. Impact on the ecosystem that time: permanently existing settlements and cities leads to emergence of the first azonal anthropogenic landscapes; local environmental crises. Fig.1.

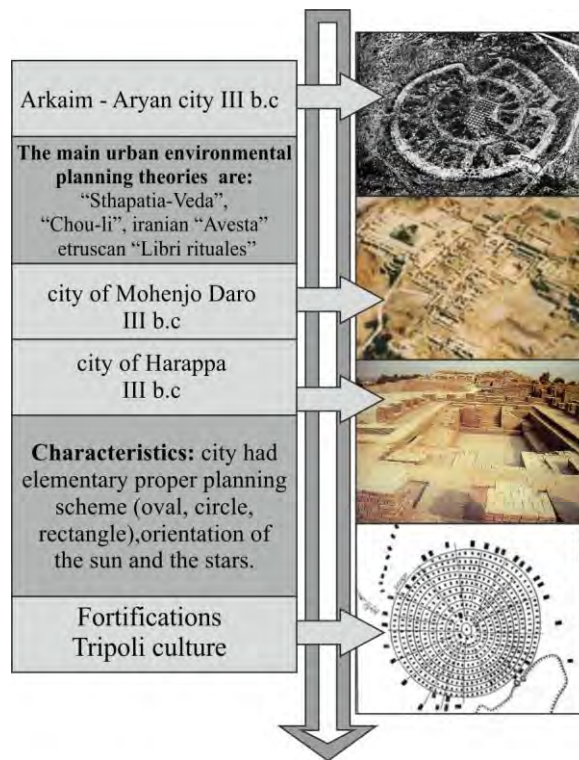


Fig. 1. Historical analysis of environmental approach in urban planning (ancient times)

2. **From antiquity to the XX century.** The second period of time includes quite a long time – a change of knowledge. **Antiquity** (Ancient Greece, Ancient Rome). The main environmental treatises developed by philosophers Plato, Aristotle, Vitruvius, Hippocrates and others. Determine the most appropriate number population and the size of the city. Impact on the ecosystem: the final separation of ecosystems natural and artificial; destruction of ecosystems in the epicenter with a maximum concentration population (during the reign of Caesar population of Rome is 1.5 million people) [4]. **During the Middle Ages** in Europe was not created any new environmentally oriented theoretical work in urban planning, while environmental problems had intensified. Total forest area decreased by 3-4 times, emergence of regional environmental crises. **During the Renaissance** (XV - XVII century, Italy, France, England). Theoretical work was aimed at finding the optimal model of new citi (Utopia of Thomas More, Antonio Averlino, Vincent Scamozzi, Tommaso Campanella, Francis Bacon and others). The term *oekologie* (ecology) was coined in 1866 by the German biologist, Ernst Haeckel from the Greek *oikos* meaning “house” or “dwelling”, and *logos* meaning “science” or “study” [5]. Fig.2.

3. **From the beginning of XX to the XXI century.**
 The third period of environmental approach in urban planning. Ecology began to influence urban planning, establishment of urboecology as a science.

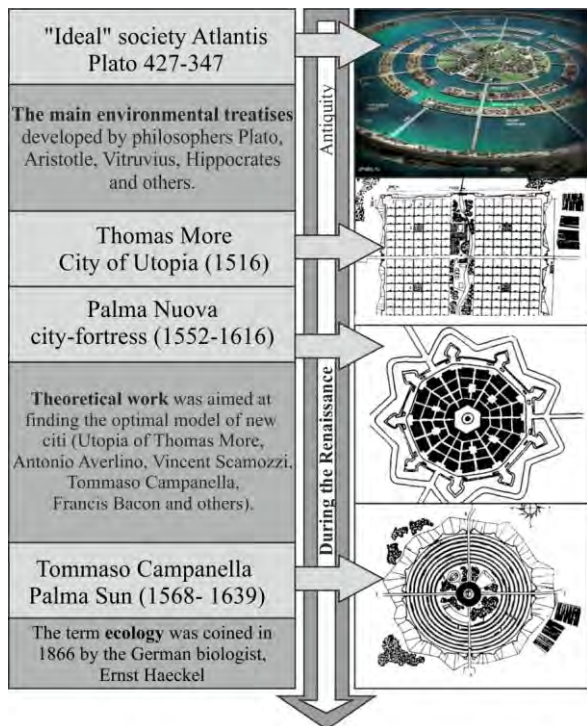


Fig. 2. Historical analysis of environmental approach in urban planning (from antiquity to the XX century)

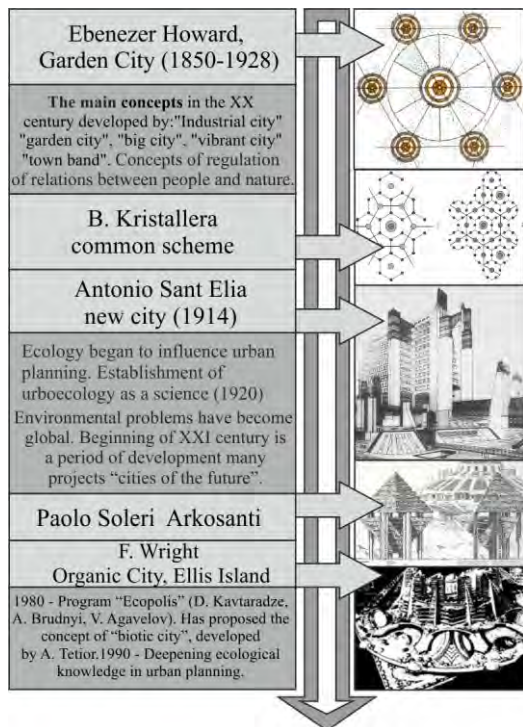


Fig. 3. Historical analysis of environmental approach in urban planning (from the beginning of XX to the XXI century)

Basic urban environmental planning concepts in the XX century developed by: E. Howard "garden cities", B. Kristaller, E. Gloyd, E. Saarinen, P. Abercrombie. In the concepts of the period considered new forms of urban settlement. Concepts of regulation of relations between people and nature. At the end of the XX century, the international community has recognized the threat to the planet's ecosystems are of giants cities. Environmental problems have become global. Beginning of XXI century is a period of development many projects "cities of the future". **Paolo Soleri's Arcosanti in Arizona**, Auroville on the east coast of India. In the 1980 became famous program "Ecopolis" (D. Kavtaradze, A. Brudnyi, V. Agavelov). Has proposed the concept of "biotic city", developed by A. Tetior. Emerging social movements to create ekovillages in Siberia, Ukraine (movement "Native Land") [5]. The main ideas: 1) ecological balance between city and nature; 2) use of alternative renewable energy sources; 3) harmonious incorporation into natural ecosystem; 4) use of local building materials; 5) creating a visually comfortable environment; 6) ensuring a balance in the exchange of matter and energy and others. Fig.3.

Conclusion

Mankind has gone through several stages in the development of ecological knowledge. There was a time (ancient times) when people lived in harmony with nature. This can be seen in the Vedic scriptures for example in the "Sthapatia-Veda". In the second period there are ideas forming "ideal cities". Formed the approach of social hygiene, functional zoning. At the end of the XIX century is the establishment of ecology as a science. (E. Haeckel). In the third period raised questions about the health, resource-saving and power efficiency; improving disaster management; and tackling other problems of a similar nature.

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