

Capital construction and noosphere genesis.

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Abstract: Human activities must not develop spontaneously being driven by its own internal logics and they should be regulated in a certain manner since they appear to be a limited aggregate of material and natural conditions.

The prominent mathematician and physicist N.N. Moiseyev believed that «coevolution of human society and biosphere – within the common meaning of this word combination, - is practically a synonym of the term noosphere introduced by V. I. Vernadsky, E. Le Roy» [1, p.142.]

It is highlighted in the Copenhagen Declaration (7 December, 2009) of the International Union of Architects that «the concept of the project sustainability» accepts all the architectural and city planning objects as a part of a complex interactive system related to its natural environment» [2]. Therefore sustainable urban development depends directly on city planning activities.

Capital construction must be in harmony with consequent formation of noosphere with due regard to socially viable management of natural and anthropologic processes and relations development.

A number of scientific criteria are suggested to secure socially significant capital construction management on the grounds of the theory of the noosphere genesis.

Introduction

The UN Conference on Environment and Development took place in Rio De Janeiro as early as in 1992 where the following two most important documents were accepted: «Declaration on Environment and Development» and «Agenda XXI». The core message of the documents was to ensure such a development which would meet all the demands of the current generation without doing harm to new generations. Such a development has got the name «Sustainable development». The term «sustainable development» is defined as a «noosphere genesis» by the academician A.D. Ursup. He notes that: «The meaning of sustainable development can be defined as an upcoming form of a coevolution of the society and environment securing their existence and development to be mutually safe»[3].

The environmental balance has got geophysical, geochemical and biological aspects related to a certain location. Any populated area must be safe and comfortable for people. Strictly speaking, each even a minor part of a man-made environment is located in its own specific geographic circumstances. Spirit and customs of population are significantly affected by special features of a territory.

Therefore urban sustainable development directly depends on city planning changeovers. On the grounds of social and environmental and social and economic estimates it will be possible to define whether these changeovers are feasible and rational.

A certain intended use of any land plot or any assets involves not only renewable and non-renewable natural resources but primarily compensatory resources, fixed and current maintenance costs of an object.

It is city planning that can form an area with given properties. And the aim of city planning should be consequent formation of noosphere with due account for socially viable management of natural and anthropologic processes and relations development» [4].

Literature review.

Fundamental statements of natural science, laws of existence and development of the biosphere being an extremely sophisticated natural and social system should be considered in city planning.

V.I. Vernandsky has offered the meaning of “noosphere” having in mind an understanding of human influence as the sphere of sense influence (greek «nous» — sense). V.I. Vernandsky has underlined the following in his most important philosophic book being a part of the golden fund of the Russian culture of the 20th century “Biosphere and Noosphere”: «Nature is not amorphous and formless, as it was considered for centuries, it has a certain and very precise limited structure which should be recorded and taken into account in all the conclusions and findings related to Nature [5, pp.385-386]. It is the most important condition for nature to secure sustainability.

The restoration of noosphere is closely connected with understanding of human factor in evolution of biosphere. Outstanding summaries of modern natural science related to human factor in evolution of biosphere, functional and integrated approach to environment learning (scientific works made by V.V. Dokuchaev [6], A.I. Voeykov [7], V.P. Semyonov-Tyan’-Shansky [8], V.P. Kaznachejev [9], S.A. Kovalyov) has still no either theoretical or practical understanding in city planning dealing with issues concerning capital construction being in harmony with biosphere.

Philosophic and scientific platform of the noosphere genesis was founded in the studies of the national scientists – cosmists of the last century (V. I. Vernandsky [5], N.N. Moiseyev [11,12], N.F. Glazovsky [13]). The theory of noosphere genesis related to the development of the studies of V.I. Vernandsky is still being created (Doctor of Architecture, counselor of RAACS (Russian Academy of Architecture and Construction Sciences) Mityagin S.D. [14, 15, 16], Doctor of Philosophy Ursul A.D. [2], Doctor of Philosophy and Economy Subetto A.I. [20], Doctors of Geography Shalnyov V.A. [18] and Sdasyuk G.V. [19], member of Russian Academy of Medical Sciences Kaznachejev K.P. [9], Doctor of Philosophy in Architecture Gaevskaya Z.A. [20]), and foreign scientists - Paul R. Samson and David Pitt [21], Norgaard, R. B [22], Hödl, Elisabeth [23],

The noosphere type of genesis requires transition from the subject – user of natural resources to the subject managing social and environmental harmony (Subetto A.I. [17], which ensures changeover of the central hierarchical structures by the network ones and results in varied project forecasting (Guryanov G. Turkatenko M.) [24]. Varied project forecasting is impossible without understanding of the criteria which ensure socially significant capital construction management associated with noosphere.

Problem definition.

According to the statements mentioned above it is necessary to search for criteria which may ensure socially crucial management of capital construction based on the theory of the noosphere genesis.

Problem reasoning.

The today’s practice of city planning depicts the crisis of the theory. Socialistic base of city planning has been exhausted. New theories of how to develop the system of resettlement and functional and planning structure of settlements have not been created.

Along with that, some good fragments of the theoretical grounds of space planning and city planning activity regulation come from national city planning science. They were based on

minimization of both total capital investments and maintenance costs, and were not demanded to a full extent by the non-flexible centralized administrative system.

It would not be rational not to use all these findings to develop market-oriented theory of city planning as from economic as from social points of view. After all capital construction is the long-term activity requiring considerable financial investments as from the part of the government as from the part of the population.

City planning as an activity meant for environment changeover, which ensures material and space resources for social and economic development of settlements and administrative-and-territorial entities cannot be efficient nowadays without due account for local peculiarities and compensatory possibilities of environment.

Provided market relations are being developed and private ownership of land and other property is secured, development of the models and programmes of environment-friendly and sustainable social and economic development of settlements and administrative-and-territorial entities appears to be a crucial and up-to-date problem.

City planning should not be perceived only as a pragmatic assignment to ensure construction complex. Construction complex should have the biosphere content and should be built-up on a hierarchical system of the basins of the river run-offs.

After all the fundamental difference in the concept of sustainable development in respect to conventional statements and economic management is a holistic (integral) approach to development as a whole process (Sdasyuk G.V.) [19].

Proposal of the principles ensuring capital construction management based on the theory of the noosphere genesis.

The knowledge which we expect from the science can be explicated in the form of rules and principles which allow predicting what is going to happen and finding out the reason of the things happened [25, p. 34], [26]. When stipulating the principles it is necessary to understand that the fundamental peculiarity of construction involves an expanded rehabilitation of basic funds using capital investments in efficient way. When constructing and building re-equipping in all the economic fields is to be carried out: new manufactures launches, involvement into manufacturing of new natural resources, city planning, environment changeover, in brief, creation of material life-sustaining activity as in respect to administrative-and-territorial entities as in respect to population in whole. A planned scheme of a territory is affected by material life-sustaining activity.

A planned scheme is represented by a unique combination of natural and anthropogenic area frames and a mix of land plots of different purposes of use. Taking all the possible combinations of the elements of the planned scheme of area while working over the space planning solution, an area of economic and ecologic optimal combinations, dimensions and shapes of all the functional cells as well as density of a frame network.

Development of the principles of noosphere is essentially important for capital construction. Capital construction requires new scientific approaches since new modern resettlement guidelines call for it. Having above mentioned in mind the following principles of the noosphere genesis can be highlighted: the principle of coevolution, landscape polarization, and sustainable development.

A new scientific approach must be based on the knowledge of significance and integrity of a landscape where everything is regular and has its own place and intended use.

Development of the noosphere genesis theory will allow to express the essence of the city planning approach to design since according to the opinion of the Doctor of Architecture Maloyan G.A.: «At the present time transition from designing of a single object to designing of an area of human activity is becoming more and more actual» [27, p.133].

Conclusions.

Only varied project forecasting is possible when searching for optimal combinations in capital construction management. There may be suggested the following criteria of varied project forecasting which can ensure capital construction management based on the theory of the noosphere genesis:

- Interaction of natural and anthropogenic structures and processes
- Capital construction management based on economic capacity of the biosphere
- Consistent management of the biosphere compatible capital construction at local, regional, national, continental and planetary levels
- Complexity of space planning since the space should be a single object of management
- Complex, environmental and functional space planning - a major project problem
- Research of properties and characteristics of a social, functional and environmental system.

In summary the criteria ensuring capital construction management based on the theory of the noosphere genesis. Development of capital construction based on the noosphere genesis raises an issue about reliance on the new type of knowledge allowing problem solution and other approaches to acquiring knowledge.

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