Basic Principles and Strategy of Integrated Approach to Urban Environment’ Renovation

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Abstract. Humanization of the urban environment is the central problem of the modern stage of Russian architecture, because the current environment is characterized by shortcomings and contradictions. A comprehensive renovation and reconstruction of the existing environment is required to solve this problem. An integrated approach ensures effective social and functional reorganization and architectural and artistic improvement of the environment. Certain principles lie at the heart of the comprehensive reconstruction, the observance of these principles can ensure the consistent improvement and humanization of the urban environment. The Department of Architecture and Urban Planning of the Far Eastern Federal University has developed several projects for renovation of the urban environment fragments of Vladivostok, based on this approach and the principles of reconstruction. Some of these projects were realized. Projects and practical implementation showed the effectiveness of the basic principles and methodology of urban renovation proposed by the authors.

1. Introduction
Creating a full-fledged urban environment occurs, as a rule, as a result of the city long evolution. A gradual improvement of the urban environment takes place in the process of historical development. As practice shows, a harmonious environment arises in the course of multiple historical strata and natural selection. New areas of the city, built-up at a time, are often far from functional perfection and artistic harmony. This primarily applies to areas of modern mass construction in most large cities, including Russian ones, as indicated by a number of domestic and foreign researchers [1-9].

Often the areas of new construction are created quickly, not in a complex, with poor landscaping and landscape design. As a result, the newly formed environment is characterized by significant shortcomings and contradictions. This leads to a feeling of discomfort and dissatisfaction with living conditions, the environment is perceived as inhumane, not in accordance with modern requirements. Dissatisfaction with the environment creates objective prerequisites for the transformation and improvement of the existing environment in order to give it humanistic qualities. Thus, humanization is a strategic task of reconstruction (modernization, renovation) of the existing environment of majority of Russian cities. One such city is Vladivostok, which exemplifies the strategy and methodology for renovating the existing environment.
2. Methods
In order to humanize the current environment, a complex reconstruction is needed, covering the entire range of spatial transformations of the city. Only it can provide an effective socio-functional reorganization and architectural and artistic improvement of the environment.

The methodology of an integrated approach to the renovation of the urban environment includes a number of procedures (we described this technique in more detail in previous works [10-16]). The first step in this methodology is a comprehensive pre-project analysis of the existing urban environment, identifying shortcomings and contradictions of the current state. The main directions of complex analysis are following: structural-functional, structural-morphological, artistic-figurative and semantic, evolutionary-genetic, project-activity. Such a complex analysis allows us to identify the main shortcomings and contradictions of the environment, determine the totality of its archetypes, the basic compositional techniques and principles, key semantic signs, symbols and metaphors, etc (Figure 1).

![Figure 1. Methodology of an integrated approach to urban renewal.](image)

On the basis of this analysis the fundamental principles of the complex reconstruction and renovation of the urban environment are formulated, ensuring its improvement and humanization. A specific renovation program is developed on the basis of pre-project analysis data, formulated principles, social priorities and quality criteria for the environment. Further this is the basis for the development of a concept and a detailed design solution for the renovation of the urban environment’s specific section. Given the scope of this article it seems important to concentrate on the basic principles of the current environment’s comprehensive reconstruction.

3. Results
The conducted researches allow asserting that the following principles should be based on the environment’s complex reconstruction:

3.1. Accordance of the environment’s functional-spatial structure to the real life processes and the needs of man and society
Imperfection of a functional organization is very often at the heart of the environment's disharmony. The problem is that people often cannot realize the necessary and desired spectrum of vital functions in space. Therefore, it is necessary to identify and analyze in detail the existing functional deficiencies before developing a program for the rehabilitation of the environment. The socio-functional program should be based on specific architectural and sociological research and modeling of behavior options in the environment. Only with this approach is it possible to create "living spaces" i.e. spaces saturated with life and providing a wide range of creative self-realization of man.

3.2. Ensuring the safety of life and effective social control
This condition is becoming increasingly important in today's dynamically changing and unstable world. The environment is not comfortable if this basic condition is not ensured. There are not enough police measures in order to ensure security. This spatial organization of the environment is necessary which contains effective means of social control and self-regulation. The yard space in quarter building is an example of such organization. Behavior in the yard is effectively controlled by people living there. Such environment promotes to reduce crime, reduces the possibility of antisocial actions.

3.3. Ensuring sustainable development of the environment, including the ecology of the cultural landscape
Sustainable development of the environment includes a number of requirements, one of which is ecology in the broad sense of the word which includes the ecology of culture. Usually ecology is associated with environment's protection taking into account anthropogenic impact. However, the preservation of the spiritual and cultural heritage of the anthropogenic environment is no less important from the point of view of the further development of society. The ecology of culture provides continuity in the development of the social and cultural space of the city, the harmonious interaction of history and modernity in the urban landscape.

3.4. Semantic saturation of the environment
Informational, semantic saturation of the environment creates an objective basis for the diversity of human impressions and experiences. Semantic richness of the environment contributes to the effect of "speaking architecture". Thus, the humanization of the environment is certainly connected with the substantial and semantic richness of the environment.

3.5. Artistic expressiveness and originality of the environment
Artistic expressiveness is an important condition for the environment's harmony. It is impossible to imagine a humanistic environment outside of artistic harmony. As for originality, this quality is also important from the point of view of the environment's humanization. The city as a whole and its fragments should have their own unique identity. In this case, the inhabitants are proud of their habitat and seek to ennoble and beautify it.

3.6. Preservation and restoration of the most significant and valuable elements of the natural landscape
Preservation of characteristic hills, forest areas, water basins, etc. in the city with traditional plants, insects and animals is extremely important for the city and townspeople. The connection with nature is of great importance for the perception of the urbanized landscape's humanity.

3.7. Preservation and restoration of the most significant and valuable elements of the historical environment of the city
The historical fabric of the city gives it its originality and uniqueness, the depth of time, some mystery and romance. A person feels involved in the evolution of the city empathizes with the main stages of its development in a historical environment. The organic combination of the old and the new shows...
the socio-cultural continuity in the development of the city, and this is also important for the humanistic model of the environment.

3.8. Creation of convenient transport and pedestrian structure of the city providing rational and efficient (in terms of time costs) movement in the city space

The city with constant traffic jams and large time-travel costs can hardly be considered humane as it actually "devours" the time and life of citizens. In addition to the rational aspect the variety of routes and vehicles that a person chooses (pedestrian walks, bicycles, cars, trams, funiculars, etc.) is also important here.

3.9. Creation of public spaces’ developed structure ensuring the realization of social life’s diverse forms

The importance of public spaces, where people can communicate, feeling part of a whole, cannot be overemphasized. Aristotle wrote that the city is a place where people live collectively for one grand purpose. There is a dangerous tendency of privatization of city’s public spaces in modern conditions of private entrepreneurship. A purposeful strategy for the development of public spaces will be countered to this approach as this contributes to the humanization of the urban environment.

4. Discussion

The Department of Architecture and Urban Planning of the Far Eastern Federal University has developed some projects for the reconstruction of several fragments of Vladivostok’s urban environment in accordance with the above methodology and basic principles [17-20]. Some of these projects were implemented and, as practice showed, this contributed to the humanization of specific urban spaces in Vladivostok (Figure 2). The other part of the work was a search experimental projects for renovating the urban environment, executed within the framework of the competitive (Figure 3) and graduation (Figure 4) projects.

Figure 2. Realized projects of renovation of the urban environment in Vladivostok:a - Reconstruction of the historical zone of Peter Great Street with the reconstruction of the Nicolay Triumphal arch (V.K. Moor Architectural Studio); b - Observation platform on Eagle's Nest hill with a monument to Slavic educators Cyril and Methodius (V.K. Moor Architectural Studio).
Figure 3. Competition project «Renovation of Coast Golden Horn Bay’s industrial area for public space in Vladivostok» (Project organizations: «Architectural Foundation» and «V.K. Moor Architectural Studio»).

Figure 4. Graduation project: «Multifunctional public space over transport interchange hub in Vladivostok» (Author A.V. Komarova, tutors: V.K. Moor, P.A. Kazantzev, A.G. Gavrilov).

Before reconstruction these areas of the urban environment were inefficient in function and artistically inexpressive. A comprehensive analysis made it possible to identify the main shortcomings and contradictions of these fragments of the urban environment. The conceptual framework and specific program for the reconstruction of the current environment were developed on the basis of pre-project analysis data. At the same time, social priorities and quality criteria of the environment, which were revealed as a result of studying architectural and sociological data and analysis of analogical objects, were taken into account. The main ideas and concepts were fixed in the form of conceptual theses or in the form of a matrix of ideas.

The project proposal was based on the modeling of possible scenarios of the environment’s functioning as well as on the semantic modeling of the environment’s artistic and imaginative characteristics. Socio-functional modeling was aimed at finding new forms of life and behavior that could organically enter the reconstructed space. Semantic modeling was aimed at finding new semantic constructions and corresponding architectural forms that could enrich the artistic content.
and image of the place. Completed projects were demonstrated in various architectural competitions and were awarded numerous diplomas and prizes.

5. Conclusions
Project development and practical implementation showed the effectiveness of the basic principles and methodology of urban environment renovation worked by the authors. Project proposals successfully participated in architectural competitions and the implemented projects received public recognition and, thus, contributed to the Vladivostok urban environment’s improvement and humanization. This project methodology is also used in the training of architects at the Far Eastern Federal University.

6. References
[1] Kiyenko K V 2015 Society, Environment, Architecture: Social Foundations of the Architectural Formation of the Residential Environment (Vologda: Vologda State University Press) p 284
[2] Yargina Z N and Khachatryan K K 1990 Social Foundations of Architectural Design (Moscow: Stroyizdat) p 343
[3] Jacobs J 1993 The Death and Life of Great American Cities (New York: Random House) p 472
[4] Jencks C 1977 The Language of Postmodern Architecture (New York: Rizolli) p 204
[5] Lynch K 1981 A Theory of Good City Form (Cambridge: MIT Press) p 528
[6] Gehl J and Svarre B 2013 How to Study Public Life (Washington: Island Press Kindle Edition) p 200
[7] Gehl J 2010 Cities for People (Washington: Island Press) p 285
[8] Frampton K 1992 Modern Architecture: A Critical History (London: Thames and Hundson) p 376
[9] UNESCO Recommendation on the Historic Urban Landscape 2011 (Paris: UNESCO World Heritage Centre) p 6
[10] Babenko A G, Gavrilov A G, Erysheva E A, Ignatov G E, Kopeva A V, Maslovskaya O V, Moor V K and Palienko S I 2004 Reconstruction of the Existing Residential Environment of the Seaside City (Vladivostok: FESTU Publishing House) p 130
[11] Moor V K and Erysheva E A 1997 Formation of the Architectural and Artistic Image of Seaside Cities (Vladivostok: FESTU Publishing House) p 88
[12] Moor V K and Erysheva E A 2006 Humanization of the environment as the central task of the Vladivostok urban public space’s reconstruction. Öffentliche Raumeinder postsozialistischen Stadt. Studententwicklung und Denkmalpflege 4 (Dresden: TUD press) pp 144-49
[13] Moor V and Erysheva E 2012 Scenario and Semantic Modeling as Means of the City Space Humanization History and Present: Environment and Behavior Studies in the Perspective of Multidimensional Transformation Proc. of 10th Int. Symp. for Environment-Behavior Studies (Changsha: Hunan University Press) pp 106-12
[14] Moor V K and Erysheva E A 2011 Sustainable Development of City’s Cultural Landscape Sustainable Architecture: Present and Future Proc. of Int. Symp. (Moscow: MARHI, KNAUF CIS group) pp 81-89
[15] Moor V K 2016 Theory and Methodology of Complex Analysis of Urban Spaces and its Application in Training Architectural Design Modern Technologies and Methods of Architectural and Art Education Proc. Int. Scientific and Methodological Conf. (Novosibirsk: NSUADI Publishing House) pp 327-29
[16] Moor V K and Erysheva E A 2016 The Strategy of Integrated Design in the Process of Urban Environment’s Reconstruction Modern Technologies and Development of Polytechnic Education Int. Scientific Conf. Proc. (Vladivostok: FEFU Publishing House) pp 558-63 Available online: https://www.dvfu.ru/science/publishing-activities/catalogue-of-books-fefu
[17] Erysheva E A, Moor V K and Demidova T A 2007 The best Projects of Far Eastern Architectural School. Russia, Vladivostok (Harbin: HIT Press) p 110

Available online: https://www.dvfu.ru/science/publishing-activities/catalogue-of-books-fefu
[18] Moor V K, Gavrilov A G and Kopeva A V 2009 *Formation of Vladivostok Architectural School. Specialty "Architecture" in FESTU* (Vladivostok: FESTU Publishing House) p 160

[19] Moor V K and Gavrilov A G 2010 *Catalog of the Best Diploma Projects. Specialty "Architecture", FEPI-FESTU, 1980-2009* (Vladivostok: FESTU Publishing House) p 88

[20] Moor V K, Gavrilov A G and Erysheva E A 2013 *Architectural Studio of V Moor. School, Laboratory, Studio* (Vladivostok: FEFU) p 176