Conceptual and Theoretical Basis of Integration of Elements of Different Time Periods in the Historic Environment of Small Towns

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Abstract – The article refers to the means of harmonious combination of elements of different time periods and space-planning of environment, improvement and revival of memorable architectural heritage of urban environment, creation of comfortable living conditions etc. The formation of such means is based on the development of conceptual and theoretical model of integration process. Thus, the aim of the paper – is to identify effective approaches to regeneration of historical environment of small Ukrainian towns.

Keywords – Term “integration” in urban planning, the model of integration process, regeneration and renewal of historical urban environments, small Ukrainian towns.

I. Factors that Affect the Process of Transforming the Space-planning Structure of the Historic Centre

Improvement and humanization of urban space settlements is a multilayered process, in which people, material objects, space, information, symbols and signs interact. It is difficult to consider all existing aspects of heterogeneous essence of urban space. However, we need to identify the main factors that most significantly affect its transformation. In order to specify the factors, we have analyzed practical experience of renewal and humanization of the historical environment of towns and identification of the most flexible elements of historical space that can affect its improvement.

II. Features of the Use of Term “Integration” in Urban Planning

It has been found that the adherence to the principles of sustainable development concept is effective in the process of improving urban environment [4], [5, 14–19]. According to the recommendations of the “Istanbul Declaration” 1996, harmonious development is seen in the transformation of urban space in ecological, socioeconomic and cultural spheres. The content of the provisions of sustainable development concept has helped to specify the factors affecting the improvement of historical environment of small towns.

It has been established, that in order to identify the most flexible elements that improve historical space, relatively stable and variable structural elements in urban fabric should be determined. The relatively stable elements include the planning structure, natural landscape, as well as visual connections between them [1, 34], [2, 152, 157], [3, 20]. They take extremely active part in the formation of originality of a settlement, they can create an integrated architectural and artistic image. Variable elements of urban environment include fragments of construction, providing of public amenities, elements of promotional materials, paving and planting. Therefore, their renewal within a short period of time has a positive impact on urban environment.

We have distinguished such factors as architectural and urban planning, natural and landscape, socio-cultural factor, engineering and communication. They take into account the features of visual, psychological and sensitive comfort of a person in urban environment in full and have the strongest influence on its transformation.
its comfort, environmental friendliness, etc. The development of effective approaches of harmonious combination of historical and modern space and planning structures will contribute to the cultural revival of settlement and preservation of historical and architectural heritage. In order to determine the main parameters, under which the said harmonious transformation of historical urban environment should occur, the model of integration process, which involves the following steps, is offered (Fig. 1):

- specification of integration object;
- formulation of goals and objectives of the integration process of different time periods, planning and space elements in historical urban environments;
- preparation of recommendations in order to achieve the goal;
- analysis of hypothetical result of the implementation of design solutions;
- consideration of the stated proposals in pre-design activity and design.

III. Structure of Model of Integration

The stage of preparation of recommendations in terms of the ways to integrate the elements of different time periods, space and planning in historical urban space was the result of consistent implementation of previous stages.

The object of integration were the elements of different time periods, space and planning of urban environments, such as historical street tracing, architectural heritage and landscape gardening of the area. It has been established that their harmonious combination will provide the appropriate level of arrangement of subject and space, historical and cultural, emotional and aesthetic and functional and space content of the historical environments.

The purpose of integration of elements of urban space of different time periods is the reorganization of urban space of small towns, which is aimed at adapting the elements of different time periods, planning and space of the historical environments to current social and economic realia. It is important to develop artistic and informative “verbal” of architecture, enhance positive emotional and psychological impact on people thus stimulating the interest in historical and national traditions. The statement of problems of integration process includes the following pre-determined factors:

- preservation and updating of historical and cultural heritage, enhancement of visual information content for its active participation in the functional and activity-related relationships of historical environments;
- development of appropriate technical design and informative and significant content;
- taking care of green planting and water bodies;
- cleaning and restoration of water ponds, soil and vegetation cover;
- active involvement of rivers and reservoirs in the system of park territories;
- active involvement of shopping centres, cultural, cultural and informational, entertainment and tourist and information content of urban environments that take into account age peculiarities;
- active involvement of shopping centres, cultural, cultural and informational, entertainment and tourist and information content of urban environments that take into account age peculiarities;
- arrangement of the system of pedestrian areas and bike trails;
- intensification of social contacts and areas of interaction;
- development of safe and comfortable road and transport infrastructure and related services, etc.

The tasks, summarized according to the modern vision of harmonious and comfortable urban space, provide for interconnection of natural, human-caused and social subsystems. They conduct the transformation of urban environments through a set of characteristics. The spheres of influence, typical of each of the subsystems, are called “fields”. The model of integration process includes four fields: architectural and space integration field (IF), natural and ecological IF, socio-cultural IF, engineering and transport IF. They were identified at the stage of preparing recommendations and determined further structure of the model. The developed model of integration process is based on balancing of the ways of versatile improvement of component structure of the historical environments of the town of different
time periods and the renewal of its image. The model involves
the identification of key principles that stem from each of the
above-mentioned IF (Fig. 1):
principle of adaptability;
principle of natural ecological compatibility of the environ-
ment;
principle of transformation of social and urban planning space;
principle of modernization of transport infrastructure and dy-
namic technical and technological equipment.

The approaches, the prototypes of which were found in the
global urban planning, have been defined for each of the devel-
opled principles (Fig. 2) – (Fig. 14). Unfortunately, they almost
have not been applied to the small historical towns in Ukraine.

The principle of adaptability provides visual and image bear-
ing (external) and functional (internal) transformation of histori-
cal and cultural heritage. The first one is aimed at the harmonious
stylistic symbiosis of architectural and historical centres. The
second one is focused on shaping the model of their development
according to the basis of modern environments vital for the soci-
ety. The combination of historical and modern architecture makes
it possible to create a unique tonality of urban space with inherent
contrasts, compositional emphasis and unexpected architectural
plasticity. However, expressive forms should be easily understood
given the psychophysical human orientation in space, stimulate
holistic aesthetic and cultural ideals. At the same time, the town
should be comfortable, provide the residents with protection and
also make them happy [6, 38].

Thus, analyzing the experience of foreign countries in aesthet-
icization and humanization of urban environments it has been
found that the expressiveness of urban space arises in the situ-
ation of complementarity of modern and historical space and
town planning elements, which are based on a wide variety of
artistic and stylistic expression. On the one hand it appears in
the maximum visual approach through variations of form and
scale, such as the historical centre of Gdansk. On the other hand,
it appears in contrasting contraposition of architectural plasticity
in forming a harmonious ensemble illustrating the Santa Lucia
Station in Venice.

Saturation of architectural sites with current functional
content is also one of the priorities of improving urban envi-
ronments [7, 5]. Adaptation of memorable objects to modern
functional and activity-related processes was considered by
A. Ganeshin [8]. The scientist offered to implement it on the basis
of heredity and generality of functional and technical processes
that are subject to the type of transformation (external/internal)
that corresponds to the surrounding urban situation [8, 38].

Following the principle of adaptability, the approaches of em-
phasis, dialogue, interior and “flowing” spaces have been estab-
lished.

1) Approach of emphasis
It is characterized by form-building complicacy or, converse-
ly, minimization of decoration and plastic transitions; it is dis-
tinguished by visual separation of an object (historical/modern)
or their group in the urban environments compared to others.

2) Approach of dialogue
It is characterized by affinity of approaches to architectur-
al shaping, promotes visual similarity of objects, harmony and
compellability of building in different time periods; compliance
of the direction of functioning with the location.

3) Approach of interior and flowing spaces
It is characterized by plastic combination of public and private
spaces, contributing to the creation of chamber scale, psycholog-

Fig. 2. a – Prototypes of the approach of emphasis architectural ensemble of
waterfront, Venice; b – Parliament of Bremen [9], [10].

Fig. 3. Prototypes of the approach of dialogue: a – Landtag of Lower Saxony,
Hannover; b – waterfront of old city, Gdansk [11], [12].

Fig. 4. Prototypes of the approach of interior and flowing spaces:
Herbartgang St., Oldenburg [13].

Fig. 5. Prototypes of the approach of most effective use of natural and hu-
man-made surfaces: a – mini-stair park Cascade in Hong Kong; b – Lonsdale
St., Dandenong City [14], [15].
ically close to people, as it is associated with the continuation of individual residential zone. This environmental transformation of urban environment creates a sense of security of an individual, not allowing him/her to lose orientation points.

The principle of regulation of natural ecological compatibility of the environments is aimed at increasing the priority in the development and protection of the surrounding environments, regeneration of potential landscape and environmental and recreational centres. The development of greening of a frame is an important element of urban planning structure that performs environmental, aesthetic and recreational functions. Following the principle of regulation of natural ecological compatibility of space, the following four approaches have been offered:

1). Approach of the most effective use of natural and human-made surfaces (vegetable mould, elements of architectural buildings)

It is characterized by decreasing the surfaces covered with concrete and asphalt and replacing them with eco-friendly materials; planting of greenery, shrubs and trees with regard to suitability for these places: in public gardens, along sidewalks, on accessible roof areas, by the entrance lobbies to the building, on the balconies of buildings, in flowerpots on pedestrian areas, etc.

2). Approach of phyto-correction and biodiversity

It is characterized by arranging expressive compositions of lawns and flower beds; improvement of a range of green phyto-active planting, selecting expressive combinations of vegetation in form, colour, volume, etc.

3). Approach of application of vertical garden

Vertical “biological decor” is arranged by means of the so-called “vertical garden” that provides the plants with vital functions or traditional setting of containers with plants that climb near vertical structural elements.

4). Approach of recovery and regeneration of green area, water and green landscapes

It is characterized by solicitous attitude and taking care of existing vegetation: improvement of park and garden paving of alleys and sites; compliance with ecological properties of materials applied and park furniture; improvement of quality and updating of the elements of public welfare, formation of incoming groups, landscape design and more. The approach is aimed at reconstruction of water and coastal territories: cleaning of the coastlines of rivers and reservoirs; establishment of observation platforms and coast alleys for walks, beach equipment upgrade.

The principle of transformation of social and urban space is aimed at reproduction of sense of community and establishment of entire socio-cultural formation that synthesizes spiritual value orientations of the residents of the town and hierarchy of their consumer priorities and recreation. Therefore, the main objective of efficient functioning of the historical environments in that respect is active involvement of people in interaction with urban space and information reference that it bears, as well as help to overcome the language barrier in communication with each other. In view of the above, several approaches, the first of which should contribute to the human mobility within the historical centre, have been formulated:

1). Approach of space saturation with centre-forming elements

It is provided by brining functional facilities into the historic space of high variety of elements that ensure utilitarian and consumer, psychological and physical, informational and cultural life processes. An important aspect of their functioning should be twenty-four-hour usefulness in the town life, which
would create the “popularity” of cultural space of the historical part of the town.

2). Approach of space saturation with centre-forming elements

It is needed for the numbering of buildings (including unusual approaches), formation of light information communications and landmarks in the town, placement of the map, indicating memorial sites and historical information on them, at the control points of urban frame. It is also the design of integrated light and colour silhouette of historical space that simultaneously increases the attractiveness and recreational capacity of the environments.

3). Approach of interactivity

It is characterized by active participation of people in the formation of environment. This approach is offered to be conducted through the creation of communication tools, which must respond to human actions and be implemented on the basis of “clear” for people scenario that provides a specific result. The basis of the approach is the involvement of people in communication, interest in the urban space “study”.

The principle of modernization of transport infrastructure and dynamic technical and technological equipment is seen in the combination of different types of transport, optimal material and technical basis of pedestrian and transport complex of Ukrainian towns, creation of favourable conditions for bicycle transport, ensuring the development and wide application of modern technologies of resource and energy conservation.

A number of approaches aimed at integrated improving of the conditions of operating, visual and aesthetic qualities of the roads and their convenience for all types of transport communication, have been defined.

1) Approach of increase in comfort and safety for all road users

It is characterized by the organization of the complex of various practical and technological means, as well as elements of road improvement, to make transport infrastructure better in the town and outside it (Fig. 12 a, b).

2). Approach of aestheticization of highways and adjacent landscape

It is focused mainly on countryside areas and involves the organization of visual and sensory comfort of movement, because the road is “an original information channel, which people, who receive visual information about the surrounding area, move...
on ..." [28, 51]. The application of the approach would improve aesthetic and functional qualities of the road (Fig.13 a, b).

3) Approach of creating expressive architectural and lighting image

It is characterized by the use of energy efficient lighting sources and their structural modelling in the places of concentration of architectural heritage, greenery, picturesque landscape elements, water surfaces and elements of the pedestrian zone: windows, small architectural forms, elements of urban land improvement, sidewalks and more. The implementation of the approach is achieved by establishing permanent or temporary installations of external architectural lighting, namely, the systems of local or dynamic (multi-mode) light and colour; luminous surfaces; “light graphics”, or their combination.

CONCLUSION

We consider that the term “integration” can be a part of urban terminology system, common in Ukraine. In addition, the implementation of theoretical recommendations will be effective while applying an integrated approach to regeneration of historical urban space of Ukrainian towns in general and Western Ukrainian settlements in particular, such as Busk, Berezhany and Zolochiv. It was offered to consider the term as a process of holistic harmonious approach to urban environments, saving of valuable architectural and urban heritage in the light of their adaptation to the current needs of society.

As a result of gradual development of the existing theoretical model of integration process of historical planning and space elements in modern urban structure, theoretical tools of harmo-
nious combination of elements of different time periods, space and planning of the environments, improvement of historical urban space, its humanization have been specified. Thus, ap-
proaches have been formed relating to different areas of urban environment:
• approach to economically sustainable development of a settlement through the development of tourism services;
• increase in physical and visual comfort of people in his-
torical space and their orientation in it;
• search for modern means of socialization and communi-
cation of urban population;
• formation of ecological balance of the territory through
creating natural landscape of natural frame;
• improvement of the conditions of human movement with-
in the town and creation of effective transport commun-
ication.

The proposed approaches will contribute to the formation of
recommendations for versatile space improvement of historical
towns.

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