Section: Sustainable Urban Development

Sustainable development of Lithuanian vernacular architecture

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Abstract

Old vernacular architecture naturally embodies principles of sustainable development such as close relation with nature, healthy environment; building materials are mostly local, natural, from renewable sources. However, nowadays, old vernacular buildings do not satisfy some of the norms for a contemporary building. To ensure quality of living environment and satisfying building norms/requirements, the old structures should be renewed. When considering new buildings based on features of vernacular architecture, they also should meet current building norms. Accordingly, in many cases development of vernacular architecture meets with difficulties when trying to find the balance between tradition continuity and contemporary norms, especially when natural development was stopped and refreshed after few decades. The problem under consideration is illustrated by examples of development of vernacular buildings in the territory of Lithuania. Existing situation was analyzed and four possible ways/directions of vernacular architecture development have been recognized. The aim of the research was to reveal these ways/directions through sustainable development and tradition continuity aspect and to find their advantages and disadvantages using SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis. Based on the comprehensive analysis, research conclusions and recommendations as concerns sustainable development of Lithuanian vernacular architecture have been formulated.

Keywords: venacular building; vernacular architecture; sustainable development; sustainable living environment; SWOT.

1. Introduction

Vernacular architecture is an architectural heritage and it should be preserved or developedin the proper way.This is important aim due vernacular architecture's significance role as being legacy for future generations and reflection ofthe last centuries. Also, it is important for creating country's architectural identity.Then the question arises, what is the proper way/direction for developingthis architecture?

Several stages when searching the right way of architecture's development should be performed: 1) identification of vernacular architecture's importance and position in country's architectural and historical context; 2) answering the questions related with intention to find the way/direction for architecture's development, e.g. conservation, re-use, upgrading, demolishing; 3) identification of development possibilities; 4) analysis; 5) decision making; 6) implementation. These stages should be accomplished carefully due to vernacular architecture's importance.

Some researchers analyzed rural buildings' development through re-using, preservation, conservation, regeneration, etc., aspects.When searching rational solutions for rural buildings' development they applied multiple criteria approach for analysis[1–4]. Multiple criteria approach is helpful for solving strategic questions for buildings' development. Other researchers investigate rural buildings in energy efficiency, ecology aspects [5–6]; solve problems related with comfort [7–8]; building's external appearance [9]. Different aspects researched separatelyare helpful for improving development of buildings.

This paper analyses the development ofLithuanian vernacular architecture that is quite problematic. Natural development of this architecture was stopped and was refreshed after few decades. It is noticed that thedevelopment of Lithuanian architecture is chaotic today. Researchers specify the reasons that hinder the normal development of Lithuanian vernacular architecture as well as endanger the cultural and architectural identities. According to the researchers there are difficulties associated with architects' ignorance; contempt for ethnic culture and old traditions; disfavor on ethnic culture recovery from various institutions; public indifference to traditional ethnic culture; demographic and social problem; superficial attitude from polity; insufficient attention from academic community [10–11].

The aim of thecurrent research is to combine chaotic development of vernacular buildings into the groups – to make classification of possible development ways/directions, also to reveal these ways/directions through sustainable development and tradition continuity aspect and to discuss their advantages and disadvantages using SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis.

2. Existing situation in Lithuania and foreign experience

Analyzingthe situation of Lithuanian vernacular architecture development it was noticed that there is not enough data about the situation. For this reason the research of rural architecture for tourism was made (2013). There were 320 rural farmsteads analyzed. These farmsteadswere involved in a list of rural tourism association of Lithuania. Almost all farmsteads are not from protected areas of Lithuania.

It is important to notice that Lithuanian vernacular architecture officially and legally is propagated in the protected areas of the country. In the rest part of the country there is no directional promotion of this type of architecture. Also noticed that vernacular architecture meets with problems in both areas, but the problems are quite different in protected and other territories.

Rural tourism farmsteads were chosen due to their representativeness; also, it is quite simple to define the set for analysis. To describe the current situation the analytic and statistical methods were chosen.

Farmsteads were grouped and analyzed according to the following criteria:

- Preliminary period of construction;
- Degree of ethnography (authentic; imitation; architecture with some features of vernacular architecture; architecture without features of vernacular architecture);
- Region;
- Matching features of the regional vernacular architecture;
- Maintaining the buildings' typology;
- Materials used for construction of building's parts (wall type, roof covering, windows, etc.);
- Maintaining the sizes and proportions;
- Decoration;
- Coloring;
- Other tendencies.

About 80 percent of all researched farmsteads have old vernacular architecture's features. 14 percent of farmsteads are authentic; 2 percent – imitated (copied old vernacular architecture); 67 percent – architecture with some features of vernacular architecture; 17 percent – architecture without features of vernacular architecture.

Noticed tendencies are as follows: farmsteads that use some features of vernacular architecture are quite innovative; sometimes using the features borrowed from other countries, e.g. green roofs; proportions of the buildings not always match the proportions of traditional vernacular architecture; less decoration; new structures appeared, such as balconies; there is no solid style of rural architecture. Other group of buildings – imitated architecture –is not always a good copy of old vernacular architecture. Mostly these buildings look like a parody of previous traditional architecture. Also it is detected that regional vernacular architecture's features migrate to other regions, e.g. significant features of one region can be found in another, where these features were not promoted earlier.

In conclusion of the research of existing situation, there is no directional way of Lithuanian vernacular architecture's development. Analyzed buildings are quite different and chaotic; there is no high quality in their development. Especially the appearance is the key problem for new buildings'based on vernacular architecture features.

Meanwhile, buildings in protected areas of Lithuania meet with specific problems. The reglamentation of external appearance of the buildings is quite strict. The main problem is related with seeking for balance of tradition continuity and satisfying contemporary norms. There is quite difficult to satisfy architectural regulations for buildings in protected areas and regulations related with indoor daylighting [12]. Defined window sizes in regulations for buildings in protected areas [13] are too small and buildings with such windows do not satisfy minimal daylighting parameters [14].

The analysis of foreign vernacular architecture showed that it is possible to maintain traditional features of this architecture without big problems. United Kingdom, Ireland, Scandinavian countries preserved their architecture's features and still are continuing them in new buildings. The process of development occurs naturally there.It is identified that some of the countries such as Netherlands, Denmark experiment with their rural buildings' appearance, but the tendencies are quite visible: these buildings create new modern style, also maintain some basic traditional features of their countries; the style is quite clear and solid.Some of the mentioned countries are more conservative, while the others make compromises as concerns features that could be changed or forgotten.

3. Recognizing and evaluating ways for development of vernacular architecture

When talking about sustainable development of vernacular architecture, it is clear that old vernacular architecture naturally embodies principles of sustainable development such as close relation with nature, healthy environment; building materials are mostly local, natural, from renewable sources. However, nowadays these buildings do not satisfy some important parameters of sustainable development, such as daylighting and/or thermal performance requirements (energy saving

aspect). Buildings consume a lot of energy. Also, the quality of living environment not always is satisfied. These buildings should be renewed. When considering new buildings based on features of vernacular architecture, they also should meet current building norms. Mostly the problems for new buildings arise as concerns external appearance, when not entirely clear how to continue traditional features of vernacular architecture in the proper way.

After the analysis of Lithuanian and foreign experience, four possible ways/directions of vernacular architecture's development are suggested:

− Conservative;
− Innovative;
− Conservative + Innovative;
− Alternative.

Conservative way/directiondescribes architecture that maintains traditional features of vernacular architecture without changes or changes are too small and do not make a significant influence for architectures appearance.

Innovative way/direction creates modern rural style with intention to maintain one or few significant old vernacular architecture's features, e.g. form, texture and so on.

Conservative + innovative way/directioncombines traditional features with modern solutions. This way/direction seeks balance between old and new features.

Alternative way/directioncreates new rural style without intention to save old vernacular architectures' traditional features.

Figure 1 a-c illustrates three of suggested possible ways/directions of vernacular architecture's development, except alternative way, quite visually.

(a)

(b)

(c)

Fig. 1. Architectural examples illustrating different possible ways of vernacular architecture's development: a) conservative [15];
b) innovative [16]; c) conservative + innovative [17]

It is quite difficult to decide which way/direction is the best for development of vernacular architecture. Accordingly, it is suggested to perform SWOT (strengths-weaknesses-opportunities-threats) analysis for each way/direction. The utility of SWOT analysis has been widely promoted by researchers due to its effectiveness in identifying the key issues concerning a problem and the simplicity of its execution. The former is essential for successful strategy formulation and the latter is important for practitioners to make use of it. The preliminary strengths, weakness, opportunities and threats of each way/direction are described in Tables 1–4.

Table 1. SWOT analysis of Conservative way/direction

Strengths	*Weakness*
– Traditional features or the architecture are saved without their changes or with minimal changes	– Do not reflect the technological advancement – Do not satisfy contemporary living norms – Do not meet Technical Construction Regulations (daylighting and thermal performance norms) – Too strict requirements for architecture in protected areas; situation of architecture's development is uncontrolled in other parts of the country – Lack of attractiveness – Limited scope of using new technologies
Opportunities	*Threats*
– Upholding the ancient crafts	– Easy to turn to straightforward copying pieces – Easy not to meet requirements in the proper way

Table 2. SWOT analysis of Innovative way/direction

Strengths	*Weakness*
– New technologies and modern solutions – Sustainability – Attractiveness – Meets the needs – Satisfying the technical construction regulations	– Partly do not satisfy architecturalreglamentations for buildings in protected areas
Opportunities	*Threats*
– Activation of public interest – Upholding the ancient crafts	– Possible to loose basic features of Lithuanian vernacular architecture

Table 3. SWOT analysis of Conservative+Innovative way/direction

Strengths	*Weakness*
– Consistency of old and new – New technologies and modern solutions – Saving basic features of Lithuanian vernacular architecture – Satisfying the technical construction regulations	– Partly do not satisfy architectural reglamentations for buildings in protected areas
Opportunities	*Threats*
– Activation of public interest – Upholding the ancient crafts – Sustainability – Possibility revitalize the architectural identity – Increasing values	– Inability to reconcile the old and the new

Table 4. SWOT analysis of Alternative way/direction

Strengths	*Weakness*
– Freedom for creativity – Meets the needs – Sustainability – Satisfying the technical construction regulations	– Difficult to define in advance what style of architecture should be used – Do not satisfy architectural reglamentations for buildings in protected areas
Opportunities	*Threats*
– Creating new architectural identity in global context – Upholding the ancient crafts	– Disappearance of old vernacular architecture's features

Criteria for assessment of development ways/directions are based on four components that are important for today's architecture: architectural heritage, requirements (norms), energy and comfort. Consistency between these four components is a key step to sustainable development of old vernacular architecture.

Based on the SWOT analysis it can be concluded that every of suggested vernacular architecture's development ways/directions have their advantages and disadvantages. It is quite difficult to decide which way/direction is the best. For precise and more objective ranking the SWOT method could be coupled with Multiple Criteria Decision Making (MCDM) methods. Also, in real life, public factors may occur, that influence the possibilitiesand ways of development.

4. Conclusions

This paper was focused on sustainable development of vernacular architecture. The study of homesteads for rural tourism showed the existing situation of vernacular architecture's development in Lithuania. It was concluded that the situation is chaotic and problematic today. Lithuanian vernacular architecture has no directional way of its development.

After analysis of Lithuanian and foreign experience, four development ways/directions were suggested: conservative, innovative, conservative + innovative, alternative.

SWOT (Strengths, Weakness, Opportunities and Treats) method was suggested for analysis of these ways/directions in detail. Preliminary advantages and disadvantages of each way/direction were presented.

For precise ranking the proposed SWOT method could be applied jointly with Multiple Criteria Decision Making methods for evaluating alternative decisions.

Also it is concluded that the public factor is significant and there is a possibility, that more than one way/direction for vernacular architecture's development can be acceptable for real life application.

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