

*Mária Kozlovská<sup>1</sup>, Jozef Švajlenka<sup>2</sup>, Zuzana Struková<sup>3</sup>*

## **ARGUMENTS FOR MARKETING BENEFITS OF SUSTAINABLE BUILDINGS**

### **Abstract**

**Sustainability of construction is essential for overall health and functioning of the whole environment. Investors and users are increasingly interested in this aspect of the project and the level of "greenness" is therefore also an important economic and marketing factors. Different certification schemes applied to environmental, economic and social sustainability factors are spreading also to the marketing factors. The paper analyzes the further dimension of green building certification as a tool for competitive advantage. Marketing benefits are researched in foreign but also domestic sources, where is analyzed potential for the development of sustainability evaluation of residential buildings in Slovakia.**

### **Green buildings and systems for the evaluation of the buildings sustainability**

The term green building as a synonymous of the term sustainable construction is based on principles of sustainability. According to Brundtland [1] sustainability means the ability to satisfy current needs without detriment of satisfying the future needs of life on Earth. It is a condition of a complex dynamic system which can permanently prosper without leading to its internal collapse or resource requirements beyond the defined limits of the system.

Green buildings are efficient in the use of resources (energy, natural and social) and environmentally friendly throughout their life cycle - from site selection and project solutions through the construction process, the operation of the building, to their eventual renewal or disposal. Ecological as well as economic factors, quality of construction, and durability of the structure play an equally important role in their design. According to Governor's Green Government Council [2] the main goal in sustainable construction is to minimize the negative impact on human health and the environment through the efficient use of energy, water and other natural resources, limiting waste, pollution and environmental degradation and health protection of users of these buildings.

In the states of European Union, but not only in them, is trend to construct the green buildings that reflect not only on lowering operational costs but also the social need for sustainable development from the tenants, investors and government. The term "green buildings" is not clear and it influenced the creation of different certification systems for the evaluation. These systems contain more or less different criteria of sustainability.

Over the past 15 years was created several certification systems. Most of countries have developed their own certification system, and therefore more than 60 exist today at the national level. Although the core of any certification is the same, they can be different in view

---

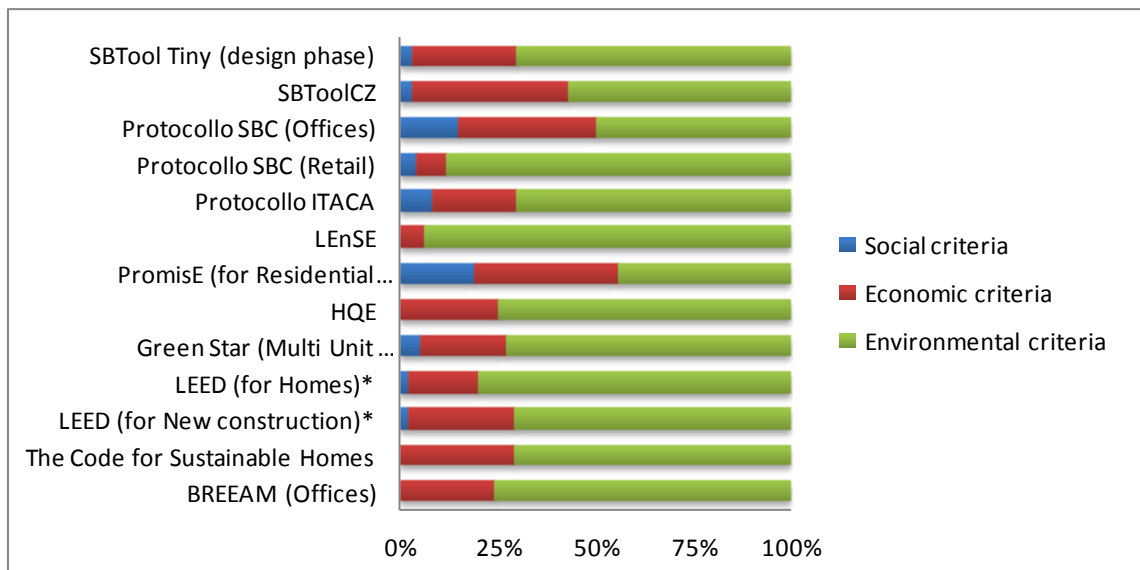
<sup>1</sup>Kozlovská, Mária, prof. Ing. PhD., Technical University of Košice, Civil Engineering Faculty, maria.kozlovska@tuke.sk

<sup>2</sup>Švajlenka, Jozef, Ing., Technická Technical University of Košice, Civil Engineering Faculty, jozef.svajlenka@tuke.sk

<sup>3</sup>Struková Zuzana, Ing., PhD., Technical University of Košice, Civil Engineering Faculty, zuzana.strukova@tuke.sk

of climate, geographic location, traditions of construction technology, material base etc. In general, local evaluation methodology is used, but also in some countries the methodology of other organizations are used with corrections for the specific conditions of the country. The best known and most accepted certification systems include the American LEED, British BREEAM, German DGNB, internationally recognized, Australian Green Star, France HQE, Fin PromisE, European LEnSE, Italian Protocollo ITACA and Protocollo SBC.

Various evaluation systems differ by demands and evaluation criteria. According to Lupíšek [7] in almost of all investigated systems the greatest importance is on environmental criteria. The other two sustainability criteria - economic and social - are reflected in systems by larger (economic) or smaller (social) scales (Graph 1).



Graph. 1 Distribution of weights between groups of criteria in selected evaluation systems. (prepared according the source [7])

According to Hodková [8] as key are considered criteria, which determine the impact on the environment in terms of energy consumption from non-renewable resources and associated emissions. According to Hájek [9] among the most common categories of environmental impacts considered in the assessment of buildings are considered:

- global warming potential - GWP (global perspective)
- ozone depleting potential - ODP (global perspective)
- acidification - AP (from a regional point of view)
- eutrophication of water - EP (from a regional point of view)
- depletion of natural resources (from a regional and global perspective)
- disposal of waste (from a regional and global perspective)
- air pollution
- hazard environment

The certification of a building can be considered at any phase of the design, construction or use of the object. It is best to incorporate it already during the project preparation. There are differences between certificates, therefore the selection of the certification system is an important step. There are certificates that are difficult to reach and more valued. The more familiar certificate a building obtains, the better presents itself to the public and gains competitive advantage.

According to Dobiáš [17] the operational phase of building projects is directly affected by the building design, as well as by the itself implementation. If there are used certification

systems for control processes of building design , the cost of future users can be significantly affected. These consider not only the directly measurable savings in the operation of buildings. Factors such as employee efficiency, incapacity, views to the surroundings or the quality and quantity of supply air, affect the productivity of users. It is logical that the construction of green buildings can cause increased investment funds, whether it is the cost of construction or for rent. Finally these costs are balanced by reducing operating costs and increasing by energy factors affecting productivity.

## Overview of marketing benefits of sustainable buildings

Within a competition for the quality of construction and also the customer, according to Adamuščin [4] the trend of the sustainability evaluation in Slovakia gradually getting to the awareness of investors, developers as well as users. The benefits of environmental assessments will take effect not only in savings on operation costs, but also the quality of the indoor environment, used technologies, materials and other criteria. Reasons for certification according to Albl [5] are the following:

- marketing - investment funds and financing banks prefer certified building, which considered as safe investment,
- commercial - certified building is attractive to tenants due to lower operating costs, the building has a higher value on the real estate market,
- ethics - an investor or tenant of a certified building shows his social responsibility,
- public - recently in the U.S. and Europe is a significant trend to live in certified buildings, and contribute to the sustainability.

Benefits of renting, selling and occupancy of green buildings compared to non-green buildings and are confirmed by foreign studies processed by Benson and Macholda [3] in Table 1.

Table 1 Benefits of renting, selling and occupancy of certified green building [3].

Studies	Premium when renting	Premium selling price	Premium availability
Fuerst a McAllister (2011)	4-5 %	25-26 %	1-3 %
Eichholts a kol. (AER)	3,3-5,2 %	11-19 %	7 %
Eichholts a kol (RICS)	2,1-5,8 %	11-13 %	6-7 %
Pivo a Fisher	2,7 %	8,5 %	not been established
Wiley a kol. (2010)	7-17 %	not been established	10-18 %
Miller a kol. (2008)	9 %	-	2-4 %

Despite the ongoing global economic crisis, and paradoxically thanks to her, investors, developers and tenants are increasingly focusing on sustainable building. According to Adamuščin [4] green buildings mean increased costs for developers in the preparatory and implementation phases but in rental and sales phase, increasing the value of returns and thus the value of the building. For renter this means improving the environment, lower operating costs and not least the improve prestige of the tenant. For investors green buildings are less risk in the long term, because of the increased competitiveness in re-renting, and because of the possibility of achieving a higher rent. Non-certified buildings will be at a disadvantage, considering the increasing pressure on energy efficiency and durability of the building, and as a result of the need to meet requirements of European legislation. Saylor [6] submits as the advantages of certified green buildings the followings:

- higher rents (6% higher than non-green buildings),
- higher selling prices (16% higher than the non-green buildings),

- lower cost of building vacancy,
- lower energy costs,
- increased demand from tenants,
- higher the value of the building and its longer-term sustainability,
- higher and longer-term value of the building in the future.

Saylor [6] further submits the following comparison of green buildings performance and non-green buildings in Table 2.

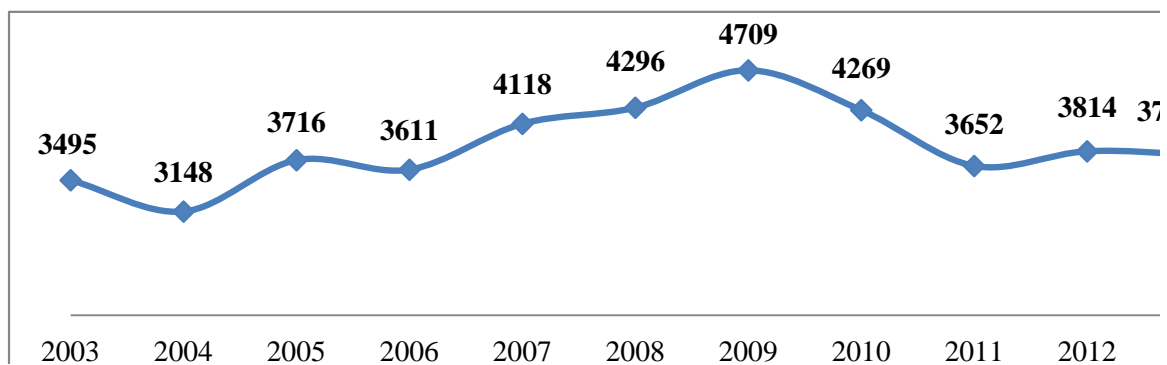
Table 2 Comparison of green buildings performance and non-green buildings [6].

Increase	Reduction
<ul style="list-style-type: none"> <li>- rent about 3% - 6%</li> <li>- occupancy about 3.5%</li> <li>- return on investment about 6.6%</li> <li>- construction value about 7.5%</li> <li>- selling price about 16%</li> <li>- users satisfaction about 27%</li> </ul>	<ul style="list-style-type: none"> <li>- in maintenance costs about 13%,</li> <li>- energy consumption about 26% - 50%</li> <li>- water consumption about 40%</li> </ul>

These arguments contribute to the overall quality of buildings. Certified buildings in the near future will become standard. Value certified buildings will be more stable compared to that of the other. So the main incentive for investors is the expectation of future development. The reason for the price difference is admittedly higher quality certified buildings and also guarantee of sustainable investment value. This expectation strongly corresponds with the increasing trend of moving towards sustainability as a whole.

## Potential for the development of sustainability evaluation of residential buildings in Slovakia

Information about the current, even though limited potential for sustainability demonstrating of residential buildings, provide the Statistical Office of Slovak Republic. According to data (graph.2) number of completed flats in Slovakia (which received occupancy permit) from 2003 to 2009 constantly grew. The consequences of the global economic crisis of 2009 reflected in a multi-year decline, which was caused by dip of demand. Economic crisis, despite its negative effect, brought to the market a few positives. Tenants began to make greater demands on the quality of the property as well as its operating costs. Here opens the potential for demonstrating of complex quality through evaluation systems of buildings sustainability. Since 2011, has even recorded a slight increase in the number of completed dwellings in Slovakia.



Graph. 2 Development of the number of completed apartments in Slovakia [19].

Currently also in Slovakia extends the trend of living in polyfunctional flat buildings, which greatly enhances the quality of housing, the parameters of sustainability but also their market potential. According to surveys, processed at our workplace on a sample of 55 construction projects in the segment of residential buildings up to 44% is polyfunctional. For polyfunctional buildings the proportion of useful area for dwellings is around 64%. For the owner of the building is equally important to address the quality of his properties to the future tenants of residential as well as commercial space.

Availability of the number of flats in construction projects varies depending on the size of the residential complex. For residential complexes with more objects varies from 68 to 606 dwellings, in blocks of flats from 13 to 119 flats. The size of dwellings is in the range from 23 m<sup>2</sup> over 283 m<sup>2</sup> and the average area of the flat is 70 m<sup>2</sup>.

The mentioned potential and arguments for evaluation and certification of buildings also in terms of marketing benefits create good preconditions for a wider application of the principles of sustainability of construction.

## Conclusion

Building design increasingly takes into account of environmental, economic and social criteria of sustainable development principles. A complex perception of construction provides potential investors, users or administrators a better idea of the operational savings potential as well as marketing benefits of property. The paper gives an overview of systems for the evaluation of the buildings sustainability and distribution of weights between groups of criteria in selected evaluation systems. The study of foreign funds provides overview of marketing benefits of sustainable buildings. There are demonstrated marketing benefits in the field of rent, return on investment, construction value, selling price or satisfaction of users. Sustainable buildings provide a higher efficiency, which ultimately will increase the efficiency of the whole construction industry. Examination of the segment of residential buildings in Slovakia demonstrates a significant proportion of polyfunctional residential home amounting 44%. Paradoxically, due to economic crisis occurs the demand for increasing quality of real estate. A series of arguments creates very good conditions for extending evaluation of the sustainability of buildings.

## References

- [1] Brundtland, G.H. a i. 1987. Our Common Future. Oxford University Press, Oxford, 1987, ISBN 019282080X.
- [2] Governor's Green Government Council, Pennsylvania, What is a green building?, [cit 2014-02-20], Available on the Internet: <[http://www.epa.gov/statelocalclimate/documents/pdf/12\\_8\\_what\\_is\\_green\\_GGGC.pdf](http://www.epa.gov/statelocalclimate/documents/pdf/12_8_what_is_green_GGGC.pdf)>.
- [3] Benson, C. – Macholda, F., LEED certification in the Czech Republic (Part I), 2012, [cit 2014-02-26], Available on the Internet: <<http://www.czgbc.org/zpravy/zprava/157/certifikace-leed-v-ceske-republice-cast-i.>>.
- [4] Adamuščin, A., Economic benefits of green buildings and certificates for sustainable construction, Nehnutel'nosti a Bývanie ISSN 1336-944X, [cit 2013-11-23], Available on the Internet: <[http://www.stuba.sk/new/docs//stu/ustavy/ustav\\_manazmentu/NAB20121/paper2.pdf](http://www.stuba.sk/new/docs//stu/ustavy/ustav_manazmentu/NAB20121/paper2.pdf)>.
- [5] Albl, P., Green building and certification, 2012, [cit 2014-02-23], Available on the Internet: <<http://www.asb-portal.cz/architektura/stavby-a-budovy/administrativni-budovy/zelene-budovy-acertifikace>>.

- [6] Saylor, D., Advantages and Disadvantages of Green Building, Colliers international, 2010, [cit 2014-02-23], Available on the Internet: <[http://amcham.pl/file/pdf/devin\\_saylor.pdf](http://amcham.pl/file/pdf/devin_saylor.pdf)>.
- [7] Lupíšek, A., Doctoral thesis - Multi-criteria assessment of buildings in context of sustainable building, 2013, [cit 2014-02-20], Available on the Internet: <[http://www.google.sk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CC8QFjAA&url=http%3A%2F%2Fkps.fsv.cvut.cz%2Ffile\\_download.php%3Ffid%3D3700&ei=eEFU5TUGIWzywPV1YDAAw&usq=AFQjCNG\\_woFMiyMtPZDMNs7dFGy6\\_9gsTQ&bvm=bv.61725948,d.bGQ](http://www.google.sk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CC8QFjAA&url=http%3A%2F%2Fkps.fsv.cvut.cz%2Ffile_download.php%3Ffid%3D3700&ei=eEFU5TUGIWzywPV1YDAAw&usq=AFQjCNG_woFMiyMtPZDMNs7dFGy6_9gsTQ&bvm=bv.61725948,d.bGQ)>.
- [8] Hodková, J.: Která izolace je nejvíce eko? Praha: Ekolist, 2011, [cit 2014-02-25], Available on the Internet: <<http://ekolist.cz/cz/publicistika/nazory-a-komentare/julie-hodkova-ktera-tepelna-izolace-jenejvice-eko>>.
- [9] Hájek, P.: Udržitelná výstavba v podmínkách České republiky. Konference Dřevo – materiál pro 3. tisíciletí. Brno: IFB, 2002, [cit 2014-02-25], Available on the Internet: <[http://www.substance.cz/soubory/uv\\_drevo.pdf](http://www.substance.cz/soubory/uv_drevo.pdf)>.
- [10] Eichholtz, P. - Kok, N. - Quigley, J. M., Sustainability and the Dynamics of green Building. European Centre for Corporate Engagement, Maastricht, the Netherlands, 2010.
- [11] Fuerst, F. - Mcallister, P. M., Green noise or green value? Measuring the effects of environmental certification on office property values. 2008.
- [12] Eichholtz, P. - Kok, N. - Quigley, J. M., Doing well by doing good? Green office buildings. The American Economic Review, 2010.
- [13] What LEED Is. U.S. Green Building Council, [cit 2012-08-30], Available on the Internet: <<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988>>.
- [14] Spišáková, M. – Hyben, I. – Heredoš, P., Assessment of environmental risks during the construction process, In: SGEM 2012: 12th International Multidisciplinary Scientific GeoConference, Albena, Bulgaria. 2012.P. 75-82.
- [15] Tažiková, A. – Pokryvková, J., Analýza nákladov zateplenia bytového domu, 2012, In: Správca bytových domov. Roč. 7, č. 5 (2012), S. 34-37.
- [16] Košičanová, D., - Košičan, M., Energy facility management, In: SGEM 2012 : 12th International Multidisciplinary Scientific GeoConference, 2012, Albena, Bulgaria. P. 485-491.
- [17] Dobiáš, J. - Vliv konceptu zelených budov na provozní fázi výstavbového projektu, [cit 2014-03-12], Available on the Internet: <[http://people.fsv.cvut.cz/~k126/docs/konference/mest/2013-udrzitelnost/P%20C5%99%C3%ADsp%C4%9Bvky%20v%20pdf/DOBI%C3%81%C5%A0\\_Vliv%20konceptu%20zelen%C3%BDch%20budov%20na%20provozn%C3%AD%20f%C3%A1zi%20v%C3%BDstavbov%C3%A9ho%20projektu\\_prispevek.pdf](http://people.fsv.cvut.cz/~k126/docs/konference/mest/2013-udrzitelnost/P%20C5%99%C3%ADsp%C4%9Bvky%20v%20pdf/DOBI%C3%81%C5%A0_Vliv%20konceptu%20zelen%C3%BDch%20budov%20na%20provozn%C3%AD%20f%C3%A1zi%20v%C3%BDstavbov%C3%A9ho%20projektu_prispevek.pdf)>.
- [18] Štatistický úrad SR, [cit 2014-03-25], Available on the Internet: <<http://portal.statistics.sk>>.
- [19] Výstavba bytov, [cit 2014-03-25], Available on the Internet: <<http://reality.etrend.sk/reality-grafy/vyvoj-poctu-bytov.html>>.
- [20] Huttmanová, E. – Chovancová, J. – Rusko, M., REGIONAL DISPARITIES IN THE FIELD OF QUALITY OF HUMAN LIFE AND SUSTAINABLE DEVELOPMENT, Nehnutel'nosti a Bývanie 2009/2, ISSN 1336-944X, [cit 2013-11-23], Available on the Internet: <<http://www.rozvojbyvania.sk/>>.