

# Value – the Perspective Matters

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**This paper should provide a short overview about the diverse value aspects and present different views on value creation in developed and developing real estate markets. Also, further framework definitions for this workshop are introduced like the definition for built environment or sustainable buildings.**

**In addition this paper intends to set the scene for the thoroughly researched and very interesting papers as follows by our colleagues from United States of America, United Kingdom and India that are going to be completed by more oral case study presentations and critical reflections of the work shop topic from South Africa and India.**

## 1 Introduction

In the general perception, sustainable constructions need extra effort, extra work and extra money. Several studies show that through lowered utility costs these additional expenses hardly pay back over the considered life time. Within these calculations and the argumentation planning and construction sustainably does not pay off in a reasonable period of time, the additional financial value creation of such constructions is seldom taken into account. To address this problem and show the actual performance of sustainable constructions, a two-step approach is required. As a first step the additional value of sustainable constructions needs to be investigated. In a second step these findings have to be integrated in the respective calculations of profitability.

The aspect of value creation can be explained in different ways. For example, direct financial value creation can take place by generating higher sales and rental prices for sustainable buildings. On the other hand also indirect value creation should be considered such as enhanced quality for living/working or decreased external effects.

Highlighting the possible value that is created by sustainable planning, construction and operation and integrating it in the calculations should foster the sustainability movement within the construction industry. Within the context of the Holcim Forum workshop “Overall value: Harnessing all benefits from sustainable construction” we would like to shed light on a modern perspective of financial value of buildings taking into consideration the benefits and costs of constructions to all members of society, including economic, ecological and social benefits and costs.

## 2 Definitions

### 2.1 The built environment

The built environment plays a significant role in sustainable development and is a major focus of attention within the environmental movement. In addition to indirect impacts, such as deforestation and the concomitant desertification and soil erosion, the eutrophication and acidification of water sources, biodiversity loss, and the generation/release of toxic substances and endocrine disruptors (Kibert, 2008), the built environment directly increases environmental degradation by consuming 40% of the world’s energy, 40% of the world’s materials, 55% of the wood cut for nonfuel use and 12.2% of the total water used (Hoffman and Henn, 2008, U.S. Green Building Council Research Committee, 2008, UNEP Sustainable Buildings & Climate Initiative (SBCI), 2006, Roodman et al., 1995).

Buildings play a central role within the built environment (Fig. 1).

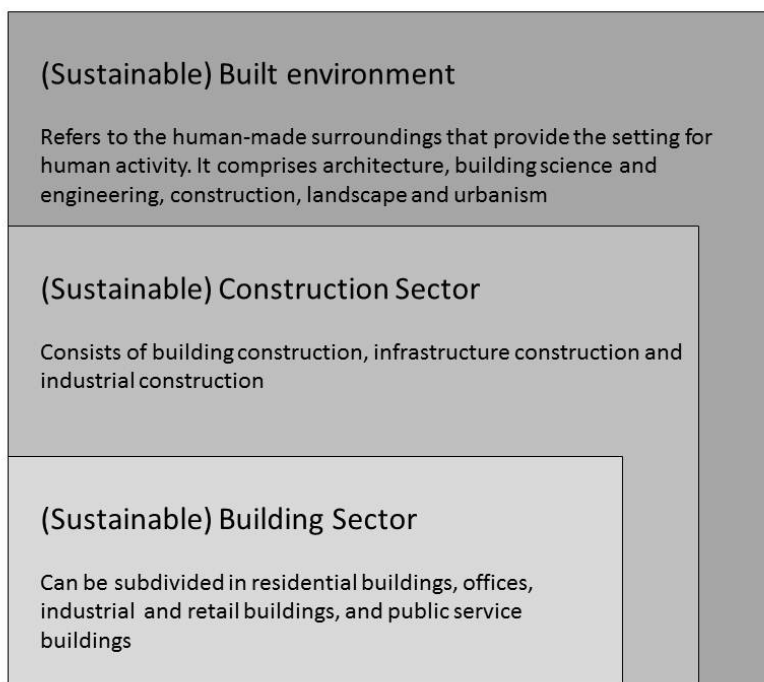


Figure 1: The role of buildings within the built environment (Feige et al. 2011, p. 505)

As shown in a UNEP preparatory report for the IPCC 4th Assessment (Levine et al., 2007), worldwide building-related CO<sub>2</sub> emissions (including electricity usage) are expected to grow from 8.6 billion tons in 2004 to 11.4 billion tons as a low-growth scenario or to as high as 15.6 billion tons by 2030 as a high-growth scenario. This represents approximately 30% of global anthropogenic emissions. However, with proven and commercially available technologies, the energy consumption in both new and existing buildings can be reduced by an estimated 30%–50% without significantly increasing investment costs (Cheng et al., 2008, Laustsen, 2008). These numbers demonstrate both the high impact of the building sector on the environment and the underlying potential to decelerate the increasing impact of this sector.

The proportion of sustainable, green or energy efficient buildings that have actually been built remains low despite the clear importance of the building sector in the process of environmental change and the increasing popularity of the topic of sustainability within the building sector, which is underlined by the number of sustainable and green building certificates and tools such as LEED (US, Leadership in Energy & Environmental Design), BREEAM (UK, Building Research Establishment Environmental Assessment Method) or DGNB (Germany, German Sustainable Building).

## 2.2 Sustainable building

Although sustainable development is such an ever-present topic, there is no broad agreement for the real estate sector as to what constitutes a sustainable building. The existing terminology is often used incorrectly, which leads to confusion. This is especially evident by the fact that ‘green building’ and ‘sustainable building’ are often used interchangeably for buildings that exhibit sustainable attributes. In contrast to the broad definition of sustainable buildings, green buildings are primarily concerned with environmental aspects. Accordingly, a green building is “a high-performance property that considers and reduces the impact on the environment and human health.

“A green building is designed to use less energy and water and to reduce life-cycle environmental impacts of the materials used” ((Yudelson, 2008) p. 13).

This confusion in terminology can also be seen throughout the building labeling discussion. Even though they are advertised as tools to evaluate sustainability, most of the existing labeling tools are using a limited approach and generally concentrate on technical aspects, and therefore, implicitly on environmental sustainability – see, amongst others, Haute Qualité Environnementale (HQE), the Building Research Establishment’s Environmental Assessment Method (BREEAM), LEED, etc. (Wallbaum, 2008).

Introduced in 1990 in the UK BREEAM is the oldest and certified more than 200,000 buildings. Hence it is the system that has the most certified buildings - but only 76 of them outside the United Kingdom. BREEAM is used primarily in new residential buildings. This widely used in the UK is funded by state guidelines. For example, new houses need to be certified according to "BREEAM Code for Sustainable Homes". Reviews in Europe are carried out mainly with the system version "BREEAM Europe

Commercial", which allows the consideration of European and country-specific standards for the certification of commercial properties.

The American system LEED has been developed in the late 1990s by the U.S. Green Building Council (USGBC), a national non-profit organization. Thanks to good marketing LEED belongs to the world's most recognized certification systems. The number of certifications is a total of over 24 000. The focus of the LEED certification is located in residential buildings in the United States. Originally designed for the American market the system rests on the American standards (ASHRAE) and standards even today. Reviews outside the U.S. are in general possible since October 2011. For certain criteria local standards may be used if they meet the U.S. requirements. Success stories are the creation of national chapters, like LEED India, LEED Brazil etc. This kind of "green building certification and labeling systems" is often called "First generation systems".

Hence, a clear differentiation of sustainability, especially from 'green building' definitions, needs to take place (Lützkendorf and Lorenz, 2007). Following this previously described definition of sustainable development, in sustainable buildings the multiple pillar concept needs to be considered over the entire life cycle of the property, starting from the planning process, over construction, operation and renovation processes, up to the demolishing and recycling processes. Throughout all of its physical criteria, a sustainable construction or a sustainable building needs to serve economical, ecological and social criteria that are beneficial or at least not harmful for the current and future generations. These holistic systems are often called "Second generation systems" in comparison to the aforementioned "green building systems" and a representative of this category is the German DGNB-system.

The DGNB was the 2007<sup>th</sup> of the German Sustainable Building Council and the Federal Ministry of Transport, Building and Urban Development based on office buildings developed. Since the launch of DGNB early 2009, over 300 certificates awarded DGNB and created more profiles for other building types. The DGNB was developed specifically for the German construction industry and is therefore based primarily on the German standards (DIN) and guidelines (VDI). An internationalization of DGNB system started in 2010 by the introduction of "DGNB International", which is supported on standards and requirements of the European Union and to enable worldwide use and comparability of the label.

Taking these thoughts into account, Lützkendorf and Lorenz present a very detailed definition of sustainable buildings ((Lützkendorf and Lorenz, 2007) p. 646).

"A sustainable building is meant to be a building that contributes – through its characteristics and attributes – to sustainable development. By safeguarding and maximizing functionality and serviceability as well as aesthetic quality, a sustainable building should contribute to the minimization of life cycle costs; the protection and/or increase of capital values; the reduction of land use, raw material and resource depletion; the reduction of malicious impacts on the environment; the protection of health, comfort and safety of workers, occupants, users, visitors and neighbours; and (if applicable) to the preservation of cultural values and heritage."

This approach describes the holistic understanding of sustainability applied within this paper.

### 2.3 Value

When discussing real estate, value refers mainly to *market value* and is thus defined financially.

However, value can be understood in many different ways. It can be categorized as market value, social value, value in use, cultural value, etc. The perception of value can be very personal and differs from actor to actor. According to Jonathan Alter (2010), value can be described as:

"A principle, standard, or quality considered worthwhile or desirable."

Carl Menger (2007) defines the value of goods in the following statement:

"The value of goods arises from their relationship to our needs, and is not inherent in the goods themselves. With changes in this relationship, value arises and disappears." ((Menger, 2007) p. 120)

Individual value can be difficult to measure. Regarding property valuation, one way of quantifying value in financial terms is the observation of the market value. The market value is defined as follows:

"Market Value is the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arms-length transaction [...]" ((IVSC, 2003) p. 96)

The exact market value can, of course, only be determined right at the moment of transaction. However, there are other methods to estimate market values. One way to calculate such estimations is the *income capitalization approach* or *income approach to valuation*. Here the annual income of the property is measured to estimate the market value. This approach is often used to value commercial and investment properties.

Another value calculation method is the *cost approach*. With this method the value of a property can be estimated by summing the land value and the depreciated value of any improvements or construction costs. The cost approach is considered most reliable when used on newer constructions.

A third approach is the *sales comparison approach*. The sales comparison approach in a real estate appraisal is based primarily on the principle of substitution. This approach assumes an investor will pay no more for a property than it would cost to purchase a comparable substitute property. Hence, recent sales prices for comparable buildings are reviewed and the market value is determined based on that information.

The appraiser can generally choose from these three approaches to determine a building's market value.

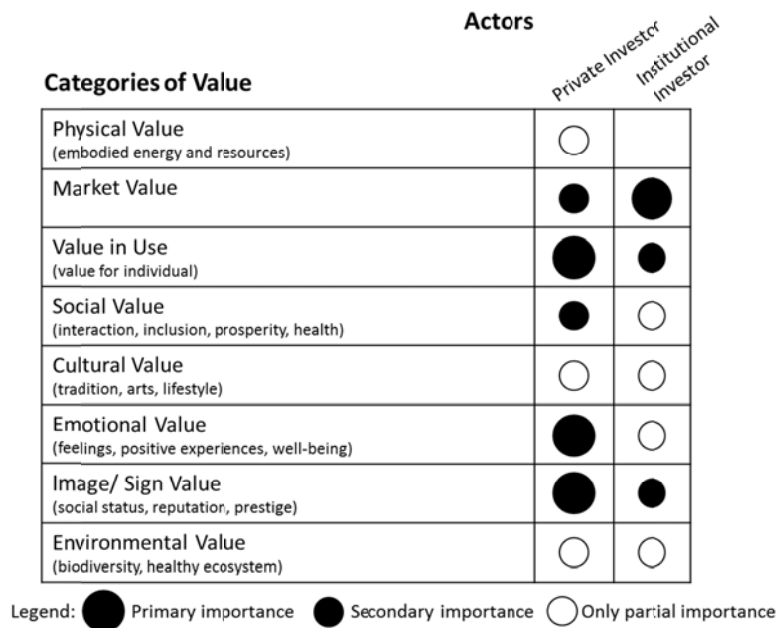


Figure 2: Categories of Building Value (adopted from (Lorenz, 2010))

In contrast to market value other value categories cannot be calculated and quantified so easily. However, this does not mean that they are less important. Lorenz states (Lorenz, 2010) that different real estate investors have different value preferences (see 2). According to him institutional investors are focused mainly on market values and partly on *value in use*, as well as *image or sign value* (social status, prestige, identity). Private investors on the other hand focus mainly on value in use while also considering *emotional value*, *sign value*, *social value* and market value. These different categories of property values are, according to the method of hedonic modeling, influenced and determined through certain property characteristics.

### 3 The importance of Value in the global context

Value creation through sustainable construction can occur in many possible ways. The kind of value which is created through the building depends while using different points of view: The diverse stakeholders of the construction or real estate industry have varying interests and thus different value preferences. Also stakeholders in different cultural and social contexts have varying needs. The following papers show three examples for value discussions in unlike conditions (developed vs. developing countries) and from different perspectives (investor vs. user).

#### 3.1 Development countries

Probably the most important finding of recent literature review is that nearly all studies examining the effects of voluntary and compulsory environmental certification on the prices of real estate assets find a positive effect of superior environmental performance. This is or would be an important value effect for building owners and investors. However, the studies have limits. Patrick McAllisters paper discusses this point more in depth. His paper evaluates the contribution that empirical research on the financial effects of superior environmental performance in real estate assets can make to providing reliable and useable information to market participants. The first part of the paper assesses the key financial metrics of real

estate assets that may be affected by superior environmental performance. The main a priori expectations will be outlined. This is followed by a discussion of some limitations of the existing body of research. The systematic review finds that nearly all studies examining the effects of voluntary and compulsory environmental certification on the prices of real estate assets find a positive effect of superior environmental performance. However, it is pointed out that much of the research is preliminary and contingent upon sample size and sampling period.

As the extensive literature review of Patrick McAllister shows, when people think about the financial benefits of green buildings in the commercial sector, they often reflect first on the direct financial value from a market or real estate perspective, such as whether such buildings might result in higher sales or rental prices, or decreased vacancy rates for leased space. Next, they might think of the financial value associated with reduced operating costs from lower energy or water consumption. But perhaps one of the most significant financial benefits of green buildings is the very one that is most difficult to quantify - improved indoor environmental quality (IEQ). Gail Brager will elaborate on this issue in her paper.

She shows that a variety of building design and operational strategies affect IEQ, which in turn affects various human response factors (occupant comfort, well-being, health, and productivity). These can have significant negative or positive financial implications. In the broadest of terms, the potential costs of poor IEQ can be thought of as direct medical costs associated with health problems caused by the building, or indirect costs related to reduced individual performance, which could either be because of higher absenteeism or - more often - reduced effectiveness when one is at work. The benefits of good IEQ are either related to minimizing these negative implications, or creating positive effects such as improved recruitment and retention of employees, and lower cost of building maintenance due to fewer complaints, and enhanced worker effectiveness. Gail Brager presents two positive building examples equipped with technologies which are designed to enhance user comfort and simultaneously save energy.

Giving an overview about the importance of sustainable construction and its value effects in developing countries Vishnu Swaminathan describes the importance and the current developments regarding Building Certification Systems in India.

#### **4 Conclusions**

Generally it can be stated that value creation through sustainable construction is difficult to detect and often leaves room for discussion or doubts. One problem is the variety of value aspects. Whereas various and established approaches exist to quantify the value of real estates in financial terms some value aspects are "soft factors" and can hardly be calculated. Therefore, really proving all sorts of value aspects is a complicated and finding empirical proof is a challenging task. The lack of data (especially long time developments) and methodological problems are drawbacks in research. However, several studies indicate that value can be created in different ways and truly sustainable buildings might have – at least in the long run – a competitive advantage and offer additional values for tenants, employees, employers and last but not least for the entire society.

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