

# **PROCURING AND FINANCING SUSTAINABLE BUILDINGS**

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## **Summary**

A contribution to the implementation of principles for sustainable development consists in the increased construction and use of energy-saving, resource-efficient, healthy and cost-effective buildings that offer high quality in terms of aesthetics and their integration into urban planning as well as above-average technical and functional performance. Even though the importance of sustainable buildings has been gaining in recognition in recent years (not only to environmental protection and health and safety but also to job retention, the further development of technologies and the profitability of property companies), a question remains over how a wider propagation and increased market transformation can be supported. This paper analyses whether and how the instruments of procurement and financing, as well as new products (e.g. sustainable property funds), are able to support this development and which prerequisites will need to be fulfilled.

## **1 Current themes and trends**

### **1.1 Strengthening the demand for sustainable properties**

While planners and contractors offered building designs aligned with the principles of sustainable development in the form of green buildings or sustainable properties for some time, these concepts aroused little interest on the part of investors, property owners and lessees. In the private property industry, this resulted in a vicious circle, which has initially hindered demand growth and must now be overcome. (Cadman 2000; RICS 2008). Although the public sector would incorporate traditional aspects of environmental protection and health and safety into its invitations to tender for construction work and its decision to allocate contracts, there was often a lack of solid guidance and assessment benchmarks. This situation has completely changed since.

In many countries, the public sector is trying to play an even stronger leading role in the implementation of sustainable development principles in the construction and property industries, including properties for own use. Laws and regulations are being drafted, funding programmes are being developed, requirements for spatial development, urban development and individual buildings are being integrated into national sustainability strategies, and aspects of sustainability are being taken into consideration as part of public procurement, including in the invitation to tender for construction work and the allocation of contracts. In the process, the basis for assessing the cost-effectiveness of a package of measures often shifts from assessing investment costs to determining and evaluating life cycle costs.

In connection with a social change in values, the use of sustainable properties is increasingly helping to build a positive image. It is a means by which stakeholders can

demonstrate their heightened awareness of their responsibility to the environment and society (CSR). Planners and building contractors as well as investors and companies, whether they own or lease their properties, are capitalising on this situation and are establishing additional tie-ins with their corporate sustainability reporting framework. Yet, sustainable buildings are also increasingly proving to be less risky, more stable in value and quicker and easier to lease and market. They facilitate access to land and funding and, in the best case scenario, more favourable financing and insurance terms. In this respect, the rise in demand for sustainable properties can, in the case of some stakeholders, be increasingly attributed to financial reasons. However, the financial advantageousness of sustainable properties is not always empirically verifiable, but the results of initial studies do point in this direction. (Eichholtz et.al. 2009); (Fuerst & McAllister 2009); (Dermisi 2009)

Investors (e.g. pension funds) are increasingly interested in sustainable investment opportunities, or, on the basis of existing rules, are obliged to be and to prove so. For indirect property investments, this is leading to demand growth in sustainable property funds. The first providers and products can be seen entering the market, with tendency for growth. (Rohde & Lützkendorf 2009). The development of such products is, in turn, strengthening the demand for sustainable buildings in order to launch corresponding fund products and to provide them with the appropriate properties.

## **1.2 Improved describability and assessability of sustainable properties**

If the market position of sustainable buildings is to be improved, it must first be possible to describe, assess and illustrate their contribution to sustainable development by means of a transparent and recognised procedure. In the last few years, the available systems for assessment and certification, including the awarding of labels, have undergone further development. While these systems originally concentrated on energy, environment and health, and were focused on describing and assessing the fundamental technical components of the building, they have since been superseded by a second generation. Through use of environmental accounting and life cycle costing, these systems operate based on the method of life cycle assessment and do not only factor in the ecological and social dimensions but also the economic dimension. They are supplemented by assessment results relating to technical and functional quality and are in conformity with CEN TC 350 (debate status), currently under development by the European Committee for Standardization.

It is the author's view that the second generation of assessment and certification systems, which include the new German Certificate for Sustainable Buildings, will make it easier to estimate future leasability and marketability by detailing technical and functional quality and to assess cost-effectiveness by detailing life cycle costs. In this regard, it is now possible to address questions over property investment returns directly.

With the EU's 'SuPerBuildings' project and the activities of the SB Alliance network, work on the further development and completion of an assessment and certification solution for sustainable buildings is also being undertaken at European level.

## **1.3 Further development of policy instruments**

'Sustainable construction' is one aspect of the Lead Market Initiative (LMI) for Europe. The LMI provides a methodology to identify promising emerging markets and to support them through a package of coordinated innovation-friendly policy actions that would

facilitate growth in the demand for innovative goods and services. The action plans deploy a core set of policy instruments (legislation, public procurement, standardisation, labelling and certification and complementary instruments. Provision is made for the following actions: screening of national building regulations, industrial leader panel on cumulative administrative costs/benefits, guidance and pilot schemes on award criterion and LCC use, establish a network between public authorities in charge of procuring sustainable construction, framework & assessment method and benchmarks for the assessment of sustainability performances, Eurocodes 2<sup>nd</sup> generation, Construction Products Regulation and sustainability requirements, small and medium enterprises (SME's) guide on collaborative working schemes in construction projects, alternative warranty/label schemes related to construction insurance, EU-wide strategy to facilitate the upgrading of skills and competence in the construction sector.

## **2 Procuring sustainable construction**

### **2.1 Green procurement**

Green public procurement (also environmental public procurement, eco-purchasing or green purchasing) is an instrument for leveraging the market power of the public sector as a contracting party (consumer) in order to strengthen demand for environmentally friendly (sustainable) goods and services. In this context this concerns appropriate planning, construction and management services, construction products and buildings. It involves the integration of, for example, the requirements of environmental protection, health and safety and resource preservation (sustainability) into the processes by which tenders for planning and construction work are invited and contracts are awarded. At the same time, these requirements must be precisely formulated in such a way that they can be identified and implemented by the tenderer and checked for compliance by the contracting party. Attention is drawn to the need for complexity management arising from compliance with technical and functional requirements on the one hand, and the ability to assess the ecological and economic advantageousness of the solution on the other hand. The handbook on environmental public procurement of the EU (Commission 2004a) proposes the following steps:

- Development of green purchasing strategies
- Organisation of public procurement
- Formulation and definition of the requirements of the contract
- Selection of suppliers, service providers or contractors
- Awarding the contract
- Formulation of contract performance clauses.

Special emphasis is placed on the inclusion of the following aspects in the selection of the “economically most advantageous tender” (EMAT): quality, price, technical merit, aesthetic and functional characteristics, environmental characteristics, running costs, cost-effectiveness, after-sales service and technical assistance, delivery date and delivery period, and period of completion.

For public construction projects, these general steps and recommendations will have to be adapted to the particular nature of the invitation to tender and allocation of construction contracts. One task that needs to be accomplished is the selection of the appropriate procedure for formulating requirements of environmental and health and safety

protection (sustainability) in the invitation to tender. In countries where national assessment and certification systems are available or international systems are recognised, the public sector (occasionally also major corporations) is increasingly tending to demand fulfilment of a specific quality level defined in the certification system (e.g. GOLD or SILVER standard). However, the advantage of having an easily communicable objective and a well publicised illustration of the quality level required is not without its disadvantages. Unless the highest quality level is selected (e.g. if SILVER level were specified from a rating system offering BRONZE, SILVER and GOLD), it would no longer be automatically guaranteed that the quality level desired by the state would be achieved in all criteria (depending on the rating system). In this scenario, it is strongly recommended that, in addition to the averaged rating to be achieved, the contracting party should define a set of minimum requirements (e.g. for energy efficiency, indoor air quality), secondary requirements (here, a minimum standard to be achieved in all criteria before SILVER level can be awarded), and a range of KO criteria (noncompliance results in rejection). Moreover, the requirements set forth in a certification system generally contain no information or instructions for the appointed building contractor, which can prove problematic.

In addition to, or as an alternative to, formulating building requirements based on one of the quality levels defined in an assessment and certification system, requirements for environmental and health and safety protection (sustainability) detailed in the invitation to tender for construction work can be integrated into the statement of work at work item level. Numerous examples and suitable tools already exist, not only in individual countries (e.g. Switzerland, Germany, UK), but also at European level. It is possible to develop requirements for both the selection of construction products and technologies (environmental protection and health and safety) on the building site and for the environmental and social standards to which the building contractor itself must adhere. Any detailing of requirements for construction products based on individual work items could include the following:

- Naming of recommendation and rejection criteria
- Use of positive and negative lists
- Requirement to use products with eco labels (specifically for product groups)
- Provision of information (e.g. environmental product declaration - EPD)

Construction projects instigated by the public sector find funding through schemes such as public-private partnerships (PPP) or private finance initiatives (PFI). In Germany, some of the resulting buildings have already managed to gain recognition for their above-average energy efficiency and received certification thanks to their contribution to sustainable development. With construction projects of this kind, it is recommended that requirements for environmental protection and health and safety (sustainability) be integrated into the performance-oriented, functional invitation to tender explicitly (e.g. energy efficiency, indoor air quality, environmental impact) without specifying the technical solutions by which they should be accomplished. This would enable the appointed companies to fully exploit their innovation potential. It is also advisable to implement some form of systematic monitoring (in respect of energy consumption and user satisfaction, for example) and reporting to the user of the building. Arranging a systematic commissioning of the building and adapting the domestic engineering are just as important.

Green procurement is an influencing factor not only for the public sector, but for investors, too. A survey of investors, fund managers and companies that lease their

property showed that more than 80 % consider sustainability to be relevant and plays a moderate to significant role in decisions to purchase or lease properties (with a still increasing tendency). Value is also placed on information detailing running costs. (Frensch 2008)

## **2.2 Life cycle oriented tendering**

The greater inclusion of aspects of sustainability in the invitation to tender for, and the planning of, property calls for there to be a better flow of information between the contracting and the tendering party, particularly where this information has implications for property life cycles. The contracting party should not only formulate requirements for the building and its parts in respect of environmental protection and health and safety (sustainability), but also press for the provision of related information in the tender. The identification of ‘strategic components’ has proven to be especially important for the functional, ecological and economic performance of the building. In response to this, the tendering party should incorporate at least the following details into the creation of the tender:

- Information on environmental and health and safety characteristics (e.g. LCA, EPD)
- Information on long-term performance and technical life span
- Information on take-back and recycling opportunities
- Information on life cycle costs
- Information on maintenance (maintenance contract as part of the tender, where applicable).

The efforts of CEN TC 350 with regard to developing formats for the communication of environmental and health and safety product information may make a positive contribution to this process, but the information included to date should be expanded further.

## **3 Financing sustainable construction**

### **3.1 Objectives and prerequisites**

As early as 2004, the European Commission expressed its hope and expectation that certification of the sustainability of buildings combined with an illustration of their economic benefits would result in increased demand and greater willingness to pay on the part of purchasers and lessees as well as more favourable terms in the financing and insuring of these types of property. (Commission 2004b). The question is thus whether, and to what extent, banks and insurers will recognise and appreciate the economic benefits associated with sustainable buildings. More favourable financing and insurance terms would then be seen as another advantage, which would in turn contribute to a strengthening of demand. To date, however, any examples are few and far between and can be classified by type as follows:

- Banks (KfW in Germany, for example) that act as ‘economic development banks’ and conduct development programmes on behalf of the state using public funds: they channel public money through
- Banks that, as part of a marketing campaign or an awareness of their responsibility to the environment and society, grant special offers valid for defined, individual

measures for a limited period of time (usually cheaper interest rates for measures related to energy conservation)

- Banks that specialise in the financing of measures for environmental protection and sustainability
- Banks that are aware of the reduced energy and running costs of sustainable buildings and take this into account when assessing the creditworthiness of the borrower (e.g. for single-family homes) and the amount of credit to give (e.g. energy efficient mortgage)
- Banks that, as part of project financing, grant more favourable terms in recognition of the economic benefits of sustainable buildings (or demand risk surcharges for non-sustainable properties) after having weighed up the property risks

Only in the last example is there a direct relationship between financing terms and recognition of economic benefits as part of property and risk assessments and estimates of performance and probabilities of failure. Subsequent analysis focuses on this relationship. For further steps in this desired direction, the following questions need to be clarified in terms of which prerequisites are created:

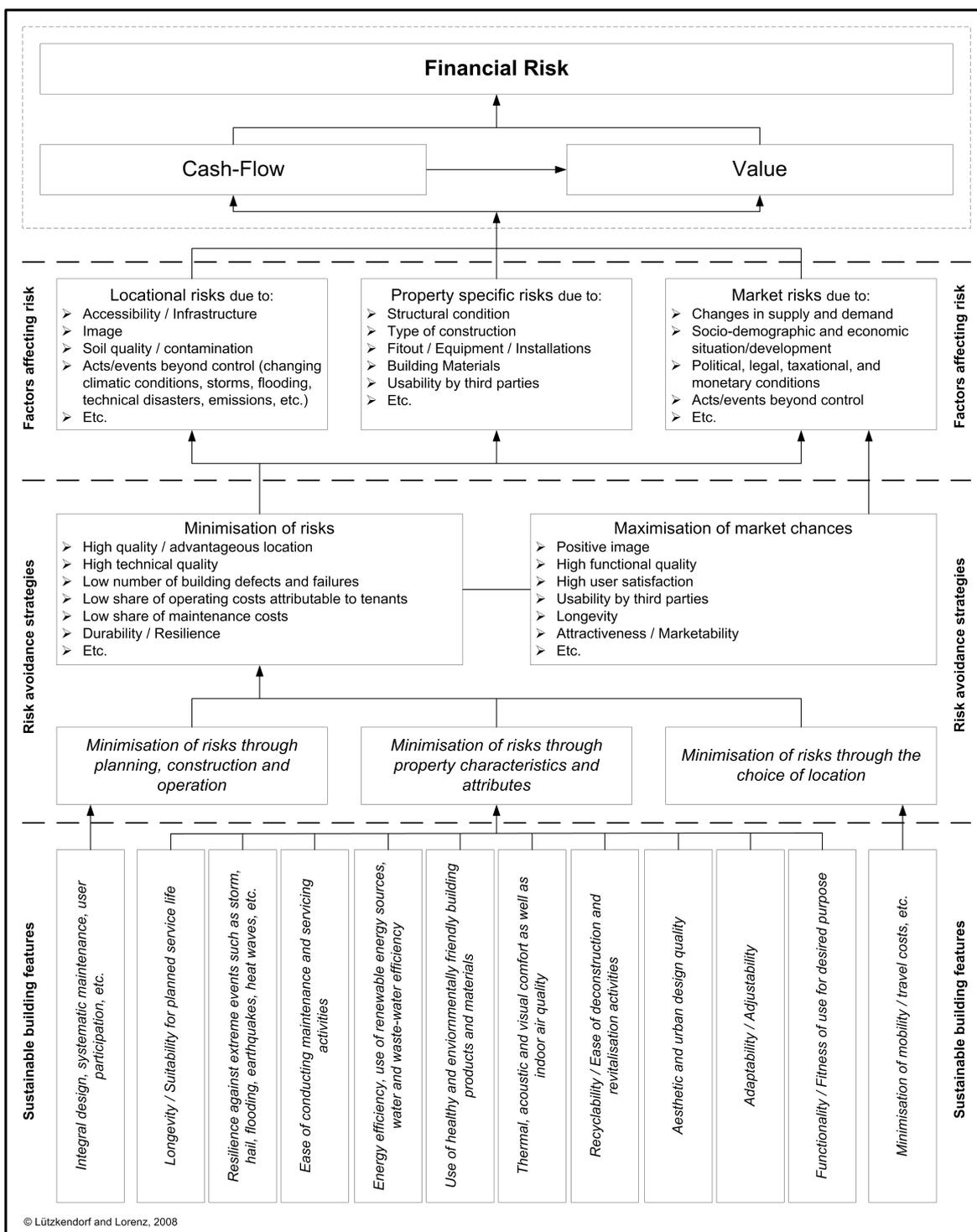
- Can the contribution of buildings to sustainable development be described and evaluated in a transparent, auditable and recognised manner? This necessitates, for example, further development of assessment and certification systems and of criteria grids and benchmarks.
- Which attributes and characteristics of sustainable buildings have a direct or indirect impact on the financial risks and prospects of property? Identification of ‘success factors’ is required.
- Can aspects of sustainability be integrated into property and risk analyses and value appraisals and can their positive effects be illustrated? This requires the further development of appropriate methods and instruments.
- Can the greater willingness to pay for sustainable buildings on the part of lessees and investors be proven empirically? For this to be possible, the way in which buildings are described and transaction data are evaluated must be improved.

### **3.2 State of development**

As illustrated above, evidence of a relationship between the attributes and characteristics of sustainable buildings and financial risk, value stability and potential for positive growth is a prerequisite for including aspects of sustainability into the process by which financing rates are set.

In terms of integrating aspects of sustainability into methods for risk analysis, property analysis and property and market rating, the first steps have been taken with the incorporation of ecological sustainability. (TEGoVA 2003).

Fig. 1 presents an approach developed in collaboration with the author. It has been shown that all risks related to the market, location, the building itself as well as the planning and operation of the building have economic consequences. These all have impacts on cash flow, growth and in so far also on financial risks. By developing strategies on the basis of improving the relevant characteristics and qualities these risks can be reduced. In particular, any characteristics directly or indirectly related to sustainability, but also those that relate to the quality of planning and sustainable site selection can contribute here. In the end a reduced risk should result in better (financing) terms when considering the financing options for a project.



**Fig. 1** Relationships between property features and financial risks (Lützkendorf & Lorenz 2008)

Attention is drawn to the fact that, on the one hand, not only do direct aspects of sustainability (e.g. energy efficiency, water-saving measures) have an impact on sustainability, on the other hand they also affect risks. There is often failure to recognise that traditionally recorded attributes, such as aesthetic, technical and functional quality, similarly contain references to sustainability. As a result, the inclusion of aspects of

sustainability is already more pronounced than is usually assumed. On the other hand, not all attributes and characteristics relevant to sustainability are immediately crucial to future leasability and marketability and thus to financial risk of constructions in the short and medium terms (e.g. recyclability). In collaboration with the author, the possibilities for integrating aspects of sustainability into risk analysis and portfolio management are being analysed in Germany as part of the 'IMMOwert' project.

The integration of aspects of sustainability into value appraisals is currently the subject of intensive work internationally. (Lorenz 2006), (Ellison et.al. 2007), (Lorenz et.al 2008) After development has been driven forward by research projects from the academic field first, practitioners and their associations will increasingly recognise the need for examination of this matter. The first workable proposals are available. (Meins & Burkhard 2009)

For the time being, it remains to be seen whether, and to what extent, banks will acknowledge the benefits of sustainable buildings by taking them into account in their decisions to grant credit and, in doing so, make it easier to secure financing. It can, however, be assumed that this topic is being actively addressed in that respect.

#### **4 Conclusion and outlook**

The subject of 'green building' and 'sustainable property' has taken hold in the property industry. Growing demand, also in connection with new products such as 'sustainable property funds', can already be observed. This demand can be strengthened further by the purposeful alignment of public procurement with the principles of sustainable development, the further development of framework conditions (laws, regulations, standards, funding programmes) and the use of market mechanisms. Prerequisites include:

- further development of systems and tools for describing and assessing buildings and their harmonisation
- improvement of the empirical basis through the surveying and publishing of transaction data, supplemented by the fundamental attributes and characteristics of properties
- extension of empirical studies to provide evidence of the ecological advantageousness of sustainable buildings, e.g. by determining the relationships with financial risks and value performance
- development and dissemination of tools to aid the tender invitation process
- integration of sustainability-relevant information about products, designs and buildings into the tender documents
- integration of aspects of sustainability into PPP and PFI models.

Subsequent work consists in developing standardised criteria grids and practices that can be adapted in a straightforward manner to the particular nature of individual countries, regions or climate zones. With ISO TC 59 SC 17 and CEN TC 350, for example, the International Organization for Standardization and the European Committee for Standardization can make a contribution in this respect. It is important that the complexity of sustainability assessment be preserved. One-sided overemphasis of energy efficiency or carbon footprint must be avoided, while endeavours to operationalise life cycle costing should be intensified. It is recommended that the work already commenced by UNEP-FI and UNEP-SBCI on developing assessment criteria designed to represent the viewpoint of

investors and users be continued and intensified. References to the sustainability reporting (alignment with the principles of the Global Reporting Initiative (GRI)) of companies in the construction and property industries are also recommended.

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### **Useful links: Procurement and financing**

<http://www.ogc.gov.uk/documents/AchievingSustainabilityConstructionProcurement.pdf>

<http://www.ogc.gov.uk/documents/CP0066AEGuide6.pdf>

<http://www.umweltbundesamt.de/building-products/index.htm>

<http://www.umweltbundesamt.de/produkte-e/beschaffung/index.php>

<http://www.ecodevis.ch/index.cfm?&js=1>

[http://ec.europa.eu/environment/gpp/pdf/toolkit/construction\\_GPP\\_product\\_sheet.pdf](http://ec.europa.eu/environment/gpp/pdf/toolkit/construction_GPP_product_sheet.pdf)

[http://ec.europa.eu/environment/gpp/construction\\_work\\_en.htm](http://ec.europa.eu/environment/gpp/construction_work_en.htm)

[http://www.unepfi.org/work\\_streams/property/](http://www.unepfi.org/work_streams/property/)

<http://www.equator-principles.com/>

<http://www.greenbuildingfc.com/>

### **Useful links: Assessment Systems, lead market and others**

<http://www.nachhaltigesbauen.de/bewertungssystem-nachhaltiges-bauen-fuer-bundesgebaeude-bnb.html>

<http://www.dgnb.de/en/>

[http://www.unepfi.org/fileadmin/documents/metrics\\_report\\_01.pdf](http://www.unepfi.org/fileadmin/documents/metrics_report_01.pdf)

[http://www.unep.org/sbci/pdfs/SBCI\\_CEU\\_Policy\\_Tool\\_Report.pdf](http://www.unep.org/sbci/pdfs/SBCI_CEU_Policy_Tool_Report.pdf)

<http://ec.europa.eu/enterprise/policies/innovation/policy/lead-market-initiative/>

<http://www.globalreporting.org/ReportingFramework/SectorSupplements/>