



The green building sector in China

Although green building is a mature industry with stable growth in Europe, it is only at the beginning of its development in China. A shift in government policy towards green building and a (still) huge construction market are creating tremendous opportunities for companies with the know-how and technology to provide the solutions China needs.

In addition to the US-based leadership in energy and environmental design (LEED) standard, China has rolled out its own 3-Star standard. Both are now competing in the country. As “green building” is defined by these two standards, they determine the green building market in combination with government subsidies, regulations, and policies.

We see the large potential for EU SMEs to use their niche technology or know-how to help builders achieve certification. However, as is the case with any market entry into China, the process can be lengthy before the business model, local team, brand name, and partnerships have developed into a successful business.

The standard strategy is an entry into one city (mostly first-tier) to develop a business model, brand name, partnerships, and know-how and consequently roll out this model into other markets. This can be achieved on your own or through partnerships with Chinese companies with market access.

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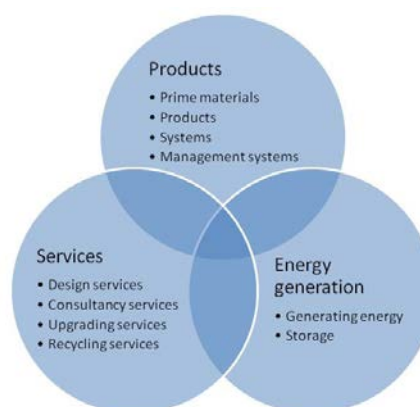
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1 Green building

The principal definition of *green building* is relatively simple: the collection of materials, techniques, and practices to reduce and ultimately eliminate the impact of buildings on the environment and human beings.

Although this principle is simple, there is an extremely wide variety of technologies, materials, and services available to realise it; therefore, it is difficult to define or categorise. We propose, however, to categorise the “green technology” market into three major areas of opportunity:



1.1 Products

Prime materials: The basic materials of the buildings: concrete, steel, glass, plastics, fabrics, and so on. Although in many cases the production methodology and recyclability – rather than the material itself – is claimed to be green, strong progress has been made in recent years to reduce usage. In some cases (e.g., active heating), the material itself plays a key role in a buildings’ energy management.

Products: A wide range of products are used in construction: pipes, wire, insulations, windows, doors, and so on.

Systems: Systems bring functionality to the building: heating, cooling, air conditioning, water, cleaning, transporting, security, and more. These systems are often designed, installed, and monitored as a unit. Applicable technology has been developed in the West and in places such as Singapore and Japan.

Measurement, control, and management systems: The growing sophistication of buildings in terms of measurement and control leads to the increasing importance and effect of measuring and management systems on the performance of the building.

1.2 Services

Design: For both buildings and city areas, China is looking at Western service providers for designs, architecture, and engineering services. In world-class buildings in particular, foreign companies occupy an enviable market share.

Consultancy: Consultancy and engineering services on green building range from support to design plans and energy audits.

Renovation: Building renovation is still an emerging market, as the culture is more geared towards demolishing and rebuilding. However, in some cases, renovation may be the better option.

Recycling: This service involves recycling water, waste within the building, or building materials at the time of breakdown.

1.3 Energy

Energy generation: Solar, wind, biogas, geothermal, and heat pump systems.

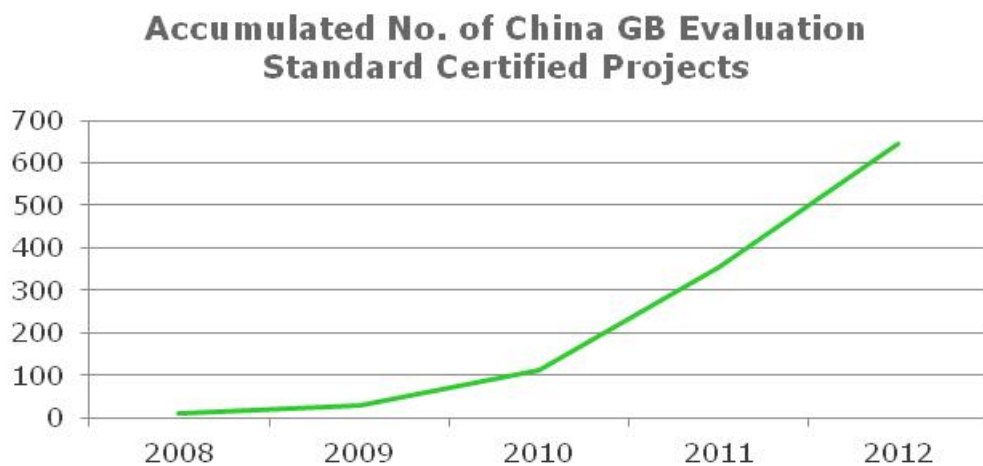
Energy storage: Geothermal storage, other heat or cold storage systems (e.g., paraffin tanks), and smart electricity systems.

Although the building process itself could also be tested on its “greenness” (e.g., avoiding noise, reducing electricity usage and dust emissions, etc.), green building does generally not include these aspects in the sector definition.

2 China’s green building sector

2.1 Green building in China

China has long focussed on quantity of square metres built, rather than the quality – green or otherwise – of the buildings. Whereas Western governments have introduced green legislation and technologies over the past 20 years, this concept was totally foreign to the Chinese sector until five to ten years ago. Only recently, the Chinese government has been playing “catch-up” with the rest of the world, motivated mostly by energy concerns. This renewed government interest is yielding results in the number of project developers applying for green building certification.



Source: China Bureau of Statistics

Since the invention of green building products and services, primarily Western countries have been trying to introduce the concept into the Chinese market. However, acceptance has been slow and mostly confined to industrial buildings of Western investors, who replicate quality and green standards from their home countries in China.

For the majority of buildings, price and quantity have been primary concerns for developers, and many companies have given up preaching the values of green building.

The introduction of the Chinese Green Building Standard in 2006 and the government’s consequent pressure to build according to these norms have instigated an intense “catch-up” movement over the past five years. This has led to significantly higher growth rates over general building for these products and services.

China green building milestones

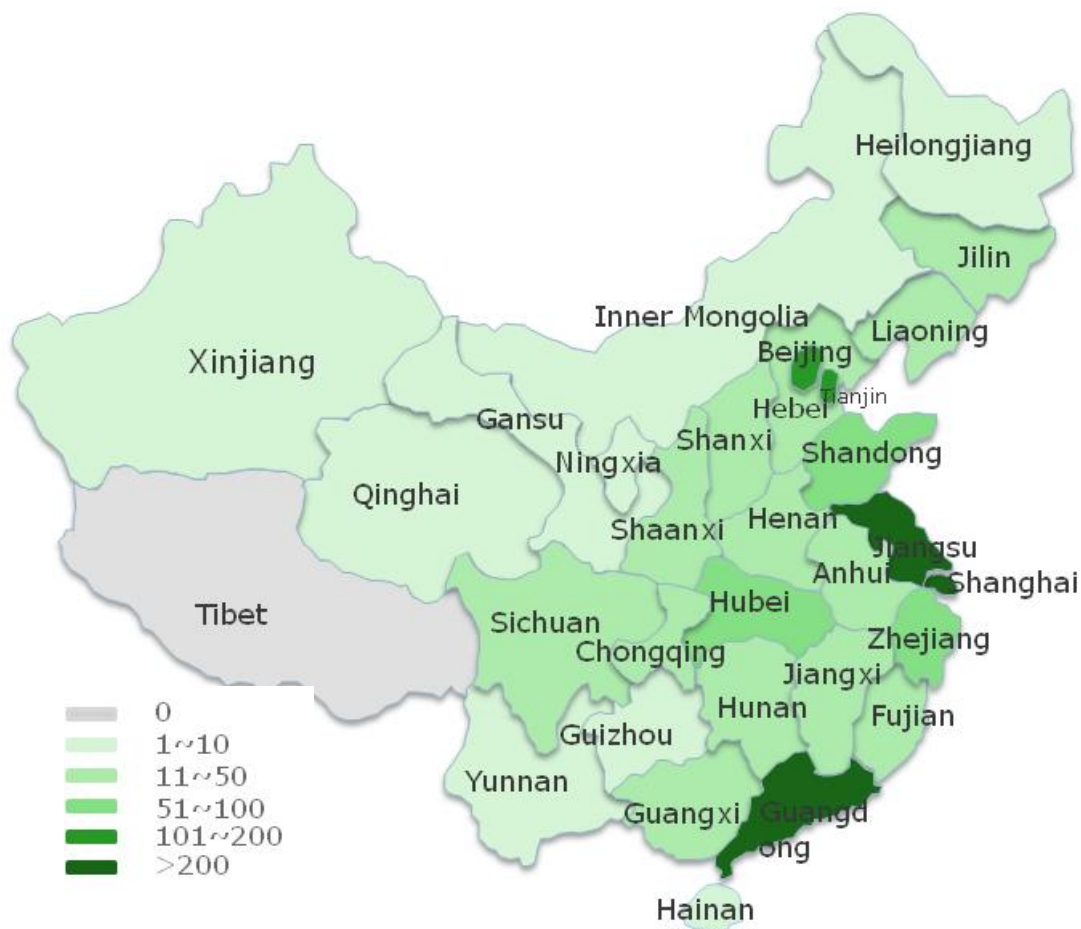
1990s	Demonstration projects in Tianjin, Beijing, Chongqing, and Shenyang
2003	LEED certification introduced in China
2006	Introduction of the China’s 3-Star certificate

2008	First buildings rated according to the Chinese 3-Star standard
2010	Targets for green building in the five-year plan

2.2 Regional differences

As with many markets in China, the green building market also follows an east-to-west movement, with the eastern first-tier cities (Beijing, Shanghai, and Guangzhou) leading the way, followed by the second- and third-tier cities.

Distribution of certified buildings in China (2012)



Source: China Bureau of Statistics

2.3 Green building standards

The world has around 600 green building standards. Some relate to individual systems and products (air conditioners, heating systems, etc.), while others are intended to be “overall standards” for the total building. The following are some of the main standards used:

- **Building Research Establishment Environmental Assessment Method (BREEAM)** was the first standard, set up by Building Research Establishment (BRE), a British government research foundation. BREEAM has found an important market in the UK, but it is not a leading standard in other parts of Europe or elsewhere in the world.

- **LEED** was set up in the United States as an initiative of the US Green Building Council (USGBC), a member organisation comprised of American building materials and construction companies. It is based partly on the BREEAM standard and is now the leading standard in most parts of the world.
- **Comprehensive Assessment System for Built Environment Efficiency (CASBEE)** is the Japanese version of the green building standard, with different versions for assessing the predesign, new construction, and building upgrades.

2.4 LEED in China

The LEED standard was established by the USGBC, a non-profit organisation whose membership includes major construction and construction materials companies in the United States. Formed in 1993, USGBC to date has issued three versions of its LEED standard (1998, 2002, and 2009). The standard encompasses a broad range of construction areas.



	LEED system	Applicable project type	Development
1	LEED-NC (new construction and major renovation)	New building project or major repair project (replacement of doors and windows, improvement of external walls and roofs, updates on equipment systems), including commercial, cultural, and healthcare buildings	Official use: 1998 Current: V2009
2	LEED-CI (commercial interiors)	Complete or partial renovation of tenant spaces in existing or new buildings	Official use: 2004 Current: V2009
3	LEED-CS (core and shell)	Core and envelop the structure of commercial buildings for leasing; rental units not included	Official use: 2006 Current: V2009
4	LEED-EB (existing buildings, operations, and maintenance)	Management and maintenance of existing buildings	Official use: 2004 Current: V2009
5	LEED-Home (homes)	Small independent residential buildings	Official use: 2008
6	LEED-ND (neighbourhood development)	Community development projects	Pilot project stage
7	LEED-SCH (schools)	All new or renovated schools	Official use: 2007 Current: V2009
8	LEED for retail	Banks, restaurants, and shops	Official use: 2009 Current: V2009
9	LEED-HC (healthcare)	Healthcare buildings	Official use: 2011

The system is based on a 100-point total, assessing sustainability, water efficiency, energy, materials and resources, indoor environment quality, and – for bonus points – design innovation. Each of these factors is given different weighting depending on the type of construction. Based on the number of points, buildings receive a certified (40–49), silver (50–60), gold (60–79), or platinum (≥ 80) certification.

The LEED standard was introduced in China in 2003 and had an initial small uptake, especially in showcase real estate projects in A-class offices and industrial buildings run by foreign companies.

LEED Certified GB Projects in China (No. per year)



Source: USGBC

Although introduced in 2004, it was not until 2007 that the standard started to develop in China, showing strong, stable growth since.

2.5 Chinese 3-Star rating system

Since China was less than enthusiastic about the (American) LEED standard, the Ministry of Housing and Urban-Rural Development (MOHURD) introduced its own green building standard¹ in 2006.

Contrary to the LEED standard, the 3-Star system incorporates only two categories (residential and public buildings) and takes into account a different set of criteria.

Local governments have made adaptations to the standard, depending on the local environmental and climatic circumstances.



2.5.1 Building types

Whereas residential buildings are made of apartments, public buildings consist of offices, shopping centres, hotels, schools, and hospitals.

2.5.2 Rated items

The 3-Star rating system looks at the following criteria for each building type:

- Land savings and outdoor environment;
- Energy savings and utilisation;
- Water savings and utilisation;
- Material savings and utilisation;
- Indoor environment;

¹ 16 March 2006 (GB/T 50378–2006).

- Operation and management.

2.5.3 Rating checklist

The system functions on a checklist basis, with 1-Star buildings meeting 26 criteria, 2-Star an additional 43 items, and 3-Star on a further 14 items. Criteria and weighting differ for public and residential buildings. In public buildings, more weight is given to energy and material savings, while the standard for residential buildings places greater importance on urban land saving and outdoor environments.

2.6 LEED versus China's 3-Star standard

The government's push towards green buildings (and its own standard) has led to a greater application of the Chinese 3-Star standard over the past few years. As LEED carries a stronger brand name, especially in high-class private residential buildings, it is expected to remain a strong player in the "specification war" between the two standards in China.



Source: USGBC

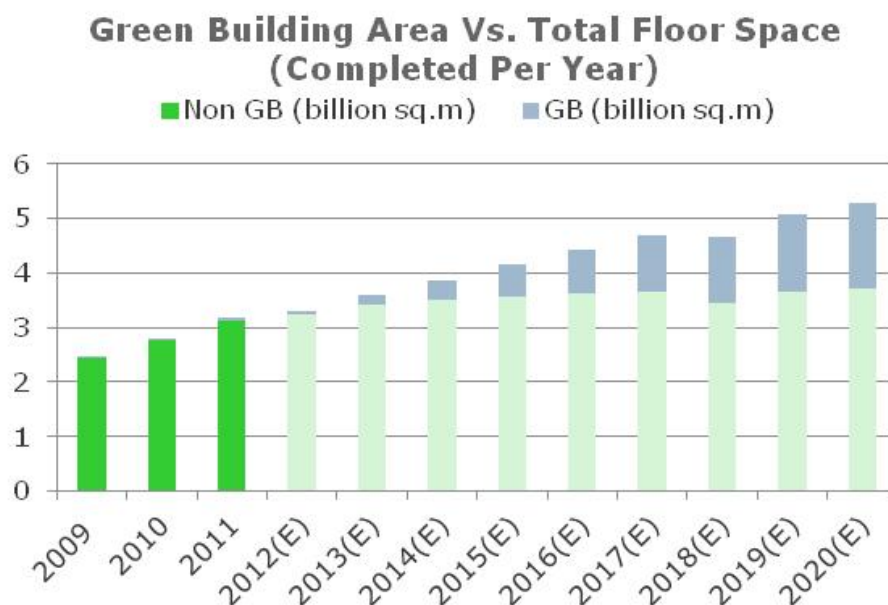


History	USGBC (United States Green Building Council), 2000	MOHURD (Ministry of Housing and Urban-Rural Development), 2006
Organisation type	Non-governmental	Governmental
Evaluation target	New construction, existing buildings, commercial interior, core & shell, schools, retail, healthcare, homes, neighbourhood development	Public (including commercial, hotel and government-owned buildings) and residential
Application	Worldwide	China
Certification cost	CNY 50,000	CNY 87,000 for registration 0.04 – 0.045 USD / sq. ft for evaluation 0.01 – 0.015 USD / sq. ft for construction evaluation
Level of certification	Certified (40 – 49 points) Silver (50 – 59 points) Gold (60 – 79 points) Platinum (80 points or above)	1 star 2 stars 3 stars
Credit categories	<ul style="list-style-type: none"> • Site planning • Water management • Energy management • Materials used • Indoor air quality • Innovation & design process 	<ul style="list-style-type: none"> • Land savings and outdoor environment • Energy savings • Water savings • Materials savings • Indoor environmental quality • Operations and management

2.7 Government push

The Chinese government has been pushing to integrate green building into mainstream building practices. Concerns about energy supply, reducing energy dependency, and environmental issues have been the most important drivers for these policies.

The increasing government attention to green building has led to an optimistic forecast on the number of “green” buildings in the near future.



Source: MOHURD

The graph above shows how strongly the government believes that the green building sector will grow over the next seven years, moving from 1% of buildings constructed in 2012 to more than 25% in 2020, with a total of approximately 1.5 bn square metres per year.

At a national level, the National Development and Reform Commission (NDRC) has required five provinces (Guangdong, Liaoning, Hubei, Shanxi, and Yunnan) and eight cities (Tianjin, Chongqing, Shenzhen, Xiamen, Hangzhou, Nanchang, Guiyang, and Baoding) to include low-carbon development models in their 12th regional five-year plans.

The 12th national five-year plan has also set some ambitious goals on green building:

- 1 billion square metres of green building by the end of 2015;
- 20% of new constructions to meet the green building standards;
- implementation of green building standards for all government investments in 2014;
- active promotion of renewable energy use in buildings;
- financial incentives for 2- and 3-Star level green buildings;
- tax benefits to encourage developers and consumers;
- special financial services for residential green building purchasers;
- adjustment of land policies to promote green building development.

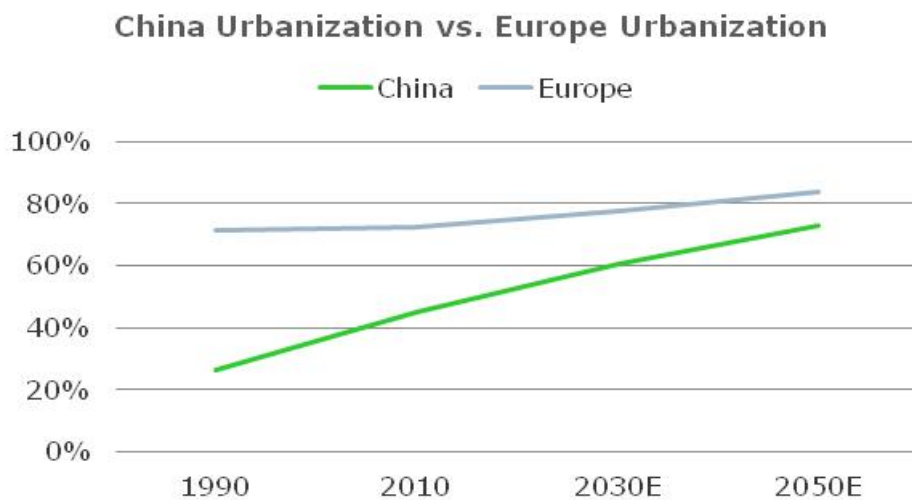
3 Drivers and trends

We see both positive and negative drivers influencing the growth of green building in China, as summarised in the table below:

Positive drivers	Negative drivers
<ul style="list-style-type: none"> • Environmental pollution • Energy efficiency drive • Changing energy economics • Transformation of real estate industry • Rising public awareness and disposable incomes • Policies and subsidies 	<ul style="list-style-type: none"> • Higher upfront costs • Non-guaranteed quality of green building materials • Lack of experienced designers, engineers, and architects • Government targets • Conflicts of interest between builders and owners

3.1 Environmental pollution

Chinese society is quickly transforming from a rural to an urbanised society. The rapid growth in buildings and traffic has caused a series of problems, ranging from traffic jams to smog. In the context of continued urbanisation, these problems will continue to grow.



Source: UN World Urbanisation

Although smog is primarily caused by traffic and industry, coal heating (being replaced by gas) and coal power plants (to be closed near large cities) do have a significant impact. Better performing buildings should reduce this consumption and, hence, air pollution.

3.2 Energy efficiency drive

The continued drive to bring people into cities (hence the need for more living space) is accompanied by inadequate insulation practices and poor design, which are creating an increasingly energy-consuming building stock.

Buildings consume an ever-greater amount of the total energy needs of China. Whereas they consumed just 10% of total energy consumption in the 1970s, it is estimated that heating and cooling of buildings will use 35% of the total by 2020.

Proportion of building energy consumption in national total energy consumption

Year	1970s	2006	2012	2020 (E)
Proportion	10%	20%	26%	35%

In the context of international dependence, pollution, and CO₂-reduction commitments, this area is too important to neglect. In its 12th five-year plan, the central government proposed two challenging energy targets:

- 15% renewable energy (currently 5%);
- 45% reduction in CO₂/unit of GDP.

These goals are not achievable without a considerable upgrade in the energy efficiency of the building stock. The present regulation is on track to increase standards for new buildings. However, real progress can be made only if the existing building stock is upgraded.

3.3 Changing energy economics

The increasing cost of buildings and land is starting to have a significant impact on “green” economics. As land becomes scarce, especially in city centres, the value of the land (location value) on which the building is constructed is becoming an ever-larger proportion of the overall costs, causing additional expenses to become less significant. The increasing energy cost – coal is twice as expensive as in 2006 – is adding an “energy savings” interest to the picture. Other elements (e.g., increased labour costs, increased demands on noise and dust levels, and quality checks by the government) are transforming building practices towards more prefabricated, high-quality building elements and systems.

3.4 Real estate industry transformation

Some of the leading real estate companies in China (including market leader Vancke) are investing heavily in green building to distinguish themselves and justify a quality premium. Healthy, high-quality buildings require less maintenance and green labels are therefore starting to become a selling argument.

Although foreign real estate developers are scarce in China because of legal and practical hurdles, there are several projects in which foreign companies are investing or developing, especially in and around “ecocities.” As these companies want to differentiate themselves with their know-how and innovation, there is a strong tendency to apply for (and even go beyond) the certification and use the latest in green technologies.

3.5 Increasing public awareness

The public is demanding higher quality and healthier buildings. Confronted with ever-increasing housing prices and negative experiences with first-generation buildings (quality issues causing decay and value loss), the consumer is looking for higher quality buildings and “value for money”.

Green buildings are marketed for their high-quality and healthy aspects, qualities that are appreciated more than environmental friendliness. This awareness is reinforced by real estate developers’ drive towards

green building. It also has an effect on government regulations and land availability: local governments prefer green builders to boost their own image and are more willing to grant land to such developers.

3.6 Policies and subsidies

All the issues above have a positive effect on local and national policymaking: land grants, subsidies, energy standards, etc. As a consequence, all regulations and incentives are being strengthened and geared towards green building.

3.7 Higher upfront costs

Higher upfront costs (see chapter 5) are still working against green building. The extra costs of “greening” a building are significantly above the profit margins of real estate developers. The present credit squeeze by banks is not helping in this respect. As a result, green building may become confined to the higher-level spectrum, where customers are able and more willing to pay the necessary premiums.

3.8 Non-guaranteed quality

As is the case with many sectors in China, products of poor quality are still pervasive on the market. New materials and products are sold as “green” and “high-quality”, but real-life testing can take years. Common brands in China are young and undeveloped; testing laboratories are scarce and may be partial. As a result, many builders and developers do not trust what is on offer. As indicated in this document, this creates an opportunity for Western (proven) products and concepts to enter this newly opening market.

3.9 Lack of experience

The short history of green building in China means that builders, engineers, designers, and architects are unfamiliar with many of the concepts and designs; therefore, they are reluctant to use them. For many products, their introduction on the market can be time-consuming or subject to local business practices not acceptable to western companies.

3.10 Government targets

Although standards and norms are in place and increasingly efficient control systems are being set up, local governments tend to have strong economic incentives to increase the quantity (number of buildings and square metres) rather than increase the quality of the output. Current practices often favour cheaper materials over higher quality products.

3.11 Conflict of interest

In many cases, the person paying for the building does not pay for its maintenance or energy consumption. Increased investments in energy-efficiency are therefore not in the interest of the builder, unless he is obliged by government policies or market forces.

In western countries, energy service companies (ESCOs) play a vital role in funding some of these investments in exchange for part of the energy savings. The weak legal environment in China and the fact that investors cannot be sure that contracts are honoured is prohibiting many of these business models in China.

4 Green cities

In tandem with the green building movement, a “green city” or “ecocity” phenomenon has been developing in China over the past few years: large newly developed city areas – sometimes intended for

more than a million people – are marketed with strong green and eco-credentials. These developments combine high-profile and ambitious city development projects with a number of experimental techniques that the government wishes to implement in other city developments if they prove successful.

4.1 Tianjin ecocity

The best-known ecocity is being built in Tianjin in partnership with a Singapore sovereign wealth fund. The project will transform a former uninhabitable swamp into a residential area for more than a million people, as a satellite city of Tianjin. Although the project has been widely publicised and promoted, new inhabitants have been slow to arrive, and the project has suffered spending overruns and delays.



Source: Tianjin Ecocity

More than 100 such eco-projects are scattered throughout China, mainly aimed at establishing new cities of 250,000 to 500,000 people. While some have had a relative success, others have been an utter failure, leading to unnerving reports on western television channels.

Although the term “eco” should be not be interpreted as “revolutionary city of the future” but rather as a “city development with some interesting ecological experiments”, these cities do create interesting showcases and opportunities for western technologies. Companies that want to showcase a certain technology have the opportunity – mostly at reduced rates – to do so by building a reference project using their products or solutions at these sites.

4.2 Ecocities and foreign real estate developers

Normal real estate development in China is well protected against foreign entry. This is done by legal means – obtaining a licence is an extremely long process – but also practically: competition for prime land strongly favours Chinese companies. Only a handful of western companies have succeeded in successfully

developing their own projects. Financial investors in collaboration with Chinese real estate developers have succeeded in acquiring a number of projects, but this has been limited.

Within ecocities, foreign participation is appreciated and sought after. This is partly because Chinese companies have less know-how in green building and development, but also because of a marketing approach: foreign developers are appreciated for their higher quality and innovative buildings. Entering the Chinese market through showcasing their latest technologies in these ecocities therefore makes sense for western developers.

5 Financial impact

5.1 Cost of green building

The cost of green building, though declining in proportion to overall costs, is still significant. Depending on the finishing of the building, this can represent 10–30% of extra building costs.

A 2012 study showed the extra cost per square metre, based on the Chinese 3-Star standard:

	1-Star (CNY/m ²)	2-Star (CNY/m ²)	3-Star (CNY/m ²)
Public green building	45	176	320
Residential green building	63	131	219

Source: Tsinghua University

5.2 Subsidies and policies

The Chinese national government intends to subsidise an estimated 40–50% of the additional building costs through a series of regulations and policies that are rapidly changing and upgraded, as a result of lobbying in the capital. The support is a mixture of pure cash incentives (amount per square metre built according to rating of the building), hybrid measures (value-added tax [VAT] deductions), and near-cash regulations (allowing developers to circumvent certain restrictions to gain more sellable square metres). Subsidies go straight to public buildings and buyers of residential units (provided you are a Chinese national).

Several local authorities (mostly first- and second-tier cities) will also contribute local subsidies or adjust building regulations, further bringing down the extra cost of the green building certification.

Apart from the welcome financial subsidies, the government is luring real estate developers involved in residential projects with a range of other measures, in which green targets are presented as a bonus or even an absolute condition:

- Access to land;
- Access to bank loans;
- Reduced building restrictions.

5.3 Public and residential buildings

It will come as no surprise that green building labels are applied much faster in public rather than private buildings:

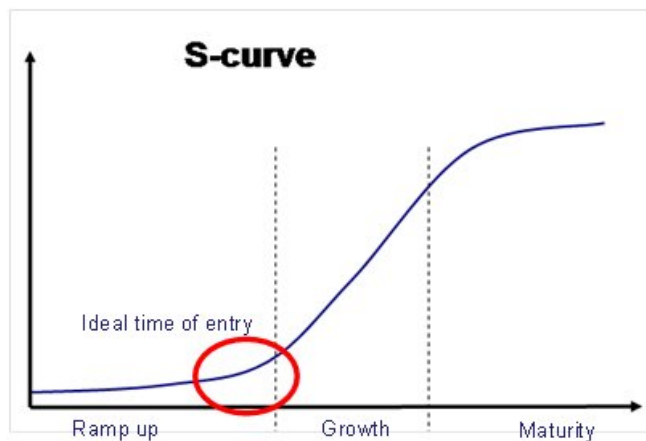
- it is easier for the government to apply norms and regulation to its own buildings;
- energy savings are easier to achieve in centrally controlled and specifically designed buildings, such as hospitals, offices, police stations, town halls, hospitals, etc.;
- better designs and greater expertise are invested in most of these buildings;
- energy savings directly flow to the owner who pays for the building (i.e., the state);
- additional green building costs are lower per square metre in public buildings.

As a result, more than 70% of green buildings today are public buildings, rather than residential ones.

6 Opportunities for EU SMEs

6.1 Ramp-up of the S-curve

The infant status of the green building industry in China is creating an interesting opportunity for European SMEs:



- The green building industry is, on the whole, at the beginning of the growth phase on the S-curve. For many products, this is an ideal time for market entry: a clear need in the market, early enough to make a difference, and with large growth potential in the years to come for companies that can capture the market.
- As Europe has already gone through a similar curve and acquired considerable experience in the sector, producers can anticipate their market development in China with some certainty.
- The technological aspects of green building mean that technology and marketing are much more important than price. Price competition is difficult for western companies in China.
- Many technologies have been developed, tested, and proven in Europe, allowing for faster development in China.
- The present government policy to control building expansion – through low credit supply – is creating a difficult market situation for many players in China, squeezing volumes and margins for both developers and builders.

- This squeeze on growth combined with pressure for green building is causing an intensive search for know-how by all major players in the market. Companies with this know-how will find willing partners in the Chinese market.
- The “made in Europe” label is a strong advantage for new products on the market, as it is associated with quality and reliability.

However, as a green building is narrowly defined according to the standards, materials and solutions for greener buildings that do not influence the green building certification score will not easily enter the market. The product or service offered needs to contribute to the certification score to be of any value.

6.2 China is not for making money fast

As is the case in many sectors and industries, entering China is a long-term game. Establishing a workable business model, building a critical mass, establishing your brand name, knowing the regulations, training the team, building partnerships, understanding the fast-evolving market, and developing “China experience” at management level in the home country are long-term goals. Cash-flow prognoses and management time estimations should take this hurdle into account.

6.3 Growth phase

Although the initial hurdle may be daunting, the prize for a successful entry is great. Successful business models can be quickly replicated in other provinces and cities. Businesses can grow at rates unheard of in a European context, becoming the main source of profitability and cash flow for the owner.

Once a successful business model is established and a brand name is created, it is also important to be able to replicate this fast into other areas and locations. It would be a missed opportunity to spend time and energy perfecting a business model, which is consequently copied by Chinese competitors because the original company was not able to capture the growing market. Local partnerships can help with the expansion.

6.4 Basic building blocks: Know-how, brand, and niche

The Chinese bulk market of building products is a difficult arena for large western companies, let alone SMEs. Therefore, it is imperative for SMEs to focus on a niche market where the company has a distinct know-how, either through intellectual property (IP) or specialised skills that can be defended in the market and create strong European brand awareness.

Because of the insider knowledge and business practices of Chinese competitors, competing on price is a game that is difficult to win. Reliability, quality, European brands, innovation, niche markets, and price premiums are the better choice.

6.5 Partner strategies

For the above reasons, many European SMEs may prefer not to enter the market themselves. The on-going search for technology is creating a large group of interested Chinese companies looking for technology partners to increase their product offering.

SMEs can choose one of several strategies:

- **Local distributors:** agreements with local distributors of production companies wishing to extend their portfolio.
- **Joint ventures:** joint production in China with a local company with market access.

- **Joint sales companies:** joint sales with a company with market access.
- **Technology licences:** transfer of know-how and support of the Chinese partner in its production and sales activities of your product or service.

Although a good partner that is established in the market can speed up your development in China, partner management and the joint building of a business also have a number of challenging aspects. Each of the above strategies has advantages and disadvantages. In all cases, a good choice of partner, due diligence, and a clear common understanding of the business direction are basic necessities.

6.6 Areas of opportunity

We foresee excellent market opportunities for companies active in most aspects of green building.

6.6.1 Products

- Specialised construction technology;
- high-tech energy consumers (e.g., LED lighting, heating devices);
- specialised insulation techniques and products (e.g., high-humidity environments, fire retardant);
- building elements (e.g., cold bridges);
- water management systems (both for potable and rain water).

6.6.2 Services

- Retrofitting know-how and services;
- green city development engineering services;
- green building calculation services (e.g., forecasting energy usage).

6.6.3 Energy generation

- Energy storage and generation systems (e.g., heat pumps, geothermal systems);
- ESCOs paying for energy-saving equipment in exchange for part of the savings;
- smart systems to measure and control energy and water consumption.

In almost any aspect of building, the know-how and technologies of European companies are ahead of current Chinese building practices. Not all are applicable to China, but the expectation is that many will be introduced over the next five to ten years.

6.7 Practical market entry tips

6.7.1 Products

The biggest hurdle for products is often to have them (or their standards) introduced by architects and design institutes. This requires building an extensive network of contacts within these circles, which can take time and – especially for SMEs – be a costly exercise.

It makes sense to find and approach partners who already have contacts and are looking for green technology products to enhance their product portfolio. Both Chinese and western companies may be open to such partnerships.

The most willing partners will be found in ecocity projects, which are constantly looking to showcase the latest technologies. Establishing a small office or investment in such an ecocity will open up opportunities to work with such partners.

6.7.2 Services

The search for know-how in Chinese companies is intense. Market growth in ordinary construction is lacking, and companies need to look for new markets, preferably with new technologies. Software licences, IP licences, and so forth are sought after by many Chinese builders, real estate developers, and design institutes. The key to these markets will be to find a sustainable business model: which services to offer to which party and for what price. Ecocities are a welcome environment for first project experience and showcases.

The easiest route to these companies is building relationships with western service providers that are already active in the market and are often quite happy to recommend and introduce noncompeting service providers to their customers.

6.7.3 Energy

Energy saving is an easy-to-sell concept, as it translates directly into financial savings (or generation). Approaching the market directly is therefore easier than in other sectors, provided that companies have a track record at home and can overcome the hurdle of showcasing their installations in China.

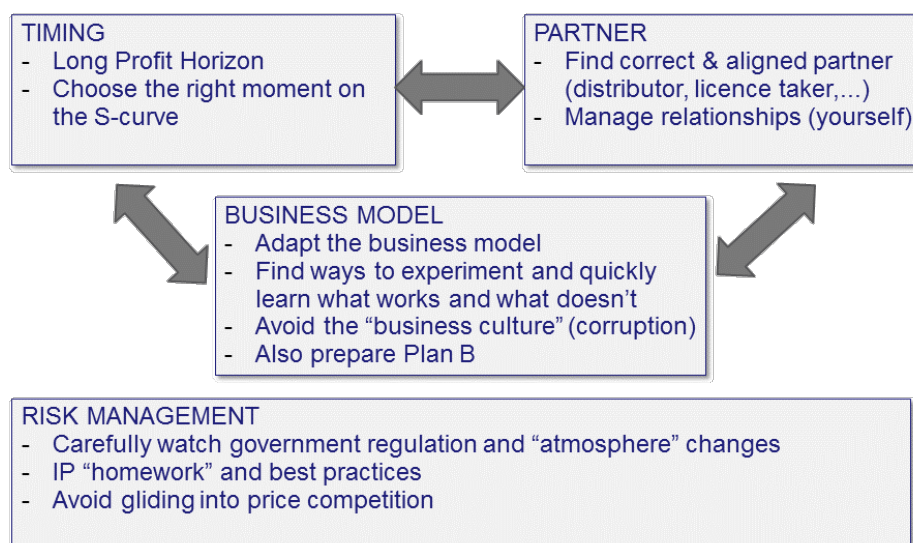
China is witnessing an explosion of ESCOs at the moment: companies, mostly subdivisions of large corporations, are introducing energy-saving installations in exchange for (part of) the savings realised. These ESCOs, both western and Chinese, are natural partners for companies with energy-saving or generating technologies and products.

In addition, ecocities present a good opportunity to introduce and showcase energy-saving technologies.

The most commonly used market approach is to focus on western buildings and installations (mostly industrial) to develop references before approaching the Chinese market.

7 Challenges

The challenges for SMEs in the green building sector are, in principle, no different from those in other sectors. However, the prevailing culture, the overwhelming dominance of Chinese companies in many markets, and the fast growth create challenges that are, in most cases, unfamiliar to European SMEs. The diagram below summarises these challenges:



7.1 The basics: risk management

Government regulation: China's government can be very efficient and quick in issuing new regulations and policies, which can create opportunities or break business models overnight.

IP homework: Chinese companies are less likely to respect IP. Products, technologies, colours, designs, and brands are all easily copied – quite often by employees themselves. There is an increasing range of actions to be taken to counter this, but all presume that companies do their homework: registration of brands and website addresses, non-competition contracts with employees, keeping sensitive data (customer lists, production manuals, cost prices, etc.) confidential within the company, authentication elements in packaging, training employees, making clear agreements with partners on IP items, and so on. European companies can contact the China IPR SME Helpdesk in Beijing (www.china-iprhelpdesk.eu) for further information.

Price competition: a business model based on price competition is difficult in the Chinese environment where local competitors are capable of cost-cutting and sales practices unavailable to western companies. Western companies need to build a business model based on niche products, brand names and marketing, as well as European quality.

7.2 Right timing

The best time to enter the Chinese market is not necessarily aligned with the timing for your company. Entry strategies will differ dramatically depending on the market situation and positioning of the specific product or service on the S-curve. Understanding the market, the position on the curve, growth rates, and success factors are crucial before entering the market. Entering too early will cause you to spend a disproportionate amount of time on convincing the market that it needs your product; entering too late will make it difficult to exploit your branding.

Most green products are situated on the initial or growth phase of the S-curve, even if they are already at the end of their life-cycle in European countries. Entering too early could mean you will spend a disproportionately large amount of time and energy on convincing and educating the market. Entering too late could mean that brand names have been developed by other companies.

7.3 Right partner

In many cases, SMEs prefer to work through partners, as market access is expensive and time-consuming. The choice of partner is one of the most crucial decisions to make. Developing personal relationships and conducting basic due diligence with potential partners is time-consuming but crucial. Too often, partners are chosen based on a coincidental encounter rather than on the analysis of the kind of partner that companies need. SMEs have less time and resources to spend on searching for and evaluating potential partners. However, the wrong choice can seriously damage market entry or render it unsuccessful.

7.4 Right business model

As the main components of the Chinese market are fundamentally different from those in Europe, business models cannot easily be copied. Logically, each company will initially copy the model most successful in the home country or other markets. However, it will require changes – in some cases, towards a totally different business model. Finding a working model and experimenting with different offerings, pricings, and sales channels can take a considerable amount of time. Good preparation (market study), the willingness to adapt, and having local people who are sufficiently creative (and empowered) to do this research are the key to a successful search.

8 Summary

Although green building represents a collection of mature, developed technologies in Europe, it is only at the beginning of its development in China. A shift in government policy towards green building and a still massive construction industry are creating tremendous opportunities for companies with know-how and technology to provide the solutions that China needs.

The US-based LEED standard has been introduced in the country, while China has also launched its own 3-Star standard; both standards are now competing in China. As green building solutions are only successful as far as they can help building owners achieve certification, these standards will, to a great extent, define the green building market in combination with government subsidies, regulations, and policies.

The standard strategy is an entry into one city, mostly first-tier, by developing a business model, brand name, partnerships, and know-how before moving to other (second-tier) markets. This can be achieved using your own strength or through partnerships with Chinese companies with market access.

9 Useful information

Further reading
<p>China 3-Star certification label and LEED</p> <p>http://www.cngb.org.cn/ (official Chinese website)</p> <p>http://wenku.baidu.com/view/cf69c58302d276a200292e59.html (published standard (CN))</p> <p>http://www.usgbc.org/leed (official LEED website)</p>
<p>NDRC green building policy</p> <p>http://www.gov.cn/zw/gk/2012-05/07/content_2131502.htm</p> <p>http://ecocitynotes.com/2012/06/chinas-green-building-action-plan/</p> <p>https://groups.google.com/group/green-building-approaches/attach/59731ab86602e937/Full%20Rating%20System%20-%20ChinaGreenBuildStd_English.pdf?part=4</p>
<p>Green building in China</p> <p>http://www.institutebe.com/Green-Net-Zero-Buildings/green-buildings-in-china-breaking-the-barriers.aspx</p> <p>http://wenku.baidu.com/view/f3409340c850ad02de8041e9.html</p>
<p>Dutch embassy: doing business in green building</p> <p>http://china.nlabassade.org/binaries/content/assets/postenweb/c/china/zaken-doen-in-china/sectoren/sustainable-building/china---sustainable-building---2011-11-08.pdf</p>
<p>Energy efficiency</p> <p>http://www.wri.org/publication/chinas-booming-energy-efficiency-industry</p>
<p>Green buildings (US green building platform)</p> <p>http://www.green-buildings.com</p>
<p>Steep challenges for a Chinese ecocity</p> <p>http://green.blogs.nytimes.com/2013/02/13/steep-challenges-for-a-chinese-eco-city/?_r=0</p>
<p>Tianjin ecocity official website</p> <p>www.tianjinecocity.gov.sg</p>
<p>LEED (US), BREEAM (UK), and CASBEE (Japan), Green Mark (SGP)</p> <p>http://www.architectsjournal.co.uk/news/leed-outstrips-breeam-across-the-globe-including-europe/8643464.article</p> <p>http://www.bsria.co.uk/news/article/breeam-or-leed/</p>

<https://www.uea.ac.uk/estates/environmentalpolicy/BREEAM+vs+LEED?mode>

<http://www.ibec.or.jp/CASBEE/english/overviewE.htm>

<http://wenku.baidu.com/view/d365e9e3551810a6f5248670.html>

Exhibitions

China Green Building Conference – Shanghai, November 21–22, 2013

<http://www.cdmc.org.cn/2013/gbc/>

Urbantech China – Beijing, May 28–30, 2014

<http://www.urbantechchina.com>

Ecobuild China

<http://www.ecobuildchina.com>

Geohubei International Conference – Hubei, July 20–22, 2014

<http://www.geoconf.org>

Shanghai Energy Saving and Advanced Building Materials Exhibition – August 15–17, 2013

<http://www.expoj.com/en/expojcA0.asp>

Green Building China – Shanghai, October 9–11, 2013

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

BM China – Chongqing

<http://www.bmchina.org/en/index.htm>

Civil Engineering and Building Materials (CEBM) – Hong Kong, December 7–8, 2013

<http://www.iasht.org/cebm/>

Authorities and associations

The Ministry of Housing and Urban-Rural Development of the People’s Republic of China (MOHURD)

<http://www.mohurd.gov.cn/>

China Construction Industry Association

<http://www.zgjzy.org/>

<p>China Green Building Council http://www.chinagb.net</p>
<p>China Building Decoration Association http://www.cbda.cn/</p>
<p>China Building Materials Federation http://cbmia.cbminfo.com/</p>
<p>China Architectural Design Association http://www.zgjzsjsxh.org/</p>
<p>International Construction Decoration Interior Design Association http://www.icda-hk.com/index_1.asp</p>
<p>China Exploration and Design Association http://www.chinaeda.org/</p>
<p>China Energy Conservation Program http://www.cecp.org.cn/englishhtml/index.asp</p>
<p>Ministry of Environmental Protection of China http://www.mep.gov.cn</p>
<p>Econet China (Germany) http://www.econet-china.com</p>
<p>China Greentech Initiative http://www.China-Greentech.com</p>



The EU SME Centre assists European SMEs to export to China by providing a comprehensive range of free, hands-on support services including the provision of information, confidential advice, networking events and training. The Centre also acts as a platform facilitating coordination amongst Member State and European public and private sector service providers to SMEs.

The Centre's range of free services cover:

- Business Development – provision of market information, business and marketing advice
- Legal – legal information, 'ask the expert' initial consultations and practical manuals
- Standards – standards and conformity requirements when exporting to China
- HR and Training – industry and horizontal training programmes
- Access to a service providers directory and information databases
- Hot-desking – free, temporary office space in the EU SME Centre to explore local business opportunities
- Any other practical support services to EU SMEs wishing to export to or invest in China.

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