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# **SUSTAINABLE BUILDING IN CHINA**

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# 1. Situation in present

- **1.1 Energy and environment**

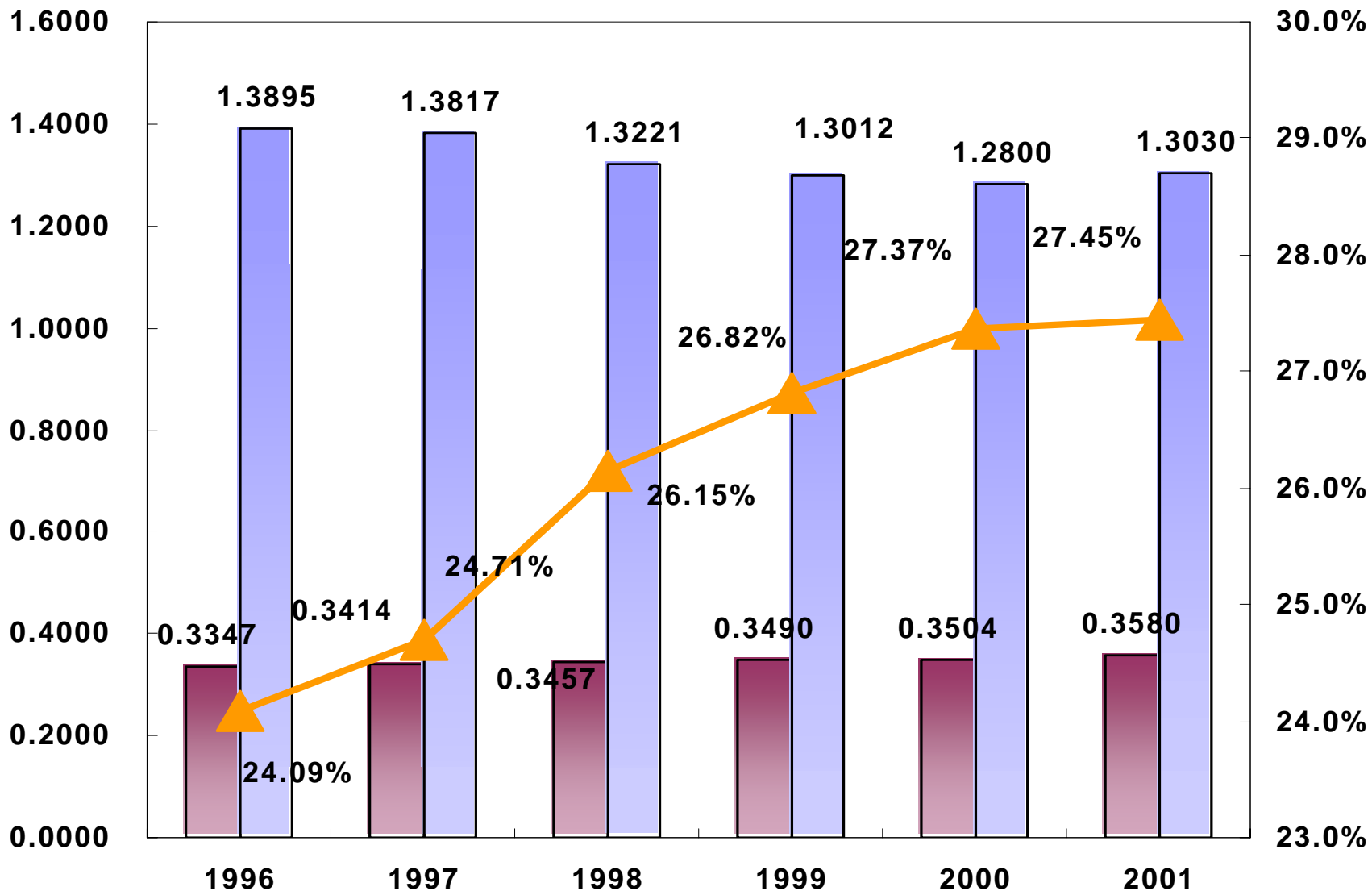
**1.1.1 The new building area in urban area is about 0.7 billion m<sup>2</sup> each year, and it is about 1.6 billion m<sup>2</sup> if the building in rural area is included. It results in the dramatic increasing in energy consumption.**

**1.1.2 The total existing building is a large part, which is about 37 billion m<sup>2</sup> in 2002 and with poor thermal performance. According to statistic data, the energy consumed in building sector is about 0.358 billion tons standard coal, which is about 27.45% of the energy consumption of the total end use ([see figure1](#)).**

billion tons  
standard coal

energy consumption in building  
total end use energy consumption  
percentage

percentage



**1.1.3 Energy efficiency is rather low; the energy consumption per square meter is 1.5-3 times compared with developed countries.**

**1.1.4 From 1986 to 2003, series of energy conservation standards are developed.**

- **1.2 Water resource**

**The per capita water resource in Beijing is 285 m<sup>3</sup>, which is only 1/8 of the national average and 1/30 of the world average.**

**It is estimated that in 2010, if it is a medium water year, the lack of water will reach 1.185 billion m<sup>3</sup>, and 1.999 billion for a low water year.**

**As for 2020, lack of water will be 2.376 billion m<sup>3</sup> for a medium year and 3.090 billion m<sup>3</sup> for a low year.**

- **1.3 Indoor environment quality**

**Nowadays more and more people are concerned with the indoor environmental quality, especially after SARS.**

**According to a survey in Beijing, five years ago, only 19.5% of consumers know the concept of indoor environment quality, and now it is increasing to 58.5%.**

**With the living standard going higher and higher, people need more comfortable and healthy building. Thus the requirement to indoor environment quality would be stricter than before.**

## 2. Different Building Rating system in China

- **2.1 Brief introduction of eco-building rating System**

**By the end of September 2001, 《China: Eco-building rating system manual》 was published. It includes five index, environment planning design, energy and environment, indoor environment quality, water environment, material and resources.**

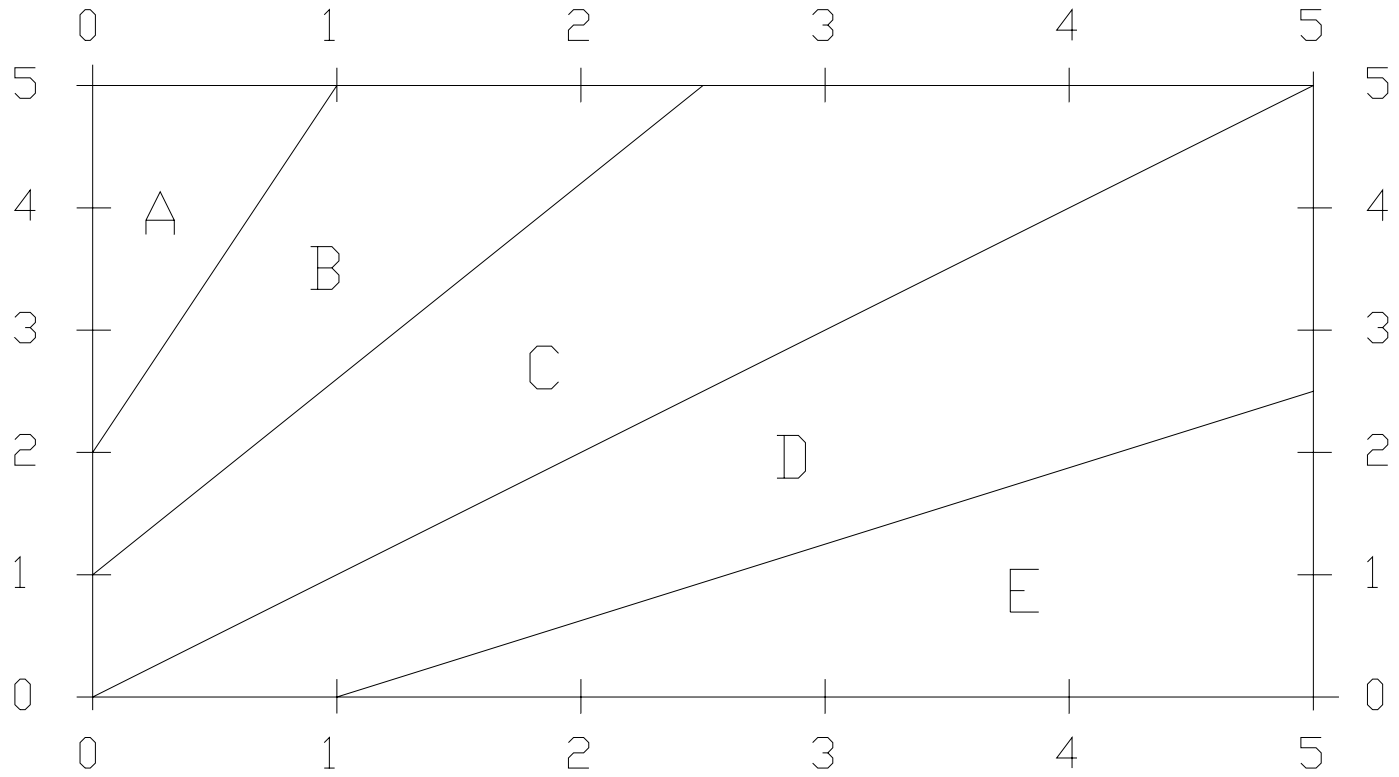
**If the five index mentioned above are all beyond 60 (total is 100), the building can be authorized as Green Eco-Building.**

- **2.2 Brief introduction of green Olympic building rating system**

**Referring to Japanese CASBEE, the rating index consist of two parts, one is Quality (Building environment quality and service), another is Load (energy, resource and environment load). The green building should have high quality and low load( [See figure 2](#)).**

**In order to assure the green Olympic, the rating system should be implemented in the whole process and in each stage ([see table 1](#)).**

Q: building environment  
quality and service



L: energy, resource and environemt load

Part I: Planning stage	Part II: Detailed Design Stage	Part III Construction	Part IV Inspection, Operation & maintenance
<ul style="list-style-type: none"> <li>1-1 Location</li> <li>1-2 Environment impacts</li> <li>1-3 Traffic planning</li> <li>1-4 Vegetation</li> <li>1-5 Energy planning</li> <li>1-6 Resources utilization</li> <li>1-7 Water system</li> </ul>	<ul style="list-style-type: none"> <li>2-1 Building Design</li> <li>2-2 Outdoor environment design</li> <li>2-3 Materials/resources use</li> <li>2-4 Energy use and impact</li> <li>2-5 Water system</li> <li>2-6 Indoor air quality</li> </ul>	<ul style="list-style-type: none"> <li>3-1 Environmental impact</li> <li>3-2 Energy use &amp; management</li> <li>3-3 Material &amp; resources</li> <li>3-4 Water resources</li> <li>3-5 Safety &amp; health</li> </ul>	<ul style="list-style-type: none"> <li>4-1 Outdoor environment</li> <li>4-2 Indoor environment</li> <li>4-3 energy use</li> <li>4-4 water</li> <li>4-5 Green management</li> </ul>

### 3. Prospect of Sustainable Building in China

It can be seen that promoting sustainable building has become an important task we are facing now. Fortunately, we have issued some standards related to sustainable building, and have issued green Olympic building rating system.

However we know clearly that it is just a beginning, and there is long way for us. It is reasonable for us to believe that in short future there would be a complete system to ensure the implementation of sustainable building and sustainable building would develop greatly at the same time.

Thank you !