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## China Business Feb 23, 2008



### China's green race against urban surge

By Josh Adams

BEIJING - Every year for the next 20 years, up to 10 million people will move from China's countryside to urban areas. This unprecedented migration will place huge demands on existing cities, and on the environment. On average, Chinese city dwellers use three times more energy than their rural counterparts, and by 2020 China will account for 16% of the world's total energy consumption. This is a prospect that is causing serious concern, both inside and outside China.

If China follows the historic trends of the West as it develops, residential and commercial building energy consumption could soon skyrocket to account for a third of the nation's total energy use. If coal, China's most abundant fossil fuel, continues to supply most of the country's energy needs, and China's buildings

continue to multiply and consume energy as they do now, the resultant increase in the country's carbon dioxide emissions will dwarf any reductions achieved elsewhere.

Many individuals, organizations and the Chinese government feel that a committed drive toward sustainability is the only way that China can reduce the size of its ever-expanding environmental footprint. For years, the most widely banded piece of eco-jargon in the field of corporate social responsibility, "sustainability", has been all about preserving the world's natural resources and environment for future generations.

Since China won the bid to hold the 2008 Olympics, renewed

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vigor in learning about sustainability has abounded in Chinese circles, not least because Beijing has vowed to make the August Games the most technologically advanced and environmentally sustainable to date. In China's current Five Year Plan (2006-2010), the government has tried to turn away from growth-driven policies toward sustainable development, demonstrating the desire of the country's leaders to address the country's dire environmental problems.

One of the key objectives of the plan is to reduce the amount of energy required to produce a unit gross domestic product (GDP) by 20%, and China's total discharge of carbon dioxide by 10%. As the country urgently needs to erect 100 million more homes, and huge numbers of office blocks are in the urban pipeline, it's obvious that new construction will have to go green in a big way if these targets are going to be realized. With over 2 billion square meters of new Chinese floorspace added last year alone, the challenge is daunting.

Sustainable construction in China, as in many other countries, is still in its infancy and faces many obstacles. To most real estate developers caught in the construction gold rush, the game is about erecting second-rate buildings as quickly and profitably as possible. Although China has 11 "eco-city" projects under construction and 140 building projects, few foreign experts feel these projects would pass a genuine international green test - involving low energy use, low cost, recycling water systems and "intelligent" integrated design and materials.

One of China's most vaunted sustainable building projects is the eco-city of Dongtan, being built on the Manhattan-sized island of Chongming in the mouth of the Yangtze River, just north of Shanghai. According to Arup, the UK firm that designed Dongtan, and which is also working on a range of other high-profile China-based projects, the city's population will swell from a few farmers and fishermen today to 80,000 by 2020, and up to 400,000 by 2050.

The delicate nature of Dongtan's virtually pristine ecosystem has been one of the driving factors behind the city's design. Arup plans to enhance the existing environment by returning agricultural land to its former wetland state, thereby creating a "buffer zone" between humans and nature and increasing biodiversity. By implementing the latest green building technology, Dongtan's buildings will run entirely on renewable energy, and the city is expected to recover, recycle and reuse 90% of all its waste.

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Opinion is still divided over whether Dongtan really will be as green as it claims. Dan Ilett, editor of London-based Greenbang magazine, comments, "Anyone who claims to be able to build a sustainable city had better be sure they know what they're talking about, and there are still a lot of questions that need to be answered. Everyone knows the Chinese government doesn't have such a great track record when it comes to the environment, and it's entirely possible Dongtan is just another case of 'greenwashing' on a mammoth scale."

Other critics claim that local planners are more concerned with raising Dongtan's profitability than ensuring sustainable development, and that the expensive eco-housing due to be built will force locals out and bring China's wealthy elite in. Peter Head, the Arup director overseeing Dongtan, counters, "In order to be sustainable socially and economically, the city will need to be populated by a wide range of demographics. We don't yet know how the residents will be selected as this is under the jurisdiction of the Shanghai and Chongming Island Governments. However, 30% of accommodation in the city will certainly be affordable housing."

Head continues, "The sustainable development model developed by the Shanghai Industrial Investment Corporation (SIIC) and Arup for Dongtan is directly relevant to cities, both new and old, around the world. Our intention is to create a sustainable, resource-efficient and culturally rich environment, a blueprint for sustainable urban development across China." Arup, SIIC, HSBC Bank and Sustainable Development Capital LLP (SDCL) have just formed a consortium to develop a funding model for Chinese eco-cities, and have helped found the Dongtan Institute for Sustainability at Shanghai's Tongji University.

Despite the latent skepticism over large-scale projects like Dongtan, the trend toward sustainable buildings in China is nevertheless gaining momentum. In November 2005, the US Green Building Council (USGBC), an American NGO, presented awards to 10 Chinese real estate developers and government leaders for their "pioneering work in transforming the world's largest building industry". The developers, representing some of China's largest construction companies, had one thing in common: they were the first private sector companies to pursue the USGBC's Leadership in Energy and Environmental Design (LEED) certification.

The LEED Green Building Rating System is the internationally accepted benchmark for the design, construction and operation of high performance green buildings. It promotes a whole-building

approach to sustainability by recognizing performance in five key areas of human and environmental health - sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

In 2003, the Century Prosper Center, a 150,000 square meter twin office tower in Beijing's CBD, was the first large commercial project in China to be registered for LEED. Another milestone was reached in 2005 when the Coastal Greenland Group took the decision to seek LEED for Neighborhood Development (LEED ND) registration for a large mixed-use development, also in Beijing. In total there are now 50 construction projects across China that have applied for LEED certification.

There are plenty of people on hand to give China advice and financial help in the sustainability arena. Starting in 2002, and supported by the US Department of Energy, the Natural Resources Defense Council (NRDC), another American NGO, began work with the Chinese Ministry of Science and Technology (MoST) on constructing the Agenda 21 Energy-Efficient Office Building in Beijing. This "living building", which uses 70% less energy than similar government buildings and saves 10,000 tons of water a year through rainwater collection, is now finished, and was the first building in China to receive an LEED Gold rating in 2006.

George Bialecki, founder of the American NGO Alternative Energy Builders (AEB), feels energy efficiency is the area where green homes and offices can bring the biggest benefits in China. He comments, "Now there is a debate over which causes more pollution - a home or a car. Even applying conservative estimates and using a ratio of 1:1, we can see that if China's next 100 million homes are green, with drastically reduced energy requirements, then we are preventing a pollution increase equivalent to that caused by 100 million new cars. This, in itself, would be an incredible achievement."

As part of a project authorized by China's Ministry of Construction in 2003, the AEB is involved in construction of Future House USA, a showcase sustainable house being built on a site outside Beijing, along with eco-houses from seven other countries.

Changing ingrained behavior is always slow, and it's too early to say whether sustainable construction can really help China meet its environmental goals. Eyes will remain focused on high-profile projects like Dongtan to see how the government's green rhetoric fits in with the nation's concern with economic development. Despite the many problems to be faced, however, it's hoped that

Chinese developers will gradually come to appreciate that sustainable construction is a true win-win proposition, and that making money and saving the planet don't have to be mutually exclusive.

***Josh Adams** is a freelance writer and photographer who has lived in Beijing for the last two years.*

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