



CHINA

A THREE-LITRE DREAM HOUSE

With more than 1.3 billion people, China is the most populous country in the world. It has also become the global leader in greenhouse gas emissions. The biggest climate offenders in China are residential and office buildings. Their construction and operation devour huge amounts of energy, land area, water and building materials. Fengfeng Niu from China wants to change that.



By 2030, an estimated one billion people will be living in China's cities. All will want ample living and working space and greater comfort – interiors heated in winter and air-conditioned in summer, running hot water and electricity. In response, another five million large-scale buildings are to be built in China by 2030.

"The new buildings must be energy efficient and not leave a large ecological footprint," says Chinese interior designer Fengfeng Niu. In 2001, Niu arrived in Germany for his second degree course, this time in business management with a focus on marketing. In 2006, whilst the 30-year-old Niu pondered his degree thesis in environmentally conscious Freiburg, Christoph Mitterer of the *China Council of Human Settlement (CCHS)* in Peking was confronting a completely different problem. The German expert in energy-efficient and sustainable construction was wondering how he could convince Chinese investors, engineers and architects to accept environmentally friendly building materials, efficient façades and structural design, and regenerative energy strategies.

The right man in the right place

Three months later, the answer presented itself in Mitterer's office in the form of his new marketing assistant at CCHS: Fengfeng Niu. Not only had Niu's architectural studies provided him with the requisite fundamental technical knowledge, but his education

in Germany had given him an understanding of what is important in the marketing of services and products. Other key elements in Niu's favour were his detailed knowledge of the Chinese mentality and the fact that he knew exactly where to back up Mitterer's technical and ecological arguments with economic ones. His time in Freiburg had also given Niu a clear vision of the path China must take to make its cities more environmentally friendly, with an agreeable atmosphere for people to live in. "China's buildings today use up more than forty percent of our energy. In Germany, a low-energy house consumes three litres of oil per square metre in winter. In China the average is 12 litres. Between these extremes lie numerous neglected opportunities," says Niu.

The Chinese marketing specialist and the German construction expert worked together closely for nearly two years. They bounced ideas off one another, discussed ongoing projects, and prepared approaching seminars, in which they again advocated protection of the environment and natural resources. In the seminars particularly, they applied gentle pressure in a bid to enforce compliance with Chinese government standards for energy-efficient construction. With the aid of the latest in simulation software and citing concrete examples, they demonstrated how much energy, water and material could be saved – and emissions and costs reduced – in the construction and maintenance of buildings. And they also showed that in a world with limited resources, 'green' buildings sell better, too.

Benefits for the environment and for economic cooperation

Within two years, Niu and Mitterer and five CCHS colleagues transformed some 900,000 square metres into environmentally friendly, energy-efficient living space. The two also launched several ground-breaking pilot projects, mapping out China's course in this sector. One example is two eco-cities with a total population of 1.3 million that are currently being built in cooperation with local governments in southern and northern China. Another is a solar energy project with a living area of 150,000 square metres, which has two German firms participating.



Back in China again: Fengfeng Niu

Just recently Niu accompanied staff members of a German ecological foundation to Shanghai where they plan to invest in the construction of ecologically sound housing for migrant workers. They need assistance in choosing an appropriate property. Niu's German language skills and his knowledge of the culture are of great advantage on such occasions, as they were in his daily work with Mitterer. Fully aware of this, Yan Kai, deputy director of CCHS, appointed Niu to replace Mitterer as director of the small research section for green buildings on Mitterer's departure and recently made him responsible for international cooperation at CCHS as well.

"Without Mitterer and Niu, I don't know if we would have started cooperation with the *Fraunhofer Institute* or the *US Green Building Council*, or even with German companies such as *Viessmann*, the heating systems manufacturer, and *Bayer*, the synthetics supplier," concedes Kai. But it is not only the CCHS and China that profit from German know-how, for when marketing expert Niu tries to make the three-litre house or the certification system of the *German Sustainable Building Council* palatable to his fellow Chinese in newspaper articles and seminars, he is on a mission for Germany, too, and for global environmental protection.

The programmes:

As an expert on energy efficiency and sustainable construction, Christoph Mitterer was seconded from the Centre for International Migration and Development (CIM) to the Chinese non-governmental organisation China Council of Human Settlements (CCHS). Mitterer was given leave of absence for this purpose by his German employer, the Fraunhofer Institute for Building Physics. His assignment in China was financed jointly by the Fraunhofer Institute and CIM through CIM's **Integrated Experts Programme**.

When Mitterer was looking for a marketing assistant for the CCHS, someone who was proficient in Chinese and German, he turned again to CIM. CIM canvassed Germany for a suitable candidate and came up with Fengfeng Niu. Following his five-year period of study in Germany, Niu was eager to go back to China and work at CCHS on environmental protection. So CIM promoted his assignment at CCHS through the **Returning Experts Programme** which is financed by the German Federal Ministry for Economic Cooperation and Development (BMZ).

The ideas behind them:

In tandem and with their mix of various kinds of expertise and cultural skills, Niu and Mitterer were able to achieve far more than would have been possible for either man alone. Mitterer passed on much of his expertise to Niu, enabling Niu to carry on the work after he left.

As a rule, the salaries Chinese non-governmental organisations such as CCHS can pay are not sufficient to attract experts with German training. In both of its programmes, CIM's topping-up payments and other subsidies make meaningful development-policy assignments more attractive. With this support, returnees like Niu find it easier to enter or re-enter a profession in their country of origin.

Links:

CIM and its programmes: www.cimonline.de/en

CCHS: www.cchs.org.cn

Fraunhofer Institute for Construction Physics: www.ibp.fraunhofer.de