

Country

China

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2003-2006

EC co-financing

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Partners

- Technical University Delft, The Netherlands
- Tsinghua University, China
- Tianjin University, China
- Palermo University, Italy

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Asia Pro Eco II

Promoting sustainable solutions for the environment between Europe and Asia

Green Building: EU-Asian partnership that makes a difference

"It is clear that we need to change the way that buildings in our cities are constructed and renovated. They use a lot of energy to heat and cool, and they generate waste. All across the globe, people are starting to realise the need for action".

Margot Wallström, Former European Commissioner for the Environment

Conventional building practices often overlook the interrelationships between a building, its components, its surroundings, and its occupants. Often, too much energy is used, and too much waste is produced. Green building practices aim to address these issues by integrating environmental materials, energy efficiency and waste minimization into a healthier and more comfortable environment, right from the initial design stage.

Setting an example

In China, a country of almost 1.3 billion people, buildings consume a quarter of the total energy produced and it is expected to increase one third as in most of developed countries. The heating and lighting of buildings are using most of the energy and produce about one third of all greenhouse gases. A project co-funded by the European Commission's Asia Pro Eco Programme "*Toward a better environment: implementation of energy-saving buildings in China – ENER-C*", builds on an existing local project supported by the Beijing municipal government and several European and Chinese enterprises. This project was launched in May 2003, by the Technical University Delft from The Netherlands, with the partner Universities of Tsinghua and Tianjin from China and Palermo University from Italy, and is contributing to the future building technology in China through:

- Exchange of experience and know-how between European and Chinese universities, local administrations and companies, through a series of workshops, seminars and training courses;
- Implementation of several green technologies in a Low Energy Demo Building in the campus of Tsinghua University, Beijing;
- Development of a Green Buildings Rating System, a standard framework for assessing building performance, which is being used for the construction of the Olympic Game village in Beijing;
- Promotion, training and dissemination of information in both European and Asian media and universities about green building techniques and their impact on our environment;

- Production of Reports and Publications with finding from the different workshops on energy saving technologies in the building sector and its distribution through the relevant stakeholders, from students to company representatives.

Lessons Learnt

The objectives achieved by the project have, to a great extent, been due to the partners' enthusiasm, commitment and international reputation, which clearly acted as a decisive factor for the success of the project. The wide range of participants targeted by the seminars and workshops at Delft University of Technology, Tsinghua University and Tianjin University, also seemed to have a positive impact on the dissemination objectives of the project. Among the participants were the Mayor of Beijing, government officials, professors, designers, PhD students, international engineers on green building and European companies.

There is also a positive impact in terms of collaboration among Universities, industry and Government in this project, which influenced its positive outcomes and sustainability.

Partnerships for a common aim (outreach and dissemination)

This EU-China partnership in the promotion of green building techniques is already finding synergies with several other EC funded Asia Pro Eco projects. The United Nations Environment Programme with Asia Pro Eco organised a series of Sustainable Building and Construction conferences across South East Asia and China which aim to raise awareness, build partnerships and regional and international networks in this field.

The reports produced based on the achievements from the workshops and seminars were widely distributed through students and other stakeholders, presented in a dedicated TV programme and also published on relevant scientific publications and conference proceedings. A book named "*Building Energy Efficiency Technology and Application*" has been published in China. Two dissemination scientific articles will be published in Italy and The Netherlands.

A useful dissemination tool for ENER-C was also the production of a documentary by the Tianjin Television, broadcasted twice in China, which provided the project with great local visibility.

The physical analysis of the most common building materials currently used in China has also been carried out using a test facility available in the Department of Energy and Environment Research (DEER) at Palermo University. A database of the physical properties of traditional building materials and Bio Based Building material is going to be available for the building industry.

In order to increase the information dissemination a web site, updated regularly on the project's activities and achievements, has been set up and two dedicated domains have been bought to facilitate an easy connection to people both in Western countries (www.ener-c.com) and Asia (www.ener-c.com.cn).

Sustainability

Some positive outcomes can be identified, which are influencing the sustainability of the actions carried out by the ENER-C project:

- The project received a good level of policy support from the Chinese Government (Municipality of Beijing and Tianjin) and an agreement has been signed between the Committee of Construction, Science and Technology and the department of Environment Protection of Tianjin to provide financial support on sustainable building practice and energy efficiency after the project is finished;
- The Tianjin University also highly supports the idea of cooperation with international organisations, especially with the EU;
- Links and exchanges with other projects (EC among others) on energy saving buildings are ongoing and there is a will to keep this international cooperation going;
- In terms of training and knowledge transfer, apart from the workshops held in the different partner universities, a PhD student from TU spent 6 weeks at Delft University to visit installations in real buildings, receive training and exchange information and knowledge on the environmental friendly technologies being developed and implemented in Europe;
- A stable collaboration between Delft University of Technology and the China Architecture Design & Research Group has been established. Within this collaboration, every year two designers (at least) of the China Architecture Design & Research Group are going to be trained at TUDelft in the field of Sustainable Energy sources for buildings;
- University's recommendations to modify existing standard Code on Public Building Evaluation system, have been approved by the Chinese Government in Beijing and University Professors are working closer than before with Government Officials to exchange information and implement their recommendations;
- Mainly through visits to Europe and China, the interest to exchange experience between universities and the industry sector is higher. An Italian company has provided Double Skin Façade material to be tested at Tsinghua University;
- Stable co-operation between Tsinghua University and Delft University of Technology as well as with Lyon Thermal Research Centre have been established;
- Stable co-operation between Tianjin University and Delft University of Technology has been established;
- An Italian company dealing with energy saving technologies is about to start collaboration with Tsinghua University.

As a multiplier effect generated by this project, the Ministry of Construction of China has shown interest in co-fund a subsequent project with the European Commission, to follow up on the results and awareness raised by ENER-C on energy saving buildings.

Recommendations

A good working relationship between the partners is an essential requirement for the success of any project involving different cultures. This aspect was particularly relevant for this project, where the good collaboration between the TUD and the Universities in China has allowed for a continued collaboration between the three academic institutions:

- Approximately 15 to 20 students from TUD will visit the DB in China in May 2006, after the project's implementation is over;
- A post-doctor student from Tianjin University will spend 3 months in TUD for research and knowledge exchange;
- A seminar is being organised in the DB, at Tsinghua University, on energy saving technologies, to be held in June 2006.

A close contact between the partners, through a kick-off meeting and regular partner meetings, allows for the necessary discussion ground for preparation of the project's activities and methodology. Furthermore, a detailed description of activities, of the work plan and the logical framework is an important element for the achievement of the pre-established objectives. A useful option can, in this case, be on-line meetings or web-conferencing, making use of the new technologies for enhancement of the partners' communication.

The encouragement for participation of other stakeholders, not directly involved in the project, increases at a large scale the dissemination and visibility of the project. Particularly the private sector and the information and media groups can bring a beneficial input to the project outcomes, either by creating business and investment opportunities, or by drawing the attention of a wider public.