Entry for Green Dot Awards 2011
Concept Category

Suzhou Eco-Town

30 November 2011

jtp

JOHN THOMPSON & PARTNERS
urbanism + architecture

ENTRY FOR GREEN DOT AWARDS 2011 CONCEPT CATEGORY SUZHOU ECO-TOWN

1. BACKGROUND AND CONTACT INFORMATION ABOUT YOUR BUSINESS, ORGANIZATION, OR COMPANY.

Jo.hn Thompson & Partners was formed in 1995 and is an award-winning practice specialising in sustainable Urbanism & Architecture.

We have a reputation for sensitive but imaginative high quality design with a particular emphasis on Masterplanning and Placemaking.

Offices in London, Edinburgh, Berlin & Shanghai
Employ 75 staff
Practice has won over 100 design awards since 2000
Only office in the UK to hold 8 Building for Life Awards
Awards in 2010:

- City of London Sustainable Building of the Year
- Corenet Sustainability and Innovation Award
- Shortlisted for AJ Sustainable Practice of the Year

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2. DETAILED EXPLANATION OF THE ENTRY TO INCLUDE.

See Below

3. WHAT THE ENTRY IS AND ITS INTENDED USE.

EMBEDDING SUSTINABILTY AT CITY-SCALE SUZHOU ECO-TOWN:

A team led by John Thompson & Partners (JTP) won an international competition to design the first phase of a new eco-town in Suzhou, located next to Tai Lake, the third largest lake in China.

JTP collaborated with Gillespies' Glasgow office (Landscape and Urban Design); Colin Buchanan's London and Shanghai offices (Transportation Engineers); Joachim Eble Architektur (Eco-architects) based in Tübingen, Germany, Professor Yen-Yi Li (bioclimatic design and wind modelling) from Taiwan Shute University, and Professor Shuh-Ren Jing (hydrological management and waste water management) from Taiwan Chia-Nan University of Pharmacy and Science.

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CONCEPT:

The concept was informed by knowledge gained from the Eco-City project - a EU funded research project that set out to develop a framework for sustainable urban development. The central theme emerging from Eco-City is the need for integration of all aspects of the design and use of our living environment.

AIMS:

At present, China's overall environmental footprint is relatively low, but peaks highlight growing patterns of unsustainable development in urban areas, such as The Yangtze Delta region where Suzhou is located.

As the world's fastest growing economy, there is an urgent need for China to introduce new exemplar sustainable concepts to prevent unsustainable approaches being rolled out for the world's most populous nation.

Integrated planning at a city scale combined with bioclimatic design can create a low carbon and energy efficient infrastructure before fabric technologies are even considered for buildings.

The aim of the masterplan was to create a balanced eco-system to enable long term, sustainable human habitation - environmental, social and economic.

The key to achieving this was to develop a bioclimatically designed masterplan that established significant and effective synergies between the different components of landscape, movement, urban design, energy and water systems. (SEE IMAGE 1)

SIX INTEGRATED STRATEGIES:

The proposal for Suzhou is based on a series of strategies that show how human needs can be met in ways that are in harmony with natural and ecological systems.

An integrated approach has been applied to every aspect of the project, in recognition that, for genuine sustainability, human settlements need to be thought as eco-systems full of symbioses and synergies. We have structured our description of its component parts in a way that emphasizes the links and connections between the inter-related factors.

STRATEGY I AGRICULTURE + URBAN LIVING + WATER

The existing land use of the area designated for the Eco-Town is predominantly agricultural. The Eco-Town proposals encourage 'Agro-Urbanism' - the establishment of a coherent, functional inter-relationship between the production, distribution and consumption of food. This concept is enshrined in Ebenezer Howard's visionary diagrams of the Garden City, and the Suzhou plan incorporates these ideas by connecting the urban areas to the agricultural land between the Eco-Town and Tai Lake. Water forms a key component of the open space framework and a network of canals will be used for flood control, irrigation, cleansing of eutrophication, and also water transport, enabling farmers to bring their produce to strategically located floating markets in the urban centres. (SEE IMAGE 2)

STRATEGY 2 CLIMATE + URBANISM

Agro-Urbanism contributes to the concept of Bio-climatic design, in which agricultural land, recreational green spaces, and tree-lined streets are interwoven within the urban environment. These green spaces and water bodies, being cooler than built-up areas, capture and cool breezes that reduce the 'Urban Heat-Island' effect. This in turn reduces energy consumption and emissions.

The masteplan embraces the traditional Chinese principles of south facing, west-east orientated streets, yet combines this with bio-climatic strategies to ensure the creation of comfortable micro-climates throughout the year. These strategies have been applied at a wide variety of scales, from city to urban block, and are based on a rigorous understanding of the environmental conditions of the local climate.

In summer, the more fractured urban form to the south will allow the southerly breeze to flow along the wind corridors and cool the streets and buildings. Waterways woven throughout the scheme promote passive, downdraught cooling, and tree-lined streets shade southern facades from the summer sun.

In winter, the more solid urban form to the north shields the colder winter wind from entering the Eco-town. The southern facades of buildings receive passive solar gain from the low winter sun.

By incorporating these bio-climatic principles, the Suzhou Eco-town drastically reduces the amount of energy used for heating in the winter and cooling in the summer. (SEE IMAGE 3)

STRATEGY 3 MOVEMENT + ENVIRONMENT + LIFESTYLE

A Slow-Movement strategy, combined with Slow-Life principles is the basis for the approach to movement in and around the site. The strategy, founded on the town's compact and functional layout, encourages the use of healthy, environmentally-friendly modes of transport and discourages the use of private cars. Integrated transportation - light rail / trams and buses – combine to serve the Eco-Town and connect it to Suzhou.

The overall masterplan is divided into areas of contrasting character and density in order to create a legible series of distinct neighbourhoods each with its own strong identity and connected through the integrated transport system.

STRATEGY 4 URBAN STRUCTURE + INTEGRATED RECYCLING + BUILDING COMMUNITY

The urban framework is based around a main town centre surrounded by a series of eight walkable neighbourhoods, each with its own local centre. The centres have been designed to promote a strong sense of community, with shops and services, schools and recycling facilities for local residents.

Each recycling centre is part of an 'Eco-station' in which the processing of domestic and agricultural waste is combined in a 'Terra Preta' grey and black water treatment system that produces rich soil for use in agriculture. This soil can be sold as an income generator and also used on site to grow vegetables, also for sale.

STRATEGY 5 ECOLOGY + ECONOMY + LOCAL CULTURE

Generating income does not have to be at the expense of ecology and bio-diversity. Eco-Tourism makes a virtue of the preservation of the environment, with the offer of nature reserves, visitor centres, boat trips, eco-trails and outdoor pursuits. This is reinforced by Agro-Tourism, through which visitors enjoy organic produce and can join tours to learn about the techniques used to make it. In this way the local community's traditional farming methods, including silk production, can be transformed to mesh with modern lifestyles. (SEE IMAGE 4)

STRATEGY 6 CHINA + EUROPE

Tying these concepts together is an approach to urban design based on combining local context, tradition, an understanding of local conditions and climate with principles of European Urbanism. The integration of water and buildings in the layout itself combines western and local concepts; Suzhou is described as 'The Venice of the East' a city based around a network of waterways. (SEE IMAGE 5)

THE FUTURE:

To date, China's new Eco-Towns have required state subsidies for construction and maintenance, which compromises their economic viability. The Suzhou Eco-town strategy addresses viability issues by offering development land in 5-10 hectare parcels, to be governed by an environmentally-based Design Code to guide the Eco-town's development, including an Eco-Index which contains 34 indicators under 4 main headings:

- *Preserve the natural environment*
- *Socio-economic aspects*
- *Reduction of eco-logical footprint*
- *Governance*

The aim of these measures is to control development and create a truly sustainable place; a human/ natural eco-system which is in balance with the Carrying Capacity of the environment in which it is located.

4. HOW THE ENTRY IS MANUFACTURED AND DELIVERED TO CONSUMERS.

New Eco-town design; detailed plans and design codes for the building process are currently underway as part of a phased construction programme over the next 2-10 years.

1. *Local government installs technical infrastructure of roads, power lines, recycling systems, water supply, drainage etc*
2. *Local government provides social infrastructure of schools, health and other community facilities*
3. *Serviced land plots are sold to commercial investors for residential and commercial developments, with all detailed design proposals controlled by the Design Code prepared by the JTP team*
4. *Dwellings and commercial buildings are sold or rented to customers by development companies*

5. HOW THE ENTRY EXHIBITS EXCELLENCE IN SUSTAINABILITY AND ENVIRONMENTAL RESPONSIBILITY.

See project description above