


UNEP – SBCI 2012 AGM and Symposium
 Resource Efficiency and Green Economy: Opportunities for Sustainable Buildings and Cities

'Rethink Cities'

– sustainable urban development -
 cooperation – synergies – systems

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Svenska Teknik & Designföretagen
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AN EFCA/FIDIC WHITE PAPER

RETHINK CITIES -
 AN EFCA/FIDIC WHITE PAPER ON SUSTAINABLE URBAN DEVELOPMENT
 THROUGH COOPERATION, SYSTEMS & SYNERGIES

Foreword
 Executive Summary
 Introduction
 What is sustainability?

1 Facing the facts
 1.1 Critical boundaries and our ecological footprint
 1.2 Greenhouse gas emissions
 1.3 Resource efficiency
 1.4 Water
 1.5 Energy
 1.6 Land use
 1.7 Cities
 1.8 Urban planning
 1.9 Urban form
 1.10 Urban infrastructure
 1.11 Urban services
 1.12 Urban governance
 1.13 Urban resilience
 1.14 Urban innovation
 1.15 Urban leadership
 1.16 Urban vision
 1.17 Urban future

2 Possibilities – synergies in urban planning and development
 2.1 Urban functions – a holistic approach
 2.2 Transportation
 2.3 Landscapes and biodiversity
 2.4 Building design
 2.5 Energy production, distribution and use
 2.6 Water and sewage treatment
 2.7 Waste treatment
 2.8 Information & communication technologies
 2.9 Administrative methodologies
 2.10 Smart living

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Urban Environmental solution attracts many international visitors.



Mr Xi Jinping,
 March 5th, 2010

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Cities

Half of the world's population live in cities at 2% of the Earth's land area but uses 75 % of all energy and generates 80% of all CO₂.
Climate Change: The Role of Cities, UNEP, UN Habitat, 2009

At a global level there are 70 million new urban residents every year (or 190,000 persons every day).
Worldwatch Institute, 2007, State of the world. Our urban future

City areas have a tendency to spread geographically faster than their increase of population.

RETHINK CITIES - cities must be developed both as energy efficient and environmental friendly “systems” as well as attractive living and economic prosperous areas.

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Transportation

- Global transport work grows with circa 2% yearly
- 95% of the energy use in the transport sector is used by fossil fuel-powered vehicles.

(SWEDISH ENVIRONMENTAL PROTECTION AGENCY National Inventory Report, 2011 Sweden, page 41)

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Energy

The world's energy supply is still to more than 80% dependent on fossil fuels and energy consumption overall increases.

The USA energy consumption per capita (90 000 kWh) is twice as high as in Europe (43 000 kWh).

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Infrastructure ...

- Total investments in EU-27 road transport infrastructure are roughly three times higher than investments in rail transport infrastructure.
- 25 x increase of private owned cars in Shanghai 1999-2005

Source: International Transport Forum

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Nothing new ...


The New York Times
STUDY FINDS WARMING TREND THAT COULD RAISE SEA LEVELS
By WALTER SULLIVAN (The New York Times); National Desk
August 22, 1981, Saturday
Los City Final Edition, Section 1, Page 1, Column 1, 1052 words [DISPLAYING ABSTRACT]

A team of Federal scientists says it has detected an overall warming trend in the earth's atmosphere extending back to the year 1880. They regard this as evidence of the validity of the "greenhouse" effect, in which increasing amounts of carbon dioxide cause steady temperature increases. The seven atmospheric scientists predict a global warming of "almost unprecedented magnitude" in the next century. It might even be sufficient to melt and dislodge the ice cover of West Antarctica, they say, eventually leading to a worldwide rise of 15 to 20 feet in the sea level. In that case, they say, it would "flood 25 percent of Louisiana and Florida, 10 percent of New Jersey and many other lowlands throughout the world" within a century or less.

John Tyndall (1820 – 1893), an Irish-British researcher began in 1859 studying the radiative properties of various gases. Tyndall's experiments 1859 showed that molecules of water vapor, carbon dioxide, and ozone are the best absorbers of heat radiation, and he later speculated on how fluctuations in water vapor and carbon dioxide could be related to climate change.
[\(http://earthobservatory.nasa.gov/Features/Tyndall/\)](http://earthobservatory.nasa.gov/Features/Tyndall/)

1896, researcher Svante Arrhenius estimated that twice as much carbon dioxide in atmosphere would add 5 - 6 degrees centigrade to temperature.
The Intergovernmental Panel on Climate Change estimated a 1,5 – 4,5 increase in 2007.
In the USA an average of 19.1 tonnes of carbon dioxide is emitted per person per year, in OECD-countries 11.0 tonnes, within the EU27 it is 7.9 tonnes, in Sweden it is 5.4 tonnes sub-Saharan Africa accounting for 0.8 tonnes. OECD in figures – 2009 edition, www.oecd.org

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'RETHINK CITIES'

- it is in cities where it is possible and necessary to more effectively respond to energy, climate and environmental challenges.
- society has to “rethink cities”; through evolving resource efficient cities with increased focus on planning and making social and economic attractive areas, well-functioning spatial structures and energy efficient systems.

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An Urban Toolbox - for resource efficient cities

- Ecological functions
- Social functions
- Economically functions

- ✓ Urban functions – a holistic approach.
- ✓ Traffic and transports
- ✓ Landscape and biodiversity
- ✓ Building design
- ✓ Energy production, distribution and usage
- ✓ Water and sewage treatment
- ✓ Waste treatment
- ✓ ICT Infrastructure
- ✓ Administrative methodologies
- ✓ Life style/Smart living

Wuxi
 TENGBO



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Singapore

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NEIGHBOURHOOD ENERGY UTILITY HELPS BUILDINGS WORK TOGETHER

Vancouver's first renewable district heating system is the Neighbourhood Energy Utility (NEU), located in the Southeast False Creek neighbourhood. It has reduced greenhouse gas emissions by more than 50% over conventional stand-alone heating and hot water systems. How? By connecting the buildings together to share a renewable heat source.

The NEU uses heat-capturing technology to gather wasted thermal energy from municipal sewage. The heat pump converts this energy to a higher temperature used for residential space heating and hot water. Instead of each building working on its own, the energy utility can supply several buildings together, making the project more cost-effective than stand-alone options. This economical and flexible infrastructure allows the NEU to use a wide variety of renewable "waste energy" options that would not otherwise be available to heating systems in individual buildings.

Vancouver

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Traffic and transportations

- attractive, environmentally friendly and energy efficient public resources of communication, a safe traffic environment for pedestrians and cyclists, accessibility for everyone, avoidance of traffic barriers etc.





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Landscape, biodiversity etc

Attractive areas for **public life**, play, green spaces and parks, **biological diversity**, protection of sensitive habitats and species, plantations, trees and water environments in the public sphere, protected residential yards, shaded locations, local management of storm water, the opportunity for public life and meetings, secure and energy efficient lighting.

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BUILDING DESIGN

- energy efficient buildings – both new and existing, passive heating and cooling, sound, recyclable material and minimum quantities, maximum use of non-polluting/non-toxic materials and substances, environmentally-conscious building sites, optimisation of construction in relation to local conditions etc.

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Western Harbour, Malmö

The American Bank, N Y

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Dar Es Salaam



House of Culture Award winner in the category "Client Commitment" at the international BEX conference in Hamburg 2009.

House of Culture, Dar es Salaam, Tanzania

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Pune, India



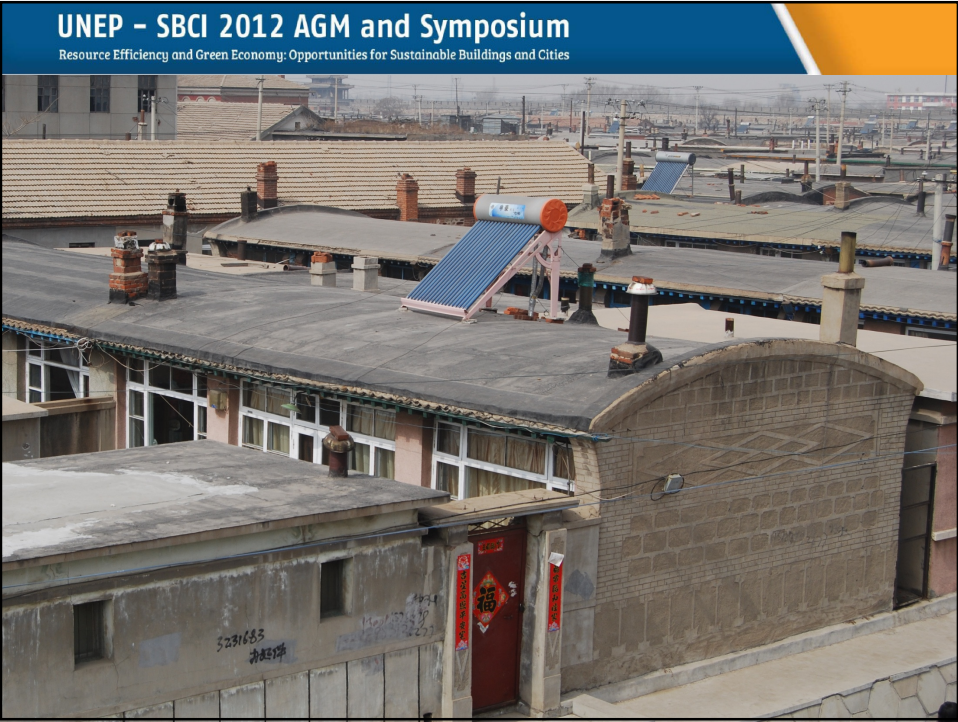


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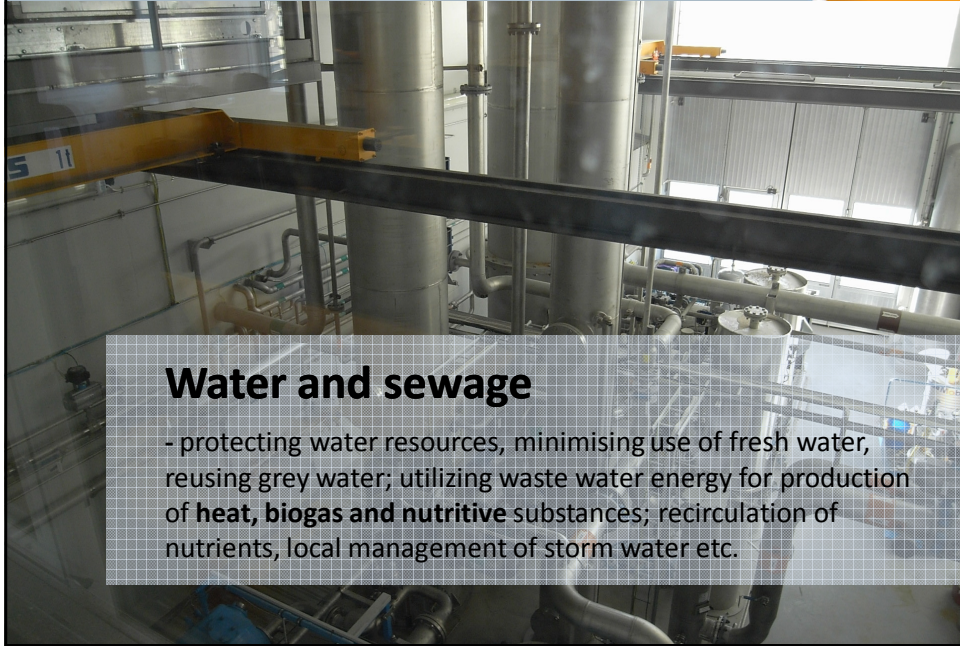
Energy production, distribution and use

- efficient energy end use, renewable energy generation, efficient distribution, storage and use, **district heating and district cooling**, **combined production of power**, heat and cooling, passive energy systems etc.

A photograph of an industrial facility, likely a power plant or refinery, at night. The scene is illuminated by artificial lights, and the structures are reflected in a body of water in the foreground. A tall, thin tower is a prominent feature in the center.



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Water and sewage

- protecting water resources, minimising use of fresh water, reusing grey water; utilizing waste water energy for production of **heat, biogas and nutritive** substances; recirculation of nutrients, local management of storm water etc.

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Bio gas filling station



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Högdalen district heating and power cogeneration plant

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ICT
 - ICT (Information and Communications Technologies) have the possibility to make energy use more efficient and encompass any communication device or application, including smart power grids, radio, television, cellular phones, computer and network hardware and software, satellite systems and etc.



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SMART LIVING

Among other things, involves knowledge, information and communication; **it must be easy to act correctly.**

Technical solutions facilitate changes when individuals take responsibility and make a contribution. For it to be of interest, the individual must be able to "interpret" and receive clear feedback on value creation.

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Johannesburg





2011 URBAN PROJECTS WINNER

MIPIM AWARD 2011

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《无锡市优秀城乡规划设计》
二等奖
获奖单位: 上海同济城市规划设计研究院有限公司
人员: 许 轸, Anna Kerr, 李 新, 张宇飞, 曹 雷, Jeremy Thompson, 吴怡雯, 张 楠, 袁坤鹏, Stellan Fryxell, 过琳琪, 张 磊, Stefan Dietlmeier

二〇一二年一月

THE ARCHITECTURAL REVIEW
mipim
The world's property market

MIPIM ARCHITECTURAL REVIEW FUTURE PROJECT AWARDS 2011

Winners 2011

Overall Winner
Project: Musheireb - Heart Of Doha, Doha, Qatar
Client: DohaLand
Architect: Mossessian & Partners

Sustainability Winner
Project: Zero Carbon Emission Building, Shanghai, China
Client: Philips
Architect: Arup Associates

Big Urban Projects

Winner
Project: Sino Swedish Eco-City, Wuxi, China
Client: Wuxi Municipal Peoples Government
Architect: Tengbom Architects, Jeremy Thompson, Stellan Fryxell, Anna Kerr

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OVERSEAS INFRASTRUCTURE ASSETS ARE INCREASINGLY DRAWING THE ATTENTION OF CHINESE INVESTORS
 By Andrew Moody

"Commuters on Beijing subway, which has opened 11 of its 15 lines in the past five years, experience mostly trouble-free journeys every day. There are very rarely any delays and a journey is a clean and efficient 21st century experience. ...

Passengers on London's commuter trains coming from Home Counties often do not know to **what century they belong.** ...

The UK, like other countries in Europe and the United States, needs investment not just in its rail and road network but also in other infrastructure assets, such as water utility and power generation companies."

NECESSARY STEPS TO RESOURCE EFFICIENT CITIES

- **climate risks** are more serious and of a wider range, than society is currently trying to resolve,
- **rethink cities** - to better meet environmental problems, climate risks, energy costs, limited water resources and fast global urbanisation; society has to evolve **environmental friendly** and **resource efficient cities** through increased focus on integrated planning to make social and economic attractive areas, well-functioning spatial structures and energy efficient systems,
- **fossil fuel use must be reduced** - strategic and increased investments in environmental friendly **infrastructure**, careful **city planning** and **new construction** as well as **refitting of buildings** are necessary and effective urban tools,
- an improved **holistic and integrated methodology** to sustainability with improved processes and routines for **synergies** between urban planning and different resource efficient infrastructure supply systems are required, and
- **FIDIC** advocates urgent attention to better meet rising environmental problems, serious climate risks, long term energy cost increases, limited water resources, and a rapidly expanding population.

GlasshusEt - Hammarby Sjöstad's Visitor Center, Tengbom architects

aiE
assimpredil ance

Nel prossimo numero:
Social housing: la battaglia per i bassi prezzi e fatta questa.
 Una panoramica delle esperienze in Italia, alla luce degli ultimi rapporti del Consiglio Nazionale delle Edilizia, con una serie di proposte e realizzazioni per valutare lo stato dell'arte e il futuro. Quanto incide il tema dell'isolamento energetico e dell'innovazione degli impianti negli alloggi sociali? Quale il migliore rapporto tra facciata e parete finestrata? Se quali sistemi di prefabbricazione si può contare in Italia?

Forse non sai che:
 "Quando gli occhiali non bastano più" ci sono degli strumenti che ti possono aiutare.

L'A.N.S.
 Associazione Nazionale Subvedenti Onlus, da 40 anni informa e sostiene tutti coloro che hanno delle difficoltà visive. Presso la Sezione Ipovedenti della Biblioteca Comunale Valvassori Peroni, A.N.S. mette a disposizione GRATUITAMENTE la sua **AUSILHOTEL** (circa 100 ausili ottici, elettronici ed informatici quali ad esempio videingranditori da tavolo, software ingrandenti per pc e cellulari).

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'RETHINK CITIES'

Thank You Very Much
 An Efca/Fidic 'White Paper' on 'Rethink Cities'
 Stellan Fryxell

DEDAL

→ bilancio zero? →
 zero budget

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