

**ELITH Project**  
**Workshop 2016**  
Kampala | 27.04.16



The University of  
**Nottingham**

UNITED KINGDOM • CHINA • MALAYSIA

**EPSRC**

Pioneering research  
and skills



**UKaid**

from the Department for  
International Development

Energy and Low-Income Tropical Housing

# **ELITH ASIA: 10 Research Issues and Comparative Relevance**

**Dr Ali Cheshmehzangi** PhD, M.Arch. Dip UD, PGCert., Grad Cert. Pr. Arch, BA (Hons.) Arch  
Dept. of Architecture & Built Environment, The University of Nottingham Ningbo China  
International Network for Urban and Rural Research (INURR), Ningbo, China  
Part of the EPSRC-DfID project 'Energy and Low-Income Tropical Housing (ELITH)'



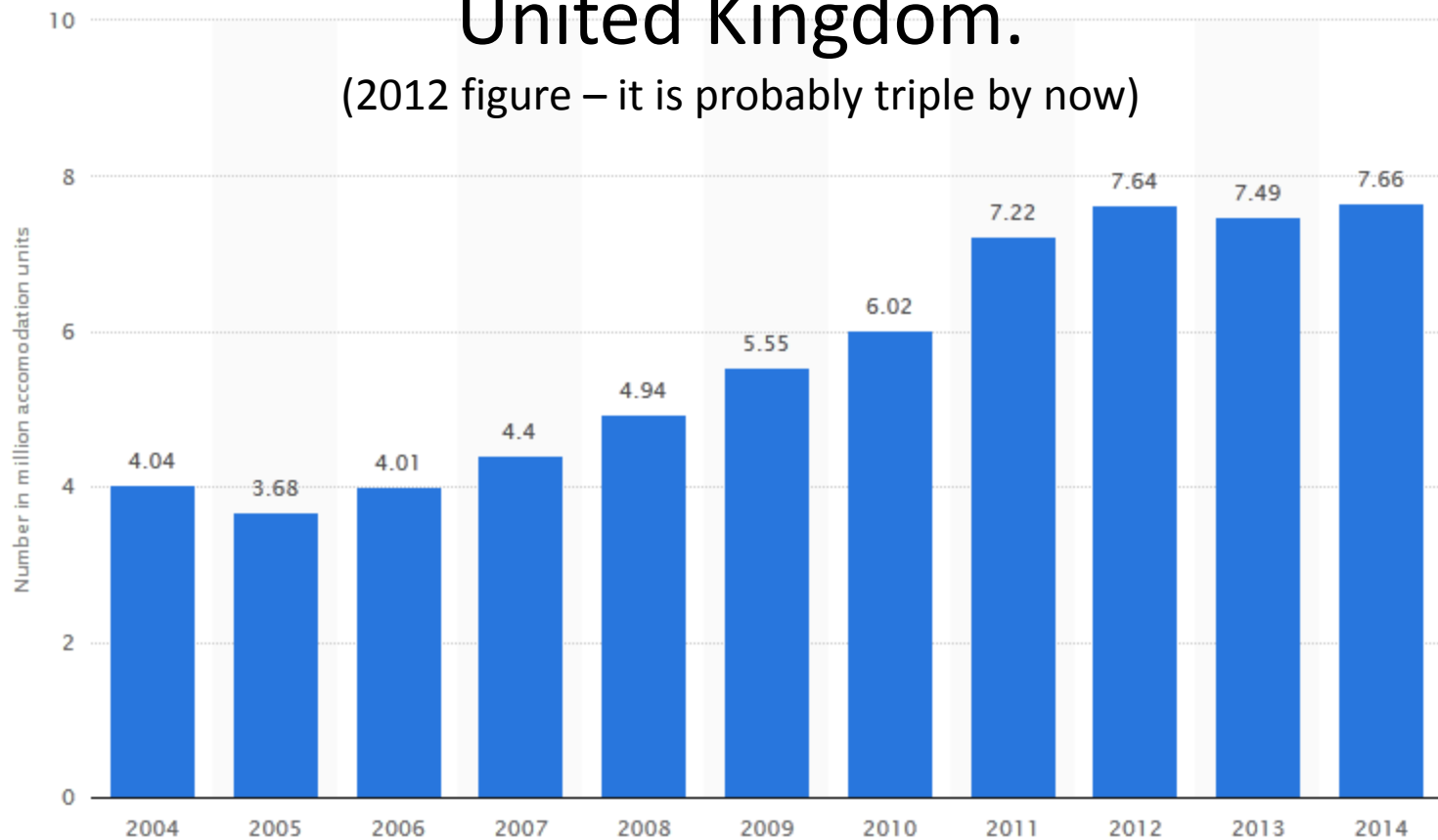
# The neglected housing sector



# The growing housing sector

In 12 years, China has built twice as many new homes as there are today in the entire United Kingdom.

(2012 figure – it is probably triple by now)



# Actors of Housing Sector

Policy  
Makers

Planners  
Designers  
etc.

Developers

End Users/  
Owners/  
Residents



ฉลากแสดงระดับประสิทธิภาพอุปกรณ์ไฟฟ้า  
**ประเภท เครื่องปรับอากาศ**  
ขนาด 12,942.05 บีทียู/ชั่วโมง

ผลิตภัณฑ์	MRU ELEC180	รุ่น XV7 184
ประสิทธิภาพ	5	ดีเยี่ยม/ดี
ค่าไฟฟ้า	0,500	บาท/ปี
ใช้พลังงานไฟฟ้า	3,500	หน่วย/ปี
ชุดแผ่นกรองฝุ่น	XV7 184	
ชุดคอนเดนเซอร์	XV7 185	

โครงการประชารัฐ  
ประหยัดพลังงาน MI 0000

Who really cares about energy efficiency?



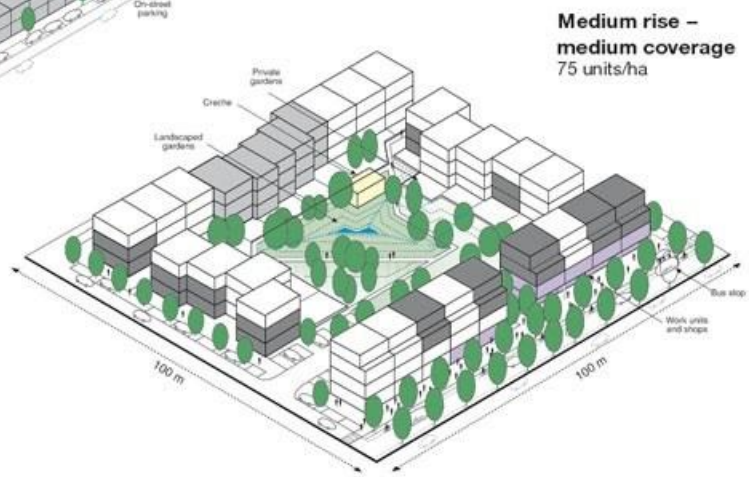
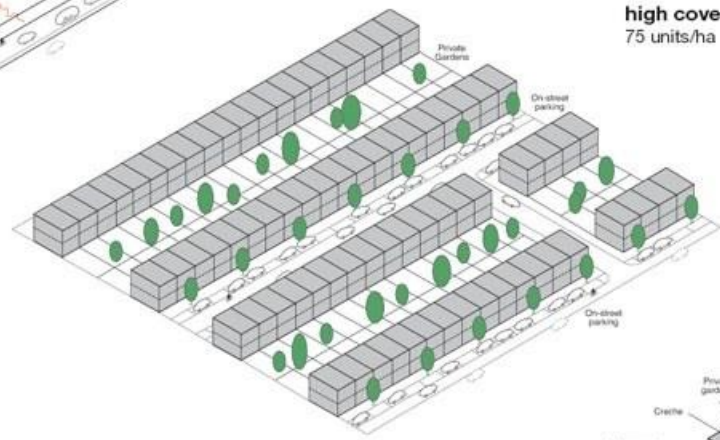
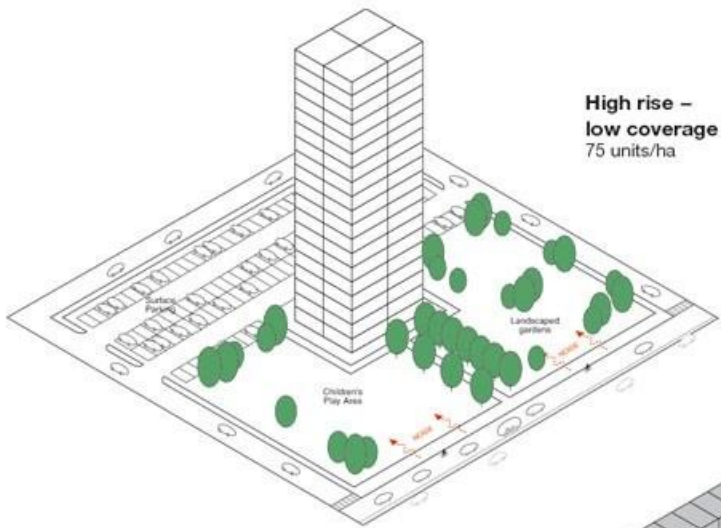


2009

# 1/ Issues of Relevance: Urban Green Infrastructure



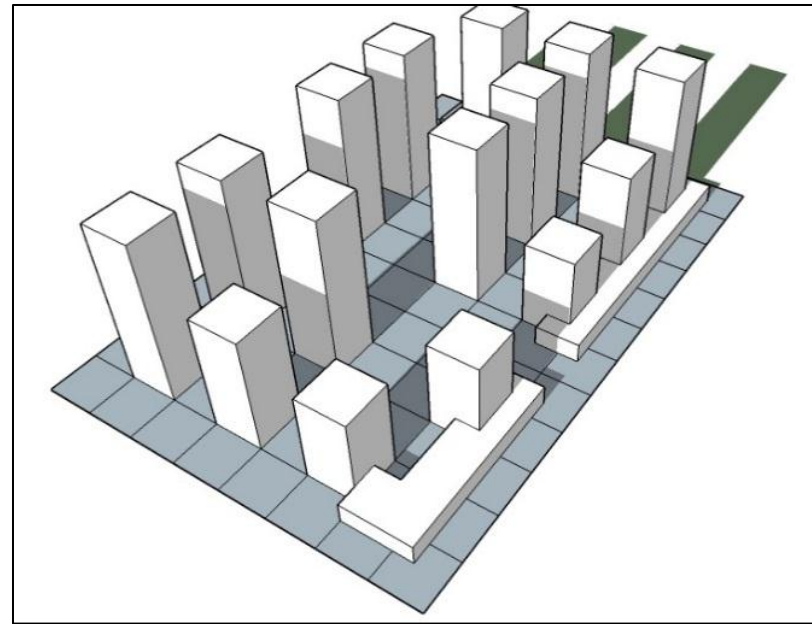
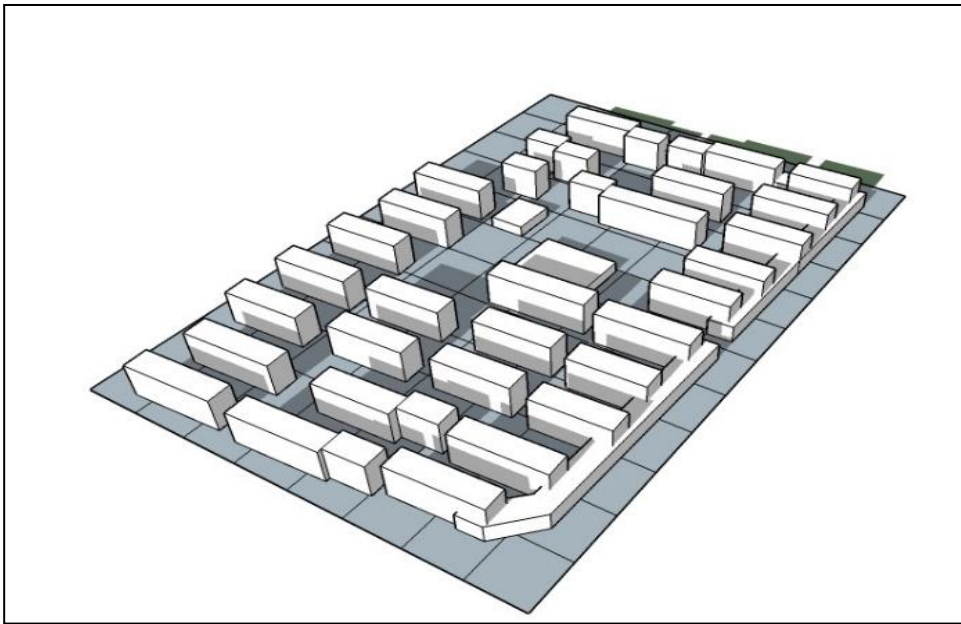




**Key**  
Target a mix of activities  
Include a variety of house types

- Community facilities
- Shops and workspaces
- Maisonettes
- Houses
- Apartments

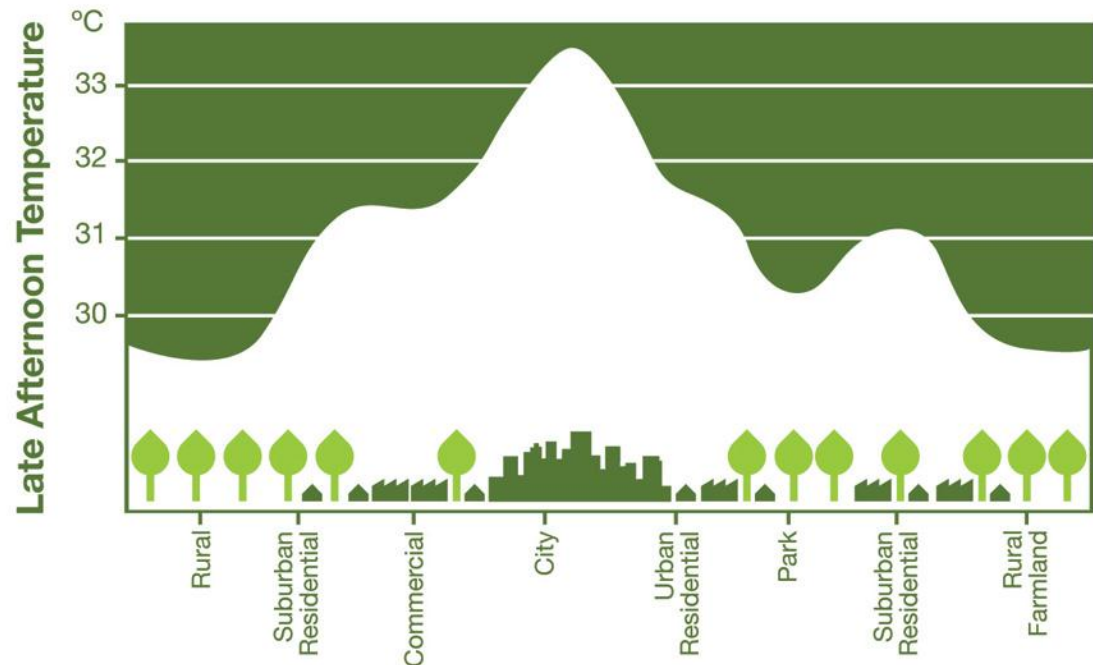
# 3/ Issues of Relevance: Unsustainable urban patterns





# 4/ Issues of Relevance: Urban Heat Island Effect (UHIE)

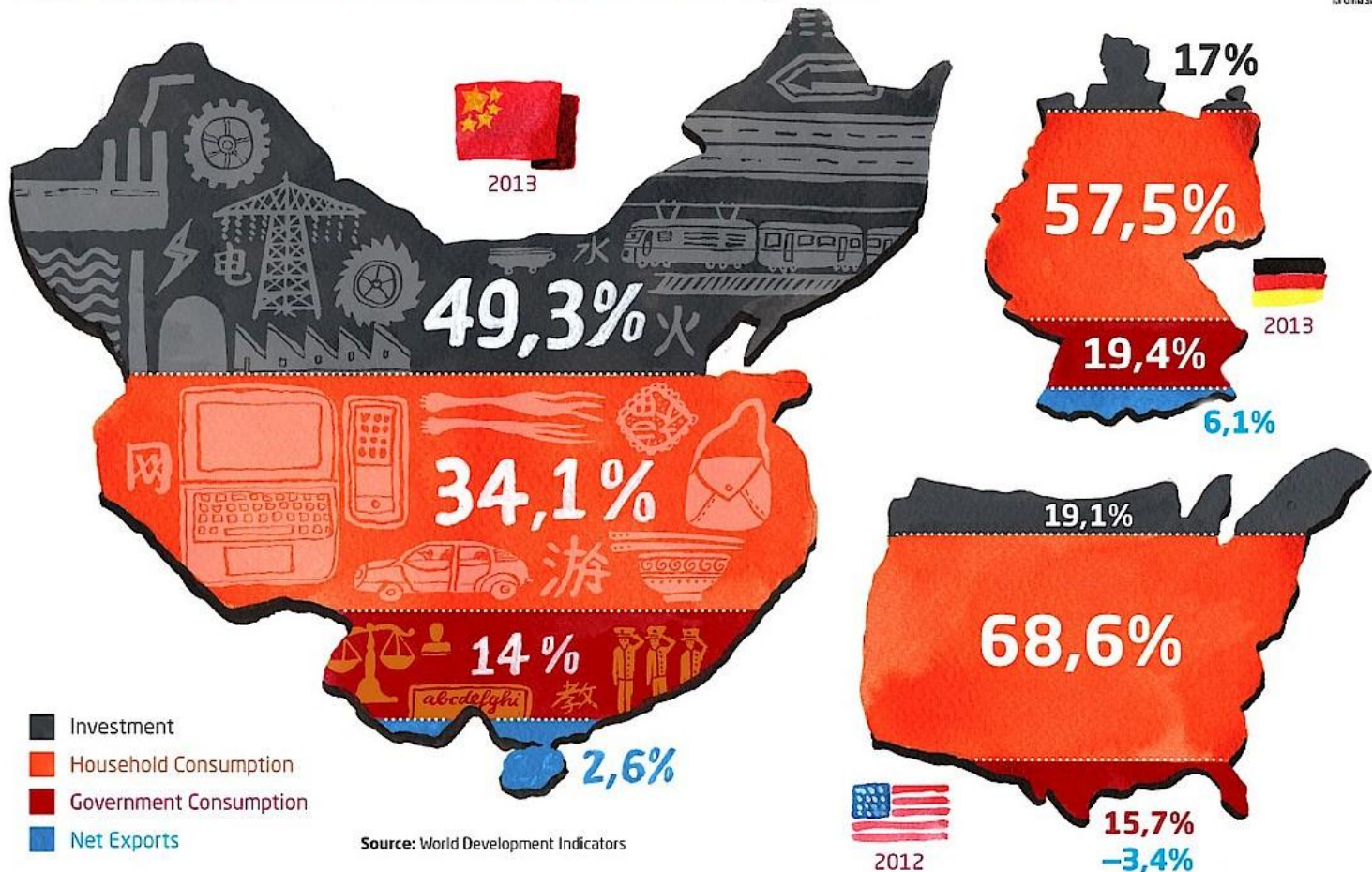
Urban Heat Island  
Effect (UHIE),  
Urban Cooling and  
Urban Design?



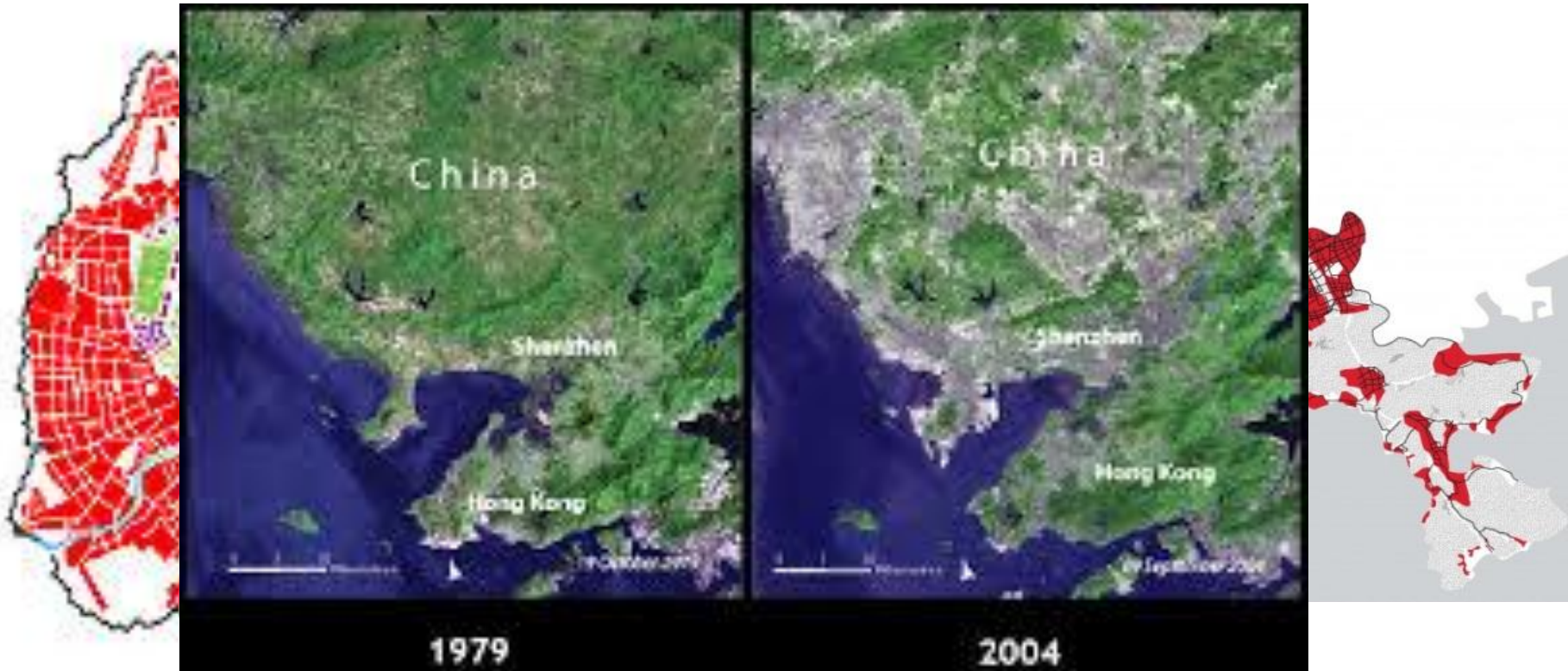
Each 1 degree raise in  
temperature will be 5% more  
energy consumption

# 5/ Issues of Relevance: Household Consumption Growth

MERICS China Mapping  
Out of Balance? China's GDP in International Comparison



# 6/ Issues of Relevance: City Expansion beyond Control



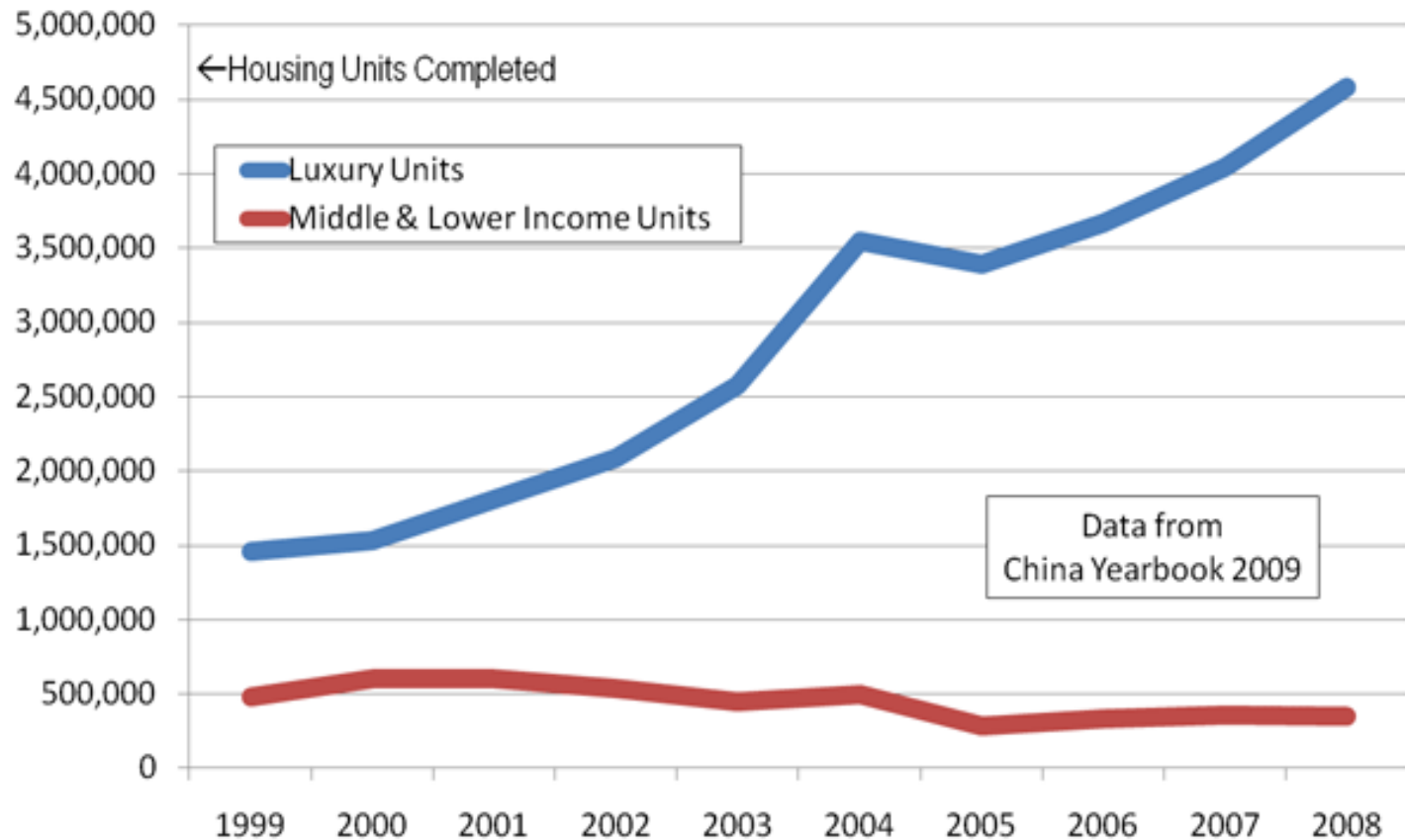
**Vienna, Austria**  
(1547-1860)  
313 years of Development

**Shenzhen, China**  
(1980-2010)  
30 years of Development

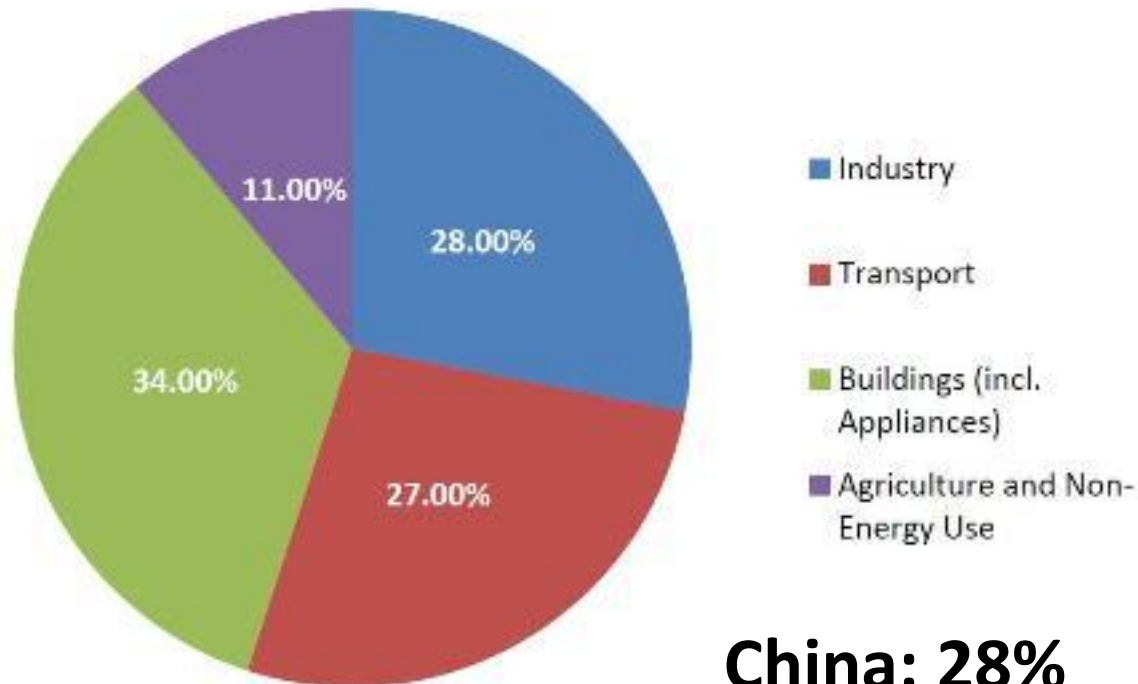


# 7/ Issues of Relevance: Neglecting Affordable Housing

## New Housing Units in China 1999-2008



# 8/ Issues of Relevance: Building Sector Energy Use



**By 2020**

**15%** energy reduction

**18%** CO2 reductions

**4%** increase of urbanisation

None of the reductions indicate household consumption.

Building energy consumption in China increased by 40% from 1990 to 2009

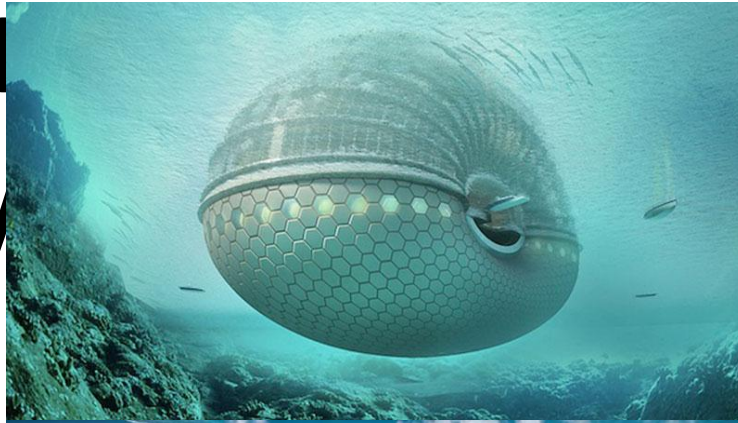
# 9/ Issues of Relevance: Planning and Management





# 10/ Housing Type

# Source: Alternatives



# Going back to: Roles of Actors, Profitability and Appropriate Scales

**Policy  
Makers**

- Change in policy (gated);
- Restrictions
- Incentives
- Support
- Promotion
- New ways/  
models

**Planners  
Designers  
etc.**

- advocate than satisfy
- Enhance and improve
- Integrate scientific solutions.

**Developers**

- Shared responsibility
- Not tools for marketing;
- Reduction of self profitability towards combined profitability

**End Users/  
Owners/  
Residents**

- Shared responsibility
- But it is all about behavioural!  
(if not saving money)

**All need “the will” for us to continue forward**

And us academics? Researchers? etc.?

We [often] just think too big at a very big scale and achieve too little...or an approach that requires long-term planning.

Perhaps we should just **think big at small scale**, and worry more about today than tomorrow.



# Mwebale! Thank You 谢谢

سياس <> Danke <> poděkovat <> mulțumi <> 谢谢 <> terima kasih <> gracias <> धन्यवाद <> tak  
Благодарю <> podziękować <> תודה <> grazie <> thanks <> ευχαριστίες <> tänku <> diolch  
teşekkürler <> شكرا <> obrigado <> kiitos <> merci <> おかげで <> paldies <> მადლობა <> 감사

[Ali.Cheshmehzangi@nottingham.edu.cn](mailto:Ali.Cheshmehzangi@nottingham.edu.cn)  
Department of Architecture and Built Environment



The University of  
Nottingham

UNITED KINGDOM · CHINA · MALAYSIA