Planning and Implementation of Low Carbon Cities in Chins: Reponses and Innovations

低碳城市规划与实施： 应对和创新

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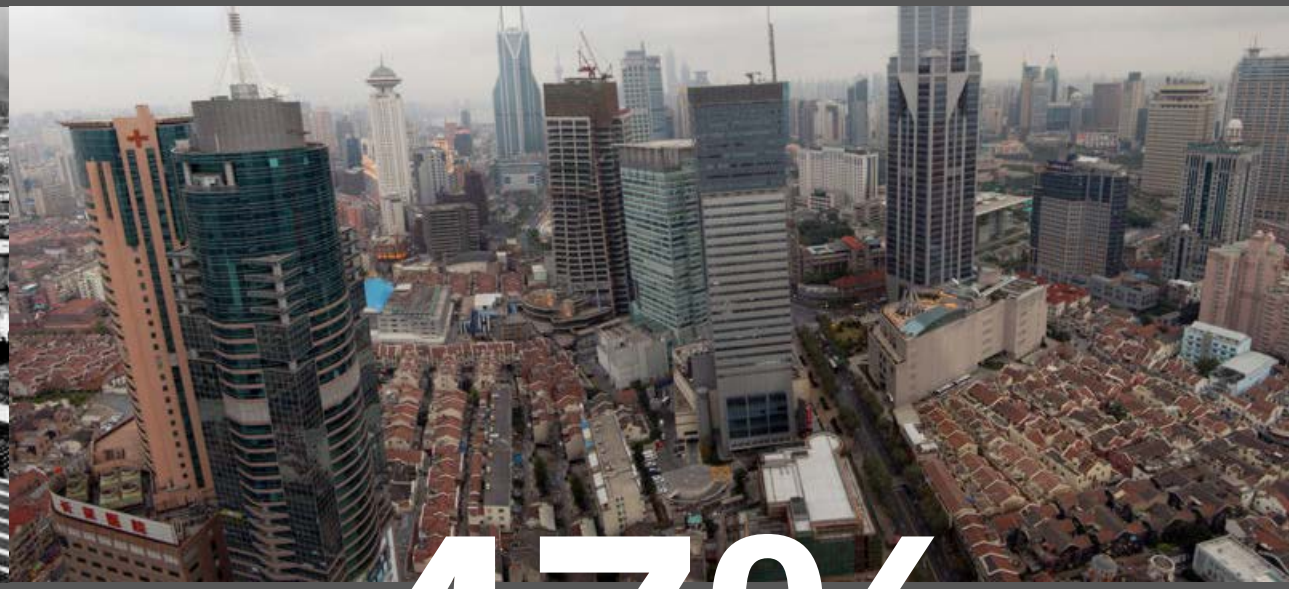
Outline of Contents 大纲:

- Urbanization : Speed and Scale
- 城市化: 速度与规模
- Low Carbon Policy Framework
- 低碳城市规划政策框架
- Responses and Innovations
- 应对与创新

Urbanization : Speed and Scale

城市化:速度与规模

Chinese Cities: Scale and Speed of Urbanization
城市化:速度与规模



17.9%

China's urbanization in 1978
1978 年城市化率

47%

China today's urbanization 目前的城市化率

Developed countries average = 70%
发达国家水平=70%

Chinese Cities: Scale and Speed of Urbanization
城市化:速度与规模

China's urbanization rate grows at 1% per year.
城市化率每年以1%增长
10 to 15 million people moves into cities every year
每年 1千到1千5百万人进入城市

Chinese Cities: Scale and Speed of Urbanization

城市化:速度与规模

2 billion sq. m. 20亿平方米

Total annual new construction area in China(nearly half of the total amount of the world) 每年新建筑面积(约为全球的一半)

Chinese Cities: Scale and Speed of Urbanization
城市化:速度与规模

Oil consumption

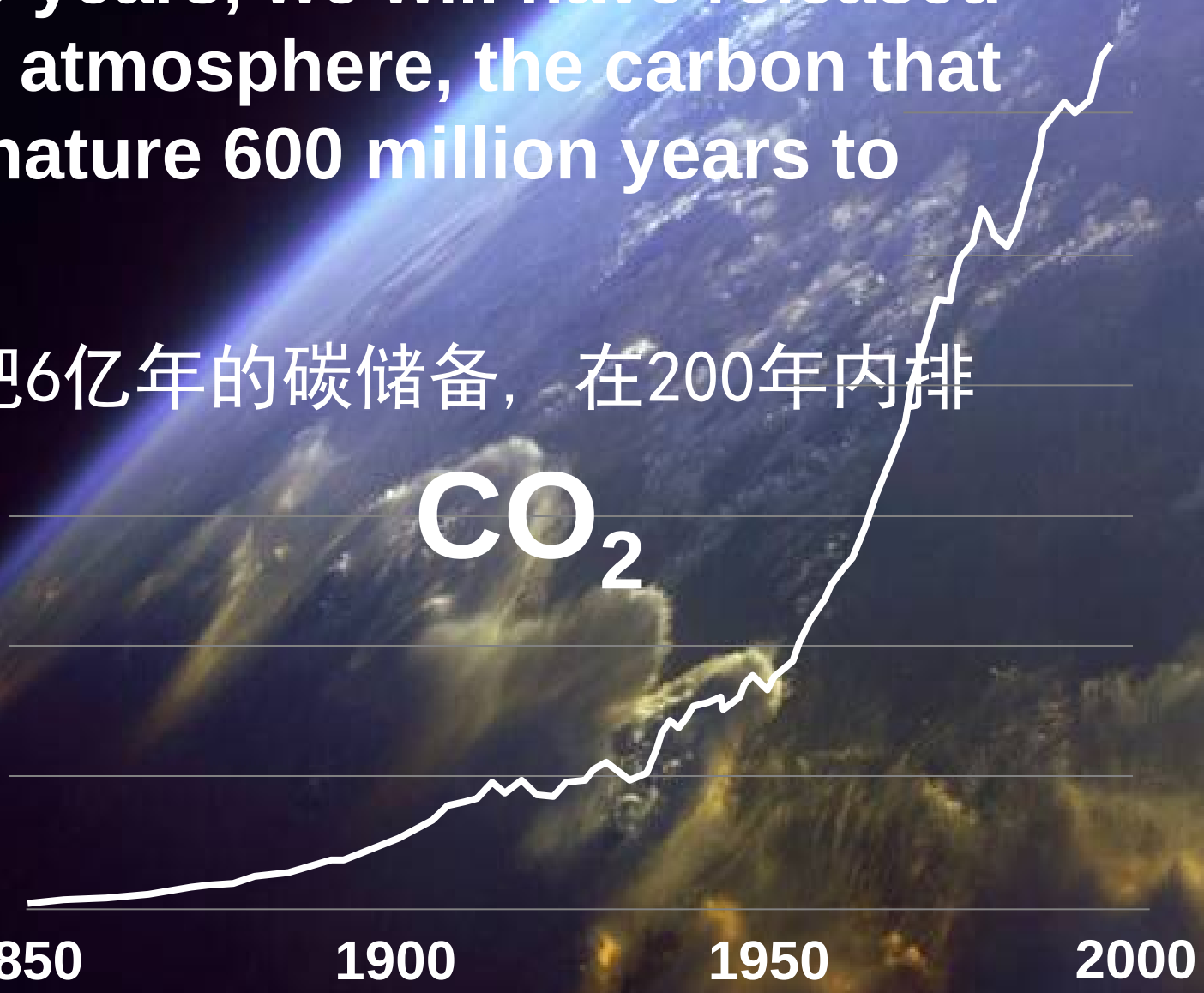
Electricity consumption

CO2 emission

The growth of energy consumption between 1985-2005
能源使用量增加

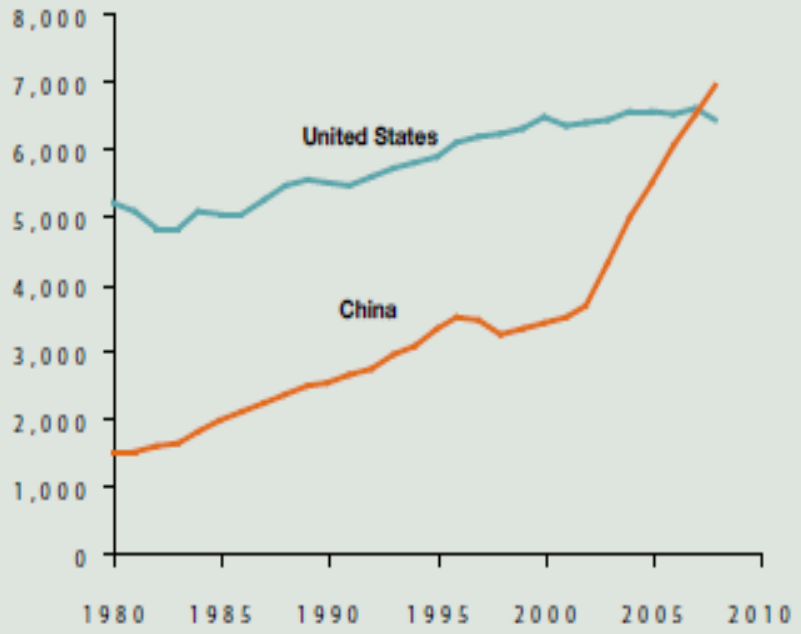
In 200 years, we will have released in the atmosphere, the carbon that took nature 600 million years to trap

我们把6亿年的碳储备，在200年内排放

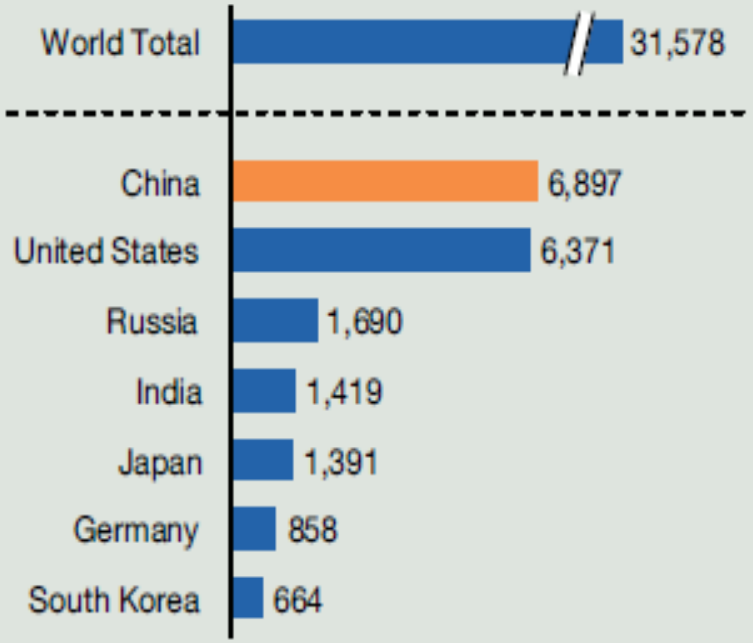


China Carbon Emissions Trends
中国碳排放趋势

China and the U.S., 1980-2008, *Megatons per Year*



Leading Countries, 2008, *Megatons per Year*



Note: *This statistics does not include CO_2 emitted from sources other than coal, oil or natural gas and non-CO_2 greenhouse gases*
Source: *BP, "BP Statistical Review of World Energy June 2009"*

Chinese Cities: Carbon Emissions
中国城市碳排放现况

City	Beijing	Shanghai	Tianjin	Chongqing
Area, km^2	16,410	6340	11,920	82,400
Resident population, million	15.81	18.15	10.75	28.08
Registered population, million	11.98	13.68	9.49	31.99
Urban share in resident population, %	84	89	76	47
Gross regional product, billion US$	98.7	130.0	54.7	43.8
Total energy use, thousand TJ[a]	1332	2480	1271	1160
Total energy related CO_2 emissions, million tons[a]	142.10	228.74	117.61	103.97

(Data year: 2006)

Beijing 北京: 142.10 million ton CO_2
Shanghai 上海: 228.74 million ton CO_2
Tianjin 天津: 117.61 million ton CO_2
Chongqing重庆: 103.97 million ton CO_2

Policy Framework: Low Carbon Cities in China

低碳城市规划政策框架

22 September 2009 United Nations Climate Change Summit

在2009年9月22日的联合国气候变化峰会上，国家主席胡锦涛提出，将进一步把应对气候变化纳入经济社会发展规划，并采取包括以下的措施：

1 Energy efficiency

加强节能、提高能效工作

Significant reduction of Unit GDP CO2 emission intensity from 2005 to 2020

2 Renewable Energy

发展可再生能源

Non-fossil energy contributes 15% of primary energy supply by 2020

3 Carbon Sink and Reforestation

增加森林碳汇

Increase of 40 million ha of forest coverage from 2005 to 2020

4 Green Economy

发展绿色经济

Promote low carbon green economy

25 November 2009 China State Council Decisions

2009年11月25日国务院总理温家宝25日主持召开国务院常务会议，决定到2020年我国控制温室气体排放的行动目标:

- From 2005 to 2020 reduction of unit GDP CO_2 emission intensity by

40% to 45%

- **2005到2020年我国单位国内生产总值二氧化碳排放比2005年下降**

40% - 45%

China's 12th Five Year Plan (2011 to 2015)
十二. 五规划目标



Unit GDP energy consumption to be reduced by 16%

单位GDP能源消耗要降低16%的指标

Tianjin Eco-City
天津生态城

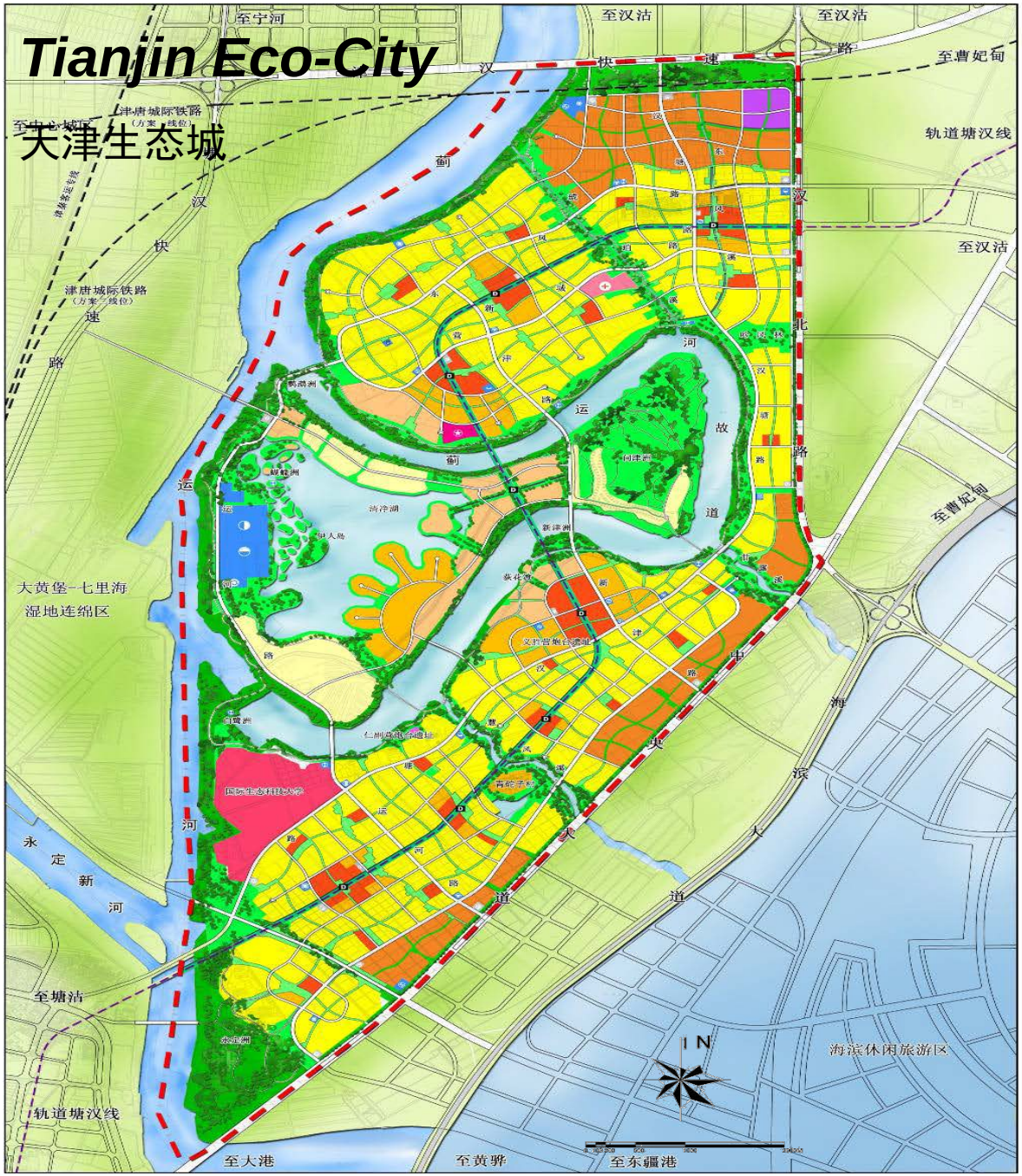


图　例

- 一类居住用地
- 二类居住用地
- 行政办公用地
- 商业金融用地
- 文化娱乐用地
- 医疗卫生用地
- 教育科研设计用地
- 文化古迹用地
- 一类工业用地
- 仓储用地
- 供水用地
- 供电用地
- 供燃气用地
- 公共交通用地
- 邮电设施用地
- 雨水、污水处理用地
- 混合用地
- 社区绿地
- 生态绿地
- 公共绿地
- 生产防护绿地
- 高速公路
- 铁路
- 主要道路
- 轨道市区线
- 机动车停车场
- 轻轨站
- 水域
- 规划范围

Responses and Innovations

应对与创新

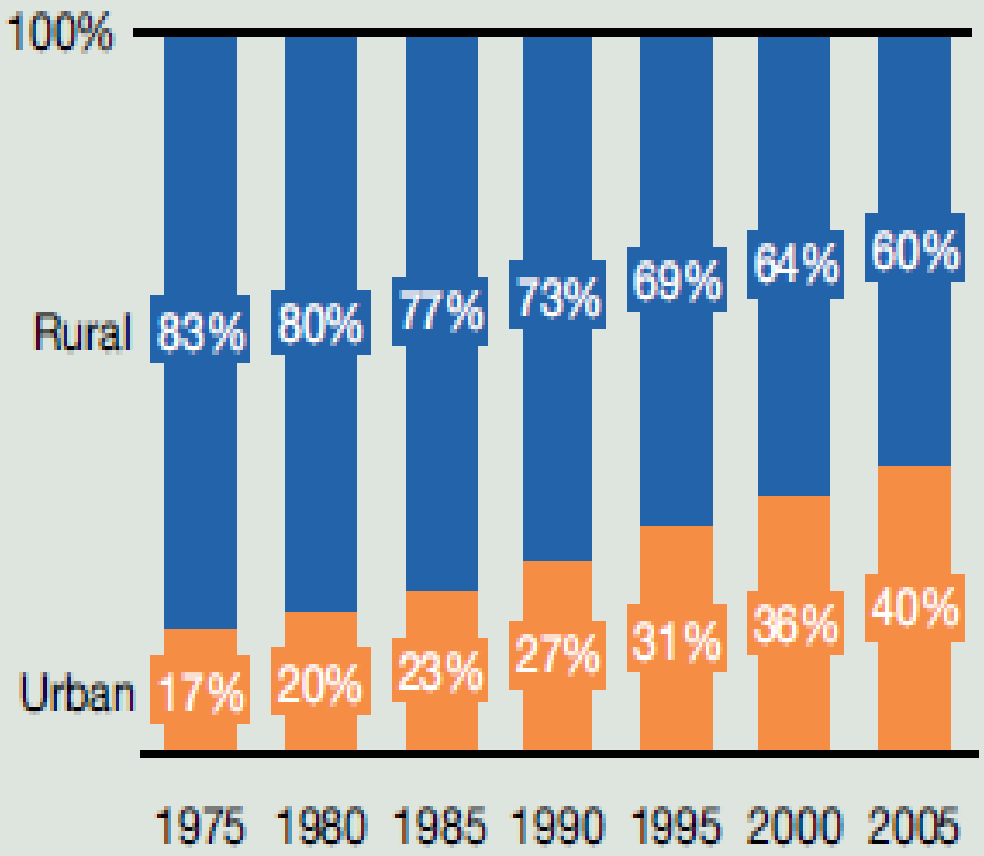
近年完成低碳城市规划项目
Recently completed low carbon city plans

北京 Beijing
青島 Qingdao
武漢 Wuhan
天津 Tianjin
長沙 Changsha
无锡 Wuxi
昆山 Kunshan
上海 Shanghai
郑州 Zhengzhou
长春 Changchun
首尔 Seoul
台湾 Taiwan

1. Unprecedented Rate and Scale 从未经历过的速度与规模
2. One policy does not fit all 政策需要地方化
3. Need efficient institutional mechanisms 需要有效实施机制
4. Greenhouse gas inventory for urban plans 城市规划的温室气体清单
5. Build local capacity 建立地方能力
6. Enable the market 推动市场力量

1.
Unprecedented Rate and Scale
从未经历过的速度与规模

Chinese Cities Urbanization Rates
中国城市化率



Source: *United Nations, "World Urbanization Prospects: The 2007 Revision Population Database"*

Solutions for low carbon cities in China need to be …
低碳城市解决方案必需要:

- *Replicable 可复制*
- *Scalable 可规模化*
- *Market Driven 市场推动*
- *Enforceable 有操作性*

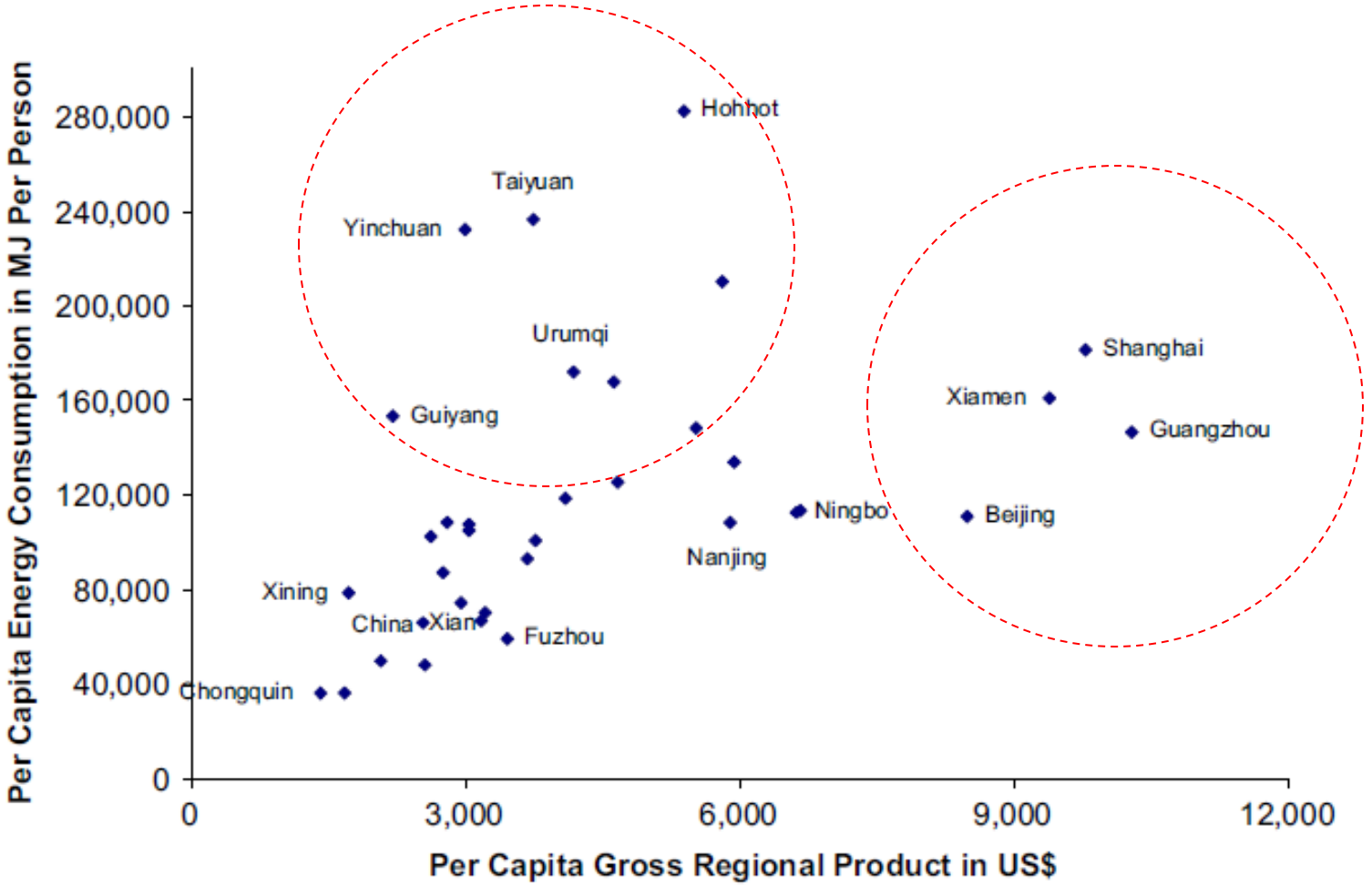
2.
One policy does not fit all
政策需要地方化

Geographical Diversities 地理差异

One policy does not fit all ．政策需要地方化

Cities in China : Per capita Income and Energy Consumption – Different Pathway

中国城市不同发展路径: 人均收入与能源消费



(S. Dhakal, 2009;
Shenzhen not included)

3.
Need Efficient Institutional Mechanisms
需要有效实施机制

城市规划应对气候变化

Statutory Planning: Responding to Climate Change

Energy Supply Strategy
能源供应结构战略

能源排放技术
Emission Technologies

城市能源需求管理（建筑节能、交通、生活方式）
Energy Demand Management

城市化/人口规模
Urbanization / Population
产业经济结构/规模
Economic Structure / GDP

Regulatory Plans控规

调整后的土地利用规划图

Site Plans修规

Master Land Use Plans
总体规划

BEIJING CHANGXINGDIAN
LOW CARBON COMMUNITY CONCEPT PLAN

Pioneering the Development of Low Carbon Zoning Codes in China

北京长辛店生态社区规划
低碳控规编制

ISOCARP 2009 Award of Excellence

国际城市与区域规划学会：2009年国际优秀规划奖

ARUP

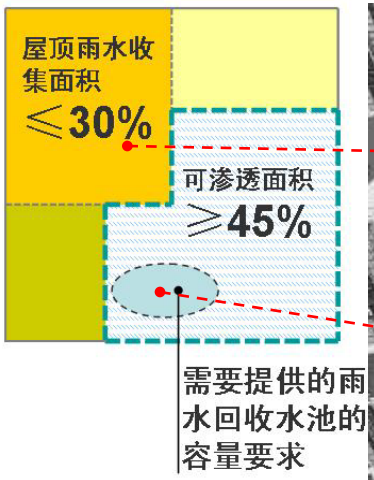
Beijing Municipal Institute of City Planning & Design

LOW CARBON ZONING CODES: Rain water and infiltration

2 居住用地场地设计

城市可持续设计指标

b 雨水渗透



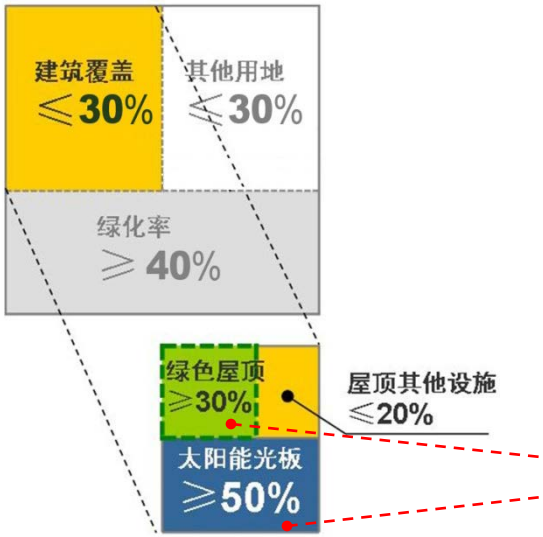
示范地块- B57

LOW CARBON ZONING CODES: Renewable energy + green roof

2 居住用地场地设计

城市可持续设计指导性指标

C 能源



示范地块- B57

4.
Greenhouse Gas Inventory for Urban Plans
城市规划的温室气体清单

Basis for local planning policies and development control
地方规划管理的依据

- *How much CO2？碳排放量*
- *Where do the CO2 come from？ 碳排放源头*
- *Future scenarios？ 碳排放未来情景*
- *Targets setting 碳排放控制目标*
- *Policy making 低碳规划政策*
- *Actions 行动计划*
- *Monitoring 碳排放监控*

5.
Build Local Capacity
建立地方能力

Need to build up local capacities
建立地方能力

1. Local officials and professionals lack experience in managing climate change issues

   地方缺乏对气候变化的经验丰富

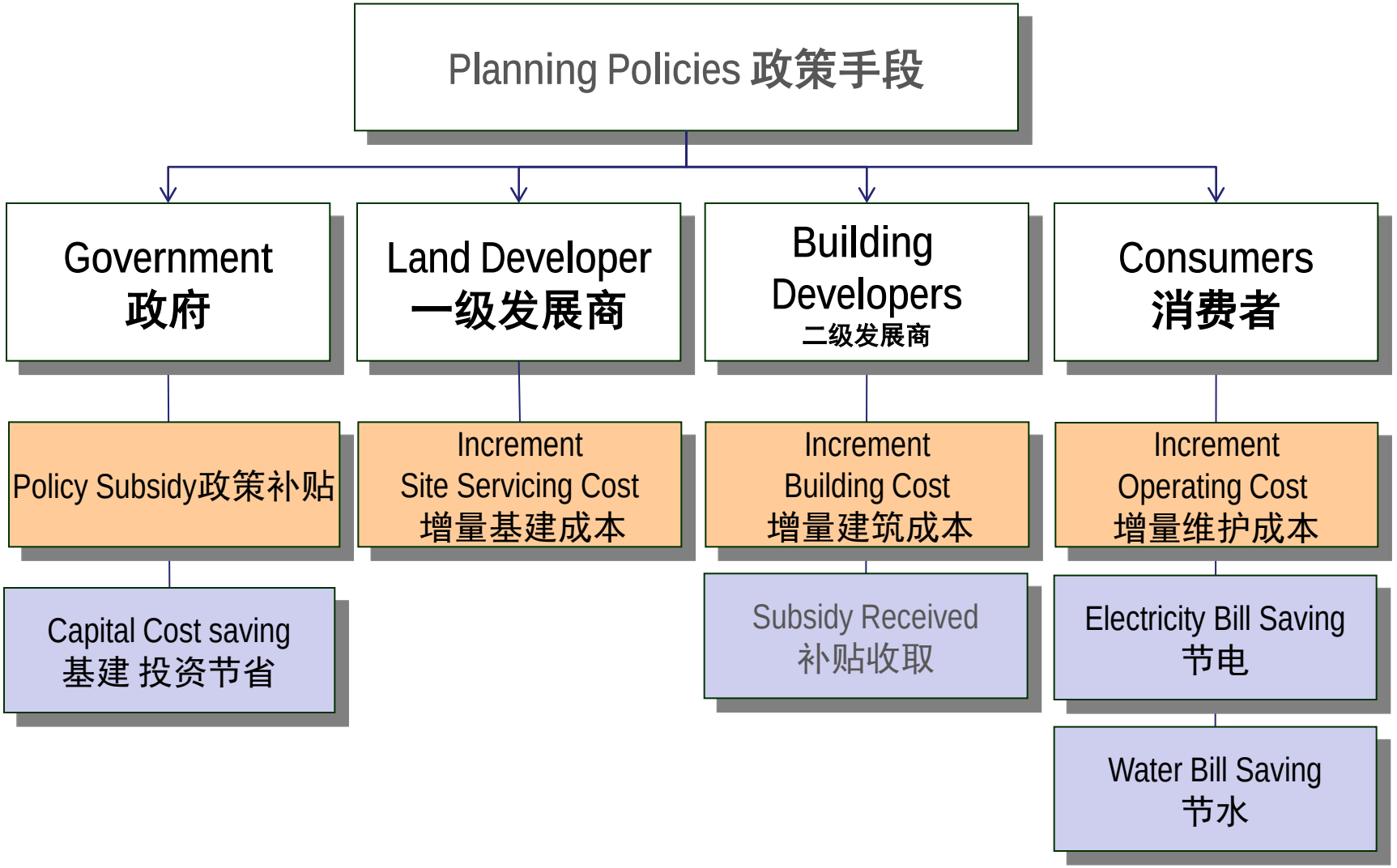
2. Lack of local greenhouse gas inventory

   缺乏温室气体清单

1. Lack of transparency and sharing of data and information 数据分享与阳光化 困难

6.
Enable the Market
推动市场力量

Cost/Benefits : Who Pays and Who Receives?
介定成本/效益的 分配



In conclusion ...

总结

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Thank you

谢谢

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