

Air Quality Management in the Jingjinji Region: Formalizing a Collaborative Framework

Prepared for The World Bank China



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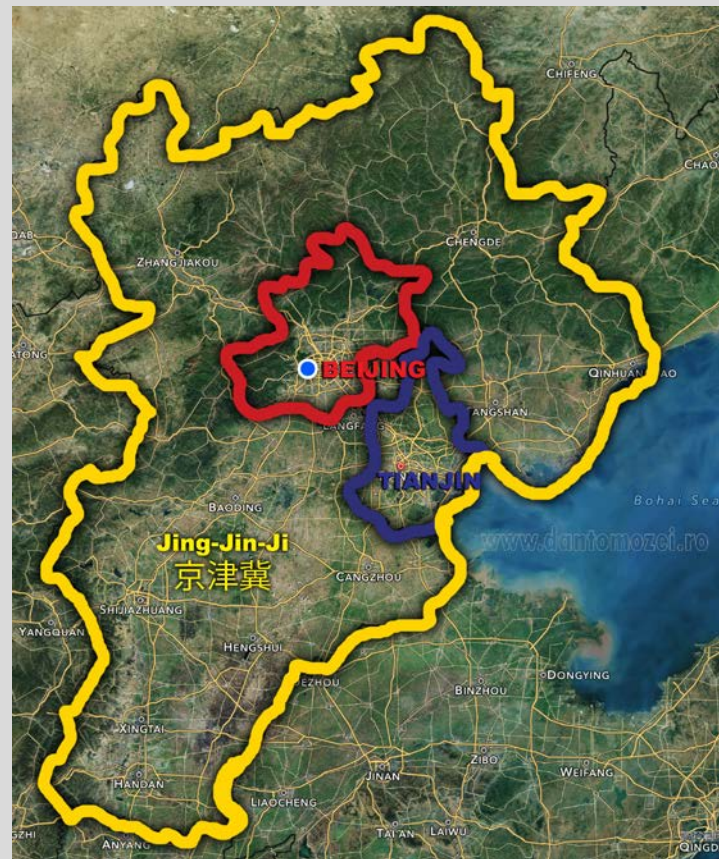
2 LAND USE 土地使用

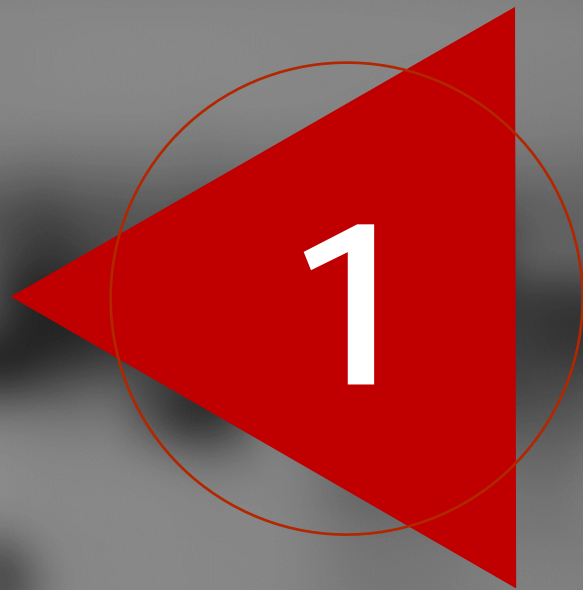
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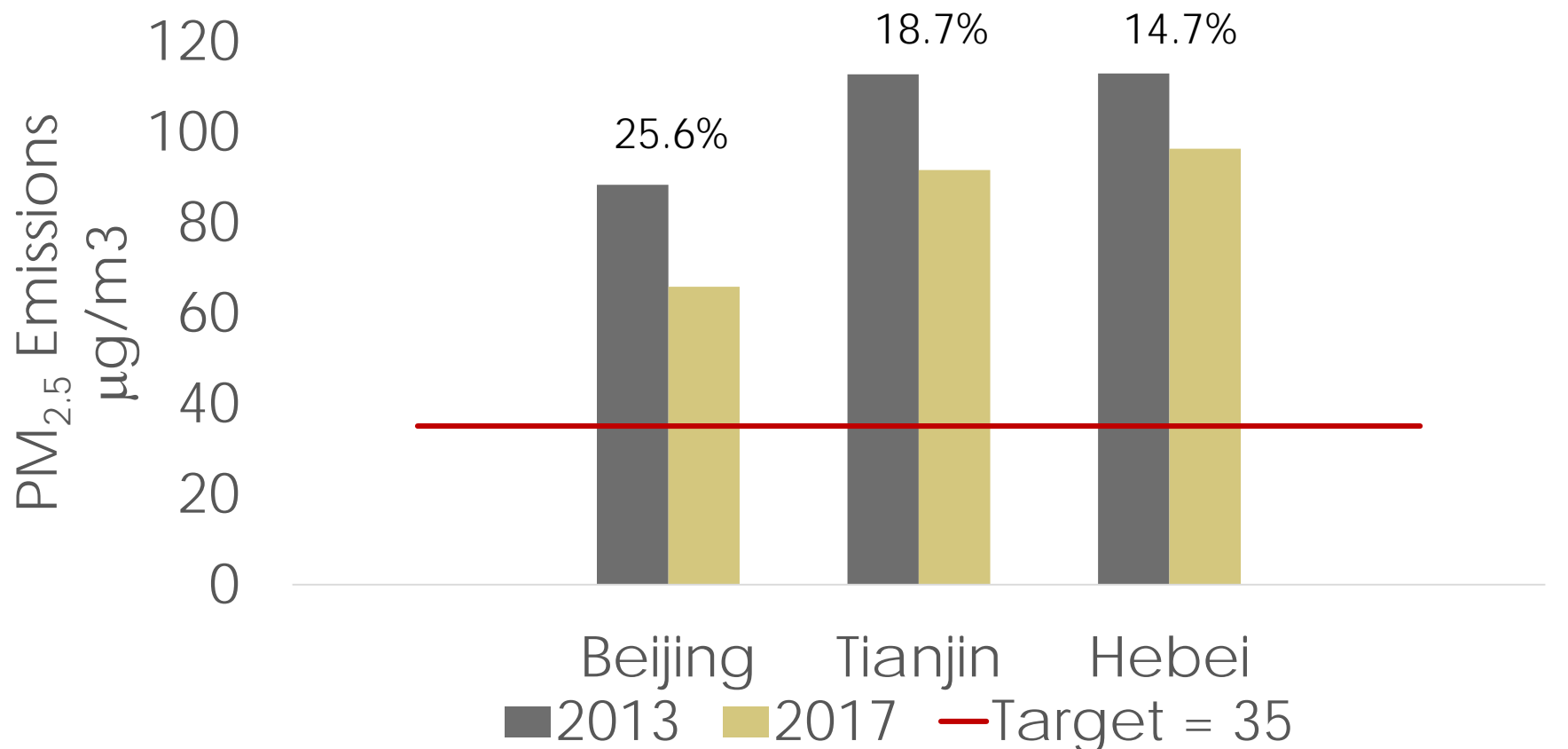
6 GOVERNANCE 政府治理





Air Quality in Jingjinji 京津冀的空气质量

Air Quality and Target

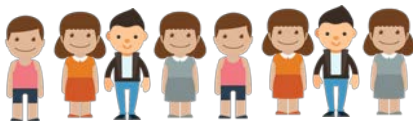


CAAC, Tsinghua University, 2014

Problem Statement



PM 2.5 Target



Jingjinji Population: 111 million (2014)

- Death > 150,000 in 2013
2013年大于十五万人死亡
(Fang et al., 2016)
- Reduced life expectancy
减少预期寿命
- Diseases
疾病

Health Impact

- GDP Loss GDP 损失
6.5% or 8,227 trillion dollars
(RAND, 2012)
- Productivity Loss 生产力损失
(Chang, 2016)
- Health Costs 健康成本
290 billion dollars 2900 亿美金
(Daly, 2013)

Economic Loss



2

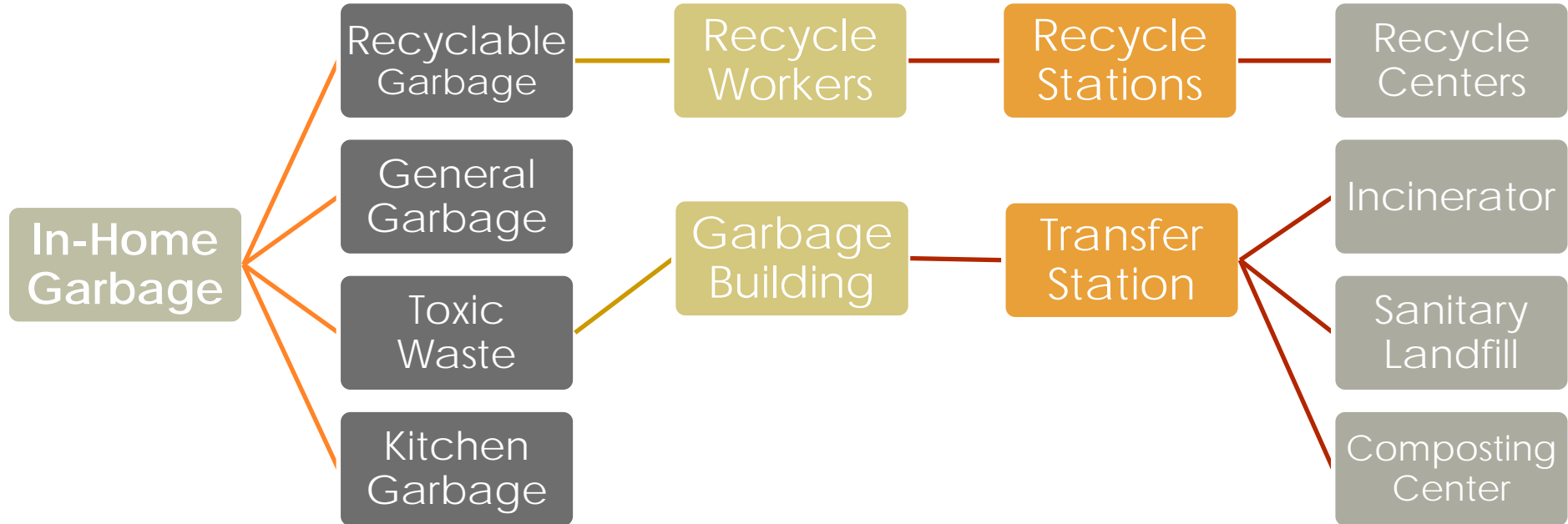
Land Use
土地使用

Land Use

Urban 城市

Residential Recycle System in Beijing
北京住宅回收系统

- The waste management transportation process and garbage incineration contribute to urban air pollution
- 废物处理转移过程中气体排放和垃圾焚烧对城市空气污染的影响



Current Garbage Recycle System in Beijing

100

Suburban households

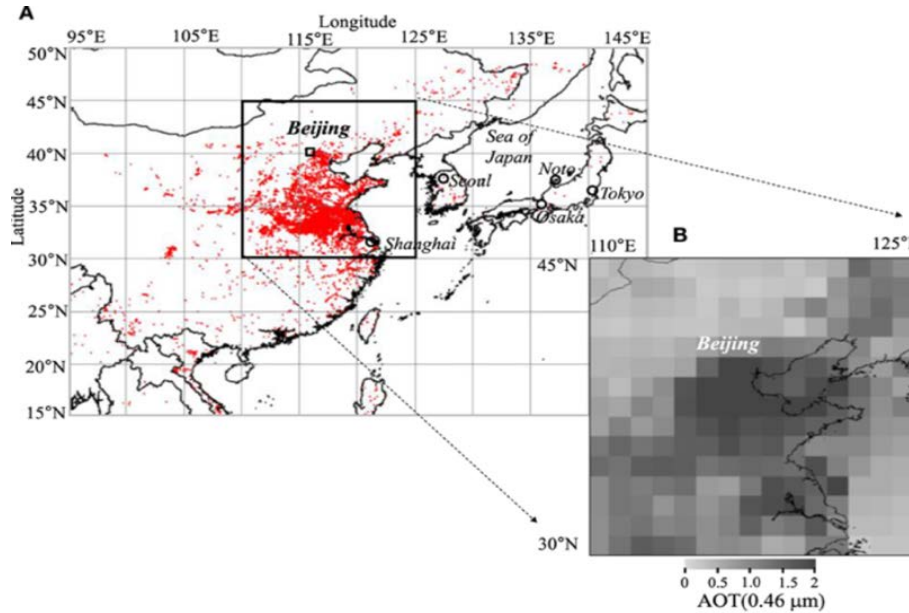


- reas.(Dang et al., 2014)

Low income household concentrated in suburban areas.(Dang et al., 2014)

Land Use

Agriculture Industry 农业



- The agriculture industry contributes to PM 2.5 due to ammonia found in the fertilizer.
- 因为化肥存在氨，农业同样产生了PM2.5

Red area shows concentration of black carbon aerosols in China (Mukai, 2015).

Recommendations

1

Implement in-home recycle system in youth communities

2

Integrating plant life on building roof tops

3

Use Housing Fund to Incentivize Movement to the Suburban Areas

4

Upgrade air pollution monitoring systems to measure ammonia level

1

在青年社区公寓中实行家庭内的回收系统

2

将植物和建筑物屋顶结合 – 绿色屋顶建筑

3

通过住房公基金刺激入住郊区

4

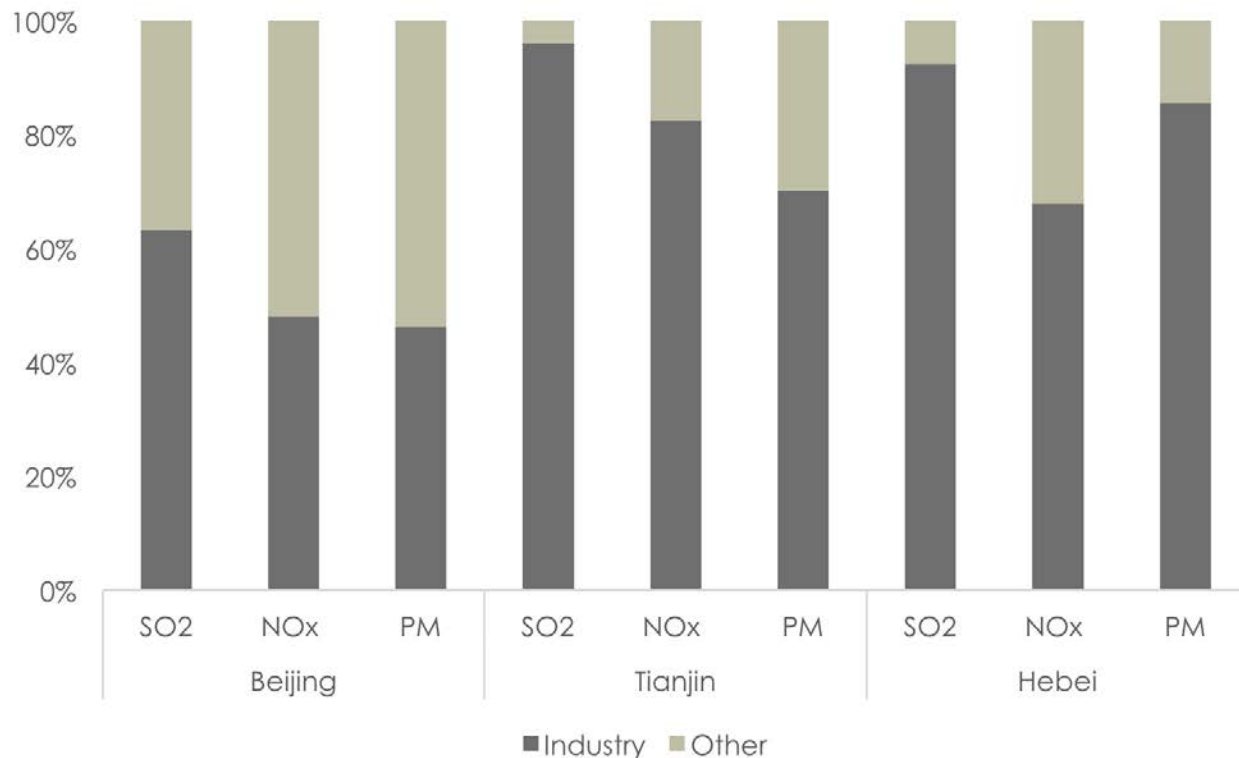
升级空气污染监测系统去监测氨的水平



Industry

工业

Air Pollution for Industries



Percent of air pollution from industry in the JingJinJi Region 2012;
(China National Bureau of Statistics, 2013).

Current Industry Regulations

Three cities are not coordinating the regulations and policy

Beijing : Relocated factories

北京: 搬迁工厂

Hebei: Industry targets for air pollution

河北: 制定工业减排标准

Tianjin: Closure of enterprises subject to State Council
approval

天津: 关闭经国务院批准的企业

1

Restructure and Upgrade Industry

1.1

Enforcement on upgrading manufacture oriented to service oriented

1.2

Create “Green Industry District”

1.3

Job re-training programs for workers to qualify for new jobs

2

Align Regional Governmental Collaboration in Economy and Environment Incentives

2.1

Enhance the transaction of the volume of cap and trade

1 重建和升级产业

1.1 从制造业为主向服务业导向升级转型

1.2 建立绿色产业园区

1.3 为适应产业新趋势而提供就职再培训项目

2 对政府在经济和环境上的协作给予激励

2.1 提高区域内碳交易的交易限额和交易量的流通



4

Transportation

交通

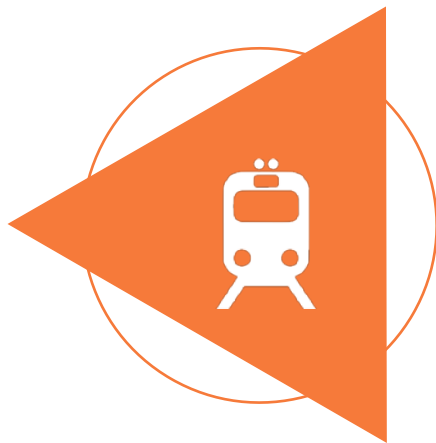
Current Status



High congestion from
private vehicle use

私家车造成的交通拥堵

Drivers in Beijing spend
2.56 times longer on the
road during rush hour



Lack of inter-city
rail connections

缺少城际轨道交通

Railways account for
11%
of intercity trips in Jingjinji



Inefficient freight
network

低效率的货运网络

87% of freight volume
was delivered on highways

Case Study

SF Park 三藩市停车

Real-time parking management to
reduce urban congestion
实时停车费机制以减少城市道路拥堵



HOV in Chengdu 成都多乘员车专道
High-occupancy vehicle lanes incentivize
carpooling
通过建立多乘员车辆专用道来增加车辆使用效率

WMATA 华盛顿地铁交通金融
Multi-regional transit finance model for
sustainable O&M funding
单纯依赖联邦和地方政府拨款



Recommendations

1

Increase multi-modal connectivity to surrounding Beijing areas

2

Pilot traffic demand management strategies in urban center

3

Improve efficiency and coordination of freight network

4

Expand EV ownership and use through more convenient charging stations

1

丰富京津冀地区的出行方式，创新融资机制

2

在城市中心试行交通管理试点区域

3

增强货物运输网络的效率和协作

4

扩大电动车保有量，保障电动车配套设施



5

Energy

能源

Current Status

Increasing Energy Demand

2001-2015 Beijing's energy consumption increased 138%.



上升中的能源需求
2001-2015 北京能源消耗增长138%.

煤炭到清洁能源的转化

能源结构
北京与河北的断层



Coal to Clean Energy

- Energy Structure
- Beijing versus Hebei disconnect

Current Status

Potential for Energy Structure Transformation

- Wind energy in Hebei and Inner Mongolia is not being used efficiently.
- 2014-2016 wasted wind in Country = 2015 Beijing electricity consumption
- Hebei only uses 20% of geothermal energy reserves

能源结构转换的潜力

- 河北和内蒙古的风能、太阳能利用极其不充分
- 2014-2016的“弃风”等于北京2015年的用电
- 河北只使用地热能储备的20%

Barriers to Clean Energy

- Lack of collaboration between energy sources results in wasted energy capacity.
- Economic incentive to keep coal factories open.

什么阻碍能源发展？

地区能源壁垒而造成的能源
产能浪费
煤炭是经济的命脉

Recommendations

1

Collaboration - Renewable Energy Certificates and Regional Transmission Organization

2

Investment in Research and Development

3

Phasing Out Coal Plants and Replacing with Clean Energy

1

增加协作 - 市场化的清洁能源交易体制及区域间能源的统筹管理机构

2

对研究和发展的投资-核能与储电电池

3

逐步淘汰燃煤电厂并用清洁能源进行取代



6

Environmental Governance

政府治理

Current Status

Historical focus on **vertical collaboration** for multi-region projects in China will not work for long-term successful air quality management.

传统的垂直管理体系不适用于根治中国的环境治理问题

Despite the intent to use a different collaboration model for the Jingjinji region, the current plan does not properly facilitate strong horizontal coordination.

尽管京津冀地区尝试过多种区域合作方式，但现行管理办法并不利于加强组织间的平行合作

Goal: to create the necessary governance mechanisms to support collaboration to achieve regional air quality goals. 目标：创建有效的政府合作机制，促进区域协作以实现京津冀地区的环境治理目标

California Case Study

Similar historical struggle 加州 — 相同的困境



- Created an open and collaborative model with independent regulators through national standards (Clean Air Act)
- Created agencies that were shielded from direct political influence
- Had an ability to regulate beyond National Standards
- Had a body that coordinated across sectors

统一国家标准，通过国家层面，建立单独的、开放、协同的管理运行机构
机构的独立性可以降低行政干扰，建立独立于国家标准外的区域协同管理体系。
成立委员会等机构进行跨部门和跨领域的协调工作。

Recommendations

1

Create an Independent Regulator for the Region

2

Develop a Regional Air Quality Grant Fund

3

Promote Open Government and Open Data

4

Build a Scenario Planning Tool

1

设立京津冀地区空气质量独立管理部门

2

创设区域环境污染治理基金

3

促进政府事务的透明度及数据的及时公开

4

建立京津冀地区环境治理的场景规划模型