

# 京津冀生活垃圾区域统筹管理模式研究 完工报告

## Study on Municipal Solid Waste Regional Integrated Management Model for Beijing-Tianjin-Hebei Completion Report

汇报人： 薛玉伟  
Yuwei Xue

时 间： 2022年8月25日  
August 25, 2022

# 致谢Acknowledgement

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- 中华人民共和国住房和城乡建设部城市建设司环境卫生处

Division of Environmental Sanitation, Department of Urban Construction, MOHURD

- 亚洲开发银行 ADB

- 北京市城市管理委员会 | 通州区城市管理委员会、大兴区城市管理委员会

Beijing Urban Management Committee | Urban Management Committee of Tongzhou District, Daxing District, Beijing

- 天津市城市管理委员会 | 蓟州区城市管理委员会、武清区城市管理委员会

Beijing Urban Management Committee | Urban Management Committee of Tongzhou District, Daxing District, Beijing

**感谢所有领导、同事对本项目的支持和帮助**  
**Thank you for your support and help to this project**

# 致谢Acknowledgement

- 河北省住房和城乡建设厅 廊坊市住房和城乡建设局、廊坊市环境卫生管理局、三河市住房和城乡建设局、三河市综合行政执法局、香河县环境卫生管理局、大厂回族自治县城管局、河北省环卫协会

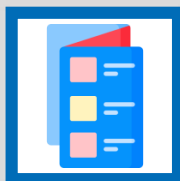
Hebei Provincial Department of Housing and Urban-Rural Development | Housing and Urban-Rural Development Bureau of Langfang City, Hebei , Environmental Sanitation Administration of Langfang City , Housing and Urban-Rural Development Bureau of Sanhe City , Comprehensive Administrative Law Enforcement Bureau of Sanhe City , Environmental Sanitation Administration of Xianghe County ,Urban Management Bureau of Dachang Hui Autonomous County , Hebei Environmental Sanitation Association

- 北京市环卫集团、绿色动力环保集团股份有限公司、瀚蓝环境股份有限公司、上海康恒环境有限公司

Beijing Environmental Sanitation Group , Green Power Environmental Protection Group Co., Ltd. , Hanlan Environmental Co., Ltd. 、 Shanghai Kangheng Environmental Co., Ltd.

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# 汇报内容Content



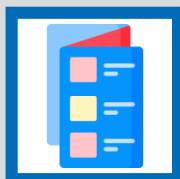
汇报大纲  
Outline

1.项目背景Project Background

2.项目活动Project Activities

3.项目产出Project Outputs

# 汇报内容Content



汇报大纲  
Outline

1.项目背景Project Background

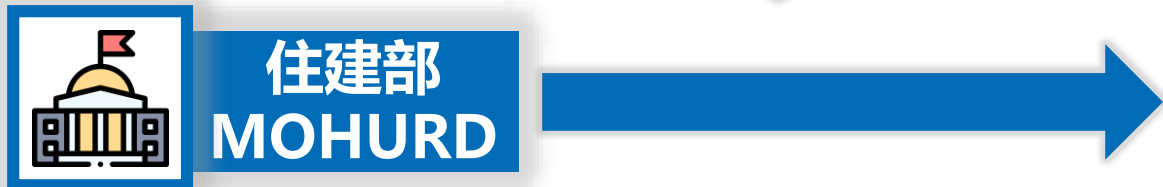
2.项目活动Project Activities

3.项目产出Project Outputs

## 1.1 项目背景BACKGROUND

### ➤ 《京津冀生活垃圾区域统筹管理模式研究》咨询项目来源

Source of the Consultation Project



城建司环卫处作为实施机构

The Division of Environmental Sanitation, Department of Urban Construction, MOHURD as the executive agency

2019年1月30日，亚洲开发银行与中国城市建设研究院有限公司签订了《京津冀生活垃圾区域统筹管理模式研究》咨询服务合同。

On January 30, 2019, the ADB and the CUCD signed this consulting service contract

**项目执行期：**

2019年2月1日至2022年10月30日，执行期为44个月

**Project implementation period :**

From February 1, 2019 to Oct. 30, 2022, a total of 44 months.

# 1.1 项目背景BACKGROUND

## ➤ 京津冀地区生活垃圾区域统筹管理的含义

The meaning of MSW regional integrated management in Beijing-Tianjin-Hebei region



### 含义Meaning

- 即打破京津冀区域行政边界，根据京津冀地区的生活垃圾管理需求，共建共享垃圾处理设施，并配套建设相应的垃圾收运管理体系、机制及政策框架，实现生活垃圾跨区域、行业化管理。
- Break the administrative boundaries of the BTH region, build and share waste treatment facilities based on the MSW management needs of the BTH region, and build corresponding waste collection and transportation management system, mechanism, and policy framework, to implement cross – regional and industrial management of household waste.
- 此项目研究是技术上提出垃圾管理行业化，区域化、市场化理念，不是要落地的规划。不追求近期落地实施。
- The study of this project is to propose the concept of industrialization, regionalization and marketization of waste management technically. and it does not pursue the implementation in the near future.

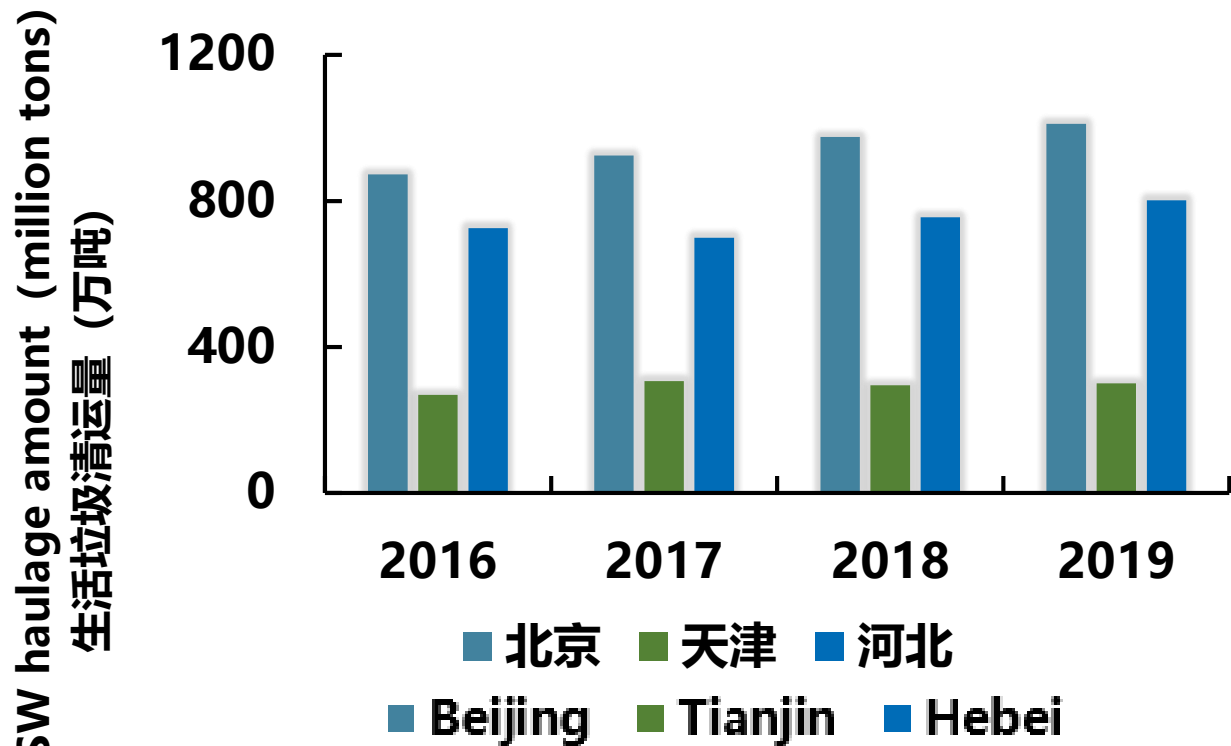


BTH administrative division map

# 1.1 项目背景BACKGROUND

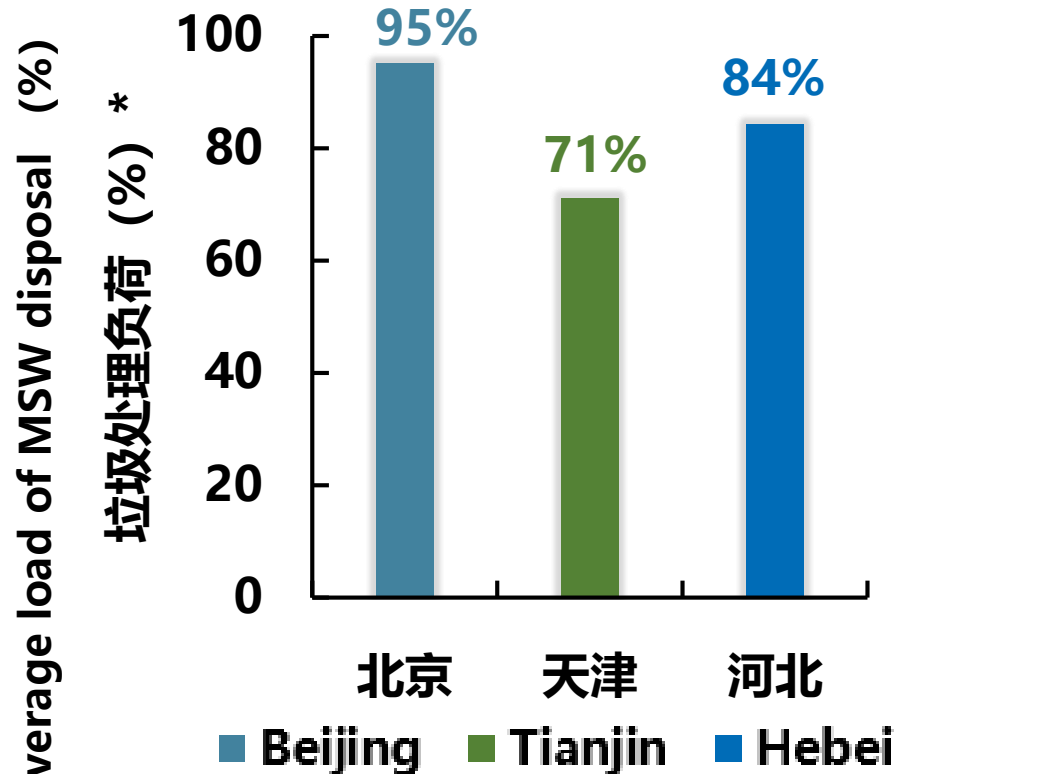
## 京津冀地区生活垃圾总体情况

## General Situation of MSW in BTH



2016-2019年京津冀生活垃圾清运量

MSW haulage amount in Beijing, Tianjin and Hebei from 2016 to 2019



2016-2019年京津冀生活垃圾处理平均负荷

(\*: 垃圾清运量与垃圾处理能力的比值)

Average load of MSW disposal in BTH

(\*: ratio of MSW haulage amount to MSW disposal capacity)

京津冀地区MSW产生量逐年增加，垃圾处理负荷高

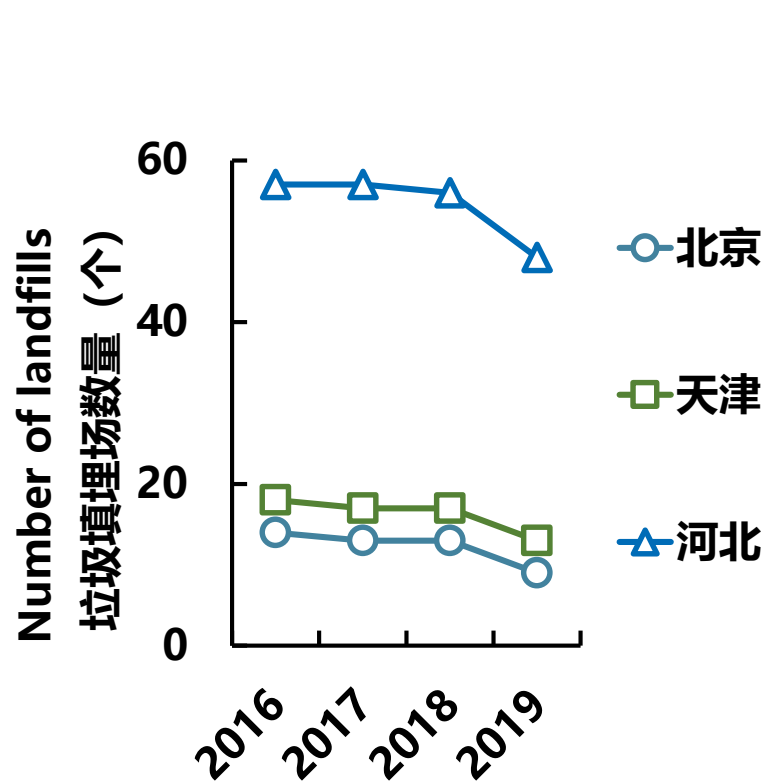
The amount of MSW produced in BTH is increasing, and the MSW disposal load is high



# 1.1 项目背景BACKGROUND

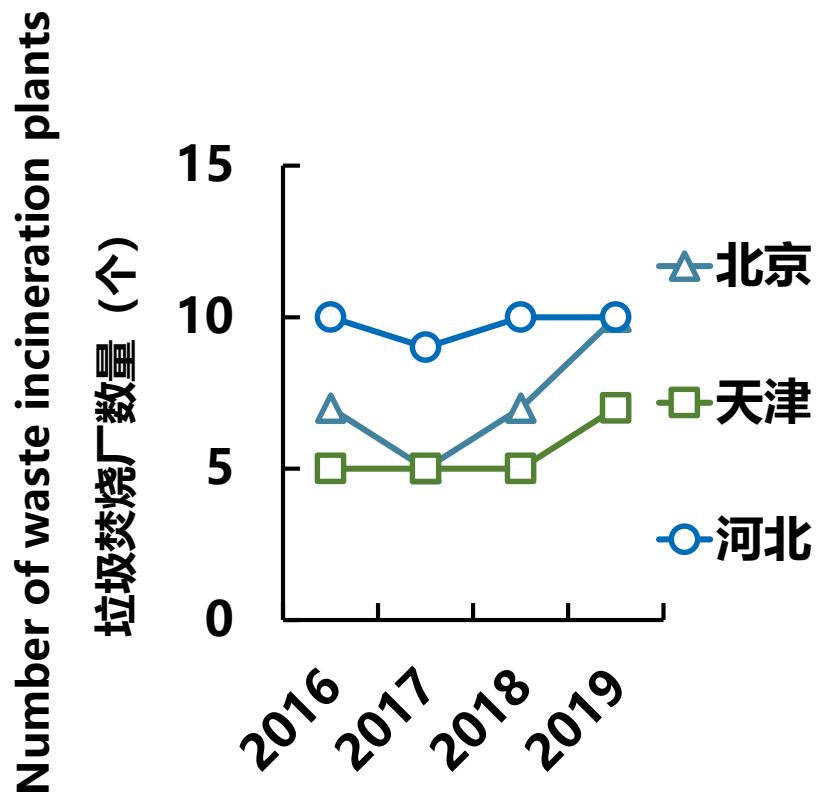
## ➤ 京津冀地区生活垃圾的管理现状

The status quo of MSW management in BTH



京津冀运营中的垃圾填埋场数量

Number of landfills in operation in BTH



京津冀运营中的垃圾焚烧厂数量

Number of waste incineration plants in operation in BTH

数量多、规模小的焚烧厂成本更高。

The large number and small scale of incineration plants will lead to higher costs.

基于“规模效益”理论，京津冀共建共享垃圾焚烧厂可降低成本。

"economies of scale", the co-construction and sharing of waste incineration plants in BTH can reduce the costs.

京津冀地区多数垃圾填埋场面临封场，焚烧能力逐渐增强  
Most landfills in BTH are facing closure, and the incineration capacity is increasing

# 1.1 项目背景BACKGROUND

## ➤ 京津冀——地区社会经济发展差异 regional social and economic development differences

地区 Region	人均地区生产总值 Per capita GDP (yuan/person)	第一产业 (%) Primary industry	第二产业 (%) Secondary industry	第三产业 (%) Tertiary Industry
全国Nationwide	70892	7.1	39	53.9
北京Beijing	<b>164220</b>	0.3	16.2	83.5
天津Tianjin	<b>90371</b>	1.3	35.2	63.5
河北Hebei	<b>46348</b>	10.0	38.7	51.3

■ 三地经济结构差异较大，经济动能完全不同。北京已成为服务型经济为主体的城市，天津工业和服务业并重，而河北三产结构更接近全国平均水平。

■ 三地公共服务水平、社会保障水平均差距较大

■ The economic structure of the three jurisdictions is quite different, and the economic types are completely different. Beijing has become a city dominated by a service-oriented economy, Tianjin's industry and service industries are equally important, and Hebei's tertiary industry structure is closer to the national average.

■ There is a big gap in the level of public service and social security among the three jurisdictions.

# 1.1 项目背景BACKGROUND

## ➤ 京津冀垃圾处理设施的规划、建设与经济发展情况紧密相关

The planning and construction of waste disposal facilities in BTH are closely related to economic development

- 中国的生活垃圾处理属于公益事业。
- 焚烧处理费是填埋的4-5倍。
- 垃圾焚烧上网发电政府补贴0.65元/度，比热力电高0.34元/度。
- 垃圾填埋不享受政府补贴，填埋产生的沼气电价比市场热力电价高0.01元/度。

- The MSW disposal in China is a public welfare undertaking.
- The cost of incineration is 4-5 times that of landfill.
- The government subsidy for electricity generation from waste incineration is 0.65 yuan/kWh, which is 0.34 yuan/kWh higher than thermal power.
- Landfill does not enjoy government subsidies, and the price of biogas generated by landfill is 0.01 yuan/kWh higher than the thermal power price.



垃圾焚烧厂  
280-320元  
/吨

incineration  
280-320  
yuan/ton



垃圾填埋  
70-80元/吨

Landfill70-  
80 yuan/ton

➤ 政府的财政能力决定了其对垃圾处理设施的支持力度

➤ The government's financial capacity determines its support for waste disposal facilities

## 1.1 项目背景BACKGROUND

### ➤ 京津冀的地理条件为三地生活垃圾处理设施的选址和发展奠定了统筹管理的基础

The geographical conditions of BTH have laid the foundation for the integrated management of the site selection and development of MSW disposal facilities in the three jurisdictions



- 京津冀一体化发展是国家战略。
- 京津两地人口分布高度密集，河北省的人口密度不及北京和天津的三分之一。
- 从土地价值和可用性方面，北京和天津土地更适合商业化开发，河北省的土地资源对新建垃圾处理设施规划具有支撑作用。

- The integrated development of Beijing-Tianjin-Hebei is a national strategy.
- The population distribution of Beijing and Tianjin is highly dense. The population density of Hebei Province is less than one-third of that of Beijing and Tianjin.
- In terms of land value and availability, the land in Beijing and Tianjin is more suitable for commercial development, and the land resources in Hebei Province play a supporting role in the planning of new waste disposal facilities.

## 1.1 项目背景BACKGROUND

### ➤ 京津冀的地理条件为三地生活垃圾处理设施的选址和发展奠定了统筹管理的基础

The geographical conditions of BTH have laid the foundation for the integrated management of the site selection and development of MSW disposal facilities in the three jurisdictions



- 从地理条件方面，北京和天津地区多为平原，而河北省东有燕山山脉和西有太行山脉，相较北京和天津，河北山地面积较多。
  - 从城镇化率方面，北京和天津的城镇化率远远高于河北，其城市发展建设已达河北省界。
- 
- In terms of geographical conditions, Beijing and Tianjin are mostly plains, while Hebei Province has the Yanshan Mountains in the east and the Taihang Mountains in the west. Compared with Beijing and Tianjin, Hebei has more mountainous areas.
  - In terms of urbanization rate, the urbanization rate of Beijing and Tianjin is much higher than that of Hebei, and their urban development and construction have reached the boundary of Hebei province.

# 1.1 项目背景

## ➤ 生活垃圾区域统筹在国际上的实践 International practice of MSW regional integration



### 荷兰案例 Netherlands

Elbert等研究表明：荷兰的垃圾区域统筹管理显著提高了政府及其他相关方的资金利用效率。

The research of Elbert et al. shows that the MSW regional integrated management in the Netherlands has significantly improved the efficiency of capital utilization of the government and other relevant stakeholders.

*Elbert, Dijkgraaf, and Raymond Gradus. 2013*



### 西班牙案例 Spain

小型城市之间通过府际合作完成垃圾区域统筹管理，可以大幅度降低垃圾管理的财政支出。

Inter-governmental cooperation among small cities to complete the MSW regional integrated management can greatly reduce the financial expenditure of waste management.

*Bel, Germà, and Melania Mur. 2009.*

生活垃圾区域统筹可以提高区域生活垃圾管理质量，降低管理成本

MSW regional integration can improve the quality of MSW management and reduce management costs

# 1.1 项目背景Background

## ➤ 京津冀实现生活垃圾区域统筹的条件 Advantages of MSW regional integration in BTH



人口密度高 | 土地商业开发价值高 | 用于垃圾处理设施的土地稀缺 | 经济发展较快 | 垃圾处理技术水平较高

天津与北京有类似的大城市病  
经济发展和管理能力处于京冀之间

垃圾处理设施布局欠均衡合理 | 县域设施规模小, 分布散 | 污染监管难度大 | 环境污染风险高

High population density | Scarcity of land for waste treatment facilities | Faster economic development | High level of waste treatment technology

Tianjin and Beijing have similar big city diseases  
Economic development and management capabilities are between Beijing and Hebei

Unbalanced and unreasonable facility layout | County facilities are small in scale and scattered in distribution | Difficulty in pollution control supervision | High risk of environmental pollution

京津冀生活垃圾区域统筹管理的研究具有重要意义

Study on the MSW regional integrated management in BTH is of great significance

# 1.1 项目背景Background

## ➤ 京津冀实现生活垃圾区域统筹的条件 Advantages of MSW regional integration in BTH

### 区域统筹优势

- ❑ 实现三地垃圾处理设施共享、优化自然资源、提高设施利用效率；
- ❑ 避免行政边界垃圾处理设施比邻建设；
- ❑ 择优选择处理方式，提高资源化利用水平；
- ❑ 统一标准规范，提高收运处理管理水平
- ❑ 减少温室气体和污染气体排放，保护生态环境，进而保护居民健康。
- ❑ 为京津冀地区环境友好、和谐、统一发展提供借鉴。

### Advantages of regional integration

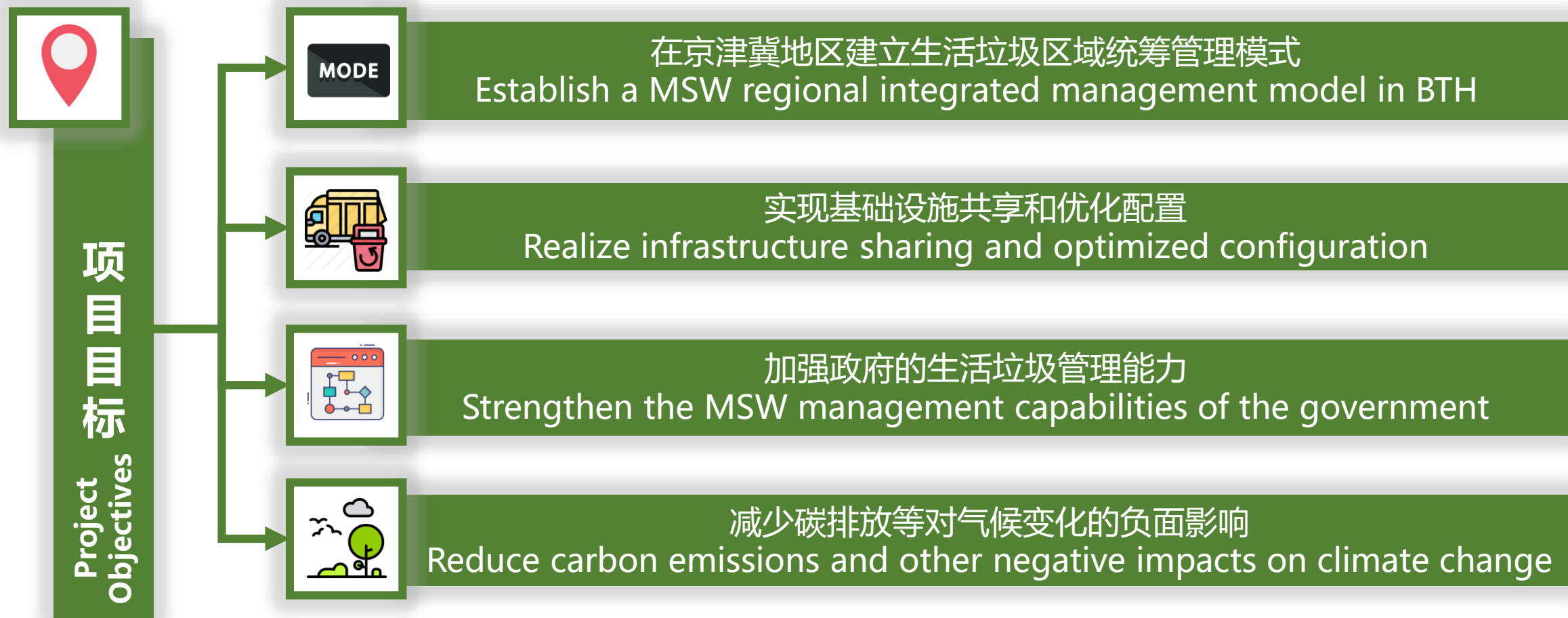
- ❑ Realize the sharing of waste disposal facilities in the three jurisdictions, optimize natural resources, and improve facility utilization efficiency;
- ❑ Avoid adjacent construction of waste disposal facilities at administrative boundaries;;
- ❑ Select the best disposal method to improve the level of resource utilization;
- ❑ Unify standards and regulations, improve the management level of collection and transportation;
- ❑ Reduce greenhouse gas and polluting gas emissions, protect the ecological environment, and then protect the health of residents.
- ❑ Provide reference for environment-friendly, harmonious and unified development of the BTH.

京津冀生活垃圾区域统筹管理的研究具有重要意义

Study on the MSW regional integrated management in BTH is of great significance



## 1.2 项目目标 Project Objectives



## 1.3 项目组织结构Project organization structure

姓名	职位	投入 (人/月)
徐海云	固废专项规划专家	2.0
刘建国	固废分类收集处置专家	2.0
王琪	专家组副组长/固废政策、 标准和机构专家	2.5
薛玉伟	专家组组长/固废管理专家	5.0
王小强	金融管理专家	2.0
Mr. Hardy Ming-long WONG	国际机构专家	2.0
史纪	城市空间发展规划专家	1.0

Name	Position	Input (p/m)
Haiyun Xu	Solid waste special planning expert	2.0
Jianguo Liu	Solid waste separation collection and disposal expert	2.0
Qi Wang	Deputy team leader /solid waste policy, standard and institutional expert	2.5
Yuwei Xue	Team leader/solid waste management expert	5.0
Xiaoqiang Wang	Financial management expert	2.0
Mr. Hardy Ming- long WONG	International Institutional expert	2.0
Ji Shi	Urban space development planning expert	1.0

# 1.4 产出介绍 Output introduction

## ➤ 课题研究 Subject study



### 研究内容

- ❖ 《京津冀生活垃圾分类管理系统和政策框架研究》
- ❖ 《京津冀生活垃圾区域统筹管理模型研究》
- ❖ 《京津冀生活垃圾区域统筹管理机构安排建议》
- ❖ 《京津冀生活垃圾区域统筹管理政策框架建议》
- ❖ 《京津冀生活垃圾区域统筹管理成本分析及生态补偿建议》

此外，项目还根据京津冀调研结果完成了《**基线报告**》，根据利益相关单位国家考察完成了《**国际考察报告**》，为区域统筹管理研究提供了有效参考。



### Content

- ❖ *Study on MSW Separation Management System and the Corresponding Policy Framework in BTH*
- ❖ *Study on MSW Regional Integrated Management Model for BTH*
- ❖ *Institution and Mechanism Recommendations on MSW Regional Integrated Management for BTH Report*
- ❖ *Study on the Policy Framework of MSW Regional Integrated Management in BTH Region*
- ❖ *Cost Analysis and Ecological Compensation Recommendations for BTH MSW Regional Integrated Management*

In addition, the project completed the "Baseline Report" based on the results of the survey in BTH, and completed the "International Study Report" based on the international study tour of stakeholders, providing an effective reference for the study of regional integrated management.

## 1.4 产出介绍 Output introduction

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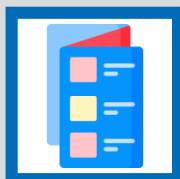
### ➤ 能力建设

- ❖ 国际考察
- ❖ 项目结题评审会
- ❖ 项目成果宣贯会

### ➤ Capacity building

- ❖ International study tour
- ❖ Project final review workshop
- ❖ Project result dissemination workshop

# 汇报内容Content



## 汇报大纲 Outline

1.项目介绍Project Introduction

**2.项目活动Project Activities**

3.项目产出Project Outputs

## 2.2 项目协调会 Project coordination meeting



项目协调会 Project coordination meeting  
(2019/7/12, 9:00-11:45)

### 参会人员 Participants

姓名	单位		
杨宏毅	Hongyi Yang	住建部	MOHURD
简正	Zheng Jian	住建部	MOHURD
翟远刚	Yuangan Zhai	天津市城管委	Tianjin Urban Management Committee
戴志锋	Zhifeng Dai	北京市城管委	Beijing Urban Management Committee
刘智华	Zihua Liu	河北省住建厅	Hebei Provincial HURD
韩晓雷	Xiaolei Han	河北省环卫协会	Hebei Environmental Sanitation Association
李文华	Wenhua Li		
王琪	Qi Wang		
史纪	Ji Shi	CUCD项目团队	CUCD
缪巍	Wei Miu		
李远	Yuan Li		

会议明确了调研需求，确定了试点地区，确定了调研联系人，明确了研究重点

The meeting clarified the needs of the survey, determined the pilot area, determined the contact person for the survey, and clarified the focus of the study

## 2.3 项目调研 Site survey



## 2.3 项目调研——大兴区SITE SURVEY——DAXING DISTRICT



### 主要发现Main findings

- ❑ 规划中的设施6000吨/天，具有处理大兴区外垃圾的潜力
- ❑ 园林垃圾未进行综合管理
- ❑ 处理渗滤液的能力不足
- ❑ 邻避效应是选址的最大难题
- ❑ The planned facility is 6000 tons/day, which has the potential to disposal waste outside of Daxing District
- ❑ No comprehensive management of garden waste
- ❑ Insufficient capacity to disposal leachate
- ❑ The “Not in My Back Yard” is the biggest problem in site selection



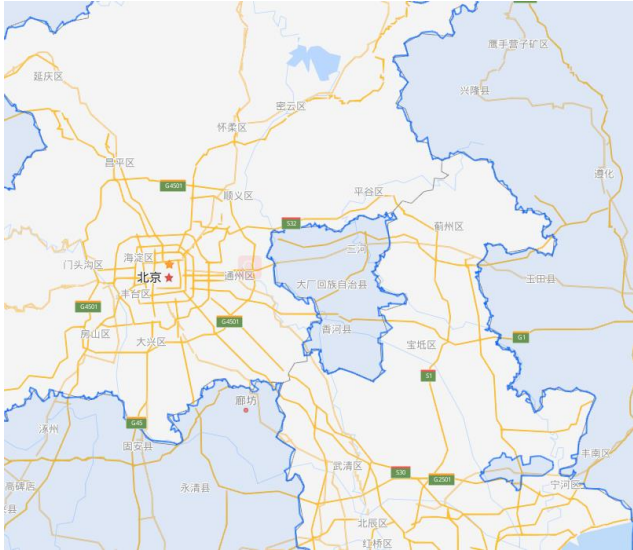
## 2.3 项目调研——通州区 SITE SURVEY——TONGZHOU DISTRICT



### 主要发现 Main findings

- 焚烧设施容量1800吨/天
- 总产能3950吨，一期工程2250吨，电力2亿千瓦时；二期工程1500吨，暂未投资
- 按照规定，生活垃圾移出异地补偿费173元/吨，厨余垃圾补偿费155.7元/吨
- The capacity of the incineration facility is 1,800 tons/day
- The total production capacity is **3,950** tons, the first phase of the project is **2,250** tons, and the power is 200 million kWh; The second phase of the project is **1,500** tons, which has not been invested yet
- According to the regulations, the compensation fee for MSW disposal in other places is 173 yuan/ton, and the kitchen waste is 155.7 yuan/ton

# 2.3 项目调研——廊坊市SITE SURVEY——LANGFANG CITY



廊坊现场调研及座谈 Site survey and discussion in Langfang city

## 2.3 项目调研——廊坊市SITE SURVEY——LANGFANG CITY



### 主要发现Main findings

#### 廊坊市

建设总规模为日处理垃圾1500吨，其中一期设计规模为日处理1000吨，二期500吨。设计使用寿命约30-35年。

#### 三河

三河市目前处理方式主要是填埋，目前垃圾填埋场接近饱和。规划中焚烧厂处理规模1000吨/天（备用2号线1000吨/天），预计2021年6月底试运行。

#### Langfang City

The total construction scale is 1,500 tons/day, of which the design scale of the phase I is 1,000 tons/day, and the phase II is 500 tons/day. The design service life is about 30-35 years .

#### Sanhe County

At present, the main MSW disposal method of in sanhe city is landfill, and the landfill is close to saturation. The planned disposal capacity of the incineration plant is 1,000 tons/day (the standby line 2 is 1,000 tons/day), which is expected to be put into trial operation at the end of June 2021.



廊坊现场调研

Site Survey in Langfang City

## 2.3 项目调研——廊坊市



### 主要发现Main findings

#### 香河

主要以填埋为主。截至2018年香河县安洁垃圾填埋场已填满，并开始堆高。一期设计处理能力750吨/天，二期预留500吨/天焚烧线1条，全部建成后日处理能力1250吨/天，将彻底解决垃圾终端处置问题。预计2021年6月底试运行。

#### 大厂回族自治县

2019年初开始规划建立焚烧发电厂，预计建第一期400吨，由于邻避效益，项目暂定取消。

#### Xianghe County

Mainly by landfill. As of 2018, the Anjie landfill in Xianghe County has been filled up and started to pile up. The designed disposal capacity of the phase I is 750 tons/day, and the phase II reserves an incineration line of 500 tons/day. The trial operation is expected at the end of June 2021.

#### Dachang Hui Autonomous County

At the beginning of 2019, it is planned to build an incineration power plant. It is estimated that the construction scale of the first phase will be 400 tons/day. Due to the “Not in My Back Yard”, the project is temporarily cancelled.



廊坊现场调研

Site Survey in Langfang City

## 2.3 项目调研——廊坊市SITE SURVEY——LANGFANG CITY



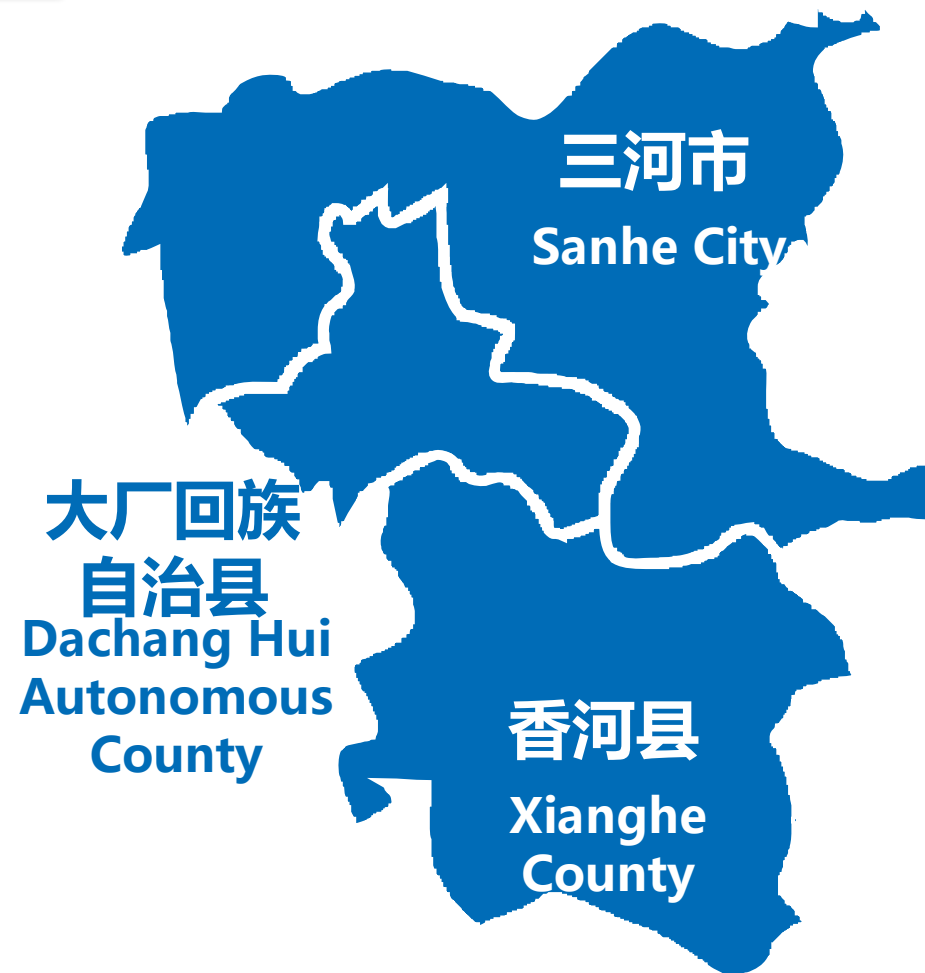
### 初步结论Preliminary Conclusions

以北三县（三河、香河、大厂）为优先试点，建立以这三地为基础的综合管理模式

Take the Northern Three Counties (Sanhe, Xianghe, Dachang) as priority pilots, and establish a comprehensive management model

地区Region	人口Population	潜在处理能力 (吨/天) capacity (t/d)
三河Sanhe	710000	1000
香河Xianghe	350000	750+500
大厂Dachang	130700	400+?

- ✓ 北京大兴国际机场将推进跨越京廊的空港产业区。
- ✓ 廊坊有可能接受河北自贸区（大兴片区）的生活垃圾，但要做好经济分析。
- ✓ Beijing Daxing International Airport will promote the airport industrial zone spanning Beijing and Langfang.
- ✓ Langfang may accept MSW in Hebei Free Trade Zone (Daxing Area), but economic analysis must be done.



河北省廊坊市北三县  
The Northern Three Counties

## 2.3 项目调研——天津市武清区SITE SURVEY——WUQING DISTRICT, TIANJIN

### 关键数据Key data



- ✓ 2016年9月以后，城区每日产生400吨左右生活垃圾，集中运往唐山、宁河、汉沽作无害化处理，每年运费近6000万元。24个镇的垃圾进填埋场
- ✓ 武清区生活垃圾焚烧发电项目 1000+500t/d，预计2020年投入使用
- ✓ After September 2016, the waste amount generated in urban areas is about 400 tons/day, which is transported to Tangshan, Ninghe and Hangu for safe disposal, with an annual freight of nearly 60 million yuan. Waste from 24 towns is disposed of in landfills.
- ✓ The waste incineration power generation project in Wuqing District, with a scale of 1000+500t/d, is expected to be put into use in 2020

## 2.3 项目调研——天津市武清区SITE SURVEY——WUQING DISTRICT, TIANJIN



### 关键数据Key data

- ✓ 区政府正在研究将城区经营面积在150 m<sup>2</sup>以上的餐饮企业及单位产生的餐厨垃圾均由碧海公司收运处理
- ✓ The district government is planning to collect, transport and disposal the kitchen waste generated by catering companies and agencies with an operating area of more than 150 square meters in the urban area by Bihai Company.



武清区位于天津市西北部，是三省交汇处，也是京津冀协同发展战略的重要核心区和桥头堡。  
Wuqing District is located in the northwestern part of Tianjin. It is the intersection of the three jurisdiction. It is also an important core area for the coordinated development strategy of BTH

## 2.3 项目调研——天津市蓟州区SITE SURVEY——JIZHOU DISTRICT, TIANJIN



### 关键数据Key data

#### ➤ 使用中设施情况

总投资3亿元, 占地面积100亩, 采用BOT模式建设及经营, 一期容量700t/d

#### ➤ 建设中设施情况

二期容量350t/d .

#### ➤ Facilities in use

The total investment is 300 million yuan, covering an area of 100 mu, adopting BOT mode for construction and operation, and the scale of the phase I is 700t/d.

#### ➤ Facilities under construction

The scale of the phase II is 350t/d .



## 2.3 项目调研——天津市蓟州区SITE SURVEY——JIZHOU DISTRICT, TIANJIN

### 关键数据Key data



#### ➤ 区域统筹政策

帮助玉田县6个村免费处理垃圾7吨，采用政府间协议方式

#### ➤ 区域统筹可能

宝坻区2020年底前对蓟州有需求，玉田县和平谷区现在都可能需求。唐山市玉田县目前还在填埋，将来可能把河北玉田县的垃圾也接过来。

#### ➤ Regional integration policy

Helped 6 villages in Yutian County to dispose of 7 tons of waste for free, adopting an intergovernmental agreement

#### ➤ Possibility of regional integration

Baodi District will have the demand of regional waste disposal with Jizhou District by the end of 2020, and both Yutian county and Pinggu District may have the demand now. At present, Yutian county of Tangshan City is still disposing of waste by landfill, and may dispose of waste from Yutian county in the future.

## 2.3 项目调研SITE SURVEY



### 主要发现MAIN FINDINGS

- **各试点地区经济发展不平衡**
- **三地均具备消纳本地生活垃圾的能力及相关规划**
- **三地对待生活垃圾区域统筹管理的理解不同**
- **中国生活垃圾管理的市场化模式对跨区域统筹形成一定的障碍**
- **京津冀三地生活垃圾管理立法协作机制不健全**
  
- Uneven economic development in each pilot area.
- The three jurisdictions have the ability to dispose of local waste and related planning.
- The three jurisdictions have different understandings of the MSW regional integrated management.
- The marketization model of MSW management in China has resulted in an obstacle to cross-regional integration.
- The legislative and collaborative mechanism of MSW management in Beijing, Tianjin, and Hebei are not complete.

## 2.4 国际考察INTERNATIONAL STUDY TOUR

2019/11/3-11/6

### 荷兰调研:

阿姆斯特丹城市  
生活垃圾分类实  
地调研、座谈等

In Netherlands:  
Site survey and  
workshops on the  
MSW separation in  
Amsterdam

### 德国调研:

柏林Flörsheim  
有机垃圾综合处  
理厂、与  
NAMA基金会  
座谈等

In Germany:  
Visiting the Flörsheim  
organic waste treatment  
plant in Berlin,  
discussing with the  
NAMA Foundation, etc.

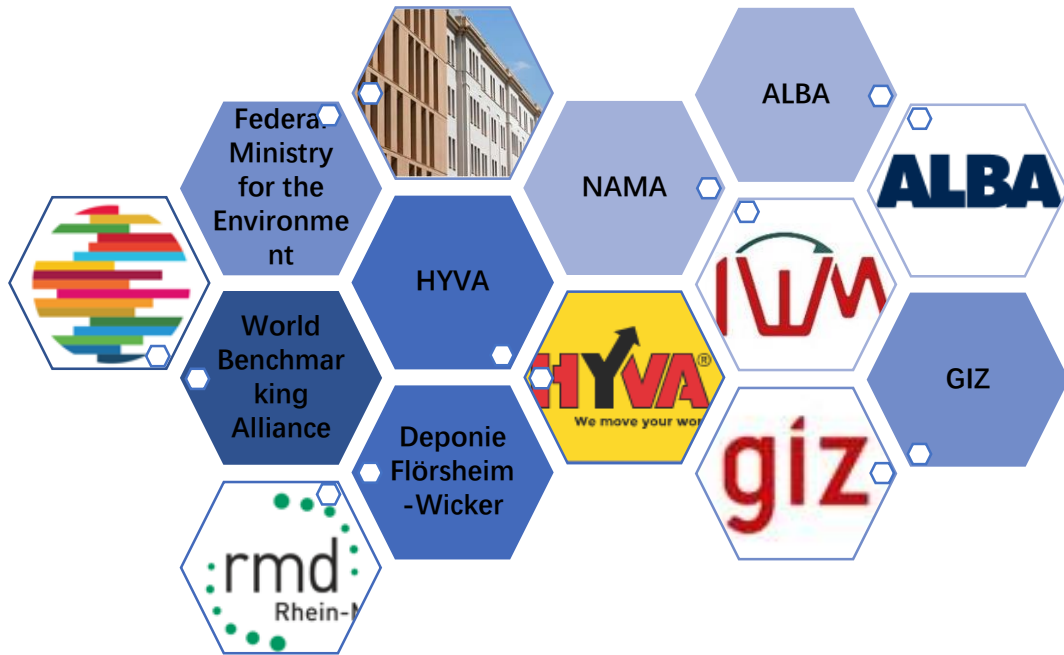
2019/11/3-11/6



荷兰、德国现场调研及座谈  
Site survey and discussion in the  
Netherlands and Germany

## 2.4 国际考察INTERNATIONAL STUDY TOUR

- 考察团成员：执行机构和京津冀代表  
Members of the study tour group:  
MOHURD and BTH stakeholders



### 主要活动

- ✓ 与德国环境部垃圾管理官员座谈
- ✓ 与NAMA基金会进行了座谈
- ✓ 海沃 (HYVA) 企业总部
- ✓ 欧绿保集团 (ALBA)
- ✓ 法兰克福有机垃圾综合处理厂
- ✓ 德国和荷兰的垃圾管理从业者座谈
- ✓ Discuss with waste management officials of the German Ministry of Environment
- ✓ Discuss with NAMA Foundation
- ✓ Visit the headquarters of HYVA
- ✓ Visit ALBA
- ✓ Visit Frankfurt Comprehensive Organic Waste Treatment Plant
- ✓ Discuss with practitioners of waste management in Germany and the Netherlands

产出《国际考察报告》一份

Deliverable: *International Study Tour Report*

## 2.4 国际考察INTERNATIONAL STUDY TOUR



### 主要启示MAIN REVELATION

- 完善垃圾管理相关法规，健全管理体制
- 发挥政府主导作用，加快市场化运作
- 从源头治理，推广清洁的生活消费行为方式
- 因地制宜地建立城市垃圾处理技术体系
  
- Improve relevant laws and regulations on waste management and improve the management system
- Give full play to the leading role of the government and accelerate market-oriented operations
- Manage from the source and promote clean living consumption behavior
- Establish a technical system for urban garbage disposal according to local conditions

## 2.1 项目关键活动



### 研究报告撰写

- ❖ 《京津冀生活垃圾分类管理系统和政策框架研究》
- ❖ 《京津冀生活垃圾区域统筹管理模型研究》
- ❖ 《京津冀生活垃圾区域统筹管理机构安排建议》
- ❖ 《京津冀生活垃圾区域统筹管理政策框架建议》
- ❖ 《京津冀生活垃圾区域统筹管理成本分析及生态补偿建议》

2020

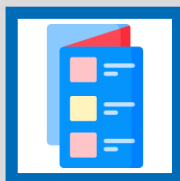
- ❖ *Study on MSW Separation Management System and the Corresponding Policy Framework in Beijing-Tianjin-Hebei Region*
- ❖ *Study on MSW Regional Integrated Management Model for Beijing-Tianjin-Hebei*
- ❖ *Institution and Mechanism Recommendations on MSW Regional Integrated Management for Beijing-Tianjin-Hebei Report*
- ❖ *Study on the Policy Framework of MSW Regional Integrated Management in BTH Region*
- ❖ *Cost Analysis and Ecological Compensation Recommendations for BTH MSW Regional Integrated Management*

- 英文报告评审, 修改
- 项目结题评审会
- 项目成果宣贯会

2021

- Review and revision of the English version report
- Project final review workshop
- Project result dissemination workshop

# 汇报内容Content



## 汇报大纲 Outline

1.项目介绍Project Introduction

2.项目活动Project Activities

3.项目产出Project Outputs

**《京津冀生活垃圾分类管理系统和政策框架研究》**

**STUDY ON MSW SEPARATION MANAGEMENT SYSTEM AND  
THE CORRESPONDING POLICY FRAMEWORK IN BTH**



# 3.1 京津冀生活垃圾分类管理系统和政策框架研究

## STUDY ON MSW SEPARATION MANAGEMENT SYSTEM AND THE CORRESPONDING POLICY FRAMEWORK IN BTH



### 报告内容

- 总结国内外垃圾分类成功经验；
- 实地调研项目选定试点地区，并总结了垃圾分类管理中存在的问题；
- 为京津冀生活垃圾区域统筹管理提出垃圾分类方案建议。
- 分析京津冀地区垃圾分类政策框架问题，并给出政策框架的建议。



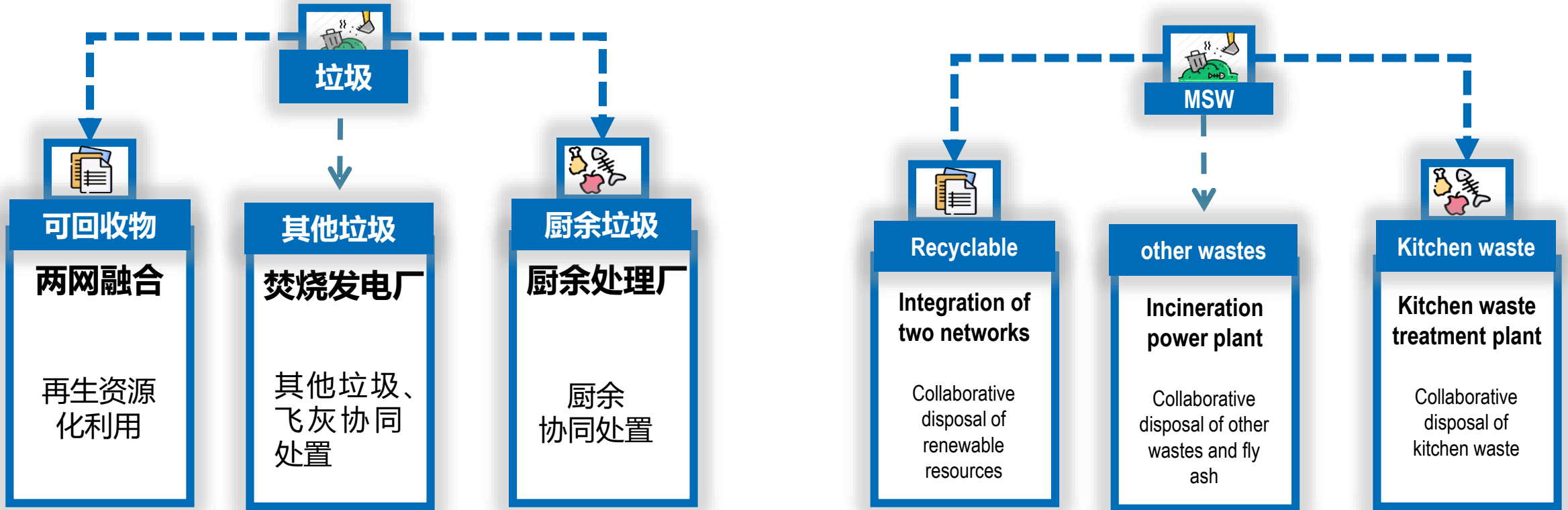
### Content

- Summarize the successful experience of waste classification at home and abroad;
- Field research project selected pilot areas, and summed up the problems in garbage classification management;
- To put forward suggestions on garbage classification for the regional coordinated management of household waste in Beijing, Tianjin and Hebei.
- This paper analyzes the policy framework of garbage sorting in Beijing-Tianjin-Hebei region and gives some suggestions.

### 3.1 京津冀生活垃圾分类管理系统和政策框架研究

#### STUDY ON MSW SEPARATION MANAGEMENT SYSTEM AND THE CORRESPONDING POLICY FRAMEWORK IN BTH

垃圾分类方案建议 Suggestions on garbage separated collection scheme:



## 3.1 京津冀生活垃圾分类管理系统和政策框架研究

### STUDY ON MSW SEPARATION MANAGEMENT SYSTEM AND THE CORRESPONDING POLICY FRAMEWORK IN BTH

#### 垃圾分类政策建议 **Suggestions on policy framework:**

- 强化对地方性相关法规的修定与完善，如制定《京津冀生活垃圾管理/分类条例》；
- Strengthen the revision and improvement of relevant local laws and regulations, such as the "Regulations on the Management/Classification of MSW in Beijing, Tianjin and Hebei".
- 制定垃圾分类中京津冀政府间利益分享调节机制；
- formulate an inter-governmental benefit sharing mechanism for garbage sorting in Beijing, Tianjin and Hebei
- 建立环境信息共享机制或信息共享平台，以便总体把握京津冀地区的垃圾分类管理状况；
- To establish an environmental information sharing mechanism or information sharing platform, so as to grasp the overall situation of garbage classification management in the Beijing-Tianjin-Hebei region
- 基于互利共赢与成本分摊的原则，建立京津冀环境治理的生态补偿机制，对负责管理垃圾分类的经济主体进行合理补偿。
- Based on the principle of mutual benefit and cost sharing, we will establish an ecological compensation mechanism for environmental governance in the Beijing-Tianjin-Hebei region, and provide reasonable compensation for economic entities responsible for garbage sorting.

# 《京津冀生活垃圾区域统筹管理模型研究》

STUDY ON MUNICIPAL SOLID WASTE REGIONAL INTEGRATED  
MANAGEMENT MODEL FOR BEIJING-TIANJIN-HEBEI

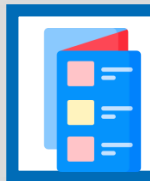
## 3.2 京津冀生活垃圾区域统筹管理模型研究

### STUDY ON MUNICIPAL SOLID WASTE REGIONAL INTEGRATED MANAGEMENT MODEL FOR BEIJING-TIANJIN-HEBEI



#### 报告内容

- 分析评估京津冀的土地资源、气候条件、地理条件、经济发展水平和垃圾处理技术应用现状；
- 提出京津冀地区的垃圾统筹管理模式，并给出了在每一种模式下的管理方案和技术建议，
- 对京津冀三地克服行政壁垒、施行垃圾处理设施共建共享、提高资源分配效率提出实施方案。



#### Content

- Analyze and assess the land resources, climate conditions, geographical conditions, economic development level MSW disposal technology in the BTH.
- Put forward the regional integrated management mode of MSW in the BTH, and give the management scheme and technical suggestions of each mode.
- To put forward implementation plans for overcoming administrative barriers, implementing joint construction and sharing of waste treatment facilities, and improving the efficiency of resource allocation in the three regions of BTH.

## 3.2 京津冀生活垃圾区域统筹管理模型研究

### STUDY ON MUNICIPAL SOLID WASTE REGIONAL INTEGRATED MANAGEMENT MODEL FOR BEIJING-TIANJIN-HEBEI

#### 垃圾区域统筹管理模式

模式一：飞灰和可回收物的统筹管理

模式二：垃圾处理设施共建共享

模式三：特殊功能区的垃圾统筹管理模式

模式四：地域优势组合模式

模式五：特殊时期垃圾管理区域统筹应急管理预案

模式六：京津冀生活垃圾区域统筹商业管理建议

#### MSW regional integrated management mode

Mode 1: Regional integrated management of fly ash and recyclables

Mode 2: co-construction or sharing of waste disposal facilities

Mode 3: Waste integrated management mode in special functional areas

Mode 4: Combination mode of regional advantages

Mode 5: Contingency plans for waste regional integrated management in emergencies

Mode 6: Recommendations on the MSW regional integrated business management in BTH

**《京津冀生活垃圾区域统筹管理机构安排建议》**  
**INSTITUTIONAL & MECHANISM RECOMMENDATIONS ON MSW**  
**REGIONAL INTEGRATED MANAGEMENT IN BTH**

### 3.3京津冀生活垃圾区域统筹管理机构安排建议

## INSTITUTIONAL & MECHANISM RECOMMENDATIONS ON MSW REGIONAL INTEGRATED MANAGEMENT IN BTH



### 报告内容

- 概述中国现有的生活垃圾管理机构体系；
- 以美国、日本为例介绍了国际上三类典型的生活垃圾管理机构体系；
- 分析中国现有的管理机构体系对京津冀生活垃圾区域统筹管理的障碍。
- 对京津冀生活垃圾区域统筹管理的机构以及机制安排分别提出建议。



### Content

- Summarize the present MSW management system in China .
- Taking the United States and Japan as examples, introduce three typical MSW management institutions in the world.
- Analyze the obstacles to the MSW regional integrated management of BTH .
- Suggestions are put forward for the regional integrated management of MSW in BTH.



### 3.3京津冀生活垃圾区域统筹管理机构安排建议

#### INSTITUTIONAL & MECHANISM RECOMMENDATIONS ON MSW REGIONAL INTEGRATED MANAGEMENT IN BTH

- **完善现有区域统筹机构中有关生活垃圾管理职能。如在现有“京津冀协同发展领导小组“下设”京津冀协同发展领导小组办公室”；**
- Improve the functions of MSW management in existing regional coordinating agency. For example, under the existing Leading Group of Beijing-Tianjin-Hebei Coordinated Development, the Office of the Leading Group of Beijing-Tianjin-Hebei Coordinated Development is set up.
- **在京津冀地区进行垃圾管理机构改革，成立生活垃圾区域统筹的京津冀府际联席会；**
- In the Beijing-Tianjin-Hebei region, the waste management organization reform was carried out, and the Beijing-Tianjin-Hebei Provincial joint Conference for regional coordination of household waste was established.
- **推进生活垃圾管理机构的职能转化：企业全市场化管理，由工信管理部门进行行业管理考核；城市环境卫生市政部门负责本地区监督管理；生态环境保护部门对本区域污染控制进行监督；国有资产管理部门对本区域内相关企业进行利润和资本增值考核；**
- Promote the transformation of the functions of MSW management institutions: the enterprise is fully market-oriented management, and the industry and information department will conduct the industry management assessment, the municipal department shall be responsible for the supervision and administration, the department of ecological and environmental protection shall supervise the control of pollution, the administrative departments of state-owned assets shall assess the profits and capital appreciation of relevant enterprises.
- **突出非政府机构的作用：如成立京津冀行业协会等。**
- Highlight the role of non-governmental organizations, such as the establishment of the Beijing-Tianjin-Hebei Industry Association.

### 3.4京津冀生活垃圾区域统筹管理政策框架建议

#### STUDY ON THE POLICY FRAMEWORK OF MSW REGIONAL INTEGRATED MANAGEMENT IN BTH REGION



#### 报告内容

- 总结中国现有的生活垃圾监管体系、监管政策和管理标准;
- 提出应该在政策层面建立一个完整的框架促进京津冀地区生活垃圾区域统筹管理;
- 提出区域一体化政策框架应根据“国家、省、市”三个层次来设计;
- 政策框架的内容应包括规划、政策和法规三个方面;
- 要建立政府和企业的激励机制和政府间合作平台。



#### Content

- Summarize the current MSW regulatory system, regulatory policies and management standards in China.
- Propose to establish a complete policy framework for promoting the regional integrated management of MSW in BTH
- Design the policy framework of regional integrated according to the three levels of "country, province and city".
- The content of policy framework include three aspects: planning, policy and regulation.
- Establish an incentive mechanism for governments and enterprises and an inter-governmental cooperation platform.

**《京津冀生活垃圾区域统筹管理成本分析及生态补偿建议》**  
**COST ANALYSIS AND ECOLOGICAL COMPENSATION RECOMMENDATIONS**

# 3.5京津冀生活垃圾区域统筹管理成本分析及生态补偿建议

## COST ANALYSIS AND ECOLOGICAL COMPENSATION RECOMMENDATIONS



### 报告内容

- 调研各行政区地理距离和生活垃圾处理成本数据；
- 分析不同服务半径时的垃圾管理显性成本；
- 比较30km服务半径内，属地管理模式和区域统筹模式下的垃圾管理全流程显性成本；
- 分析生活垃圾区域统筹管理的经济优势；
- 同时，基于隐性成本概念在垃圾区域统筹管理模式下引入生态补偿理念，并提出了生态补偿标准和补偿途径建议。



### Content

- Investigate the geographical distance of each administrative region and the cost data of MSW disposal.
- Analyze the explicit cost of MSW with different service radius .
- Compare the explicit cost of the whole process of waste management within the 30km service radius between the territorial management mode and the regional integrated management mode.
- Analyze the economic advantages of regional integrated management of MSW.
- At the same time, based on the concept of hidden cost, introduce the concept of ecological compensation in the MSW regional integrated management mode, and propose the ecological compensation standard and compensation approach.

## 3.5京津冀生活垃圾区域统筹管理成本分析及生态补偿建议

### COST ANALYSIS AND ECOLOGICAL COMPENSATION RECOMMENDATIONS

#### 管理成本分析及生态补偿建议

- 通过比较10km、20km、30km、40km和50km服务半径成本，发现30km收运半径的垃圾区域统筹的综合成本最低；
- Comparing the cost of 10km, 20km, 30km, 40km and 50km service radius, 30km radius has the lowest overall cost.
- 建立跨区域垃圾处理生态补偿机制，有助于减缓“邻避效应”等问题；
- Establishing ecological compensation mechanism is helpful for alleviating the "NIMby effect" and other problems.
- 生态补偿模式应以间接补偿为主、直接补偿为辅，并建立第三方监督机制；
- The mode of ecological compensation are mainly indirect compensation, supplemented by direct compensation, and establish a third party supervision mechanism.
- 在生态补偿制度下的生活垃圾区域统筹模式，考虑土地商用价值，可以节约垃圾处理全流程显性成本、提高垃圾输入地财政收入，也能改善垃圾输出地生态环境和提高土地使用经济效益；
- Under the ecological compensation system, considering the commercial value of land, the explicit cost of the whole process will be saved, improve the fiscal revenue of the waste input area, improve the ecological environment and the economic benefits of land use of the waste output area.
- 同时，建议在土地价值相差大的行政区间推行垃圾统筹管理，并选用垃圾产生量小、土地使用权价值低的区域为处理设施所在地。
- At the same time, propose to carry out regional integrated management in administrative areas with large land value differences, and select the areas with small waste production and low land value as the location of treatment facilities.

**请各位领导专家批评指正**  
**THANKS!**