



# Technical Assistance Consultant's Report

---

Project Number: 51004  
January 2018

## People's Republic of China: Preparing Air Quality Improvement Program (2017–2019) in the Greater Beijing-Tianjin-Hebei Region (Financed by ADB's Technical Assistance Special Fund and the Clean Energy Fund under the Clean Energy Financing Partnership Facility)

Prepared by Ricardo-AEA Ltd.

For China Energy Conservation and Environmental Protection Group Huayu Fund Management Co., Ltd.

This consultant's report does not necessarily reflect the views of ADB or the Government concerned, and ADB and the Government cannot be held liable for its contents. (For project preparatory technical assistance: All the views expressed herein may not be incorporated into the proposed project's design.)

Asian Development Bank



## Inception Report- TA-9309 PRC

### 启动报告 - TA-9309 PRC

Preparing Air Quality Improvement Program (2017 – 2019) in the Greater Beijing-Tianjin-Hebei Region

大京津冀地区空气质量改善项目(2017-2019)筹备工作

---

Report for Asian Development Bank

亚洲开发银行报告

Contract 134668-S53107

第 134668-S53107 号合同

## Customer:

### 客户

**Asian Development Bank**  
亚洲开发银行

## Customer reference:

### 客户参考号:

Contract TA-9309 PRC  
第 TA-9309 PRC 号合同

## Confidentiality, copyright & reproduction:

### 保密、版权与复制

This report is the Copyright of Asian Development Bank. It has been prepared by Ricardo Energy & Environment, a trading name of Ricardo-AEA Ltd, under contract to Asian Development Bank dated 31/10/2017. The contents of this report may not be reproduced in whole or in part, nor passed to any organisation or person without the specific prior written permission of **Asian Development Bank**. Ricardo Energy & Environment accepts no liability whatsoever to any third party for any loss or damage arising from any interpretation or use of the information contained in this report, or reliance on any views expressed therein.

本报告版权为亚洲开发银行所有。本报告由里卡多能源环境公司（Ricardo-AEA 公司的商业名称）依照于 2017 年 10 月 31 日与亚洲开发银行签订的合同编制。未经亚洲开发银行事先具体书面许可，不得复制本报告的全部或部分內容，亦不得向任何机构或个人传阅。对于任何第三方因解读或使用本报告所含信息或依赖本报告所示观点而产生的任何损失或损害，里卡多能源环境公司不承担任何责任。

## Contact:

### 联系人

Mark Broomfield  
Ricardo Energy & Environment  
Gemini Building, Harwell, Didcot, OX11 0QR,  
United Kingdom

t: +44 (0) 1235 75 3493

电话: +44 (0) 1235 75 3493

e: [mark.broomfield@ricardo.com](mailto:mark.broomfield@ricardo.com)

电邮: [mark.broomfield@ricardo.com](mailto:mark.broomfield@ricardo.com)

Ricardo-AEA Ltd is certificated to ISO9001 and ISO14001

Ricardo-AEA 公司通过 ISO9001 和 ISO14001 标准认证。

## Author:

### 作者:

Mark Broomfield、Scott Hamilton、Michel Vedrenne、Ben Grebot、Tianlin Niu

## Approved by:

### 批准人:

Ben Grebot

## Date:

### 日期:

03 January 2018  
2018 年 1 月 3 日

## Ricardo Energy & Environment reference:

里卡多能源与环境公司参考号:

Ref: ED10548\_Inception: Issue Number 1  
参考号: ED10548\_Inception: 期号 1

# Table of contents

## 目录

<b>1</b>	<b>Introduction 简介</b> .....	<b>1</b>
1.1	Context 背景环境.....	1
1.2	Preceding studies 前期研究.....	1
1.3	This project 关于本项目.....	2
1.4	This report 关于本报告.....	2
<b>2</b>	<b>Work carried out to date 迄今已开展的工作</b> .....	<b>4</b>
2.1	Project inception meeting 项目启动会议.....	4
2.2	Data provision 数据的提供.....	8
2.3	Sector breakdown 部门细分.....	11
<b>3</b>	<b>Project programme and delivery 项目方案与交付</b> .....	<b>14</b>
3.1	Changing policy landscape 快速变化的政策格局.....	14
3.2	Expected project outcomes 项目预期成果.....	14
<b>4</b>	<b>Next steps 后续步骤</b> .....	<b>18</b>
4.1	Plans for workshops 研讨会计划.....	18
4.2	Data receipt 数据的接收.....	18
4.3	Project timetable 项目时间表.....	18
<b>5</b>	<b>Project risk assessment 项目风险评估</b> .....	<b>26</b>

## Appendices

### 附录

Appendix 1: Meeting notes from the project inception meeting

附录 1: 项目启动会议记录

Appendix 2: Meeting notes from the project inception follow-up meeting

附录 2: 项目启动后续会议记录

# 1 Introduction 简介

## 1.1 Context 背景环境

During recent decades, China has experienced a rapid economic growth characterised by high energy consumption and high pollutant emissions bringing poor air quality in many regions. The Northeast of China is particularly susceptible to high air pollution episodes - both damaging to the environment and to human health. Management of air pollution in order to improve the quality of life for its citizens as well as the well-being of the environment is a high priority for China. The greater Beijing-Tianjin-Hebei (BTH) region is one of the largest and most dynamic zones in northern China with poor air quality produced by rapid and unsustainable expansion and urbanization with seven of its cities being amongst the ten most polluted in China in 2015. It also includes the provinces of Henan, Shandong, Shanxi, Liaoning as well as the Inner Mongolia Autonomous Region.

近几十年来，中国迎来了以高能耗和高污染排放量为特征的经济高速发展，致使众多地区空气质量下降。尤其是中国东北地区高浓度空气污染事件频发，对环境和人类健康均造成了伤害。对空气污染现象进行管理进而提高国民生活质量和环境福祉，是中国政府的一大要务。大京津冀(BTH)地区是中国北方面积最大、最具发展活力的区域之一，由于不可持续的迅速扩张和快速的城市化进程，该地区空气质量持续恶化。在 2015 年全国十大污染城市中，京津冀城市群中有七个上榜。该地区还包括河南省、山东省、陕西省、辽宁省和内蒙古自治区。

The Asian Development Bank (ADB) has provided a series of loans and technical assistance (TA) projects to support green investment, regulatory reform and pollution reduction programmes in the Greater BTH region. In order for this region to see a sustained and effective improvement in air quality, action should translate into the application of cost-effective measures aimed at the most relevant sources.

亚洲开发银行(ADB)设立了一系列贷款和技术援助项目，意在支持大京津冀地区的绿色投资、监管改革和污染减排行动。为持续有效地改善该地区的空气质量，应积极转化行动，有针对性地对相关源头采取低成本高效益的措施。

In order to identify these measures, the development of an evidence base is necessary to build an air quality plan that is credible and fit-for-purpose in the region and to improve the coordination between national, regional and local authorities in their abatement strategies. The selection of measures is usually supported by air quality and emissions modelling alongside cost-benefit analysis, which in turn is underpinned by information on national, regional and local emission sources as well as the application of mathematical models able to describe the transformations and transportation of pollutants over long distances in the atmosphere.

要确定具体应采取的措施，必须确立实证基础，以便制定契合当地具体情况、切实可行的空气质量计划，以及提高国家、地区和当地政府部门在缓和策略方面的协作水平。选择措施时，通常会辅以空气质量和排放建模以及成本效益分析，而后者基础则是国家、地区和当地排放源信息以及对数学模型的应用。数学模型能够描绘污染物质在大气中的转化和长距离传播情况。

## 1.2 Preceding studies 前期研究

In 2016 Ricardo completed the project "Improving China's Air Pollution – A case study to inform low emission transport strategies in Jinan City", funded by the UK Government through the Structural Prosperity Fund (SPF) of the Foreign & Commonwealth Office. Its main objective was to identify the most relevant sources of pollution in the city of Jinan (Shandong Province). This was made through a source-apportionment exercise, which identified the relative contribution of emission sectors to the ambient air quality levels of Jinan and which was informed by the application of emissions and air quality modelling. This identification process is usually the first step in the elaboration of an air quality plan, as it will indicate those emission sources that contribute the most to pollution allowing for the

identification and design of targeted abatement measures and supporting policies focused on the most important sources.

2016 年，里卡多完成了“改善中国空气污染现状 - 案例研究：完善济南市低排放交通策略”项目。该项目由英国政府通过英国外交及联邦事务部中国繁荣战略项目基金(SPF)提供资金支持。该项目的主要目标在于确定（山东省）济南市的最大污染源。项目以源解析活动为手段，确定了导致济南目前环境空气质量水平的相关排放行业，相关信息则由排放和空气质量建模提供。这一鉴定过程通常是细化空气质量计划的第一步，因为鉴定结果将表明哪些是对污染影响最大的排放源，从而创造条件以确立与筹划有针对性的缓解措施和以最主要排放源为重心的配套政策。

In addition to this, Ricardo developed a TA project for ADB as part of Contracts 133824-S93600 and 133826-S93601 / TA-9034 PRC Developing Cost-Effective Policies and Investments to Achieve Climate and Air Quality Goals in the Beijing-Tianjin-Hebei Region -International Air Quality Policy Specialist and International Air Quality Modelling Expert Specialist (49388-001).<sup>1</sup> The overall objective of this work was to develop a sufficient evidence base for the evaluation of targeted pollution reduction measures, using the modelling tools and resources that were generated for the SPF project for Jinan City. This ADB contract has involved the development of a long-list of possible policies and measures, refinement to produce a short list applicable for Jinan City and their subsequent evaluation in terms of impacts on emissions, local air quality, health and costs. The findings and conclusions of this project – as well as the methodologies developed – are directly applicable to other cities in other parts of China (and beyond).

除此之外，里卡多还为亚洲开发银行成立了技术援助项目，作为第 133824-S93600 号和第 133826-S93601 / TA-9034 PRC 号合同的一部分：制定具有成本效益的政策和投资，实现京津冀地区气候与空气质量目标 - 国际空气质量政策与国际空气质量建模专家(49388-001)。此次工作的总体目标在于利用建模工具和为济南市 SPF 项目生成的资源，为评估有针对性的污染减排措施确立充分的实证基础。此亚洲开发银行合同包括制定一长列可能的政策和措施，然后精炼到一份适用于济南市的简短清单，并就对排放、当地空气质量、卫生健康和成本等方面的影响对清单内容进行后续评估。此项目的调查结果和结论 - 以及所制定的方法 - 直接适用于中国（以及其他国家/地区）其他地区的其他城市。

### 1.3 This project 关于本项目

In this context, ADB now requires a source apportionment study and the identification, design and evaluation of appropriate policies and measures for the reduction of air pollution in three cities of the BTH region, building on the findings and methodology of the previous FCO and ADB TA projects delivered by Ricardo. The project will implement and extend the developed methodologies and approaches to three cities in the BTH region, with the goal of better informing policy making and the allocation of financial resources aimed at improving air quality in such a critical region of China.

在这一背景下，亚洲开发银行现要求以里卡多先前交付的 FCO 和 ADB 技术援助项目调研结果和方法为基础，展开源解析研究并确定、筹划和评估相应政策与措施，以减少京津冀地区三座城市的空气污染。本项目会将已确立的方式方法实施和延伸到京津冀地区三大城市，目的是为决策过程提供更准确的信息来源与合理分配财政资源，最终改善中国这一关键区域的空气质量。

### 1.4 This report 关于本报告

This document comprises the Inception Report for the study of air quality improvements in three cities in the BTH region (ADB project reference TA-9309 PRC). It includes the items agreed at the Project Inception meeting as well as the follow up meeting held between ADB and Ricardo.

<sup>1</sup> Grebot, B. and Hamilton, S., (2017). "Technical Assistance 9034 PRC. Developing cost-effective policies and investments to achieve climate and air quality goals in the Beijing-Tianjin-Hebei Region – International Air Quality Policy Specialist & International Air Quality Modelling Specialist (49388-001)," Report for Asian Development Bank. Contract 133824-S93600 & 133826-S93601. Didcot, United Kingdom.

<sup>1</sup> Grebot, B. and Hamilton, S., (2017). “技术协助 9034 PRC. 制定具有成本效益的政策和投资，实现京津冀地区气候与空气质量目标 - 国际空气质量政策与国际空气质量建模专家(49388-001)” 亚洲开发银行报告。合同 133824-S93600 与 133826-S93601。英国迪德科特。

本文档构成京津冀地区三大城市空气质量改善研究初始报告（亚洲开发银行项目参考号 TA-9309 PRC）。本文档囊括亚洲开发银行与里卡多在项目启动会议及后续会议上约定的各条款。

## 2 Work carried out to date 迄今已开展的工作

### 2.1 Project inception meeting 项目启动会议

A project inception meeting and internal follow-up meeting were held on 5 and 6 December 2017. Meeting notes from the project inception meeting are provided in Appendix 1 and notes from the follow-up meeting are provided in Appendix 2. Four presentations delivered at the project inception meeting are provided in Appendix 3:

项目启动会议及内部后续会议于 2017 年 12 月 5 日、6 日举行。附录 1 为项目启动会议记录，附录 2 为后续会议记录。项目启动会议上展示了四份演示报告（请见附录 3）：

- (a) “ADB and Air Quality Improvement in BTH Region”  
《亚洲开发银行与京津冀地区空气质量的改善》  
Presented by Ms Yun Zhou, ADB  
演讲人：亚洲开发银行周云女士
- (b) “ADB project TA-9309 PRC: Preparing Air Quality Improvement Program (2017-2019) in the Greater Beijing–Tianjin–Hebei Region”  
《亚洲开发银行第 TA-9309 PRC 号项目：大京津冀地区空气质量改善项目的筹备 (2017 - 2019)》  
Presented by Dr Mark Broomfield, Ricardo  
演讲人：里卡多 Mark Broomfield 博士
- (c) “Air Quality Improvement Policy in the BTH Region: Challenges and Recommendations”  
《京津冀区域空气质量改善政策：挑战与建议》  
Presented by Dr Feng Dong Zhan, CAEP  
演讲人：中国工程物理研究院 Feng Dong Zhan 博士
- (d) “The Current Situation of Atmospheric Pollution in Changzhi City and Recent Policy”  
《长治市大气环境污染现状及最新出台的政策》  
Mr Jihu Hang, Deputy Director General of Changzhi EPB  
长治市环保局副局长杭继虎

Key points arising from the project inception meeting included the following:

项目启动会议提出以下要点：

- Air quality has improved across the region in recent years, but levels of air pollutants remain high.
- 近年来，该地区空气质量有所改善，但空气污染物水平仍然居高不下。
- Baoding has been severely polluted in recent years, but more recently significant improvements have been made, resulting in a 42% reduction in PM2.5 levels since 2012, and reductions in levels of other pollutants.
- 保定近年来污染严重，但最近亦取得重大进展，PM2.5 指数较 2012 年下降 42%，其他污染物水平也有所降低。
- This project is designed to provide information on the sources of measured levels of air pollution in three cities in Greater BTH region, and to provide technical and economic evaluation of potential future policy measures to improve air quality in these cities.
- 本项目旨在提供有关大京津冀地区三大城市实测空气污染来源的信息，并对潜在未来政策措施进行技术和经济评估，进而改善这些城市的空气质量。



- The three cities identified for inclusion in this study are: Baoding, Changzhi and Xingtai. These cities have been selected in view of the high levels of air pollution in the past, the positive response from local partners, and the relevance of these cities to addressing similar air quality concerns in other cities in Greater BTH region and elsewhere in China.
- 本研究涉及的三大城市为：保定、长治和邢台。选择这三个城市，是因为它们过去空气污染严重，当地合作伙伴积极响应，并且在解决大京津冀地区其他城市和中国其他地区的类似空气质量问题方面具有关联意义。
- The methodology developed and used in Ricardo's study of air quality improvements in Jinan will be further improved, and used to investigate air quality in the three case study cities for 2020, 2025 and 2030. The model will be used to develop specific policy recommendations for key sectors ("sector roadmaps").
- 本项目将对里卡多在济南空气质量改善研究中开发和使用的方法进行进一步优化，并利用优化后的方法来调查这三个案例研究城市在 2020 年、2025 年和 2030 年的空气质量。项目将利用模型为关键部门确定具体政策建议（“部门路线图”）。
- Current policies are focusing on moving from coal to gas (e.g. for industry and for domestic heating), enforcement of existing controls, improving officer capabilities, reducing diesel vehicle emissions, construction dust, and response to air pollution episodes due to adverse weather conditions. As this is a very active area of policy development, the study will need to account for new policies relevant to air quality. This can be achieved using the flexible modelling framework to add value to existing policies. A longer timescale for analysis will also add value rather than focussing on the next few years where a number of policies and measures are already planned.
- 当前政策侧重于煤转气（例如工业和生活供热）、加强现有控制措施、提升公务人员能力、减少柴油车排放量和建筑灰尘，以及响应由恶劣天气状况导致的空气污染事件。作为政策制定的热门课题，本研究需要考虑到空气质量相关新政。为此，可使用灵活建模框架来为现有政策增值。相较于专注于未来数年（此时已经规划了一系列政策与措施），较长的分析期限亦可增值。
- This project can help to design differentiated policies for the three case study cities which reflect specific conditions in these cities, which have already made significant progress in improving air quality. The project should align with national air quality standards and related actions, and include a focus on implementation of policies.
- 本项目有助于针对上述三个参与案例研究的城市规划出差异化的政策，这些政策应反映出各城市的具体状况，并已在空气质量的改善方面取得重大进展。项目应与国家空气质量标准及相关行动相一致，并侧重于各项政策的实施。
- The project should be problem-oriented, addressing the problems identified and dealing with weaknesses identified in the existing pollution controls.
- 本项目应以问题为导向，解决发现的问题，并消除在控制现有污染的过程中鉴别出的弱项。
- Liaison with Chinese Research Academy of Environmental Sciences (CRAES), National Environmental Monitoring Center, City EPBs, Provincial EPBs and local land bureaus may be useful to obtain relevant data. There may be scope to use the project contingency budget to procure data from some of these organisations where it would add value to the project.
- 可以通过中国环境科学研究院(CRAES)、中国环境监测总站、市环保局、省环保厅和当地国土资源局的关系人获取相关数据。可以使用项目应急预算从其中部分机构获取数据，从而为项目增值。
- There are links to the "One City One Strategy" initiative, and the "2 + 26 Cities" program which are being implemented in Greater BTH region and are designed to identify short-term policy response measures to air pollution impacts in the 28 subject cities. CRAES is a key partner in co-ordinating with work under this initiative.
- 项目与大京津冀地区目前正在落实的“一城一策”行动计划和“2+26 城市”方案均有关联，旨在确定这 28 个主体城市对空气污染影响的短期政策应对措施。中国环境科学研究院是此行动计划下的重要协作伙伴。

The actions from the main project inception meeting were as follows:

主要项目启动会议通过了以下行动:

- Ricardo** to discuss inventory and meteorological information on Baoding and Xingtai held by CRAES and Tsinghua University, and information on Changzhi held by North China Electric Power University, and identify how this could best be used in this project.  
里卡多将就中国环境科学研究院和清华大学掌握的保定市与邢台市排放清单及气象信息展开论述, 就华北电力大学掌握的长治市相关信息展开论述, 并确定这些信息在本项目中的最佳利用方式。  
*Initial discussions have taken place. See Section 2.2 below.*  
*已展开初步讨论。请见下文第 2.2 节。*
- Ricardo** to contact Changzhi and Baoding representatives to progress data collection.  
里卡多将联系长治市和保定市相关代表以推进数据收集进程。  
*Not yet progressed*  
*尚未取得进展*
- ADB** to continue engagement with Xingtai representatives with the aim of involving Xingtai as the third case study city.  
亚洲开发银行将继续与邢台市相关代表保持联系, 争取让邢台市作为第三个案例研究城市参与进来。  
*Xingtai EPB not able to contribute directly so far: progress assessment via other partners*  
*邢台市环保局迄今无法直接出力: 通过其他合作伙伴推进评估*
- ADB/Ricardo** to contact city representatives to propose a plan for workshop timings and content in 2018. Workshops will cover data provision, air quality policy setting, enforcement and monitoring.  
亚洲开发银行/里卡多将联系各市相关代表, 以拟定 2018 年研讨会时间和内容计划。研讨会将涵盖数据的准备以及空气质量政策的制定、实施和监测。  
*Workshop scheduled for week commencing 19 March*  
*按计划, 研讨会将于 3 月 19 日举办, 为时一周*
- Ricardo** to obtain provincial level monitoring data via provincial or city EPBs.  
里卡多将通过省环保厅或市环保局获取省级监测数据。  
*Not yet progressed*  
*尚未取得进展*
- Ricardo** to liaise with CRAES and/or National Environmental Monitoring Center to obtain data on major industrial point sources.  
里卡多将联系中国环境科学研究院和/或中国环境监测总站, 获取主要工业点源相关数据。  
*Initial discussions have taken place. See Section 2.2 below.*  
*已进行初步讨论。请见下文第 2.2 节。*

The actions from the project inception follow-up meeting were as follows:

项目启动后续会议通过了以下行动:

- Ricardo** to contact Changzhi to progress data acquisition  
里卡多将联系长治市推进数据采集进程  
*Combine with Inception Meeting Action 2*  
*结合启动会议第 2 项行动*

2. **Ricardo** to follow up with Mr Hang from Baoding to identify colleagues for further discussion  
In the event of any difficulties in obtaining data, Ricardo-AEA will contact ADB.  
里卡多将跟进保定市杭继虎副局长的进展，确定还有哪些同事将参与进一步讨论。如若获取数据遇到困难，Ricardo-AEA 将联系亚洲开发银行。  
*Combine with Inception Meeting Action 2*  
*结合启动会议第 2 项行动*
3. **Ricardo** to discuss with CRAES regarding data for Baoding and Xingtai  
里卡多将与中国环境科学研究院就保定市和邢台市数据进行协商  
*Initial discussions have taken place. See Section 2.2 below.*  
*已展开初步讨论。请见下文第 2.2 节。*
4. **Ricardo** to discuss arrangements for use of project contingency with Precious Dungca (ADB contract support) if needed for data acquisition.  
里卡多将与 Precious Dungca（亚洲开发银行合同支持人员）探讨项目应急资金的使用安排（如有数据采集需要）  
*Not yet progressed as aiming to understand data available and likely costs for procurement first.*  
*就首先理解可用数据和预计采购成本而言，尚未取得进展。*
5. **Ricardo** to liaise with province or city EPBs to obtain monitoring data and/or meteorological data  
里卡多将联系省环保厅或市环保局以获取监测数据和/或气象数据  
*Combine with Inception Meeting Action 5*  
*结合启动会议第 5 项行动*
6. **Ricardo** to liaise with CRAES to secure point source emissions data and also contact the NEMC  
里卡多将联系中国环境科学研究院取得点源排放数据，同时还需联系中国环境监测总站  
*Combine with Inception Meeting Action 5*  
*结合启动会议第 5 项行动*
7. **Ricardo** to liaise with Tsinghua University regarding provision of MEIC data  
里卡多将就 MEIC 数据的准备工作联系清华大学  
*Initial discussions have taken place. See Section 2.2 below*  
*已展开初步讨论。请见下文第 2.2 节。*
8. **ADB** to follow up with Hebei DRC and Hebei EPB to secure involvement of Xingtai  
亚洲开发银行将跟进河北省发改委与河北省环保厅的进展，争取让邢台市参与到项目中  
*Xingtai EPB not able to contribute directly at present: progress assessment via other partners*  
*邢台市环保局目前无法直接出力：通过其他合作伙伴推进评估*
9. **Ricardo/ADB** to hold update conference call to discuss progress on 4 January 2018 at 8.30 am UK / 4.30 pm Manila/Beijing  
里卡多/亚洲开发银行将于英国时间 2018 年 1 月 4 日上午 8 时 30 分（北京/马尼拉时间下午 4 时 30 分）举行最新情况通报电话会议，讨论相关进展。
10. **Ricardo** to circulate draft inception meeting notes by 15/12/17.  
里卡多将于 2017 年 12 月 15 日之前分发启动会议记录草稿。  
*Done*  
*已完成*

11. **ADB** to circulate finalised Inception Meeting notes to city partners in ADB format, with director signature.  
亚洲开发银行将向各城市合作伙伴分发附有负责人签名的启动会议记录终稿（亚洲开发银行自有格式）。

## 2.2 Data provision 数据的提供

Our preliminary view of data requirements and likely data sources/providers is set out in Table 1.

有关我们对数据需求和可能数据源/提供方的初步看法，请见表 1。

**Table 1: Data requirements and potential sources**

**表 1：数据需求和潜在来源**

Item 名称	Item no. 编号	Parameter 参数	Comment and potential data source 备注与潜在数据源
<b>1. Meteorology</b> 气象状态			
<b>Data from at least one station close to the city (e.g. City Airport) and one outside the city</b> 至少一个城市附近（例如城市机场）观测站和一个城市外观测站数据	1.1	Wind speed 风速	Usually other parameters such as temperature, pressure and humidity would be contained in the same dataset and would be useful if available 一般来说，温度、气压和湿度等参数会包含在同一个数据库，如果可以和风速一起提供是最理想的。
	1.2	Wind direction 风向	Open source data are available 有开源数据可供使用 It may be possible to supplement with local data 可以补充当地数据 To discuss with EPBs 需与环保局讨论
<b>2. City emissions data</b> 城市排放数据			
<b>Items 2.1 to 2.3 could come from traffic count locations in the city</b> 2.1 到 2.3 的数据可以通过城市交通观测点获取	2.1	Traffic flow data (manual or automatic count) 交通流量数据（手动或自动统计）	Data likely to reside with Transport Department or Police 数据可能属于当地交通部门或警方 CRAES does not hold this data 中国环境科学研究院不掌握此数据
	2.2	Vehicle type (manual or automatic observation) 车辆类型（手动或自动观测）	To discuss availability of city-level traffic count data with EPBs 需要与环保局讨论市级交通观测数据的可用性
	2.3	Average speed (manual or automatic observation) 平均速度（手动或自动观测）	Data may potentially also be available via Professor Wu at Tsinghua University. 或许还可以联系清华大学 Wu（吴）教授获取数据
<b>Items 2.4 to 2.6 could come from a</b>	2.4	Traffic count data (modelled)	Data would normally reside with Transport Department

Item 名称	Item no. 编号	Parameter 参数	Comment and potential data source 备注与潜在数据源
<b>traffic model, if available.</b> 2.4至2.6可以从交通模型中获得(如果有)		交通观测数据(模拟值)	通常情况下,数据由交警部门保管 CRAES does not hold this data
	2.5	Vehicle type (modelled) 车辆类型(模拟值)	中国环境科学研究院不掌握此数据 To discuss availability of city-level traffic model data with EPBs
	2.6	Average speed (modelled) 平均速度(模拟值)	需要与环保局讨论市级交通模型数据的可用性 Data may potentially also be available via Professor Wu at Tsinghua University. 或许还可以联系清华大学吴教授获取数据
<b>Data on industrial and power sector emissions – e.g. emissions measurements, permitted limits, or emissions ceilings</b> 工业和电力部门排放数据 – 如排放监测数据、允许的最大排放量或排放限值	2.7	Emissions to atmosphere; Other parameters (height, temperature, flow, location) 大气污染物排放量;和排放高度、温度、排量、位置等参数	Data may be held by Environmental Protection Bureau 数据可能由环保局管理 Data at 3 km resolution held by CRAES (see Table 2) 三公里分辨率数据由中国环境科学研究院保管(参见表2) Individual point source data for large sources may be held by National Environmental Monitoring Center. Dr Xing has some data processed using the SMOKE model 大规模污染源的各个点源数据可能由中国环境监测总站保管。Xing(邢)博士有一些经过SMOKE模型处理的数据。
<b>City-scale air pollution emissions inventory</b> 全市范围的大气污染物排放清单	2.8	City emissions by sector 各部门领域的城市排放	Data may be held by City Environmental Protection Bureau, University or Environmental Institution 环保局、高校或环保机构可能持有相关数据 Data at 3 km resolution held by CRAES (see Table 2) 三公里分辨率数据由中国环境科学研究院保管(参见表2) Individual point source data may be held by National Environmental Monitoring Center 各个点源数据可能由中国环境监测总站保管
<b>3. Regional emissions data</b> 区域排放数据			
<b>We have access to the standard version of MEIC (0.1° x 0.1° and macro-sector resolution). Is there a regional scale inventory, which has better spatial and/or</b>	3.1	Regional emissions 区域排放	Regional/national data at 9 km resolution can be made available by Dr Xing (Tsinghua University) 清华大学 Xing(邢)博士可提供9公里分辨率的区域/国家数据

Item 名称	Item no. 编号	Parameter 参数	Comment and potential data source 备注与潜在数据源
<b>sectoral resolution?</b> 我们有标准版的MEIC清单数据 (0.1° x 0.1° 和宏观部门分辨率)。是否还有区域范围的清单 (具有更好的分辨率和更详细的部门排放信息)?			
<b>4. Air quality monitoring data</b> 空气质量监测数据			
	4.1	All measured pollutants 全部监测的污染物	Discuss with City EPBs 与市环保局商讨 Also contact Regional EPBs 同时联系区环保局
<b>5. Land use data</b> 土地利用数据			
	5.1	GIS datasets identifying zones (residential, industrial, commercial etc) 功能区域GIS数据 (识别居民区、工业区、商业区等)	We have access to some open-source resources. 我们有一些开源数据源的权限。 Data at 30 m resolution held by CRAES (see Table 2)三十公里分辨率数据由中国环境科学研究院保管 (参见表 2)
	5.2	GIS datasets identifying road links and/or industrial point sources: 道路网和/或工业源点位 (工厂位置) 的GIS数据	We have access to some open-source resources, but more detailed local data would be useful. 我们有一些开源数据源的权限, 但希望当地政府能够提供更详细的本地数据。
	5.3	Existing air quality assessments and action plans 现行的空气质量评估、行动计划、策略等	Baoding EPB agreed to provide information 保定市环保局同意提供资料 To discuss with Changzhi EPB and CRAES 需与长治市环保局和中国环境科学研究院进行商讨

Preliminary discussions have been held with CRAES in relation to the data resources held by CRAES in connection with the “2 + 26 Cities” program. CRAES holds the following data which are potentially useful for this project:

已经与中国环境科学研究院就其掌握的“2+26 城市”方案相关数据资源展开初步讨论。中国环境科学研究院掌握的以下数据可能有利于本项目的展开:

**Table 2: Data which can be made available by CRAES**

表 2: 中国环境科学研究院可提供的数据

Parameter 参数	Possibility 范围	Units 单位	Resolution 分辨率	Data form 数据形式	Period 数据时段	Comment 备注
-----------------	-------------------	-------------	-------------------	-------------------	----------------	---------------

Parameter 参数	Possibility 范围	Units 单位	Resolution 分辨率	Data form 数据形式	Period 数据时段	Comment 备注
1.Regional emissions data 区域排放数据	Grid 电网	Greater BTH region 大京津冀地区	Hourly 逐时	3km*3km 3公里*3公里	Model input-ready (e.g. *.nc if using CMAQ, respectively for each source) 数据已输入完毕的模型（例如 *.nc（如使用 CMAQ）），分别用于每一个污染源	2016-2017 4 Sources: Residential, industrial, transportation, agriculture 4个污染源： 居民区、工业区、交通道路、农业区
2. City-scale emissions data 城市范围排放数据	Grid emissions by sector 各部门领域的电网排放	3 cities 3个城市	Hourly 逐时	3km*3km 3公里*3公里	Model input-ready (e.g. *.nc if using CMAQ, respectively for each source) 数据已输入完毕的模型（例如 *.nc（如使用 CMAQ）），分别用于每一个污染源	2016-2017 5-7 classifications (as per Ricardo request) 5到7个等级（按里卡多要求）
3.GIS data GIS数据	Landuse 土地利用	3 cities 3个城市		30m*30m 30米*30米		2013-2014 23 types 23种类型
4. GIS data GIS数据	Road network 道路网	3 cities 3个城市		1km*1km 1公里*1公里		

There will be a charge for provision of this data, which will need to be carefully considered by the project team.

获取此数据时将收取一定费用，请项目团队谨慎考虑。

It is important to note that CRAES does not have data on traffic volumes/flows, or on vehicle type distribution. This may need to be sourced via the City EPBs (this was the approach adopted for the Jinan study: data were provided by the City Police department).

需要注意的是，中国环境科学研究院没有车流量或车型分布相关数据。可能需要从市环保局之处获取（济南研究便采用了此方法：数据由市警察局提供）。

### 2.3 Sector breakdown 部门细分

The ideal sector breakdown is as follows: however, we anticipate that data will not be available in this level of detail, and we will work within the parameters of what is available.

以下是理想的部门细分情况，但据我们所料，数据不会达到下述详细程度，因此我们会在可用参数范围内展开工作。

**Table 3: Ideal sector breakdown**

表 3: 理想部门细分情况

Sector 部门	Sub-sector 子部门	Further breakdown 进一步细分
1. Energy	Large power plants	Solid / Liquid / Gas fuel

Sector 部门	Sub-sector 子部门	Further breakdown 进一步细分
1.能源 1.能源	大型发电站	固体/液体/气体燃料
	District heating plants 区域供热站	Solid / Liquid / Gas fuel 固体/液体/气体燃料
	Small diesel generators 小型柴油发电机	
2. Residential 2.住宅	Heating and cooking 取暖和烹饪	Solid / Liquid / Gas fuel 固体/液体/气体燃料
3. Industrial 3.工业	Refining 提纯	
	Metals 金属	Ferrous / Non-ferrous 黑色/有色金属
	Chemicals 化学品	
	Minerals 矿物质	Glass / Other 玻璃/其他
	Pulp and paper 纸浆造纸	
	Solvent-using 使用溶剂	
4. Transport 4.交通运输	Road transport 公路运输	Car / light duty vehicle / heavy duty vehicle / bus / Motorcycle, moped, tricycle 汽车/轻型车辆/重型车辆/公共汽车/摩托车、轻便摩托车、三轮车
	Off-road transport 非公路运输	Construction machinery / Agricultural machinery / Rail / Aviation 工程机械/农用机械/铁路/航空
5. Agriculture 5.农业	Manure management 肥料管理	
	Agricultural soils 农田土壤	



Sector 部门	Sub-sector 子部门	Further breakdown 进一步细分
	Field burning 烧田	
	Liming 施用石灰	
	Other agriculture 其他农业	
Waste 废料	Managed landfill sites 妥善管理的垃圾填埋场	
	Composting 堆肥	
	Anaerobic digestion 厌氧消化	
	Incineration 焚烧	
	Waste treatment and recycling 废料处理与回收	
	Wastewater treatment 污水处理	

## 3 Project programme and delivery 项目方案与交付

### 3.1 Changing policy landscape 快速变化的政策格局

We will work closely with Dr Dong of China Academy of Environmental Planning to map out the current policy landscape. Relevant policies will be taken into account in the modelling of future air quality, taking account of the likely effectiveness of each policy in delivering the expected air quality improvement.

我们将与中国环境保护部环境规划院的 Dong（董）博士密切合作，绘制当前政策格局。在对未来空气质量建模时应将相关政策纳入考虑，并考虑到每一项政策在取得预期空气质量改善成果方面的可能效率。

One of the key advantages of this project is that, once set up, model forecasts can be rapidly updated to account for policy changes – either in response to the changing policy landscape, or to assess the effectiveness of a candidate policy initiative. At a point in time, likely to be around November 2018, we will fix the baseline scenario on the basis of the policy landscape at that time.

本项目的一大关键优势在于，模型预测设置完毕后，可迅速更新以涵盖政策变更情况 - 无论是响应快速变化的政策格局，还是评估候选政策举措的有效性。在某一时刻，可能是 2018 年 11 月，我们将依照届时的政策格局确立基线场景。

If further policy initiatives should come through after that, we will evaluate their potential air quality benefits in qualitative terms. If appropriate, and if possible within time and resource constraints, we may be able to update the baseline scenario towards the end of the project.

如果更多的政策举措安然度过这一时间段，我们将从质量方面评估其潜在空气质量效益。我们还可能会在时间和资源的限制范围内，在临近项目尾声时适当更新基线场景。

### 3.2 Expected project outcomes 项目预期成果

The planned project outcomes are:

本项目按计划应取得以下成果：

- Output 1: identification of baseline conditions and existing air quality policies and measures in the selected cities
- 成果 1：确定所选城市的基线情况、现行空气质量政策和措施
- Output 2: the development of a long list of policies and emission control scenarios and, in consultation with local stakeholders, a short list for analysis
- 成果 2：制定一长列政策和排放控制场景，然后与当地利益相关者协商确定一份简短清单以供分析
- Output 3: an economic analysis of the emission control measures
- 成果 3：对排放控制措施进行经济分析
- Output 4: a quantitative assessment of emission reductions from each measure
- 成果 4：对每一项措施的减排效果进行量化评估
- Output 5: a quantitative assessment of air quality improvements resulting from each measure
- 成果 5：对每一项措施的空气质量改善状况进行量化评估
- Output 6: a quantitative assessment of wider economic and health benefits
- 成果 6：对更广泛的经济和健康效益进行量化评估
- Output 7: an action plan for air quality policies and measures up to 2030
- 成果 7：制定 2030 年之前的空气质量政策与措施行动计划

In addition to these elements, ADB and project partners will benefit from Ricardo's expertise in the interpretation of the findings as well as in the recommendations for improved policy implementation in the region.

除此之外，亚洲开发银行与项目合作伙伴还将借助里卡多的专业知识来解读调研成果和获取在相应地区加大政策落实力度的建议。

The project deliverables specified by ADB are as follows:

亚洲开发银行明确指定项目应交付以下成果：

**Table 4: Project deliverables**

**表 4：项目交付成果**

Item 名称	Draft due 草案交付日期	Final due 终稿交付日期	Notes 注释
Inception report 初始报告	December 2017 2017 年 12 月	January 2018 2018 年 1 月	Draft report slightly delayed: no implications for overall project programme 报告草案略有延迟：不影响项目整体计划
Interim report 中期报告	July 2018 2018 年 7 月	August 2018 2018 年 8 月	Will contain draft Output 1 and Output 2, together with contents lists for Outputs 3 – 7, and draft text where possible 将涵盖成果 1 和成果 2 的草案、成果 3 至成果 7 的目录清单以及正文草稿
Final report 最终报告	June 2019 2019 年 6 月	August 2020 2020 年 8 月	Will contain Outputs 1 – 6, together with Executive Summary 将涵盖成果 1 至成果 6 以及执行摘要
Recommendations for an Air Quality Management Plan for each city 各城市空气质量管 理计划建议	June 2019 2019 年 6 月	August 2020 2020 年 8 月	Will contain Output 7, together with Executive Summary 将涵盖成果 7 以及执行摘要

We anticipate that the final project report contents will reflect the project outputs, as follows:

我们预计最终项目报告目录将反映项目成果，具体如下：

**Executive Summary**

执行摘要

1. Project context and introduction 项目背景环境和简介
2. Study methodology 研究方法
  - Data acquisition 数据采集
  - Air quality model methodology 空气质量建模方法
  - Economic assessment methodology 经济评估方法

- Air quality action plan development, including stakeholder consultation 空气质量行动计划的制定，包括咨询利益相关者
- 3. Model input data 模型输入数据
  - Data provided by stakeholders 利益相关者提供的数据
  - Data generated by project team 项目团队生成的数据
  - Data secured from other sources 从其他来源获取的数据
- 4. Model results 模型结果
  - Modelled baseline concentrations of four pollutants in the three cities (Output 1). 三大城市四种污染物质的模拟基线浓度（成果 1）
  - Graphical/contour map presentations 图解/等高线图演示
  - Numerical concentration summaries (e.g. number of properties exceeding specified threshold levels; average concentrations over the city area) 数值浓度小结（例如超出规定阈值水平的属性数量；整个城市区域的平均浓度）
  - Interpretation of model results 模型结果解读
  - . Air quality management measures (Output 2) 空气质量管理措施（成果 2）
  - Long list of candidate measures for consideration in all cities 一长列候选措施，供所有城市考量
  - Key points arising from baseline model results 从基线模型结果中得出的关键点
  - Emission control scenarios assessed for each city 针对每个城市接受过评估的排放控制场景
  - Economic evaluation of air quality management measures (Outputs 3 and 6) 对空气质量管理措施的经济评估（成果 3 和成果 6）
  - Model results identifying effectiveness of each assessed measure (Outputs 4 and 5) 可确定各个已评估措施的有效性的模型结果（成果 4 和成果 5）
- 5. Recommended air quality action plan for each city (Output 7). These will include: 针对每座城市的空气质量行动计划建议（成果 7）。该建议将包括：
  - Project outline 项目大纲
  - Baseline air quality 基线空气质量
  - Potentially effective measures for improving air quality 旨在改善空气质量且潜在有效的措施
  - Economic costs and air quality benefits of improvement measures 各改善措施的经济成本和空气质量效益
  - Identification of any wider costs and benefits of improvement measures 确定各改善措施是否存在其他成本和效益
  - Recommended measures 建议措施
  - Recommended implementation and monitoring strategy 建议实施与监测策略

As discussed at the project inception meeting, unless care is taken, city-level air quality management plans will need to be appropriate for the rapidly changing policy landscape. Hence, their content may vary from what would normally be provided as part of a standard action plan. This will be kept under review as the project progresses.

依照项目启动会议进行讨论得出的结果，市级空气质量计划需要合乎日新月异的政策格局，除非已审慎制定了相关计划。因此，此空气质量计划的内容可能有异于标准行动计划。在项目推进的过程中，将对空气质量计划持续进行审核。

It may be more appropriate to develop sector roadmaps setting out the key policies and measures for each sector that could add value over and above existing and planned policies and measures. These would set out the economic costs of each potentially valuable measure identified, alongside the benefits that it would deliver in terms of pollutant reduction, health benefits, ecological benefits and the associated economic benefits of these improvements where these can be evaluated. We will identify co-benefits of policy measures where relevant – for example, measures which reduce greenhouse gas emissions and/or reduce noise impacts alongside delivering air quality improvements.

制定部门路线图可能更为妥当，此路线图除列出现行和已规划政策与措施之外，还应列出各个部门的可增值关键政策与措施。路线图将阐述已确定的每项潜在宝贵措施的经济成本，以及每项措施在减少污染方面可实现的效益、健康效益、生态效益和改善后的相关经济效益（在各项效益可评估的情况下）。我们将确定相关的政策措施协同效益，例如，有些措施既降低了温室气体排放量和/或噪音影响，又改善了空气质量。

## 4 Next steps 后续步骤

### 4.1 Plans for workshops 研讨会计划

It is proposed to hold the workshops in the three case study cities during the week commencing 19 March 2018. The workshops will be focused on two topics

计划在 2018 年 3 月 19 日起的一周内，在参与案例研究的三大城市中举办研讨会。研讨会将重点关注两项议题：

1. Provision of local data sources 提供当地数据源
2. Local policy landscape, and discussion of potential further policy measures for improving air quality 当地政策格局，并就旨在改善空气质量的未来政策措施展开讨论

During January 2018, we will contact the EPBs to discuss a number of topics, and at this time we will circulate a provisional program for the workshops.

2018 年 1 月期间，我们将联系环保局探讨一系列议题，届时我们还将分发挥行研讨会方案。

### 4.2 Data receipt 数据的接收

Discussions regarding data provision are under way. We expect to receive model input data between January and April 2018, but this is inevitably subject to co-operation from third parties.

目前正在就数据的提供情况进行协商。我们希望在 2018 年 1 月至 4 月间收到模型输入数据，但这必然取决于和第三方的合作情况。

### 4.3 Project timetable 项目时间表

The updated project timetable is shown in Table 5.

表 5 为项目最新时间表。

Some minor delays have emerged in comparison to the original project timetable, as indicated in yellow in Table 5. These do not compromise achievement of the overall project timetable.

与项目初始时间表相比，最新时间表的部分时间略有延迟，请见表 5 黄色部分。这些延迟不会影响项目整体时间表的推进。

**Table 5: Project timetable**

表 5: 项目时间表

编号	Activity <sup>1</sup> 活动 <sup>1</sup>	Months <sup>2</sup> 月份 <sup>2</sup>																							
		N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
		17	17	18	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19	19	19	19
	<b>INCEPTION</b> 启动																								
1	<b>Task 0: Inception meeting</b> 任务 0: 启动会议																								
	<b>Task 0: Internal team meetings</b> 任务 0: 内部团队会议																								
	<b>DATA ACQUISITION</b> 数据采集																								
2	<b>Task 1.1: Emission inventory</b> 任务 1.1: 排放清单																								
3	<b>Task 1.1: Baseline air quality</b> 任务 1.1: 基线空气质量																								
4	<b>Task 1.1: Meteorological data</b> 任务 1.1: 气象数据																								
5	<b>Task 1.1: In-country workshops</b>																								

编号	Activity <sup>1</sup> 活动 <sup>1</sup>	Months <sup>2</sup> 月份 <sup>2</sup>																							
		N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
		17	17	18	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19	19	19	19
	任务 1.1: 国内研讨会																								
	<b>AIR QUALITY MODELLING</b>																								
6	Task 1.1: RapidAir baseline model set up 任务 1.1: 建立 RapidAir 基线模型																								
7	Task 1.1: Integrate emissions inventory 任务 1.1: 整合排放清单																								
8	Task 1.1: Integrate city traffic model 任务 1.1: 整合城市交通模型																								
9	Task 1.2: Source apportionment 任务 1.2: 源解析																								
10	Task 1.2: Baseline model data mapping and presentation 任务 1.2: 基线模型数据映射与表示																								
11	Output 1: Baseline report 成果 1: 基线报告																								
	<b>AIR QUALITY IMPROVEMENT</b>																								



编号	Activity <sup>1</sup> 活动 <sup>1</sup>	Months <sup>2</sup> 月份 <sup>2</sup>																							
		N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
		17	17	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19	19	19	19	19
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
空气质量改善																									
12	<b>Task 2: Develop scenarios</b> 任务 2: 确定场景																								
13	<b>Output 2: Long list of controls</b> 成果 2: 一长列控制措施																								
14	<b>Task 3.1: Economic assessment</b> 任务 3.1: 经济评估																								
15	<b>Output 3: Economic analysis</b> 成果 3: 经济分析																								
16	<b>Task 3.2: Assess emission benefits</b> 任务 3.2: 评估排放效益																								
17	<b>Output 4: Emissions reductions</b> 成果 4: 减排																								
18	<b>Task 3.3: Assess air quality benefits</b> 任务 3.3: 评估空气质量效益																								
19	<b>Output 5: Ambient concentration</b>																								


编号	Activity <sup>1</sup> 活动 <sup>1</sup>	Months <sup>2</sup> 月份 <sup>2</sup>																							
		N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
		17	17	18	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19	19	19	19
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
	improvements 成果 5: 环境浓度改善																								
	AIR QUALITY ACTION PLAN 空气质量行动计划																								
20	Task 5: Describe baseline air quality 任务 5: 描述基线空气质量																								
21	Task 5: Identify optimum actions 任务 5: 确定最佳行动																								
22	Task 5: Describe air quality following implementation 任务 5: 描述实施措施后的空气质量																								
23	Task 4: Assess wider benefits 任务 4: 评估更广泛的效益																								
24	Output 6: Wider benefits 成果 6: 更广泛的效益																								
25	Task 5: Communications and implementation strategy																								


编号	Activity <sup>1</sup> 活动 <sup>1</sup>	Months <sup>2</sup> 月份 <sup>2</sup>																							
		N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
		17	17	18	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19	19	19	19
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
		年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年
		月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月
	任务 5: 沟通和实施策略																								
	Output 7: Final action plan 成果 7: 行动计划终稿																								
	REPORTING & MANAGEMENT 报告与管理																								
26a	Draft Inception report 初始报告草案			D																					
26b	ADB review 亚洲开发银行审核																								
26c	Final Inception report 启动报告终稿			F																					
27a	Draft Interim report 中期报告草案																								
27b	ADB review 亚洲开发银行审核																								
27c	Interim workshop 中期研讨会																								


编号	Activity <sup>1</sup> 活动 <sup>1</sup>	Months <sup>2</sup> 月份 <sup>2</sup>																							
		N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
		17	17	18	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19	19	19	19
		11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
		年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年	年
		月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月	月
27d	Final Interim report 中期报告终稿										F														
28a	Draft Final report / Action Plan 最终报告/行动计划草案																								
28b	ADB review 亚洲开发银行审核																								
28c	Final workshop 最终研讨会																								
28d	Final report and Action Plan 最终报告和行动计划																								
29	Monthly progress update 月度进展更新		●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●			

D: Draft report      F: Final report      O: Project Output      ●: Monthly progress update

D: 报告草案      F: 报告终稿      O: 项目成果      ●: 月度进展更新

 No change from original timetable  
与初始时间表一致

 Slippage from original timetable, no implications for overall delivery  
较初始时间表延后，不影响整体交付

 **Slippage from original timetable, no implications for overall delivery**  
较初始时间表延后，不影响整体交付

## 5 Project risk assessment 项目风险评估

The project risk assessment is set out in Table 6. This provides an indication of potential project risks, and the measures that are being adopted to mitigate these risks.

项目风险评估情况请见表 6。该表指出了本项目的潜在风险，并列出了目前为缓和这些风险而采取的措施。

**Table 6: Project risk assessment matrix**

表 6: 项目风险评估矩阵

Risk 风险	Severity 严重性	Likelihood 发生概率	Mitigation measures 缓和措施
Access to data sources 数据源访问权限	Medium 中	Medium 中	<ul style="list-style-type: none"> <li>• Early engagement with data custodians, including local EPBs, CRAES, NEMC</li> <li>• 尽早联系数据保管机构，包括当地环保局、中国环境科学研究院和中国环境监测总站</li> <li>• CRAES provided positive response and opportunity to obtain 3 km x 3 km grid data with payment.</li> <li>• 中国环境科学研究院积极响应并提供了 3 公里×3 公里电网数据（付费）</li> <li>• The modelling project could proceed based on publicly available data in any case though the results would not be as accurate</li> <li>• 总之，此建模项目得以在公开数据的基础上继续推进，但结果可能不够准确</li> <li>• ADB influence will help overcome some of the issues faced in Jinan</li> <li>• 亚洲开发银行的影响力有助于解决一些与济南项目相同的问题</li> <li>• Tsinghua University holds MEIC inventory data and other resources: Professor Xing from Tsinghua University is on the project team</li> <li>• 清华大学掌握 MEIC 清单数据和其他资源：清华大学的 Xing（邢）教授参与了本项目</li> <li>• Ricardo is in discussions with Professor Wu of Tsinghua University regarding provision of traffic data for other cities. This may provide a route for securing traffic data if needed.</li> <li>• 里卡多正在与清华大学 Wu（吴）教授商讨提供其他城市交通数据的事宜。这样便有机会在必要时获取交通数据。</li> <li>• Local measurements in the cities may be difficult to obtain based on experience in Jinan. ADB and/or local EPBs could provide influence and help us to source this important dataset.</li> <li>• 根据在济南时的经验，获取城市当地实测数据可能会有难度。亚洲开发银行和/或当地环保局可发挥自身影响力，帮助我们获取这一重要数据集。</li> </ul>

Risk 风险	Severity 严重性	Likelihood 发生概率	Mitigation measures 缓和措施
			<ul style="list-style-type: none"> <li>Ricardo will provide a comprehensive data request specific to the cities of interest- we will also provide a timescale for provision of the data so as to support the timelines of this assignment</li> <li>里卡多会针对相关城市提出全方位的数据请求，我们也会限定提供数据的时间，以支持这一任务的时间线。</li> </ul>
<p>Lack of engagement from relevant city, province and/or national level authorities to provide data</p> <p>在提供数据方面，缺少相关市级、省级和/或国家政府部门的参与</p>	High 高	Medium 中	<ul style="list-style-type: none"> <li>ADB influence can help us overcome this risk in partnership with local partners.</li> <li>亚洲开发银行可以联合当地合作伙伴，帮助我们消除这一风险</li> <li>Strong engagement from Changzhi representatives at inception stage</li> <li>加强长治市相关代表在启动阶段的参与力度</li> <li>Less commitment from Baoding and Xingtai representatives: pursue further cooperation via CRAES and workshops</li> <li>保定市和邢台市相关代表的投入较少：通过中国环境科学研究院和研讨会，寻求进一步合作</li> </ul>
<p>Lack of consistency between source apportionment and policy work</p> <p>源解析和政策工作之间缺乏一致性</p>	Medium 中	Low 低	<ul style="list-style-type: none"> <li>Close liaison between the modelling and policy teams at Ricardo will mitigate this risk</li> <li>里卡多建模团队和政策团队紧密合作，有助于缓和这一风险</li> <li>Dr Dong engaged in project team to provide policy advice</li> <li>由项目团队成员 Dong（董）博士提供政策咨询</li> <li>The modelling should not progress to the scenario assessment stage until the policy team have designed the interventions</li> <li>在政策团队制定出干预措施之前，建模不应推进至场景评估阶段</li> </ul>
<p>Delays in modelling work and knock on impacts for cost-benefit analyses</p> <p>建模工作延期和对成本效益分析的连带效应</p>	Medium 中	Low 低	<ul style="list-style-type: none"> <li>The main risk to the proposed timelines in the modelling work is that we do not receive data quickly enough to provide model outputs to support the policy team. Therefore mitigating this risk is achieved mainly by getting early access to the data we need for the models and we anticipate that ADB will bring influence to this issue with local agencies</li> <li>拟议建模时间线的主要风险在于，我们无法快速收到数据以提供模型输出数据来支持政策团队。因此，这一风险的缓和主要依赖及早获取我们所需的模型数据，并且据我们预计，亚洲开发银行将发挥其影响力，协同当地管理部门解决这一问题。</li> </ul>
<p>Limited timescales for overall</p>	Medium 中	Low 低	<ul style="list-style-type: none"> <li>In view of the technical complexity of the work the timescales have been designed to provide sufficient time for this assignment.</li> </ul>

Risk 风险	Severity 严重性	Likelihood 发生概率	Mitigation measures 缓和措施
Assignment 整体任务时间有限			<ul style="list-style-type: none"> <li>• 考虑到工作的技术复杂性，制定时间表原本是为了提供足够时间来完成任务。</li> <li>• Achieving these timescales will require timely provision of data from stakeholders. When the data we set out is provided we can work quickly to create the deliverables</li> <li>• 要达到这一时间表的要求，各利益相关者必须及时提供数据。收到我们列出的数据后，我们就能迅速展开工作，创造交付成果。</li> <li>• Resource allocation can be intensified for short periods if needed to assist in recovering timetable delays</li> <li>• 如有必要，可在短时间内加快资源分配步伐，以帮助挽回进度。</li> <li>• Significant delays at an early stage in the project could result in delays to production of model outputs. We request ADB to act as intermediates using their influence to secure buy-in from data providers to ensure the success of the assignment</li> <li>• 项目早期阶段的明显延误可能会导致模型输出数据的产出延期。我们请亚洲开发银行作为中间人，发挥其影响力从数据提供方之处争取到支持，以保障任务成功完成。</li> <li>• A two month contingency period has been identified in the project program to enable the effects of any delays to be accommodated</li> <li>• 项目方案已确定了为期两个月的应变期，以适应延期的影响。</li> </ul>



## Appendices 附录

**Appendix 1: Meeting notes from the project inception meeting**

附录 1: 项目启动会议记录

**Appendix 2: Meeting notes from the project inception follow-up meeting**

附录 2: 项目启动后续会议记录

## Appendix 2 - Meeting notes from the project inception meeting

### 附录 2 - 项目启动会议记录

#### Minutes of Inception Meeting

#### 启动会议纪要

#### TA-9309 PRC: Preparing Air Quality Improvement Program (2017 – 2019) in the Greater Beijing-Tianjin-Hebei Region

#### TA-9309 PRC: 大京津冀地区空气质量改善项目(2017-2019)筹备工作

5-6 December 2017

2017年12月5日至6日

The inception meeting for the air quality improvement case study under TA-9309 PRC: Preparing Air Quality Improvement Program (2017-2019) in the Greater Beijing-Tianjin-Hebei (BTH) Region was held in Beijing on 5-6 December 2017. 17 people participated in the meeting (Annex A). Based on the teleconference between ADB and the case study contractor, Ricardo-AEA before the meeting, Baoding (Hebei Province), Changzhi (Shanxi Province) and Xingtai (Hebei Province) were selected as the case study cities to investigate air quality improvement measures. Representatives from Baoding Environmental Protection Bureau (EPB), Changzhi EPB and Changzhi Reform and Development Commission (DRC) attended the meeting. ADB project officer, Ricardo-AEA project team, and representatives from Baoding and Changzhi EPB made presentations on the air pollution challenges in the greater BTH region, Baoding and Changzhi, ADB's response to these challenges, and the objective, methodology and data requirements, etc. for the study (Annex B). Key issues covered during the meeting include:

针对 TA-9309 PRC: 大京津冀地区空气质量改善项目(2017 - 2019)筹备工作的空气质量改善案例研究启动会议于 2017 年 12 月 5 日至 6 日在北京举行。共计 17 人参加会议(附件 A)。亚洲开发银行和案例研究承包方 Ricardo-AEA 在会前举行电话会议, 选定保定市(河北省)、长治市(陕西省)和邢台市(河北省)作为本次案例研究的空气质量改善措施调研对象。保定市环保局代表、长治市环保局代表和长治市发改委代表出席了本次会议。亚洲开发银行项目官员、Ricardo-AEA 项目团队和保定市环保局代表及长治市环保局代表先后作出报告, 探讨了大京津冀地区、保定市和长治市面临的空气污染挑战、亚洲开发银行对这些挑战的回应以及本次研究的目标、方法和数据需求等问题(附件 B)。会议期间提及的关键问题包括:

1. ADB project officer introduced the project background and air pollution challenges facing the Greater BTH region, and ADB's response in providing substantial loans for a sustained improvement program from 2015 to 2020. This Project has been funded as a Technical Assistance project, and is designed to provide information on the sources of measured levels of air pollution in three cities in Greater BTH region, and to provide technical and economic evaluation of potential future policy measures to improve air quality in these cities. The three cities provisionally identified are: Baoding, Changzhi and Xingtai. These cities have been selected in view of the high levels of air pollution in the past, the positive response from local partners, and the relevance of these cities to addressing similar air

quality concerns in other cities in Greater BTH region and elsewhere in China. The meeting is also aimed to listen to representatives from two of the three cities, and incorporate local needs into the research.

亚洲开发银行项目官员介绍项目背景情况和大京津冀地区面临的空气污染挑战，并指出亚洲开发银行作为回应，为 2015 至 2020 年持续改善方案提供了大额贷款。本项目作为技术援助项目接受拨款，旨在提供有关大京津冀地区三大城市实测空气污染来源的信息，并对潜在未来政策措施进行技术和经济评估，进而改善这些城市的空气质量。这三大城市暂定为：保定、长治和邢台。选择这三个城市，是因为它们过去空气污染严重，当地合作伙伴积极响应，并且在解决大京津冀地区其他城市和中国其他地区的类似空气质量问题方面具有关联意义。会议还听取了其中两座城市代表的意见，并将当地需求融入研究。

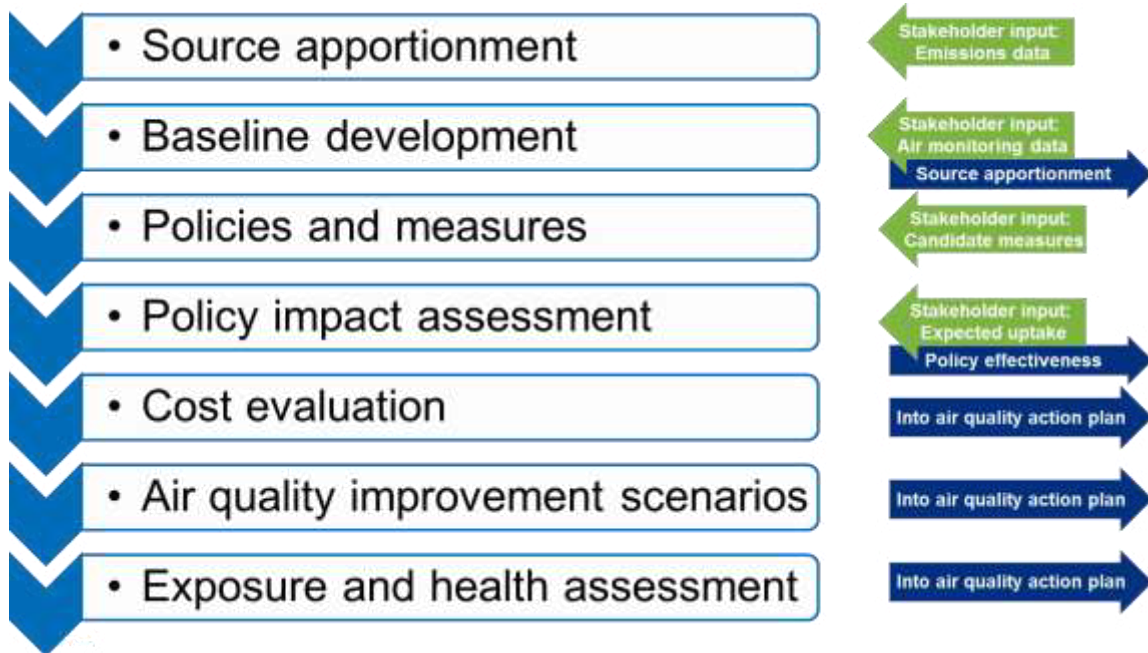
2. Ricardo-AEA international team gave an introduction to the proposed approach to carrying out the study. The methodology used and findings of a similar study in Jinan City funded by the UK Government was also provided. This showed how Ricardo's RapidAir® model combined with a regional model was used to identify the sources of measured levels of air pollutants. A further study funded by ADB was carried out to investigate possible control measures. The methodology used in the Jinan study will be developed and improved further, and used to investigate air quality in the three case study cities in 2020, 2025 and 2030.

Ricardo-AEA 跨国团队对计划采用的研究方法进行了介绍，并在会上提到了在英国政府的资助下于济南市展开类似研究时使用的方法及相关调研结果。以此展示如何将里卡多的 RapidAir®模型与区域模型相结合，并用以确定实测空气污染物质的来源。亚洲开发银行还资助了另一项研究来调查可能的控制措施。本项目将对在济南展开研究时使用的方法进行进一步开发和优化，并利用优化后的方法来调查这三个案例研究城市在 2020 年、2025 年和 2030 年的空气质量。

- The model framework is shown in Figure 1. Once set up for a specific city, the model framework can be readily adapted to account for new policy developments. It will then be used to investigate possible options for further policy measures, and identify those which are most cost-effective for securing further improvements in air quality. This can be used to develop specific policy recommendations, and/or a policy analysis matrix. Finally, the 24-month project program and planned workshops in the three case study cities were discussed. ADB project officer highlighted the importance of accounting for new policies. Project recommendations should be macro-level focused on the sectors where greatest reductions could be made (sector roadmaps), as detailed circumstances may change. 图 1 为模型框架。针对特定城市建立模型框架后，可立即对框架进行调整，以涵盖新政制定情况。然后利用模型框架来考察更多政策措施的可能选项，并找出其中在进一步改善空气质量方面最具成本效益的选项。借助相关考察结果，还可制定具体的政策建议和/或政策分析矩阵。最后，会议就为期 24 个月的项目方案和拟定于这三座案例研究城市举办的研讨会展开了讨论。亚洲开发银行项目官员强调了考虑新政的重要性。鉴于细节情况可能发生变化，项目建议在宏观层面上重点关注可最大程度降低污染的部门（部门路线图）。

### Figure 1 Model study framework

图 1：模型研究框架



3. Ricardo-AEA domestic expert presented on air quality improvement policy in the BTH region. Air quality has improved across the region, but levels of air pollutants remain high. The region is very diverse with different challenges in industrial, commercial and rural areas. Consumption of bulk coal in the region is high, at 4.5 times the national average. Data quality is an ongoing problem. Progress to improve air quality has been achieved through a wide range of policies at ministerial and local levels. Good progress has been made, although there are challenges with information sharing and potentially too narrow focus of some investment programs. There are inconsistencies of approach between different areas. It was highlighted that there are three important policy mechanisms for ongoing improvements: joint coordination mechanism, market mechanism and social engagement mechanism. This project can help to design differentiated policies for the three case study cities which reflect specific conditions in these cities, which have already made significant progress in improving air quality. The project should align with national air quality standards, and include a focus on implementation of policies. The project can be problem-oriented, addressing the problems identified in inventories and dealing with weaknesses identified in the existing pollution controls.

Ricardo-AEA 国内专家介绍了京津冀地区的空气质量改善政策。该地区空气质量有所改善，但空气污染物水平仍然居高不下。该地区在工业、商业和农业方面均面临诸多不同挑战。另外，该地区散煤消耗量较高，是全国平均水平的 4.5 倍。还一直存在数据质量问题。通过实施众多国家级和地区级政策，空气质量改善工作已取得一定进展。虽然进展良好，但该地区在信息共享方面仍然存在挑战，并且部分投资计划的重点也可能过于狭隘。与此同时，不同区域采用的方法也各不相同。会上强调，有三大政策机制可实现持续改善：联合协调机制、市场机制和社会参与机制。本项目有助于针对上述三个参与案例研究的城市规划出差异化政策，这些政策应反映出各城市的具体状况，并已在空气质量的改善方面取得重大进展。项目应与国家空气质量标准相一致，并侧重于各项政策的实施。本项目以问题为导向，解决发现的清单问题，并消除在控制现有污染的过程中鉴别出的弱项。

4. Baoding EPB official provided a brief introduction to air pollution prevention and control in Baoding. Baoding has been severely polluted in recent years, but more recently significant improvements have been made, resulting in a 42% reduction in PM<sub>2.5</sub> levels since 2012, and reductions in levels of other pollutants. Ten projects were carried out jointly across a number of different departments to achieve these improvements, including a focus on moving from coal to gas as a fuel for power stations, industries and homes. Future plans are expected to focus on winter heating, enforcement of existing

controls and diesel vehicle emissions. Baoding EPB is willing to work with ADB to achieve further improvements.

保定市环保局官员概括介绍了保定市的空气污染预防控制情况。保定市近年来污染严重，但最近亦取得明显进步，PM<sub>2.5</sub>指数较 2012 年下降 42%，其他污染物水平也有所降低。多个部门携手合作，共同开展了十个项目（包括重点关注发电站、工业和住宅区燃料的煤改气行动），从而取得上述成果。未来的计划预计将侧重于冬季供暖、现行控制措施的落实和柴油车辆排放问题。保定市环保局愿意与亚洲开发银行共同努力，取得更长远的进步。

5. Deputy Director General (DDG) of Changzhi EPB introduced the current air pollution problems and government control policies in Changzhi. Changzhi is in the south-east of Shanxi province, and has a warm climate. It has a complicated landform which affects air quality in the city. Air quality is improving, but remains a severe problem. A wide-ranging program has been carried to reduce the impact of air pollution, with the aim of achieving a number of targets such as the “double 10%” target for reducing both PM<sub>2.5</sub> concentrations and the number of heavily polluted days. Changzhi EPB’s responsibilities cover coal combustion control, vehicle emissions controls, control of construction dust, and response to adverse weather conditions. Changzhi EPB has taken steps to address all these issues, and intends to follow up further within the “One City One Strategy” plan. DDG of Changzhi EPB drew attention to 17 relevant policy documents and agreed to forward links to these documents to the project team. The EPB is now focusing on 10 priority tasks, and 10 measures for delivering further improvements in air quality. As well as specific controls, it is important to inform and secure the support of the public for improving air quality, and to improve capability of officers at County level. 长治市环保局副局长介绍了长治市目前存在的空气污染问题和政府的相关控制政策。长治市地处陕西省东南部，气候温和，但地貌较为复杂，影响了该市的空气质量。目前空气质量现有所改善，但问题仍然严重。为降低空气污染影响，该市已展开一项覆盖面较广的计划，旨在实现使 PM<sub>2.5</sub> 浓度和重度污染天数“双双降低 10%”等一系列目标。长治市环保局的职责包括控制燃煤水平、管理车辆排放、限制建筑灰尘和响应恶劣天气状况等。长治市环保局已采取相应措施解决以上所有问题，并计划在“一城一策”行动计划范围内进一步跟进。长治市环保局副局长还对 17 份相关政策文件表示了关注，并同意将这 17 份文件的链接转发给项目团队。该市环保局目前专注于落实 10 项要务和 10 大措施，以进一步改善空气质量。除采取具体控制措施以外，务必将空气质量改善情况告知公众并获取公众支持，另外亦需提高区县级公务人员的能力。
6. Ricardo-AEA team set out the information that will be needed to carry out the project (Annex C), and the objective of working closely with local partners and other data providers such as Chinese Research Academy of Environmental Sciences (CRAES). DDG of Changzhi confirmed that the Changzhi EPB has access to meteorological data, traffic data and industrial emissions data (annualized statistics and environmental permits). Air monitoring is carried out at 27 stations across the city, with 2 monitoring stations in each county. Data from county monitoring stations is held by provincial EPB. Land use data is held by the local land bureau, and this should be discussed with the DRC. No air quality modelling study has been carried out for Changzhi. The situation in Baoding is similar, with 26 monitoring stations (1 monitoring station in each county). Ricardo-AEA 团队阐述了落实本项目所需的相关信息（附件 C），并提出了要与当地合作伙伴和中国环境科学研究院等其他数据提供机构密切合作这一目标。据长治市环保局副局长证实，长治市环保局可访问气象数据、交通数据和工业排放数据（年化统计数据与环境许可证）。该市在全市范围内 27 个站点进行空气监测，并在每个县设有 2 个监测站。县监测站数据由省环保厅保管。土地利用数据则由当地国土资源局掌握，应与发改委进行协商。长治市目前尚未开展空气质量建模研究。保定市设有 26 个监测站（每个县各有 1 个监测站），与长治市情况类似。
7. It was suggested that Ricardo use the inventory and other data for 2017 which would be available in April 2018. Consideration was given to holding the workshops in May 2018 to take advantage of the new 2017 data. However, in order to ensure project progress, it is proposed to hold the workshops in March 2018 using 2016 data, in accordance with the project schedule. The modelling system is flexible so that 2017 data can then be incorporated as it becomes available.

建议里卡多使用 2017 年清单和其他数据（将于 2018 年 4 月提供）。与会人员亦曾考虑于 2018 年 5 月举行研讨会，以便充分利用 2017 年新数据。但为确保项目进度，最终计划按照项目进度表于 2018 年 3 月利用 2016 年数据举行研讨会。建模系统较为灵活，可在收到 2017 年数据后整合到系统中。

8. During discussion, it was highlighted that there are many policy initiatives already under way in Greater BTH region. This project will need to incorporate these into the analysis. The Ricardo-AEA team confirmed that this could be achieved using the flexible modelling framework that will be developed, so that the project adds value to the existing work already going on to improve air quality and identifies what additional actions could be taken.

讨论期间，相关人员强调称，大京津冀地区的多项政策倡议均在落实之中。本项目需要将这些情况纳入分析。经 Ricardo-AEA 团队证实，可以利用稍后开发的灵活建模框架来达到这一效果，从而为项目现已展开的空气质量改善工作增加附加值，另外亦可确定其他可以采取的措施。

9. Discussions were held on the “One City One Strategy” initiative, which is linked to the “2+26” cities program in Greater BTH region. This is designed to analyze the causes of air pollution in these cities, and identify short-term policy response measures. CRAES is providing technical support for 9 cities under this initiative. CRAES has already developed air pollution inventories for Baoding and Xingtai, including winter PM<sub>2.5</sub> data, which will constitute a useful starting point for this project. Ricardo-AEA had a meeting with CRAES on 6 December 2017 on the potential cooperation between Ricardo-AEA and CRAES.

会上还就“一城一策”行动计划展开讨论，该行动计划与大京津冀地区的“2+26 城市”方案挂钩。

“一城一策”行动计划旨在分析相关城市的空气污染根源并制定短期政策应对措施。依照行动计划规定，中国环境科学研究院为其中九座城市提供技术支持。该院已经为保定市和邢台市制定空气污染清单，其中涵盖冬季 PM<sub>2.5</sub> 数据，对本项目而言，这是非常有益的切入点。Ricardo-AEA 于 2017 年 12 月 6 日与中国环境科学研究院进行会谈，就二者潜在合作事宜进行磋商。

## Actions

### 行动

1. **Ricardo-AEA** to discuss inventory and meteorological information on Baoding and Xingtai held by CRAES and Tsinghua University, and information on Changzhi held by North China Electric Power University, and identify how this could best be used in this project.  
**Ricardo-AEA** 将就中国环境科学研究院和清华大学掌握的保定市与邢台市排放清单及气象信息展开论述，就华北电力大学掌握的长治市相关信息展开论述，并确定这些信息在本项目中的最佳利用方式。
2. **Ricardo-AEA** to contact Changzhi and Baoding representatives to progress data collection.  
**Ricardo-AEA** 将联系长治市和保定市相关代表以推进数据收集进程。
3. **ADB** to continue engagement with Xingtai representatives with the aim of involving Xingtai as the third case study city.  
**亚洲开发银行**将继续与邢台市相关代表保持联系，争取让邢台市作为第三个案例研究城市参与进来。
4. **ADB/Ricardo-AEA** to contact city representatives to propose a plan for workshop timings and content in 2018. Workshops will cover data provision, air quality policy setting, enforcement and monitoring.  
**亚洲开发银行/Ricardo-AEA** 将联系各市相关代表，以拟定 2018 年研讨会时间和内容计划。研讨会将涵盖数据的准备以及空气质量政策的制定、实施和监测。

5. **Ricardo-AEA** to obtain provincial level monitoring data via provincial or city EPBs.  
**Ricardo-AEA** 将通过省环保厅或市环保局获取省级监测数据。
  
6. **Ricardo-AEA** to liaise with CRAES and/or National Environmental Monitoring Center to obtain data on major industrial point sources.  
**Ricardo-AEA** 将联系中国环境科学研究院和/或中国环境监测总站，获取主要工业点源相关数据。

Ricardo-AEA Ref. ED10548/Inception/Issue2

Ricardo-AEA 公司，参考号：ED10548/Inception/Issue2

18 December 2017

2017 年 12 月 18 日

**ANNEX A**

<b>Name</b>	<b>Position</b>	<b>Organization</b>
Zhou, Yun	Environment Specialist	Asian Development Bank
周云	环境专家	亚洲开发银行
Grebot, Ben	Technical Director	Ricardo-AEA Ltd
	技术主任	Ricardo-AEA公司
Broomfield, Mark	Specialist Consultant	Ricardo-AEA Ltd
	专家咨询顾问	Ricardo-AEA公司
Vedrenne, Michel	Senior Technical Consultant	Ricardo-AEA Ltd
	高级技术咨询顾问	Ricardo-AEA公司
Niu, Tianlin	Project Specialist	Ricardo-AEA Ltd
	项目专家	Ricardo-AEA公司
Dong, Zhanfeng	Professor	Chinese Academy of Environmental Planning
		中国环境规划院
Xing, Jia	Assistant Professor	School of Environment, Tsinghua University
Ma, Hongbin	Chief Engineer	Changzhi Development and Reform Commission, Shanxi Province
马红彬	总工程师	山西省长治市发改委
Wang, Bin		Changzhi Development and Reform Commission, Shanxi Province
王斌		山西省长治市发改委
Shi, Yuehong	Deputy Director General	Changzhi Environmental Protection Bureau, Shanxi Province
史跃宏	副局长	山西省长治市环保局
Wang ,Ding		Changzhi Environmental Protection Bureau, Shanxi Province
王定		山西省长治市环保局
Hang, Jihu		Baoding Environmental Protection Bureau, Hebei Province
杭继虎		河北省保定市环保局大气处



Cheng, Miaomiao	Assistant Researcher	Chinese Research Academy of Environmental Sciences
程苗苗	助研	中国环境科学研究院
Qu, Linglu	Assistant Researcher	Chinese Research Academy of Environmental Sciences
瞿玲露	助研	中国环境科学研究院
Yang, Guangxi	Vice President	Beijing Jiashu Science & Technology Consultancy Corporation Ltd
杨光曦	副总裁	北京嘉澍科技咨询有限责任公司
Yin, Yue	Consultant	Beijing Jiashu Science & Technology Consultancy Corporation Ltd
尹悦	咨询专家	北京嘉澍科技咨询有限责任公司

**ANNEX B****附件 B****AGENDA****日程**

- Opening, introduction of participants, overview of BTH Loan, and objective of the proposed study  
*Yun Zhou, Environment Specialist, Energy Division, East Asia Department, ADB*  
开幕, 介绍与会人员, 介绍京津冀贷款概况, 展望本研究目标  
*亚洲开发银行东亚局能源处环境专家周云*
- Current Air Pollution Problems and Government Control Policies in Baoding  
*Hang Jihu, Division of Air Environment Management, Baoding Environmental Protection Bureau, Hebei*  
保定市当前空气污染问题和政府控制政策  
*河北省保定市环保局大气污染防治处杭继虎*
- Contractor proposal: (a) Introduction to Ricardo-AEA and summary of Jinan study; (b) meeting ADB objectives; (c) Proposed delivery mechanism; (d) Project program; (e) Working with partners  
*Mark Broomfield, Ben Grebot, Michel Vedrenne, Ricardo-AEA Ltd, United Kingdom*  
承包人提案: (a) Ricardo-AEA 公司简介与济南调研小结; (b) 达成亚行目标; (c) 拟议交付机制; (d) 项目方案; (e) 与合作伙伴通力合作  
*英国 Ricardo-AEA 公司 Mark Broomfield、Ben Grebot、Michel Vedrenne*
- National air pollution policies which affect air quality in Greater BTH  
*Dr Dong Xhanfeng, Chinese Academy for Environmental Planning*  
影响大京津冀地区空气质量的国家大气污染防治政策  
*中国环境保护部环境规划院 Dong Xhanfeng 博士*
- Current Air Pollution Problems and Government Control Policies in Changzhi  
*Shi Yuehong, Deputy Director General, Changzhi Environmental Protection Bureau, Shanxi Province*  
长治市当前空气污染问题和政府控制政策  
*陕西省长治市环保局副局长史跃宏*
- Information requested for the study  
*Mark Broomfield, Ricardo-AEA Ltd, United Kingdom*  
本次研究所需信息  
*英国 Ricardo-AEA 公司 Mark Broomfield*
- Discussions including feedback from city representatives, communications plan, approach for engaging with stakeholders; proposed project workshops (timetable, attendees, content)

讨论环节，包括各市代表提出意见和建议、探讨沟通计划和利益相关者沟通途径；提出项目研讨会方案（时间表、与会人员、会议内容）

## ANNEX C

**Asian Development Bank Project 亚洲开发银行项目 Ref. TA-9309 PRC**  
**Preparing Air Quality Improvement Program (2017-2019) in the Greater Beijing–Tianjin–Hebei Region**



Contractor: Ricardo Energy & Environment 承包人: 里卡多能源环境 <http://ee.ricardo.com>

**Information request 数据需求**

This sheet sets out the information requested from partner cities in Greater BTH, to support the development of air quality improvement plans for each partner city. We have access to a range of other data sources. We would like to discuss data sources with local partners so that we can use the best available data to deliver the highest quality assessment of current and future air quality.

下表描述了对大京津冀地区内参与/目标城市的数据信息需求，以支持每个城市空气质量改善计划实施。我们有很多其他数据源，但是我们希望能够和城市本地的相关人员共同讨论数据源问题，以确定能够评估当前和未来空气质量的最佳的高质量、可获得的数据。

Asian Development Bank project officer 亚开行项目官员: Yun Zhou, Environment Specialist, Energy Division, East Asia Department, [yunzhou@adb.org](mailto:yunzhou@adb.org)

Contractor project manager 承包商项目经理: Dr Mark Broomfield, Specialist Consultant, Ricardo Energy & Environment, [mark.broomfield@ricardo.com](mailto:mark.broomfield@ricardo.com)

Contractor technical specialist 承包商技术专家: Dr Michel Vedrenne, Senior Technical Consultant, Ricardo Energy & Environment, [michel.vedrenne@ricardo.com](mailto:michel.vedrenne@ricardo.com)

Item no.	Parameter 参数	Units 单位	Resolution 分辨率	Period 数据时段	Comment 注明
<b>1. Meteorology 气象数据</b>					
<b>Data from at least one station close to the city (e.g. City Airport) and one outside the city 至少一个临近城市（如城市机场）和一个城市外围</b>	<b>1.1</b> Wind speed 风速	metres/ second 米/秒	1 hourly 逐时	Latest 1 year minimum, 3 years preferred (calendar years- January to December) 至少是过去 1 年的数据，最好是过去 3 年的（1-12 月）	Usually other parameters such as temperature, pressure and humidity would be contained in the same dataset and would be useful if available 一般来说，温度、气压和湿度等参数会包含在同一个数据库，如

	Item no.	Parameter 参数	Units 单位	Resolution 分辨率	Period 数据时段	Comment 注明
的站点数据						果可以和风速一起提供是最好的
	1.2	Wind direction 风向	Degrees 度	1 hourly 逐时	Latest 1 year minimum, 3 years preferred (calendar years- January to December) 至少是过去 1 年的数据, 最好是过去 3 年的 (1-12 月)	Usually other parameters such as temperature, pressure and humidity would be contained in the same dataset and would be useful if available 一般来说, 温度、气压和湿度等参数会包含在同一个数据库, 如果可以和风速一起提供是最好的
<b>2. City emissions data 城市排放数据</b>						
<b>Items 2.1 to 2.3 could come from traffic count locations in the city 2.1 到 2.3 的数据可以通过城市交通观测点获取</b>	2.1	Traffic flow data (manual or automatic count) 交通流量数据 (手动或自动统计)	vehicles/hour or vehicles/day 辆/小时 或 辆/天	hourly or daily 逐时 或 每日	When available 所有可提供数据	Data likely to reside with Transport Department or Police 数据可能隶属于当地交通部门或警方
	2.2	Vehicle type (manual or automatic observation) 车辆类型 (手动或自动观测)	% of cars, trucks, light goods vehicles, buses, motorcycles 小客车, 货车, 轻型物流车, 公交车, 摩托车等的占	hourly or daily 逐时 或 每日	When available 所有可提供数据	Data likely to reside with Transport Department or Police 数据可能隶属于当地交通部门或警方

Item no.	Parameter 参数	Units 单位	Resolution 分辨率	Period 数据时段	Comment 注明
		比 (%)			
2.3	Average speed (manual or automatic observation) 平均速度 (手动或自动观测)	Kilometres per hour Km/h	hourly or daily 逐时 或 每日	When available 所有可提供数据	Data likely to reside with Transport Department or Police 数据可能隶属于当地交通部门或警方
<b>Items 2.4 to 2.6 could come from a traffic model, if available. 2.4 至 2.6 可以从交通模型中获得 (如果有)</b>	2.4	Traffic count data (modelled) 交通流量数据 (模拟值)	vehicles/hour or vehicles/day 辆/小时 或 辆/天	Model will usually be yearly 模型通常逐年模拟	Data would normally reside with Transport Department 通常情况下, 数据有交通部门保管
	2.5	Vehicle type (modelled) 车辆类型 (模拟值)	% of cars, trucks, light goods vehicles, buses, motorcycles 小客车·货车·轻型物流车·公交车·摩托车等的占比 (%)	Model will usually be yearly 模型通常逐年模拟	Data would normally reside with Transport Department 通常情况下, 数据有交通部门保管
	2.6	Average speed (modelled)	Kilometres per hour Km/h	Model will usually be yearly 模型通常逐年模拟	Data would normally reside with Transport Department 通常情况下, 数据有交通部门保管

	Item no.	Parameter 参数	Units 单位	Resolution 分辨率	Period 数据时段	Comment 注明
		平均速度 (模拟值)				管
<b>Data on industrial and power sector emissions – e.g. emissions measurements, permitted limits, or emissions ceilings</b> 工业和电力部门排放数据 – 如 排放监测数据 · 允许的最大排放或排放限值	2.7	Emissions to atmosphere; ; other parameters (height, temperature, flow, location) 大气污染物排放量 ; 和 排放高度, 温度, 排量, 位置等参数	Typically kilograms per hour, or tonnes per year 通常, kg/h 或 吨/年	Individual process 个体		Data may be held by Environmental Protection Bureau 数据可能由环保局管理
<b>Is there a city-scale air pollution emissions inventory which we could use in our study?</b> 目标城市是否有城市尺度的大气污染排放清单	2.8	City emissions by sector 各部门领域的城市排放		One year Best spatial resolution available 最高的空间分辨率	Most recent year 近几年的	Data may be held by City Environmental Protection Bureau, University or Environmental Institution 环保局、高效或环保机构可能拥有相关数据
<b>3. Regional emissions data</b> 区域排放数据						

	Item no.	Parameter 参数	Units 单位	Resolution 分辨率	Period 数据时段	Comment 注明
<b>We have access to the standard version of MEIC (0.1° x 0.1° and macro-sector resolution). Is there a regional scale inventory, which has better spatial and/or sectoral resolution? 我们有标准版的 MEIC 清单数据 (0.1° x 0.1° 的宏观部门分辨率)。是否有区域尺度的清单具有更好的分辨率，和更详细的部门排放？</b>	<b>3.1</b>	Regional emissions 区域排放量		One year 逐年	Most recent year 近几年数据	Data may be held by Regional Environmental Protection Bureau, University or Environmental Institution 环保局、高效或环保机构可能拥有相关数据
<b>4. Air quality monitoring data 空气质量监测数据</b>						
	<b>4.1</b>	All measured pollutants 全部监测的污染物	Micrograms per m3 (µg/m3) or ppb 毫克/立方米 或 ppb	1 hourly 逐时	Calendar year (January to December 2016 and 2017 when available) 2016 和 2017 年 全年的数据 (1月-12月)	
<b>5. Land use data 土地利用数据</b>						



Item no.	Parameter 参数	Units 单位	Resolution 分辨率	Period 数据时段	Comment 注明
5.1	GIS datasets identifying zones (residential, industrial, commercial etc) 功能区域 GIS 数据  (识别居民区·工业区·商业区等)				We have access to some open-source resources, but more detailed local data would be useful 我们有一些开源数据源的权限·但希望当地政府能够提供更详细的本地数据。
5.2	GIS datasets identifying road links and/or industrial point sources` 道路网 和/或 工业源 点位 (工厂位置) 的 GIS 数据				We have access to some open-source resources, but more detailed local data would be useful 我们有一些开源数据源的权限·但希望当地政府能够提供更详细的本地数据。
5.3	Existing air quality assessments and action plans 现行的空气质量评估·行动计划·策略等			Most recent available 近期可获得的所有数据	

## Appendix 2 - Meeting notes from the project inception follow-up meeting

### 附录 2 - 项目启动后续会议记录

#### Minutes of Inception Follow-Up Meeting

#### 启动后续会议纪要

#### TA-9309 PRC: Preparing Air Quality Improvement Program (2017 – 2019) in the Greater Beijing-Tianjin-Hebei Region

#### TA-9309 PRC: 大京津冀地区空气质量改善项目(2017-2019)筹备工作

6 December 2017

2017年12月6日

The inception meeting for the air quality improvement case study under TA-9309 PRC: Preparing Air Quality Improvement Program (2017-2019) in the Greater Beijing-Tianjin-Hebei (BTH) Region was held in Beijing on 5-6 December 2017. As part of this, an internal project delivery team meeting was held on 6 December 2017. Attendees are listed in Annex A, and the meeting agenda set out in Annex B. Key issues covered during the meeting include:

针对 TA-9309 PRC: 大京津冀地区空气质量改善项目(2017-2019)筹备工作的空气质量改善案例研究启动会议于 2017 年 12 月 5 日至 6 日在北京举行。作为启动会议的一部分，内部项目交付团队会议亦于 2017 年 12 月 6 日举行。与会人员名单请见附件 A，会议议程请见附件 B。会议涵盖以下关键问题：

1. It was agreed that the inception meeting held on 5 December had been positive. Representatives from Changzhi EPB and DRC were engaged with the process. More work is needed to engage with senior representatives from Baoding EPB. The key points arising were identified as follows: 会议肯定了 12 月 5 日举行的启动会议的积极作用。长治市环保局和发改委代表参与了这一流程。各方需要进一步努力，使保定市环保局高级代表参与进来。会议确定了以下要点：
  - Project team need to consider how to capture current and planned policies and ensure that the project modelling analysis reflects this. Technically, the systems available to the project team enable us to account for current and future policies flexibly, but at some point we will need to define a baseline policy landscape, against which we can evaluate new policy initiatives.
  - 项目团队需要考虑如何获取现行政策和已规划政策并确保项目建模分析能够反映出这些政策。从技术上来说，借助项目团队能够使用的各个系统，我们可以灵活地将现行政策和未来政策纳入考虑，但在某些时刻我们仍需确定基线政策格局，然后依照此格局去评估新的政策倡议。
  - Discussions with third city (Xingtai or alternative) – ongoing with YZ
  - 与第三座城市（邢台市或其他城市）进行协商 - 周云跟进中
  - Timetable and content of workshops with partner cities
  - 与合作伙伴城市一同商定研讨会时间表和会议内容
  - Overall project timetable
  - 确立项目总体时间表
2. At the inception meeting, it was agreed that setting an evaluation date of 2020 is too soon for an analysis of new policies to be valuable, not least because there are already a lot of plans in place

over that time period and the study itself will run for 2 years. Ricardo proposed that forecasts should be provided for 2020, 2025 and 2030. It was agreed that this would be the timeframe for the project. For the baseline scenario, we will use 2016 data as this is already available, and then update with 2017 emissions and air monitoring data when this becomes available – expected in April 2018.

在启动会议上，各方一致同意，将评估日期设为 2020 年为时过早，对分析新政无甚益处，尤其是因为目前实施的众多计划均已涵盖这一时段，且研究本身便将耗时两年。里卡多提议称，应当提供 2020 年、2025 年和 2030 年的预测数据。各方约定以此为项目时间框架。对于基线场景，我们将使用已经存在的 2016 年数据，当 2017 年排放和空气监测数据可供使用时（预计为 2018 年 4 月）再予以更新。

3. CRAES has developed useful inventories for Baoding and Xingtai, and possibly also Changzhi. Tianlin Niu (TN, Ricardo national expert) is currently in consultation with CRAES, at which further information on the resources held by CRAES will be discussed. CRAES has offered to work with the project team, but it is not clear at this stage what arrangements will be needed. Mme Yung suggested engaging with Tsinghua University or CRAES: they already have the relevant contacts with government. Local level liaison will also be important.

中国环境科学研究院已经为保定市和邢台市制定了具有实用价值的清单，可能也包括长治市。Tianlin Niu（里卡多国内专家）目前正在与中国环境科学研究院协商，并就研究院掌握的其他资源相关信息在研究院展开讨论。中国环境科学研究院表示愿与项目团队携手合作，但现阶段需要作出哪些安排尚不明朗。Mme Yung 建议联系清华大学或中国环境科学研究院：二者与政府部门已有相关联系。当地联系人同样重要。

4. Ricardo already has access to national datasets on air monitoring and meteorology. There may be a cost involved in securing province-level data. Discussion at the inception meeting indicated that there were over 20 monitoring stations in both Baoding and Changzhi.

里卡多已经可以访问全国空气监测和气象状态数据集。获取省级数据可能需要支付一定费用。通过启动会议期间的讨论得知，保定市和长治市均设有 20 多个监测站。

5. Data on major industrial point sources is sent directly to Province EPBs. Data on point source emissions is held by the National Environmental Monitoring Center, with close links to CRAES. 主要工业点源相关数据直接发送至省环保厅。点源排放相关数据则由国家环境监测总站保管，总站与中国环境科学研究院关系密切。

6. The MEIC inventory is useful in providing data for the whole of China. More up to date and better resolution data are available than used in the Jinan study: this would need to be provided by Tsinghua University.

MEIC 清单有助于提供全国相关数据。与济南调研所用数据相比，目前存在的分辨率数据更贴合实际情况，质量也更出色：可能需要由清华大学提供。

7. The timetable for workshops in the three focus cities was discussed. The option of moving the workshops to May was discussed. This would enable data from 2017 to be discussed. It was decided to retain the current timetable, because there is valid data available for 2016 and it is foreseeable that a short delay in 2017 data would make it unavailable for a May workshop anyway. It is therefore proposed to hold the workshops during week commencing 19 March 2018. YZ will attend if she is in country. The focus of these workshops will be:

会上对在三大城市举办研讨会的时间表进行了讨论。还探讨了将研讨会移至五月的可能性，这样便可使用 2017 年数据。最终决定保留当前时间表不变，因为有 2016 年有效数据可供使用，并且可以预见的是，但凡 2017 年数据的提供有稍许延迟，五月同样无法举办研讨会。因此计划在 2018 年 3 月 19 日起的一周内举办研讨会。周云届时若在国内亦将出席。研讨会的重心将落在：

- a. Locally held information on activity and emissions from all sectors  
当地相关机构掌握的所有部门活动和排放相关信息
- b. Locally held air monitoring and meteorological information

- 当地相关机构掌握的空气监测和气象信息
- c. National, regional, province and local air quality policies: how are these implemented and enforced?  
国家、地区、省级和当地空气质量政策：如何贯彻落实各政策？
  - d. Are current policies having the desired effect in improving air quality?  
现行政策是否具有预期的空气质量改善效果？
  - e. Possible future options for ongoing air quality policy development and improvement  
有关持续制定和优化空气质量政策的未来潜在选择
8. At present, we do not have confirmation from Xingtai of their involvement with this study.  
现阶段我们尚未得到邢台市能否参与本研究的确切答复。
9. Changzhi is a valuable city to have engaged in the project, in view of the dominance of coal as a fuel source. It is a city with significant environmental and institutional capacity challenges. The contribution of transport to air pollution is increasing. Information presented on 5 December suggests that the picture is mixed, maybe due to meteorological and/or emissions factors. Xingtai would also be valuable: it is well known for having poor air quality.  
考虑到煤炭在长治市是主要燃料源，让长治市参与本项目具有重要意义。该市面临严峻的环境容量和制度能力挑战。交通运输对空气污染的影响不断加剧。12月5日展现的信息表明目前情况较为复杂，这可能是由于气象和/或排放因素。邢台市以空气质量恶劣闻名，因此同样意义重大。
10. There is often a lack of coherence between policies at different levels. We will consider recommendations about how coherence can be improved. Eg. Reducing emissions from domestic sector may focus on a switch to gas, but should also consider building insulation. One approach to dealing with the changing policy landscape is to provide a policy analysis – highlighting which measures could work, and which won't be effective. It is important to bear in mind:  
各级政策经常缺乏一致性。我们也会考虑采纳有关提高一致性的建议。例如，降低家庭污染排放量时可能会侧重于转向用气，但同时亦应考虑建筑保温。要应对快速变化的政策格局，有一个方法是进行政策分析 - 重点表明哪些措施可以发挥作用，哪些将行之无效。需牢记以下几点：
- Potential win-wins 实现潜在双赢
  - Identification of the most cost-effective measures 确定最具成本效益的措施
  - Considering both measures (things that can be done) and policies (how to make these things happen) 同时考量措施（可采取的行动）和政策（怎样让这些行动发生）
  - Capacity to implement (This can be interpreted in the light of capacity issues, from discussions with partners.) 执行能力（可通过与合作伙伴讨论，从能力问题这一方面来解读）
- It was agreed that the key outputs from the policy analysis should be sector roadmaps to 2030.  
各方约定，政策分析的关键成果应成为通往 2030 年的部门路线图。
11. Inception report – aim to provide this to ADB by end December 2017  
启动报告 - 计划于 2017 年 12 月底之前提供给亚洲开发银行
- Work carried out to date 迄今已开展的工作
    - Inception meeting & notes 启动会议与会议记录
    - Implications for projects 项目影响
    - Discussions with data providers 与数据提供机构展开讨论
    - Data matrix – who will provide what. By city 数据矩阵 - 将由谁来提供哪些内容。按城市展开
  - Policy recommendations 政策建议
    - Approach to managing changing policy landscape 对快速变化的政策格局的管理方法
    - Expected outcomes from this project: 本项目的预期成果包括：
      - Policy roadmap 政策路线图
      - Cost and pollutant reduction by policy measure 各政策措施的成本和减污效果

- Identification of co-benefits 确定协同效益
- Next steps 后续步骤
  - Plans for workshop 研讨会计划
  - Expect to receive data 预期收到数据
  - Timetable 时间表
- Project risk assessment 项目风险评估
  - Data is the big issue 数据是大问题
  - Timetable 时间表
- Appendices 附录
  - Inception meeting material 启动会议材料

#### 12. Project management: 项目管理:

- Monthly updates to be provided 待提供月度更新情况
- Monthly call to be scheduled from January 2018 onwards 计划自 2018 年 1 月起每月举行一次电话会议
- If any problems are encountered, YZ can liaise 如遇任何问题，可联系周云

#### Actions 行动

1. **Ricardo-AEA** to contact Changzhi to progress data acquisition  
**Ricardo-AEA** 将联系长治市推进数据采集工作
2. **Ricardo-AEA** to follow up with Mr Hang from Baoding to identify colleagues for further discussion  
In the event of any difficulties in obtaining data, Ricardo-AEA will contact YZ.  
**Ricardo-AEA** 将跟进保定市杭继虎副局长的进展，确定还有哪些同事将参与进一步讨论。  
如若获取数据遇到困难，Ricardo-AEA 将联系周云。
3. **Ricardo-AEA** to discuss with CRAES regarding data for Baoding and Xingtai (meeting taking place simultaneously with this meeting)  
**Ricardo-AEA** 将就保定市和邢台市相关数据问题与中国环境科学研究院进行协商（会谈将与本次会议同时进行）
4. **Ricardo-AEA** to discuss arrangements for use of project contingency with Precious Dungca (ADB contract support) if needed for data acquisition.  
**Ricardo-AEA** 将与 Precious Dungca（亚洲开发银行合同支持人员）探讨项目应急安排（如有数据采集需要）
5. **Ricardo-AEA** to liaise with province or city EPBs to obtain monitoring data and/or meteorological data  
**Ricardo-AEA** 将联系省环保厅或市环保局以获取监测数据和/或气象数据
6. **Ricardo-AEA** to liaise with CRAES to secure point source emissions data and also contact the NEMC  
**Ricardo-AEA** 将联系中国环境科学研究院取得点源排放数据，同时还需联系中国环境监测总站
7. **Ricardo-AEA** to liaise with Tsinghua University regarding provision of MEIC data  
**Ricardo-AEA** 将联系清华大学提供 MEIC 数据
8. **ADB** to follow up with Hebei DRC and Hebei EPB to secure involvement of Xingtai

亚洲开发银行将跟进河北省发改委与河北省环保厅争取让邢台市参与本项目

9. **Ricardo-AEA/ADB** to hold update conference call to discuss progress on 4 January 2018 at 8.30 am UK / 4.30 pm Manila/Beijing  
**Ricardo-AEA/亚洲开发银行**将于英国时间 2018 年 1 月 4 日上午 8 时 30 分（北京/马尼拉时间下午 4 时 30 分）举行最新情况通报电话会议，讨论相关进展。
10. **Ricardo-AEA** to circulate draft inception meeting notes by 15/12/17.  
**Ricardo-AEA** 将于 2017 年 12 月 15 日之前分发启动会议记录草稿。
11. **ADB** to circulate finalised Inception Meeting notes to city partners in ADB format, with director signature.  
**亚洲开发银行**将向各城市合作伙伴分发附有负责人签名的启动会议记录终稿（亚洲开发银行自有格式）。

Ricardo-AEA Ref. ED10548/Inception Follow-up/Issue1

Ricardo-AEA 公司，参考号：ED10548/Inception Follow-up/Issue1

20 December 2017

2017 年 12 月 20 日

**ANNEX A**

<b>Name</b>	<b>Position</b>	<b>Organization</b>
Zhou, Yun	Environment Specialist	Asian Development Bank
周云	环境专家	亚洲开发银行
Grebot, Ben	Technical Director	Ricardo-AEA Ltd
	技术主任	Ricardo-AEA公司
Broomfield, Mark	Specialist Consultant	Ricardo-AEA Ltd
	专家咨询顾问	Ricardo-AEA公司
Vedrenne, Michel	Senior Technical Consultant	Ricardo-AEA Ltd
	高级技术咨询顾问	Ricardo-AEA公司

**ANNEX B**

## 附件 B

**AGENDA**

## 日程

- To review the project inception meeting held on 5 December 2017
- 回顾于 2017 年 12 月 5 日举行的项目启动会议
- To identify actions and next steps
- 确定各项行动和后续步骤



Ricardo  
Energy & Environment

The Gemini Building  
Fermi Avenue  
Harwell  
Didcot  
Oxfordshire  
OX11 0QR  
United Kingdom

t: +44 (0)1235 753000

电话: +44 (0)1235 753000

e: [enquiry@ricardo.com](mailto:enquiry@ricardo.com)

电邮: [enquiry@ricardo.com](mailto:enquiry@ricardo.com)

[ee.ricardo.com](http://ee.ricardo.com)