

Country Name	<b>The project for promotion of municipal solid waste recycling</b>
People's Republic of China	

**I. Project Outline**

Background	<p>With rapid industrialization and urbanization in China, the volume of municipal solid waste was drastically increased, while the establishment of comprehensive system for waste recycling and appropriate system for waste disposal was dropped behind. Consequently, the drain of pollutant and the inappropriate recycling of municipal waste had increasingly put the citizen's health and the environment at risk. For the sustainable development, it was imperative to achieve the perfect balance between the increase in economic productivities and the quality improvement of the environment. Under such circumstance, Chinese Government had a progressive attitude toward minimization and recycling of resources with further development of circular economy under "Outlines for Eleventh Five-Year National Economic and Social Development Plan (2006-2010)", which aimed in the balanced, sustainable and steady growth, indicating the policy shift from the previous "extensive" approach of prioritizing the economic growth with expanded inputs. In order to develop circular economy, it was crucial to construct the appropriate system of municipal solid waste recycling to meet the current needs of China.</p>										
Objectives of the Project	<p>In the target areas (Jiaying City, Qingdao City, Guiyang City, Xining City and the Municipality of Beijing) in China, the project aims to enhance the establishment of a national policy and legal system for municipal solid waste recycling through information research and data collection on municipal solid waste recycling in and out of China and implementing the pilot projects, thereby promoting the municipal solid waste recycling in China.</p> <ol style="list-style-type: none"> <li>1. Overall Goal: Municipal solid waste recycling is promoted in China.</li> <li>2. Project Purpose: The establishment of national policy and legal system for municipal solid waste recycling is enhanced.</li> </ol>										
Activities of the Project	<ol style="list-style-type: none"> <li>1. Project Site: The Municipality of Beijing (Operating Base) Target Cities: Jiaying, Qingdao, Guiyang, Xining</li> <li>2. Main Activities<sup>1</sup>: i) information research and collection on municipal solid waste in and out of China, ii) policy research implementation and documentation, iii) information exchange through workshop seminars, iv) implementation of pilot projects at target cities, and v) compilation of outcomes</li> <li>3. Inputs (at the time of Terminal Evaluation) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Chinese Side</td> </tr> <tr> <td>1. Experts: 47 persons; (Long-term) 2 persons, (Short-term) 45 persons, Researchers dispatched 15 persons (members of Japanese Advisory Committee)</td> <td>1. Staff allocated: 33 persons</td> </tr> <tr> <td>2. Trainees received: 74 persons</td> <td>2. Local expenses</td> </tr> <tr> <td>3. Local expenses</td> <td></td> </tr> </table> </li> </ol>			Japanese Side	Chinese Side	1. Experts: 47 persons; (Long-term) 2 persons, (Short-term) 45 persons, Researchers dispatched 15 persons (members of Japanese Advisory Committee)	1. Staff allocated: 33 persons	2. Trainees received: 74 persons	2. Local expenses	3. Local expenses	
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Project Period	October 2010 – January 2015	Project Cost	(ex-ante) 850 million yen, (actual) 908 million yen								
Implementing Agency	<p>Department of Resource Conservation and Environmental Protection (DRCEP), National Development &amp; Reform Commission, P. R. China</p> <p>* Researchers at universities and research institutes on waste policy, members of Development &amp; Reform Commission of the target cities and concerned departments of local governments as cooperating agencies</p>										
Cooperation Agency in Japan	<p>Japanese Advisory Committee (Sophia University, Kanazawa University, etc.)</p> <p>Kokusai Kogyo Co., Ltd., etc.</p>										

**II. Result of the Evaluation**

## &lt;Constraints on Evaluation&gt;

• Affected by the spread of the novel coronavirus (COVID-19), no field visits to the project sites were conducted. The evaluation study was carried out based on the limited information obtained through questionnaire surveys and interviews with implementing agency.

## &lt;Special Perspectives Considered in the Ex-Post Evaluation&gt;

(Evaluation of achievement status of the Overall Goal)

• To assess the achievement level of the Overall Goal "Municipal solid waste recycling is promoted in China", one indicator is set in the project plan, namely, "National policy and legislation for municipal solid waste recycling is enacted". However, with this indicator, it is not sufficient to examine the achievement level on whether the municipal solid waste recycling has actually been progressed. Therefore, "By utilizing the project effects (such as the system and human resources developed through the project), the extent which municipal solid waste recycling has been continuously progressed in the areas other than the target cities" was examined as supplementary information.

**1 Relevance**

## &lt;Consistency with the Development Policy of China at the Time of Ex-Ante Evaluation and Project Completion&gt;

At the time of ex-ante evaluation, the project was consistent with "Eleventh Five-Year Plan (2006-2010)" by the State Council, which states the importance of steady economic growth, the social structure with resource-saving and narrowed gap between the rich and the poor as well as the prevention of increase in environmental pollution, etc. At the time of project completion, the project was consistent with the policies, such as "Twelfth Five-Year Plan (2011-2015)" and "Report of Plenary Session for the Eighteenth Communist Party Congress (2012)", which maintains the value to promote the municipal solid waste recycling.

<sup>1</sup>The project dealt with food waste, packaging waste and waste tire. Items of target waste for each city were as follows: food waste and packaging waste for Jiaying City, food waste and waste tire for Qingdao City, food waste and packaging waste for Guiyang City, and food waste and waste tire for Xining City.

<Consistency with the Development Needs of China at the Time of Ex-Ante Evaluation and Project Completion >

As described in “Background” above, the project was consistent with the development needs for promotion of municipal solid waste recycling at the time of ex-ante evaluation. At the time of project completion, under “Twelfth Five-Year Plan (2011-2015)” described above, it was required for directly-administered municipalities, provincial capitals by 2015 that municipal solid waste should be made harmless and discarded. Since then, such needs continued with notices and regulation of this kinds being issued and implemented.

<Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation>

The agreement was made between Japan and China when “Joint Statement on the Further Enhancement of Cooperation for Environmental Protection” in April 2007 and “Joint Communiqué on Promotion of Cooperation in the field of Environment and Energy” in December 2007 were announced. In the field of waste management and circular economy, it was agreed between two countries (i) to actively promote the concept of circular economy, (ii) proactive implementation of technical cooperation and proceeding the dialogue on solid waste management and 3R<sup>2</sup>, (iii) Implementation of training in the field of environment and energy for the total number of 10,000 people in three years from 2008.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

By the time of project completion, the Project Purpose, “The establishment of national policy and legal system for municipal solid waste recycling is enhanced” was achieved. By using the outcomes of pilot projects as references, the proposal documents in national policy and legal system for municipal solid waste recycling were developed (Indicator 1). During the pilot projects, various recycling options were examined, such as to recycle food waste for the animal feed, for farmyard compost or for production of methane gas, etc. Findings through pilot projects were incorporated into the draft of “Ordinance of Food Waste Management and Recycling” as well as the proposal documents in national policy and legal system for municipal solid waste recycling (Indicator 2).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

After the project completion, the project effects have continued. By incorporating the method by reference which was exercised in pilot projects in four target cities, in order to identify the quantitative material flow from waste generation to its disposal, a macro perspective evaluation method at the national level, namely “Evaluation Indicator System for Developmental Circular Economy (2017)” was developed. It was confirmed that the contents of “Policy Framework” which reflect the outcomes of pilot projects have been incorporated into the several policies and regulations at national level.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal, “Municipal solid waste recycling is promoted in China.” was achieved. As a national policy and legislation for municipal solid waste recycling, “Leading Plan for Cyclic Evolution” was enacted in April 2017. This plan is equivalent to the “Thirteenth Five-Year Plan (2016-2020)” in the field of circular development (Indicator 1). According to the interview with implementing agency, the promotion of recycling development is considered as one of priorities under the “Fourteenth Five-Year Plan (2021-2025)” as well. In addition, the “Notice on construction of model city for circular economy No. 2154 (2015)” and the “Notice on construction of model city for segregation of recyclables (first phase) No.19 (2015)” were enacted. According to the interview with implementing agency, the “Notice on construction of model city for segregation of recyclables (first phase) No.19 (2015)” have made practiced in the non-targeted cities (99 model cities), so that food waste segregation and treatment activities have started with the financial support from Chinese Government. (Detailed information was not available.)

<Other Impacts at the time of Ex-post Evaluation>

According to the interview with implementing agency, it was identified at a certain city that waste reduction eventually reduced the burden for the municipality on the environmental sanitation, and which caused no waste being disposed at the landfill. As a result, the landfill was closed and was made the environmentally protected area. With a green and ecologically beautiful landscape appearing surrounding the cities, it was identified that the so-called NIMBY phenomena<sup>3</sup>, shown by citizens who are against the aversive facilities like landfill managed by the village enterprises to be constructed in the vicinities of their houses, were disappeared. It was also identified that through the pilot project for food waste recycling in Qingdao City, the collaboration mechanism between research institutes and trade organizations, between researchers and local governments and private corporations, have been newly established.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

<sup>2</sup> 3R represents an abbreviation for Reduce, Reuse and Recycle.

<sup>3</sup> NIMBY phenomena represent, “Not in My Backyard” meaning no construction of certain types of facilities in my own area, though not against the construction itself. The waste processing facility is considered as so-called “troublesome facility” or “aversive facility”. People understand the needs of such facility, but they are against it if it happens in the vicinities of their houses.

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results																
<p>Project Purpose: The establishment of national policy and legal system for municipal solid waste recycling is enhanced.</p>	<p>Indicator 1: The proposal documents in national policy and legal system for municipal solid waste recycling is developed.</p>	<p>Achievement Status: Achieved (continued) (Project Completion)</p> <ul style="list-style-type: none"> <li>Based on the debates among researchers of both Japan and China, reflecting the outcomes of pilot projects implemented by the project, the proposal documents as “Policy Framework” in national policy and legal system for municipal solid waste recycling were developed. Proposals include items, such as (i) promotion of municipal solid waste recycling, (ii) promotion of food waste recycling, (iii) implementation of policy for separation of recyclables, (iv) promotion of packaging waste recycling, (v) the establishment of platform for researchers of both Japan and China on EPR policy,<sup>4</sup> (vi) legalization of waste disposal operators and (vii) promotion of waste tire recycling.</li> </ul> <p>(Ex-post Evaluation)</p> <ul style="list-style-type: none"> <li>It was confirmed that following five proposals listed in the “Policy Framework” developed by the project were applied in the national policy and legal system for municipal solid waste recycling.</li> </ul>																
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	<p>Indicator 2: The outcomes generated through pilot projects implemented in target cities are incorporated into the proposal documents in national policy and legal system for municipal solid waste recycling.</p>	<p>Status of Achievement: Achieved (continued) (Project Completion)</p> <ul style="list-style-type: none"> <li>Referring to the outcomes through the pilot projects in the four target cities, “Policy Framework” and the proposal document to the government in the final report was developed.</li> </ul> <p>(Ex-post Evaluation)</p> <ul style="list-style-type: none"> <li>By incorporating the method by reference which was exercised in pilot projects in four target cities, in order to identify the quantitative material flow from waste generation to its disposal, a macro perspective evaluation method at the national level, namely “Evaluation Indicator System for Developmental Circular Economy (2017)” was developed. Material flow of this detailed level has never been prepared in China before. It was confirmed that the contents of “Policy Framework” which reflect the outcomes of pilot projects have been incorporated into the several policies and regulations at national level.</li> </ul>																

<sup>4</sup> EPR: Extended Producer Responsibilities represents a way of thinking that producers have a certain level of responsibilities for the environmental burden of the products throughout its entire life cycle (from selection of materials, manufacturing process, usage and to disposal)

Overall Goal: Municipal solid waste recycling is promoted in China.	Indicator 1: National policy and legislation for municipal solid waste recycling is enacted.	(Ex-post Evaluation) Achieved		
		Policy (Law)	Date enacted	Contents
		Leading Plan for Cyclic Evolution	April 2017	This is the equivalent to the National Five-Year Plan (Thirteenth Five-Year Plan) in the field of circular economy. The contents of “Policy Framework” prepared by the project were reflected on food waste and EPR policy in this policy.
		Notice of Construction of Model City for Circular Economy No. 2154, 2015	September 2015	This notice was issued with the purpose to promote in all cities on municipal waste recycling including food waste and packaging waste.
		Notice of Construction of Model City for Segregation of Household Recyclables (first phase) No.19, 2015	April 2015	In respond to “Notice on Implementation of Model City for Segregation of Recyclables (March 2014)”, 26 model cities were selected under the phase 1. Guiyang City and Xining City were selected.

Source: JICA documents, Questionnaire and interview with implementing agency

### 3 Efficiency

While the project period was as planned, the project cost exceeded the plan (ratio against the plan: 100% and 107%, respectively). The Outputs of the project were produced as planned. Therefore, the efficiency of the project is fair.

### 4 Sustainability

#### <Policy Aspect>

In the “Guidance on construction of resource recycling site (2017)”, the priority issues are the collection of lower value waste, such as housing waste, food waste and waste tires. According to DRCEP, the promotion of recycling-based development will be included in “Fourteenth Five-Year Plan (2021-2025)”. In Jiaying City and Qingdao City assisted by the project, the promotion of recycling-based development is one of the most important issues. The policy aspect of sustainability is said to be secured.

#### <Institutional Aspect>

Department of Resource Conservation and Environmental Protection (DRCER) is responsible for the policy formulation based on the results of pilot projects implemented by themselves for the purpose of recycling the waste. Under DRCER, Ecology Department provides the services for environmental management and prevention of pollutant, Commercial Department is responsible for the construction of solid waste management facilities, Construction of Housing Department provides the services of recycling for food waste, municipal pollutant and construction waste, and Finance Department manages the financial assistance on waste management, etc. The roles of those departments at the central level are well defined and each department has the linkage with respective department under the local governments, such as Development and Reform Commission on Environment, Center of Ecology of the City, Commercial and Trade of the City, Construction and Landscape of the City/Segregation of Waste of the City, and Finance of the City. In the Cities of Jiaying and Qingdao which provided the information, the manpower of each organization is reportedly sufficient. Considering the current status of policy promotion at each city, it is unlikely that they have any serious problems. It is reported that through the collaboration network on the municipal solid waste recycling between Japan and China established by the project, inviting those Chinese officials from China, the introduction session, the intercommunication among enterprises and seminars on the Japanese system on vehicle recycling and electric appliances recycling were held in Japan in March 2018.

#### <Technical Aspect>

In Jiaying City, those in charge of solid waste management have been engaged in each field, such as resource recycling, segregation of household recyclables, collection of recyclables, for long-term basis, thus they have been well trained. In Qingdao City, the project examined the required technical level for those in charge of waste management and trained them well. Therefore, it can be concluded that the technical level of those in charge of solid waste management at both cities has been secured. No information is available for other two cities. It is confirmed by the study that with the purpose of promoting the recycling of municipal solid waste, trainings organized by DRCEP for those officers in government and research institutes have been carried out on a timely basis. This is to maintain the technical capacity for those of implementing agency.

#### <Financial Aspect>

No detailed information has become available through the study. However, judging from the fact that multiple policies have become effective with the government funds, it is likely that the budget amount to some degree has been secured.

#### <Evaluation Result>

Through sufficient information was not available to judge the technical and financial aspects, it was confirmed that a certain level of conditions to maintain the project effect has been secured. Therefore, the sustainability of the project effects is fair.

### 5 Summary of the Evaluation

The Project Purpose, “The establishment of national policy and legal system for municipal solid waste recycling is enhanced” was achieved. The effects of the project have continued at the time of the ex-post evaluation, and the Overall Goal, “Municipal solid waste recycling is promoted in China” has been achieved. Regarding the sustainability, no problem was found in policy and institutional aspects. With limited information to judge the technical and financial aspects, a certain level of conditions has been secured in those aspects. As for efficiency, project cost exceeded the plan.

Considering all of the above points, this project is evaluated to be satisfactory.

## III. Recommendations & Lessons Learned

#### Lessons Learned for JICA:

- In terms of the formulation and implementation of the project, the right combination of the counterpart agency and the Japanese experts is a key to effectively and efficiently generate the outcome.

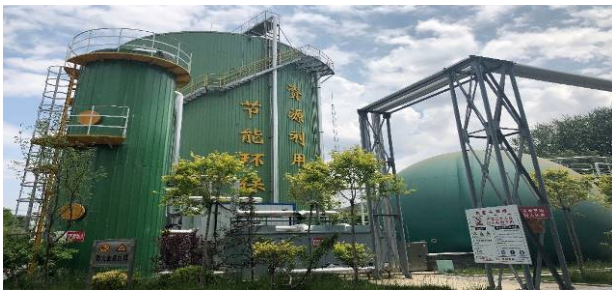
“National Development & Reform Commission, P. R. China”, the counterpart agency of the project, assumes the overall responsibility to develop the national policy and the national plan in China. Those who worked together in the project are the Japanese specialists and other members of Advisory Committee with advanced and sophisticated knowledge of relevant fields. The project was proceeded through the discussions in the form of working groups among all those concerned, which has eventually led to the development of “Policy Framework” reflecting the status of China as well as to make them incorporated into the national policy and legal system in China.



Food waste disposal center at Jiaying City. The facility was established by China and is being operated since 2012. It is currently operating by applying the lessons learned through the project.



Food waste disposal center at Qingdao City. The facility was established by China and is being operated since 2013. It is currently operating by applying the lessons learned through the project.



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Food waste disposal center at Xining City. The facility was established by China and is being operated since 2016. It is currently operating by applying the lessons learned through the project.

貴陽



Referring to the outputs of the project, etc., seminar on circular economy was held in Beijing in February 2017