

India

Kolkata Metropolitan Development Authority

Municipalities:

Uttarpara-Kotrung, Konnagar, Rishra

Serampore, Baidyabati, and Champdani

Technical Assistance

for

Kolkata Solid Waste Management

Improvement Project (Phase-2)

Final Report

February 2020

**Japan International Cooperation Agency
(JICA)**

Yachiyo Engineering Co., Ltd.

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| ID |
| JR |
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Map

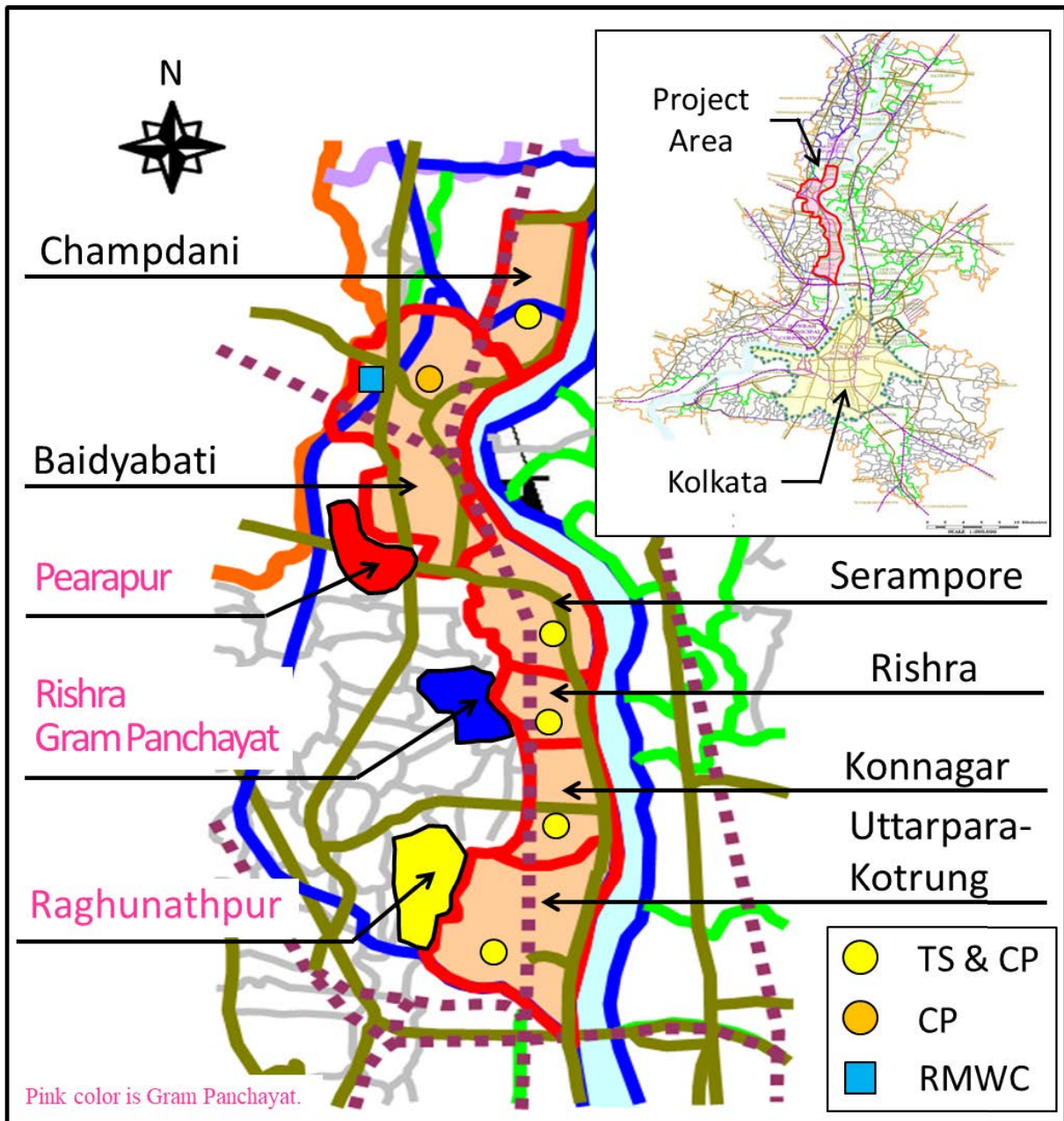


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List of Abbreviations

| Acronym | Definition |
|----------------|--|
| AD | Agriculture Department of West Bengal State |
| ADB | Asian Development Bank |
| BOC | Board of Councilors |
| C40 | The Large Cities Climate Leadership Group |
| CP | Compost Plant |
| C/P | Counterpart |
| DFPIH | Department of Food Processing Industries & Horticulture of West Bengal State |
| ED | Environmental Department of West Bengal State |
| FD | Forest Department of West Bengal State |
| INR | Indian Rupees |
| JICA | Japan International Cooperation Agency |
| JPT | JICA Project Team |
| KMDA | Kolkata Metropolitan Development Authority |
| MAD | Municipal Affairs Department of West Bengal |
| MOU | Minutes of Understanding |
| MSW | Municipal Solid Waste |
| NGO | Non-Governmental Organizations |
| NGT | National Green Tribunal |
| OJT | On-the-Job Training |
| O&M | Operation and Maintenance |
| PCR | Project Completion Report |
| QPR | Quarterly Progress Report |
| RWMC | Regional Waste Management Centre |
| SAPROF | Special Assistance for Project Formation |
| SDGs | Sustainable Development Goals |
| SHG | Self Help Group |
| SI | Sanitary Inspector |
| SUDA | State Urban Development Authority |
| SWM | Solid Waste Management |
| t/d | ton per day |
| TA Project | Technical Assistance for Kolkata Solid Waste Management Improvement Project |
| TS | Transfer Station |
| UD&MAD | Urban Development and Municipal Affairs Department of West Bengal State |
| WBPCB | West Bengal Pollution Control Board |
| WB State | West Bengal State |
| Q | Water Resource Investigation & Development Department of West Bengal State |
| 3R | Reduce, Reuse, Recycle |

Summary

1. Overall Process and Main Activities

The Final Report of “Technical Assistance for Kolkata Solid Waste Management Improvement Project (Phase 2)” (hereinafter referred to as “TA Project (2)”) compiles all activities and their results. The period of TA Project (2) was two years from April 2018 to March 2020. Figure S-1 shows the overall process and main activities.

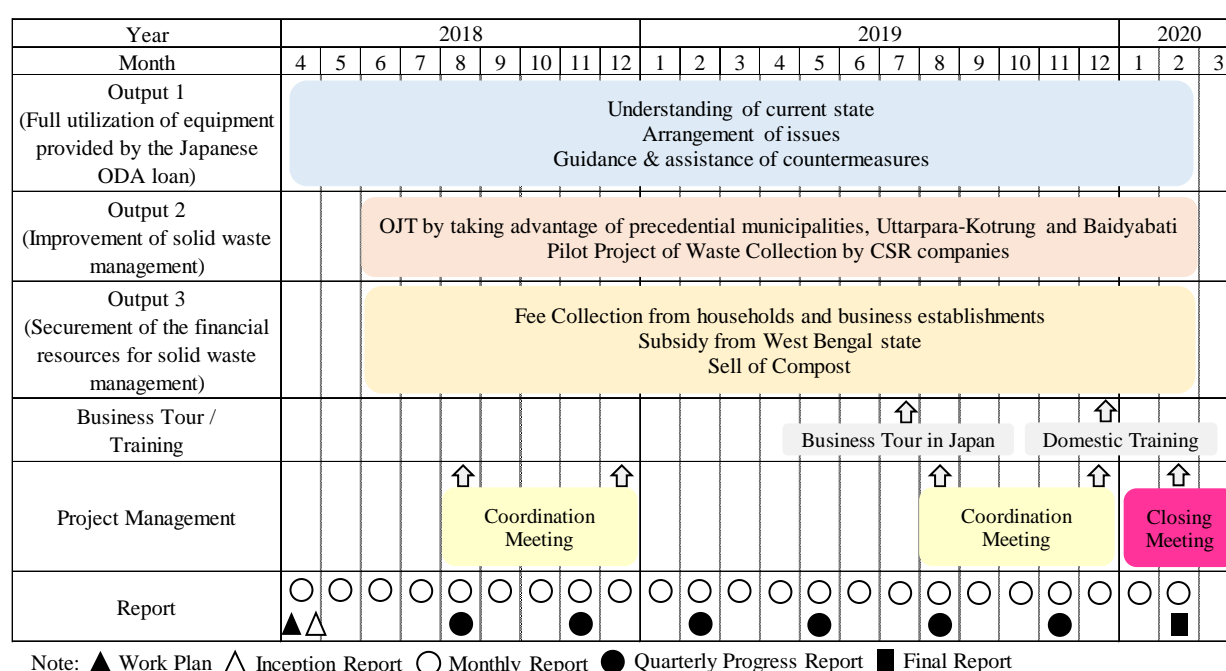


Figure S-1 Overall process and main activities

2. Summary of Project Purpose and Outputs

TA Project (2) aims to improve the solid waste management (hereinafter referred to as “SWM”) capacities of the target 6 municipalities (Uttarpara-Kotrung, Konnagar, Rishra, Serampore, Baidyabati and Champdani), and consists of three main components; [Output 1] Equipment provided by the Japanese ODA loan project is fully utilized; [Output 2] SWM in the target 6 municipalities is improved; and [Output 3] The financial resources of SWM are secured.

The Project Purpose of TA Project (2) is to expand the regional SWM system, which is created through TA Project (2) under the support of Kolkata Metropolitan Development Authority (hereinafter referred to as “KMDA”), to the West Bengal State (hereinafter referred to as “WB State”) by the KMDA. The following table summarizes the achievements of Project Purpose and Outputs.

Table S-1 Summary of achievements of each activity on project purpose and outputs

| Indicators | Achievements |
|--|---|
| [Project Purpose] The regional SWM system is expanded to the WB State. | |
| 1. The regional SWM system of TA Project (2) is expanded to other areas. | Though the KMDA was, at the beginning of TA Project (2), in charge of SWM in Kolkata Metropolitan Area including the target 6 municipalities, State Urban Development Authority (hereinafter referred to as “SUDA”) of WB State is now being in charge of SWM in all municipalities of the WB State including the Area. And the SUDA of WB State has been preparing a regional SWM plan for 2 Phases targeting 8 clusters in total since 2019. |
| 2. The target areas of regional SWM system in TA project (2) is expanded. | <ul style="list-style-type: none"> ◆ Baidyabati, Rishra and Uttarpara-Kotrung receive wastes from neighboring Gram Panchayats. ◆ Dankuni and Bhadreswar municipalities in addition to the original 6 municipalities will be the target areas of regional SWM system in TA Project (2). |
| [Output 1] Equipment provided by the Japanese ODA loan project is fully utilized. | |
| 1. Waste collection | <ul style="list-style-type: none"> ◆ All target municipalities collect wastes by using the equipment provided by the Japanese ODA loan project. ◆ All target municipalities maintain equipment regularly. |
| 2. Compost Plant (CP) | <ul style="list-style-type: none"> ◆ At the beginning of “Technical Assistance for Kolkata Solid Waste Management Improvement Project” (hereinafter referred to as “TA Project (1)”), CP was operated only in Uttarpara-Kotrung and Baidyabati. Though the treatment amounts are not so large, all target municipalities operate CPs at present and make composting products, which the all are sold, with the all separated organic wastes. And sales of the products covered 10%-40% of O&M expense of CP. ◆ All target municipalities maintain equipment and facilities regularly. |
| 3. Transfer Station (TS) | <ul style="list-style-type: none"> ◆ At the beginning of TA Project (2), Transfer Station (hereinafter referred to as “TS”) was not operated in Serampore and Champdani. However all target municipalities except for Baidyabati operate TSs at present. As Baidyabati is close to Regional Waste Management Center (hereinafter referred to as “RWMC”), they do not own it. ◆ All target municipalities maintain heavy equipment of TS regularly. |
| 4. Regional Waste Management Center (RWMC) | <ul style="list-style-type: none"> ◆ The private company carries out O&M of RWMC almost properly by using equipment provided by the Japanese ODA loan project under the control of Baidyabati. ◆ Urban Development and Municipal Affairs Department of WB State (hereinafter referred to as “UD&MAD”) is supporting O&M costs. |
| 5. Collection of night soil sludge | <ul style="list-style-type: none"> ◆ All target municipalities collect night soil sludge from each household by using equipment provided by the Japanese ODA loan project. ◆ All target municipalities maintain the equipment regularly. |
| [Output 2] SWM in the target 6 municipalities is improved. | |
| 1. WB State recognizes SWM improvement. | <ul style="list-style-type: none"> ◆ WB State recognized Uttarpara-Kotrung, Rishra and Baidyabati as SWM model municipalities in November 2018. ◆ JICA commended Uttarpara-Kotrung, Konnagar and Baidyabati as SWM model municipalities in the WB State. |

| Indicators | Achievements | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---------------------|--------------------|--------------------|---------------------|------|----|---------------------|---------------------|---------------------|--------------------|--------------------|---------------------|-----|-----|----|----|----|----|------|-----|-----|-----|-----|-----|-----|-----|
| <p>2. Discharging separated wastes</p> <p>(1) All Wards are instructed on discharging separated wastes.</p> <p>(2) The separation ratio is secured to be more than 70% in Wards receiving the instruction on discharging separated wastes.</p> | <p>◆ Table S-2 shows the number of wards which implemented guidance of discharging separated waste in the target 6 municipalities. All wards were instructed on discharging separated wastes in all target municipalities except for Serampore. In terms of Serampore, TA Project (2) instructed only markets.</p> <p>Table S-2 The number of wards which implemented guidance of discharging separated waste in the target 6 municipalities</p> <table border="1" data-bbox="531 544 1422 645"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> <th>CM</th> </tr> </thead> <tbody> <tr> <td>24 wards / 24 wards</td> <td>23 wards / 23 wards</td> <td>20 wards / 20 wards</td> <td>0 wards / 29 wards</td> <td>23wards / 22 wards</td> <td>22 wards / 22 wards</td> </tr> </tbody> </table> <p>UKM: Uttarpara-Kotrung, KM: Konnagar, RM: Rishra, SM: Serampore, BM: Baidyabati, and CM: Champdani</p> <p>◆ Table S-3 shows the ratio of waste separation in the target 6 municipalities. The average separation ratio was 66%. The target 70% was almost achieved. In detail, Uttarpara-Kotrung, Konnagar, Rishra and Baidyabati achieved 70%, but Serampore and Champdani did not achieved.</p> <p>Table S-3 The ratio of waste separation in the target 6 municipalities</p> <table border="1" data-bbox="576 958 1377 1030"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> <th>CM</th> <th>Ave.</th> </tr> </thead> <tbody> <tr> <td>85%</td> <td>80%</td> <td>75%</td> <td>25%</td> <td>90%</td> <td>40%</td> <td>66%</td> </tr> </tbody> </table> | UKM | KM | RM | SM | BM | CM | 24 wards / 24 wards | 23 wards / 23 wards | 20 wards / 20 wards | 0 wards / 29 wards | 23wards / 22 wards | 22 wards / 22 wards | UKM | KM | RM | SM | BM | CM | Ave. | 85% | 80% | 75% | 25% | 90% | 40% | 66% |
| UKM | KM | RM | SM | BM | CM | | | | | | | | | | | | | | | | | | | | | | |
| 24 wards / 24 wards | 23 wards / 23 wards | 20 wards / 20 wards | 0 wards / 29 wards | 23wards / 22 wards | 22 wards / 22 wards | | | | | | | | | | | | | | | | | | | | | | |
| UKM | KM | RM | SM | BM | CM | Ave. | | | | | | | | | | | | | | | | | | | | | |
| 85% | 80% | 75% | 25% | 90% | 40% | 66% | | | | | | | | | | | | | | | | | | | | | |
| <p>3. Waste collection</p> <p>(1) The waste collection ratio is more than 70%.</p> <p>(2) Equipment is regularly maintained.</p> | <p>◆ Table S-4 shows the ratio of waste collection in the target 6 municipalities. The average waste collection ratio was 78%. The target 70% was achieved. In detail, only Champdani did not achieved 70%.</p> <p>Table S-4 The ratio of waste collection in the target 6 municipalities</p> <table border="1" data-bbox="576 1227 1377 1299"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> <th>CM</th> <th>Ave.</th> </tr> </thead> <tbody> <tr> <td>90%</td> <td>83%</td> <td>85%</td> <td>87%</td> <td>97%</td> <td>27%</td> <td>78%</td> </tr> </tbody> </table> <p>◆ The waste collection equipment is maintained regularly in the workshop in each municipality.</p> | UKM | KM | RM | SM | BM | CM | Ave. | 90% | 83% | 85% | 87% | 97% | 27% | 78% | | | | | | | | | | | | |
| UKM | KM | RM | SM | BM | CM | Ave. | | | | | | | | | | | | | | | | | | | | | |
| 90% | 83% | 85% | 87% | 97% | 27% | 78% | | | | | | | | | | | | | | | | | | | | | |
| <p>4. CP</p> <p>(1) The minimum staff required for operation and maintenance (O&M) is allocated.</p> <p>(2) The treatment volume is increased by 100% from the start of TA Project (2).</p> <p>(3) The quality of composting product meets the standards.</p> | <p>◆ The minimum staff required for O&M is allocated in each target municipality.</p> <p>◆ All the target municipalities increased the treatment volumes by more than 100%.</p> <p>Table S-5 Rate of changes of the treatment volume from the beginning of the TA Project (2)</p> <table border="1" data-bbox="633 1827 1319 1899"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> <th>CM</th> </tr> </thead> <tbody> <tr> <td>250%</td> <td>1,250%</td> <td>320%</td> <td>300%</td> <td>2,000%</td> <td>200%</td> </tr> </tbody> </table> <p>◆ As result of the quality test in December 2019, the composting products in Uttarpara-Korung, Konnagar and Baidyabati, which have been active in waste separation, met the standards.</p> | UKM | KM | RM | SM | BM | CM | 250% | 1,250% | 320% | 300% | 2,000% | 200% | | | | | | | | | | | | | | |
| UKM | KM | RM | SM | BM | CM | | | | | | | | | | | | | | | | | | | | | | |
| 250% | 1,250% | 320% | 300% | 2,000% | 200% | | | | | | | | | | | | | | | | | | | | | | |

| Indicators | Achievements | | | | | | | | | | | | | | | | | | |
|--|---|------------------------|-------------|-----------|--|----|-----------|----------------------|--------------------|-------------|-----------|----|----|-------------------------|-----------------|--|-----------|--|--|
| | <p>Table S-6 Result of quality test of composting product</p> <table border="1"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> </tr> </thead> <tbody> <tr> <td>Satisfied</td> <td>Satisfied</td> <td>Unsatisfied</td> <td>Unsatisfied</td> <td>Satisfied</td> </tr> </tbody> </table> | UKM | KM | RM | SM | BM | Satisfied | Satisfied | Unsatisfied | Unsatisfied | Satisfied | | | | | | | | |
| UKM | KM | RM | SM | BM | | | | | | | | | | | | | | | |
| Satisfied | Satisfied | Unsatisfied | Unsatisfied | Satisfied | | | | | | | | | | | | | | | |
| <p>5. TS</p> <p>(1) The minimum staff required for O&M is allocated.</p> <p>(2) Valuables are extracted.</p> | <ul style="list-style-type: none"> ◆ The minimum staff required for O&M is allocated in each target municipality. ◆ Valuables are extracted in TS in each target municipality although the extraction amounts are small. <p style="text-align: center;">Table S-7 Current status on extract of valuables</p> <table border="1"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> <th>CM</th> </tr> </thead> <tbody> <tr> <td>OK</td> <td>OK</td> <td>OK</td> <td>OK</td> <td>OK</td> <td>OK</td> </tr> </tbody> </table> | UKM | KM | RM | SM | BM | CM | OK | OK | OK | OK | OK | OK | | | | | | |
| UKM | KM | RM | SM | BM | CM | | | | | | | | | | | | | | |
| OK | OK | OK | OK | OK | OK | | | | | | | | | | | | | | |
| <p>6. RWMC</p> <p>(1) Compaction and levelling are done sufficiently.</p> <p>(2) Soil covering is done regularly.</p> <p>(3) The quality of leachate treatment water meets the effluent standard.</p> <p>(4) The environmental monitoring is done regularly.</p> | <ul style="list-style-type: none"> ◆ Compaction and levelling have been done sufficiently. There are no complaints such as bad odor and waste flying in the air from neighbors. ◆ The intermediate soil covering was done in Cell-1. There are no complaints such as bad odor and waste flying in the air from neighbors. ◆ The quality test of leachate treatment water has been done regularly and the results have met the effluent standards. The amount of organic waste carried in RWMC was higher than the plan, and therefore circular treatment was implemented. ◆ The environmental monitoring have been done regularly by using equipment provided by the Japanese ODA loan project. | | | | | | | | | | | | | | | | | | |
| <p>7. Collection of night soil sludge</p> <p>(1) Proper amount of sludge is collected and brought to RWMC.</p> | <ul style="list-style-type: none"> ◆ Each target municipality has collect sludge appropriately. | | | | | | | | | | | | | | | | | | |
| [Output 3] The financial resources of SWM are secured. | | | | | | | | | | | | | | | | | | | |
| <p>1. Fee collection</p> <p>(1) Households</p> <p>(2) Business establishment</p> | <ul style="list-style-type: none"> ◆ The minister of the UD&MAD of WB State has ever stated to grant subsidies to the municipality in order to cover their non-sufficient finances for the SWM O&M expenditures. None of target 6 municipalities have come to implement the collection accordingly. ◆ Baidyabati, Konnagar and Serampore have started the collection and have been expanded it to numbers of other commercial entities. ◆ Uttara-Kotrung and Rishra have started the collection from celebration houses so far and are to extend to other commercial owners. <p style="text-align: center;">Table S-8 Current Status on SWM fee collection</p> <table border="1"> <thead> <tr> <th>Business establishment</th> <th>BM</th> <th>SM</th> <th>KM</th> <th>RM</th> <th>UKM</th> </tr> </thead> <tbody> <tr> <td>1.Celebration houses</td> <td colspan="5" style="text-align: center;">Already collecting</td> </tr> <tr> <td>2.Other establishment *</td> <td colspan="2" style="text-align: center;">Under expansion</td> <td colspan="2" style="text-align: center;">To expand</td> <td style="text-align: center;">Resolution finally on 27th Jan. 2020</td> </tr> </tbody> </table> <p style="text-align: center;">* Hotel, restaurant, mall, shop, market, etc.</p> | Business establishment | BM | SM | KM | RM | UKM | 1.Celebration houses | Already collecting | | | | | 2.Other establishment * | Under expansion | | To expand | | Resolution finally on 27 th Jan. 2020 |
| Business establishment | BM | SM | KM | RM | UKM | | | | | | | | | | | | | | |
| 1.Celebration houses | Already collecting | | | | | | | | | | | | | | | | | | |
| 2.Other establishment * | Under expansion | | To expand | | Resolution finally on 27 th Jan. 2020 | | | | | | | | | | | | | | |

| Indicators | Achievements |
|---|---|
| <p>2. Assistance from the WB State is secured.</p> <p>(1) O&M expense</p> <p>(2) Equipment</p> <p>(3) SWM improvement plan (Micro Plan)</p> | <p>Each municipality received the following assistance under the guidance of the JICA Project Team (hereinafter referred to as “JPT”) consisted of Japanese experts and local staff members of TA Project (2).</p> <ul style="list-style-type: none"> ◆ WB State provided a subsidy for O&M expense of RWMC. The UD&MAD of WB State has decided consignment of not only RWMC but also TS and CP of each target municipality, and launched the bid. ◆ In November 2018, each Municipality received Dumper, Fuel Operated Tipper and Battery Operated Tipper from the SUDA of WB State. ◆ Uttarpara-Kotrung, Rishra and Baidyabati received Tricycle, Fuel Operated Tipper and Battery Operated Tipper from the SUDA of WB State in December 2019. ◆ In December 2019, Environmental Department of WB State (hereinafter referred to as “ED”) provided a large tanker for Konnagar to transport the night soil sludge. ◆ West Bengal Pollution Control Board (hereinafter referred to as “WBPCB”) provided 15,800 sets of waste segregation bin and 25 units of Electrical Rickshaw Van for Uttarpara-Kotrung. ◆ The UD&MAD of WB State hired a local consultant to create SWM improvement plan (hereinafter referred to as “Micro Plan”) of ward wise, and will support SWM in the target 6 municipalities in accordance with the Micro Plan. ◆ Local consultant will submit the draft Micro Plan to each target municipality in February 2020. |
| <p>3. Securing the sales channels of composting products</p> | <ul style="list-style-type: none"> ◆ Uttarpara-Kotrung, Konnagar, Rishra, Serampore and Baidyabati made contracts with composting product distributors. All of their products have been sold to residents and distributors. |

Chapter 1 Basic Policy

1.1 Background

(1) Deteriorating Living Environment

Kolkata Metropolitan Area centers around Kolkata City (state capital of West Bengal), which is the third city of India, and is the economical and industrial center of the eastern part of India with a population of approximately 15 million people. Recently waste increase caused by population growth along with urbanization leads deterioration of living environment and it has been a big social problem. There were two main reasons of illegal dumping wastes in the streets and causing environmental pollution are 1) adequate and efficient solid waste management (hereinafter referred to as “SWM”) services are not provided, and 2) the residents' concern and cooperation for environmental conservation is low.

(2) Improvement of Living Environment by the Japanese ODA Loan Project

In order to improve the above issues and to secure the living and sanitary environment urgently, Japan International Cooperation Agency (hereinafter referred to as “JICA”) implemented “Project Formation Study on Kolkata Solid Waste Management Improvement Project (SAPROF study)” in 2005 for the target 6 municipalities of Kolkata Metropolitan Area in WB State. After that, JICA determined to implement “Kolkata Solid Waste Management Improvement Project (hereinafter referred to as “the Japanese ODA loan project”)”. The contents of this project is shown in Figure 1-1.

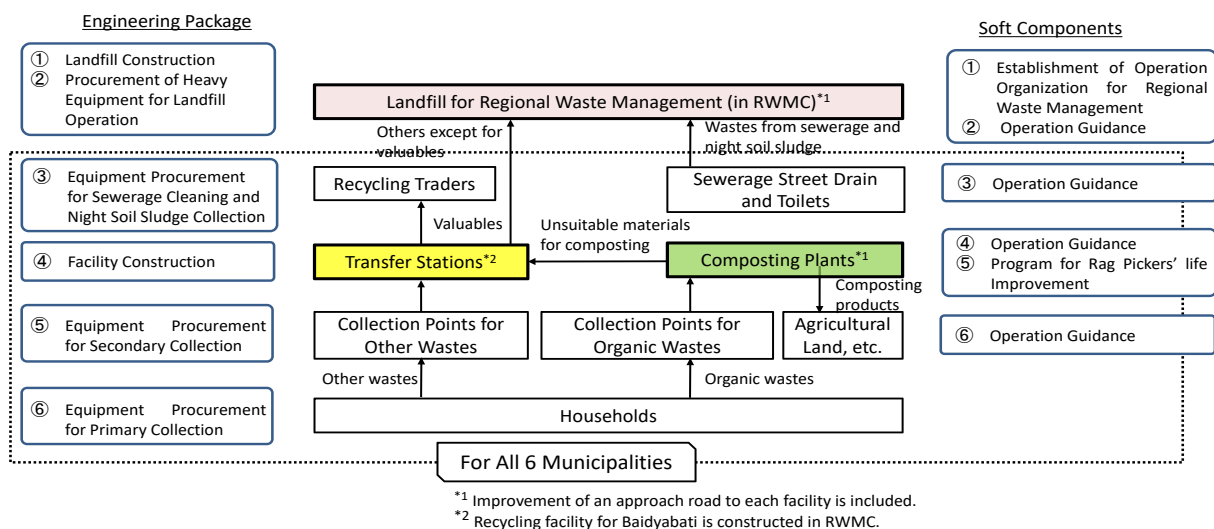


Figure 1-1 Contents of the Japanese ODA loan project

This Japanese ODA loan project adopts a comprehensive approach that combines a tangible aspect (Engineering Packages) and an intangible aspect (Soft Component), and **introduces the first regional waste disposal system in India and the first collection system of separated wastes in WB State.** Wastes are separated as “Organic wastes” and “Other wastes” at the stage of discharging from houses. Organic wastes are composted and utilized in agriculture. Valuables in other wastes are sorted by hand

at the TS and sold to recycling companies. It leads reduction of final disposal wastes. Still the remaining wastes are disposed at the final disposal site considering the environment.

(3) Utilization of Facility and Equipment after the Japanese ODA Loan Project

Although SWM equipment is procured and facility is constructed by the Japanese ODA Loan Project, procured equipment and vehicles are not maintained sufficiently, and equipment and facility are not utilized fully. It is because the capacity of officers and workers for SWM were not developed. Moreover, a new organization for facility management was not established and the budget for operation and maintenance (hereinafter referred to as “O&M”) was not secured. Under such circumstances, JICA implemented TA Project (1) in the target 6 municipalities, especially Uttarpara-Kotrung and Baidyabati which the procurement of equipment and construction of TS and CP were completed, for technical support from December 2015 until September 2016. As a result, Uttarpara-Kotrung and Baidyabati were able to improve SWM that could be good model for other four municipalities.

(4) Internal and External Evaluation for the Japanese ODA Loan Project

On December 1st, 2016, the Japanese ODA loan project **won the prestigious "Solid Waste Category Award" of C40*1 Cities Awards for the first time in India.** It has gained great attention in India, and many cities are considering the same management system as this project. The Hoogly prefectural office considers to procure collection equipment for towns and villages (Gram Panchayat) around the target 6 municipalities, and to transport collected wastes to the nearest facility of this project.

1.2 Purpose of TA Project (2)

Based on the above, TA Project (2) aims to not only provide technical assistance, such as facility O&M methods, mainly for the other four municipalities by utilizing experience and knowledge of Uttarpara-Kotrung and Baidyabati which have been recognized as model cities, but also to implement horizontal development of the regional SWM system and collection of separated wastes, which were introduced in the Japanese ODA loan project, to other cities.

1.3 Related organization in India

The related organization in India of TA Project (2) is as follows;

| | |
|----------------------------|--|
| 1. Target 6 municipalities | Champdani, Baidyabati, Serampore, Rishra, Konnagar and Uttarpara-Kotrung |
| 2. WB State government | 1. Kolkata Metropolitan Development Authority 2. Urban Development and Municipal Affairs Department |

*The C40 Cities Climate Leadership Group connects more than 90 of the world’s greatest cities. They have honored cities implementing outstanding efforts against climate change since 2013 (C40 Cities Awards). The Awards include categories such as clean energy, sustainable transportation and reducing wastes.

1.4 Implementation system

Implementation system of TA Project (2) is shown in Figure 1-2.

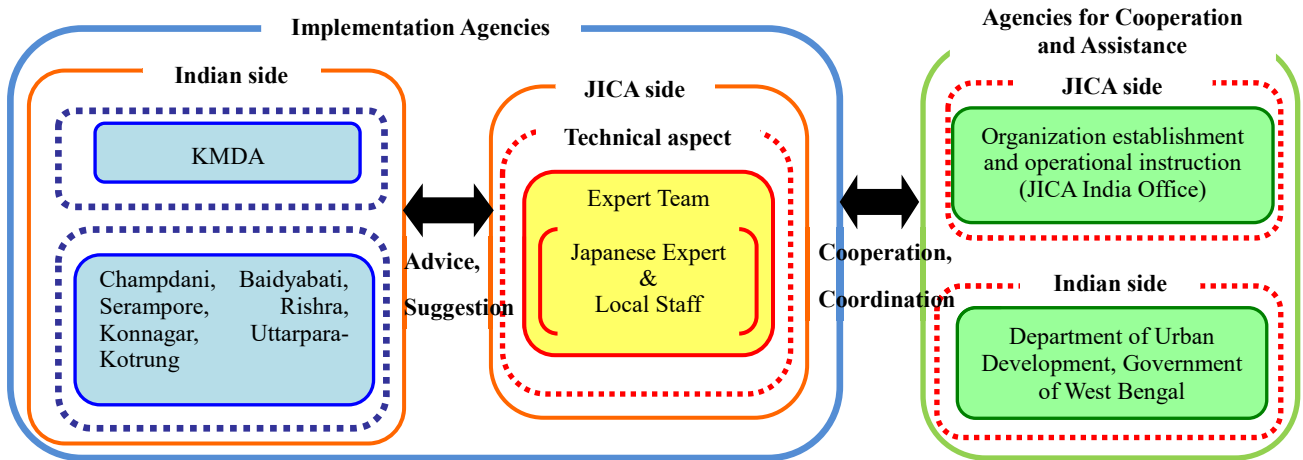


Figure 1-2 Implementation system of TA Project (2)

Chapter 2 Work Results

The current results of each work are described as follows:

2.1 Preparation in Japan

[101] Understanding the whole picture of the work

- The JPT understood the whole picture of the work by analyzing and examining the data arranged in TA Project (1), information from local staff hired in TA Project (1), and other available related documents.

[102] Examining the overall policy and work plan and arranging items of the field work

- Based on the above [101], the JPT examined the overall policy and work plan; arranged items of the field work; and prepared the survey plan.

[103] Preparation of inception report (draft)

- Based on the above [101] and [102], the JPT prepared Inception Report (draft) according to the basic structure as shown in the right box. After discussing with JICA, the JPT determined Inception Report (draft).

1. Background and purpose of TA Project (2)
2. Understanding of the status of waste management
3. Basic policy for technical assistance
4. Methodology of work implementation

2.2 Field Work

[201] Finalization of inception report

The JPT explained Inception Report to related agencies; confirmed and discussed its contents; and finalized it. The discussion focused on the following points.

- Consent and method of providing technical assistance for each municipality appropriate to the situation in each municipality
- Confirmation of future waste management plan including regional waste management with neighboring municipalities and villages, and necessary technical support

[202] Understanding the current state of overall SWM (collection, transportation and disposal) in the target 6 municipalities

- In order to understand the current status of waste management in each municipality and to identify issues, the JPT arranged the data and existing materials kept in the KMDA and each municipality. The JPT also collected and arranged the survey reports by JICA and other donors; and conducted the hearing survey to the other related agencies and site surveys of CPs, TSs, RWMC and others.

2.3 Implementation of Operation and Management Improvement Plan prepared in TA Project

(1)

[301] Improvement guidance for 2 model municipalities: Uttarpara-Kotrung and Baidyabati

(1) Uttarpara-Kotrung

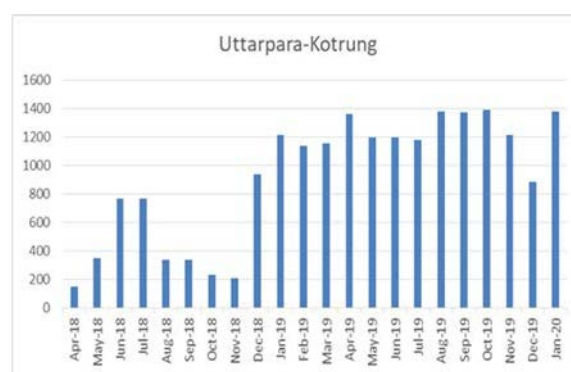
1) Waste Collection

[Status at the start of TA Project (2): as of April 2018]

- The ratio of waste separation at each household was 75% and the ratio of waste collection was 13%.
- Most of collected wastes were illegally dumped in the backyard of TS and CP.
- The waste collection equipment was not maintained.

[Status at the end of TA Project (2): as of January 2020]

- It was found that separated wastes, which were collected in the primary collection, were mixed together at the secondary collection points. The JPT held the periodical workshop for technical instruction for the primary collectors, staff of secondary collection and waste managers in wards.
- Uttarpara-Kotrung has periodically implemented waste collection in accordance with the O&M improvement plan created in TA Project (1).
- Uttarpara-Kotrung has regularly maintain the waste collection equipment.
- Based on a suggestion by counterpart (hereinafter referred to as “C/P”), the wastes are collected by the primary collection equipment are reloaded to the dumper, and then transported to TS and CP.
- The SUDA of WB State provided part of equipment which was shortage, and Uttarpara-Kotrung is preparing the utilization plan. It is expected that the ratio of waste collection and separation will be increased after being utilized.



Source: Data collected from the municipalities

Figure 2-1 Amount of collected waste (t/month)

[Issues]

- Separated wastes, which were collected in the primary collection, were mixed together at the secondary collection points. It is urgently required to increase the number of this equipment and workers. Though the SUDA of WB State provided equipment in December 2019, it is still shortage. The UD&MAD of WB State is expected to provide the insufficient equipment based on the Micro Plan.

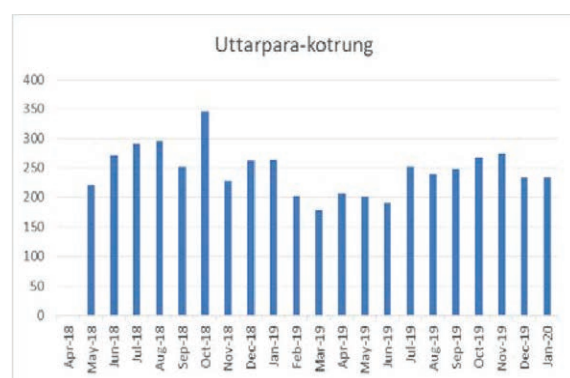
2) O&M of CP and TS

[Status at the start of TA Project (2): as of April 2018]

- The amount of organic wastes brought to CP was not measured. It was estimated at approximately 100 ton/month.
- There was no failure in the equipment of CP, and O&M of CP was appropriately.
- Uttarpara-Kotrung did not have certain customers for the composting product.
- O&M of TS was appropriately done.
- Waste pickers extracted the valuables at TS.

[Status at the end of TA Project (2): as of January 2020]

- The amount of organic wastes brought to CP was measured with the weighbridge.
- Based on a suggestion by the C/P, a deodorant spraying facility was installed in CP with the municipality's budget as a countermeasure against odor.
- Uttarpara-Kotrung has regularly maintain and repair equipment in CP and TS.
- CP and TS have been operated and maintained properly according to the O&M manual.
- All composting products have been sold to residents and distributors of composting product. The products meet the quality standards. Based on an idea of the C/P, Uttarpara-Kotrung has mixed the wastes with cow dung and the products to improve the quality.
- Valuables have been extracted by waste pickers in TS. After extraction of valuables by waste pickers, the private company (NEPRA) has taken Dry Waste for free. Accordingly the amount of waste transported from TS to RWMC has been reduced by 40%.



Source: Data collected from the municipalities

Figure 2-2 Amount of organic waste brought to CP (t/month)



Photo 1 Situation in CP in Uttarpara-Kotrung (as of December 2019)

[Issues]

- The amount of organic waste brought to CP is small due to the shortage of waste collection equipment. Consequently the treatment amount in CP is smaller than the planned amount. Though the SUDA of WB State provided equipment in December 2019, it is still shortage. The UD&MAD of WB State is expected to provide the insufficient waste collection equipment and support the

cost of the shortage of human resources based on the Micro Plan.

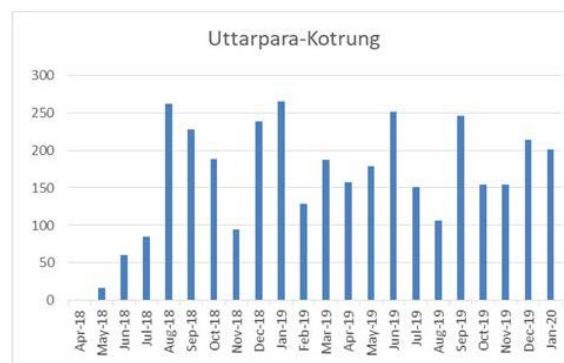
3) Collection of Night Soil Sludge

[Status at the start of TA Project (2): as of April 2018]

- All collected night soil sludge was illegally dumped in the backyard of CP and TS.
- The collection equipment was not maintained.

[Status at the end of TA Project (2): as of January 2020]

- The JPT periodically checked the collection situation of night solid sludge.
- Almost all night soil sludge has been transported to RWMC with a large tanker since August 2018.
- The collection equipment has been maintained regularly.



Source: Data collected from the municipalities

Figure 2-3 Amount of night soil sludge brought to RWMC (t/month)

[Issues]

- Not applicable.

(2) Baidyabati

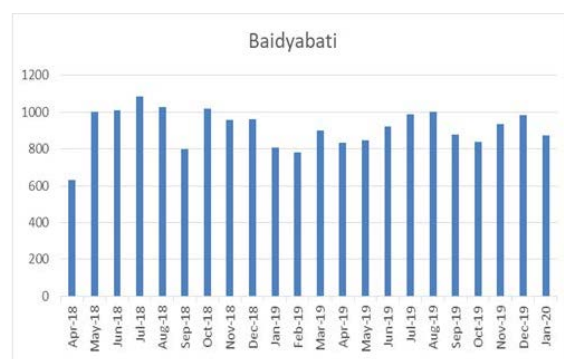
1) Waste Collection

[Status at the start of TA Project (2): as of April 2018]

- The ratio of waste separation at each household was 80% and the ratio of waste collection was 44%.
- The weighbridge was out of order due to failure.
- The waste collection equipment was not maintained.

[Status at the end of TA Project (2): as of January 2020]

- The ratio of waste separation at each household increased to 90% and the ratio of waste collection also increased to 97%.
- Baidyabati has periodically implemented waste collection in accordance with the O&M improvement plan created in TA Project (1).
- Waste collection equipment is maintained properly.
- The weighbridge was repaired in December



Source: Data collected from the municipalities

Figure 2-4 Amount of collected waste (t/month)

2018, and began to be used again.

- The SUDA of WB State provided part of equipment which was shortage, and Baidyabati is preparing the utilization plan. It is expected that the ratio of waste collection and separation will be increased after being utilized

[Issues]

- Waste collection equipment is shortage, same as Uttarpara-Kotrung mentioned above. Though the SUDA of WB State provided equipment in December 2019, it is still shortage. WB State is expected to provide the insufficient equipment for waste collection and support the cost of the shortage of human resources based on the Micro Plan.

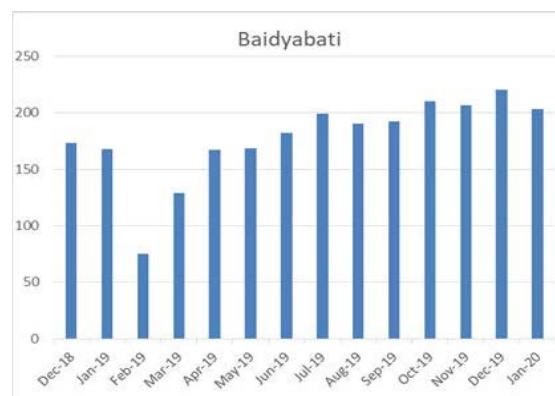
2) O&M of CP

[Status at the start of TA Project (2): as of April 2018]

- A private company has carried out O&M.
- The amount of organic wastes brought to CP was not measured.
- The mixed wastes were piled up in CP, and O&M was not appropriately.

[Status at the end of TA Project (2): as of January 2020]

- Baidyabati moved the existing mixed wastes piled up in CP to RWMC from the end of August, and this work was finished in March 2019.
- The private company started making composting products with the separated organic wastes from December 2018, and still now continues making them with the separated organic wastes.
- These products are sold to distributors of composting products. The products meet the quality standards.
- Based on a suggestion by the C/P, in order to prevent from generating bad odor, the prevention of the spread of leachate was done by utilizing residues rejected in the process of making composting products.
- Sanitary Inspectors (hereinafter referred to as “SI”) held a monthly meeting to monitor the O&M managed by the private company.



Source: Data collected from the municipalities

Figure 2-5 Amount of organic waste brought to CP (t/month)



Photo 2 Situation in CP in Baidyabati (as of December 2019)

[Issues]

- The amount of organic waste brought to CP is small due to the shortage of waste collection equipment and manpower. Consequently the treatment amount in CP is smaller than the planned amount. Though the SUDA of WB State provided equipment in December 2019, it is still shortage. WB State is expected to provide the insufficient waste collection equipment and support the cost of the shortage of human resources based on the Micro Plan.

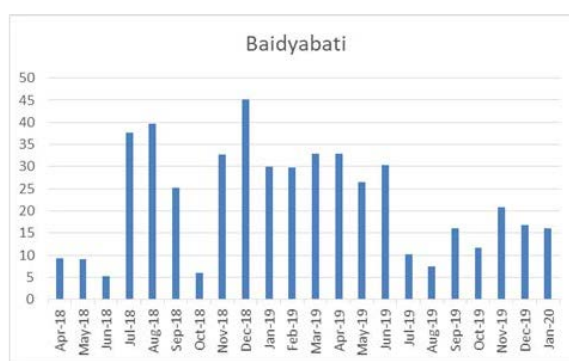
3) Collection of Night Soil Sludge

[Status at the start of TA Project (2): as of April 2018]

- Baidyabati and a private company collected night soil sludge.
- The private company illegally dumped the collected sludge in bogs and other places.

[Status at the end of TA Project (2): as of January 2020]

- Baidyabati periodically checked the collection situation of night solid sludge.
- Baidyabati also periodically maintained equipment.
- The collection by the private company was stopped and Baidyabati started collecting the entire amount from July 2018. Consequently the amount transported to the treatment facility in RWMC was increased.
- The transportation amount has been decreased since July 2019 due to breakdown of the treatment facility in RWMC.



Source: Data collected from the municipalities

Figure 2-6 Amount of night soil sludge brought to RWMC (t/month)

[Issues]

- Repairing the treatment facility is required urgently. WB State is preparing outsourcing of O&M managed by a private company in RWMC, including the repair.

[302] Improvement guidance for other 4 municipalities: Champdani, Serampore, Rishra and Konnagar

(1) Champdani

1) Waste Collection

[Status at the start of TA Project (2): as of April 2018]

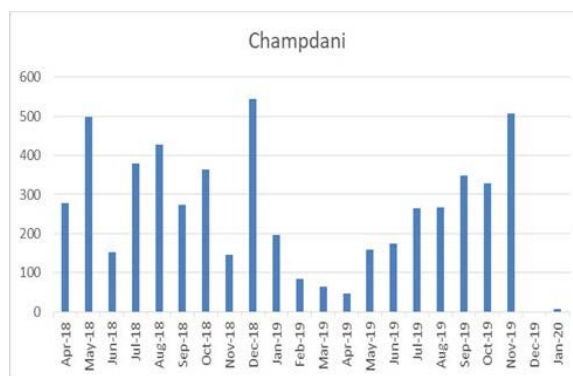
- The ratio of waste separation at each household was 0% and the ratio of waste collection was

22%.

- The weighbridge was out of order due to failure.
- The waste collection equipment was not maintained.

[Status at the end of TA Project (2): as of January 2020]

- The ratio of waste separation at each household increased to 40%.
- Uttarpara-Kotrung has regularly maintain and repair equipment in CP and TS.
- Although the JPT started instructing the collection of separated wastes from June 2018, separation has hardly progressed due to the lack of staff and equipment.
- The weighbridge was repaired in February 2019, and began to be used again.
- Champdani reclaimed low land by using the collected wastes, requested by the landowner.
- Champdani purchased six primary collection equipment which was insufficient in January 2020. Therefore it is expected that collection amount of wastes will increase by using the equipment. It is necessary



Source: Data collected from the municipalities

Figure 2-7 Amount of collected waste (t/month)

[Issues]

- The motivation of the mayor and SI for SWM has been very low. As a result, Champdani reclaimed low land by using the collected wastes. The severe instruction from the UD&MAD of WB State to Champdani is required. WB State is expected to provide the insufficient waste collection equipment and support the cost of the shortage of human resources based on the Micro Plan.

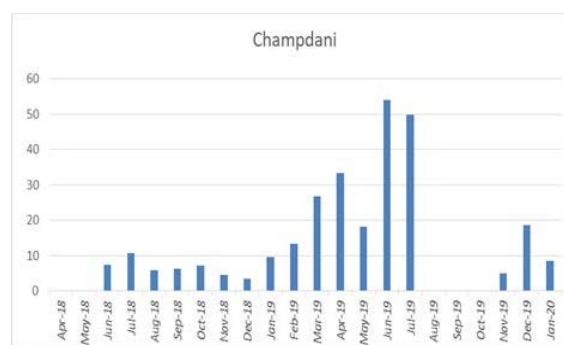
2) O&M of CP and TS

[Status at the start of TA Project (2): as of April 2018]

- CP and TS were not operated. Wastes were piled up in front of TS.
- The waste collection equipment was not maintained.

[Status at the end of TA Project (2): as of January 2020]

- Champdani conducted the periodical instruction and monitoring of O&M of CP and TS, and held the monthly meetings.



Source: Data collected from the municipalities

Figure 2-8 Amount of organic waste brought to CP (t/month)

- From February 2019, Champdani started removing the existing mixed wastes that had been piled up in front of TS. And all existing wastes were removed completely in December 2019.
- The amount of organic wastes brought to CP has increased gradually since January 2019. However it had been impossible to measure the weight of wastes brought to CP from August to October 2019 because Champdani has not employ an operator of the weighbridge.
- It is not realized to sell the composting products and to test the quality.



Photo 3 Situation in CP in Champdani (as of December 2019)

[Issues]

- The motivation of the mayor and SI for SWM has been low, same as “1) Waste Collection” mentioned above. The severe instruction from the UD&MAD of WB State to Champdani is required. WB State is expected to provide the insufficient waste collection equipment and support the cost of the shortage of human resources based on the Micro Plan.

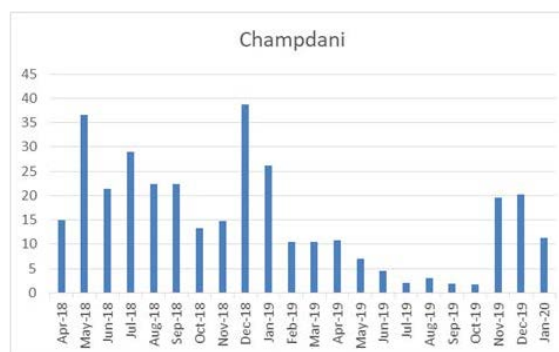
3) Collection of Night Soil Sludge

[Status at the start of TA Project (2): as of April 2018]

- Approximately 50% of the night soil sludge was transported to the treatment facility in RWMC and treated. The remaining 50% was illegally dumped in bogs and rivers.

[Status at the end of TA Project (2): as of January 2020]

- Champdani periodically checked the collection situation of night solid sludge.
- Champdani periodically maintained the equipment regularly.
- The amount of night soil sludge brought to RWMC has been decreased since July 2019 because the treatment facility has been broken.



Source: Data collected from the municipalities

Figure 2-9 Amount of night soil sludge brought to RWMC (t/month)

[Issues]

- Repairing the treatment facility is required urgently. WB State is preparing outsourcing of O&M managed by a private company in RWMC, including the repair.

(2) Konnagar

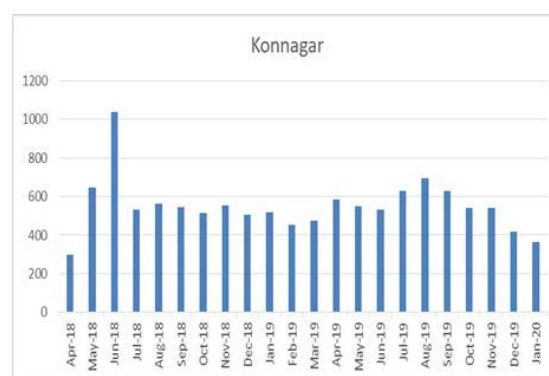
1) Waste Collection

[Status at the start of TA Project (2): as of April 2018]

- The ratio of waste separation at each household was 15% and the ratio of waste collection was 38%.
- The weighbridge was out of order due to failure.
- The waste collection equipment was not maintained.

[Status at the end of TA Project (2): as of January 2020]

- The ratio of waste separation at each household increased to 80% and the ratio of waste collection also increased to 83%.
- Konnagar has periodically implemented waste collection in accordance with the O&M improvement plan created in TA Project (1).
- Konnagar periodically maintained the equipment regularly.
- The weighbridge was repaired from August to November 2019. After the repair was completed, Konnagar measured the amount of waste collection properly.
- Based on a suggestion by the C/P, Konnagar purchased two electrical auto tippers, and is collecting waste by using them.
- Konnagar has started the pilot project of the waste collection in commercial area by Self Help Group (hereinafter referred to as “SHG”) since January 2020.
- Konnagar has started separate collection of harmful waste and electronic waste (hereinafter referred to as “E-waste”) after SI suggested it since January 2020.



Source: Data collected from the municipalities

Figure 2-10 Amount of collected waste (t/month)

[Issues]

- Waste collection equipment is shortage, same as Uttarpara-Kotrung mentioned above. WB State is expected to provide the insufficient equipment for waste collection based on the Micro Plan. WB State is expected to provide the insufficient waste collection equipment and support the cost of the shortage of human resources based on the Micro Plan.

2) O&M of CP and TS

[Status at the start of TA Project (2): as of April 2018]

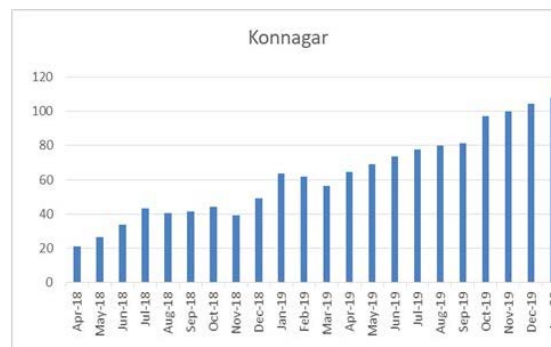
- Konnagar has worked on composting production using organic wastes transported into CP

although the amount of production has been small.

- However the production process was not appropriate.
- The roof was damaged and the trommel screen (rotary sorter) was out of order.
- Konnagar did not have certain customers for the composting product.
- Waste pickers extracted the valuables were not extracted at TS, but TS was operated appropriately.

[Status at the end of TA Project (2): as of January 2020]

- Konnagar conducted the periodical instruction and monitoring of O&M of CP and TS, and held the monthly meetings.
- Konnagar implemented O&M of TS and CP in accordance with the O&M manual.
- The composting product is sold to distributors of composting products. The products meet the quality standards.
- Based on a suggestion by the C/P, Konnagar covered CP by vinyl sheet and fired straw to prevent from occurring bad odor.
- In October 2019, Konnagar repaired the roof and the trommel screen (rotary sorter) in CP.
- Konnagar has employed four waste pickers, and extracted valuables at TS since June 2019. After extraction of valuables by waste pickers, the private company (NEPRA) has taken Dry Waste for free. Accordingly the amount of waste transported from TS to RWMC has been reduced.



Source: Data collected from the municipalities

Figure 2-11 Amount of organic waste brought to CP (t/month)



Photo 4 Situation in CP in Konnagar (as of December 2019)

[Issues]

- Waste collection equipment and workers are shortage, same as Uttarpara-Kotrung mentioned above. Therefore the amount of organic waste to be brought to CP is few. WB State is expected to provide the insufficient equipment for waste collection and workers based on the Micro Plan.

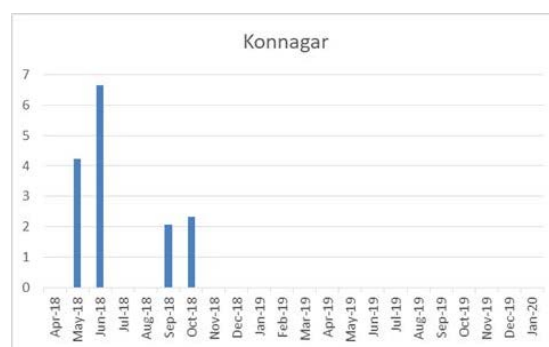
3) Collection of Night Soil Sludge

[Status at the start of TA Project (2): as of April 2018]

- The whole amount of collected night soil sludge was illegally dumped in bogs and rivers.

[Status at the end of TA Project (2): as of January 2020]

- The JPT checked the collection situation of night solid sludge.
- In the several months following the start of TA Project (2), Konnagar transported a small amount of collected night soil sludge to the treatment facility in RWMC.
- However, Konnagar stopped the sludge transportation due to the long transportation distance to RWMC and transportation cost. Accordingly the whole amount of collected night soil sludge is still illegally dumped in bogs and rivers.
- On the other hand, Konnagar received the subsidy from the ED of WB State to purchase a large tanker for transporting the night soil sludge to RWMC, and now its bidding is carried out.



Source: Data collected from the municipalities

Figure 2-12 Amount of night soil sludge brought to RWMC (t/month)

[Issues]

- Konnagar would transport the whole amount of collected night soil sludge to RWMC after they obtained a large tanker funded by the ED of WB State for transporting the night soil sludge.

(3) Rishra

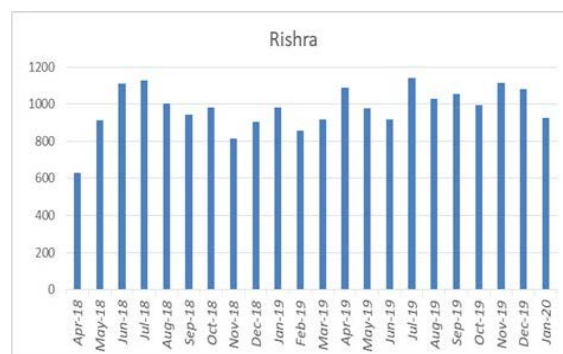
1) Waste Collection

[Status at the start of TA Project (2): as of April 2018]

- The ratio of waste separation at each household was 15% and the ratio of waste collection was 41%.
- The weighbridge was operated.
- The waste collection equipment was not maintained.

[Status at the end of TA Project (2): as of January 2020]

- The ratio of waste separation at each household increased to 75% and the ratio of waste collection also increased to 85%.
- Rishra has periodically implemented waste collection in accordance with the O&M improvement plan created in TA Project (1).
- Rishra periodically maintained the equipment regularly.
- In November 2019, Rishra purchased two



Source: Data collected from the municipalities

Figure 2-13 Amount of collected waste (t/month)

units of electric primary collection equipment with the own budget.

- It is under consideration to start the pilot project of the waste collection in commercial area by SHG.
- The SUDA of WB State provided part of equipment which was shortage, and Rishra is preparing the utilization plan. It is expected that the ratio of waste collection and separation will be increased after being utilized.

[Issues]

- Waste collection equipment and workers are shortage, same as Uttarpara-Kotrung mentioned above. The UD&MAD of WB State is expected to provide the insufficient waste collection equipment and support the cost of the shortage of human resources based on the Micro Plan.

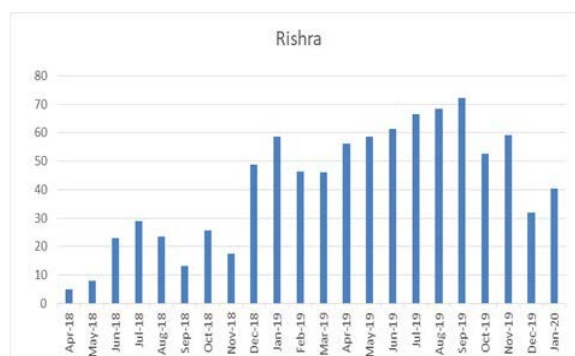
2) O&M of CP and TS

[Status at the start of TA Project (2): as of April 2018]

- Rishra has worked on composting production using organic wastes transported into CP although the amount of production has been small. However the production process was not appropriate. The trommel screen (rotary sorter) was out of order.
- Rishra did not have certain customers for the composting product.
- Valuables were not extracted at TS, but TS was operated appropriately.

[Status at the end of TA Project (2): as of January 2020]

- Rishra conducted the periodical instruction and monitoring of O&M of CP and TS, and held the monthly meetings.
- Rishra has periodically implemented O&M in accordance with the O&M improvement manual created in TA Project (1).
- In September 2019, Rishra completed the repair of the trommel screen. And in October 2019, Rishra restarted making composting products with this trammel screen.
- Rishra has employed 4 workers, and extracted valuables at TS since July 2019.
- All composting products are sold to distributors of composting product. These products meet the quality standards.



Source: Data collected from the municipalities

Figure 2-14 Amount of organic waste brought to CP (t/month)



Photo 5 Situation in CP in Rishra (as of December 2019)

- The equipment has been maintained regularly.

[Issues]

- Waste collection equipment and workers are shortage, same as Uttarpara-Kotrung mentioned above. WB State is expected to provide the insufficient equipment for waste collection based on the Micro Plan.

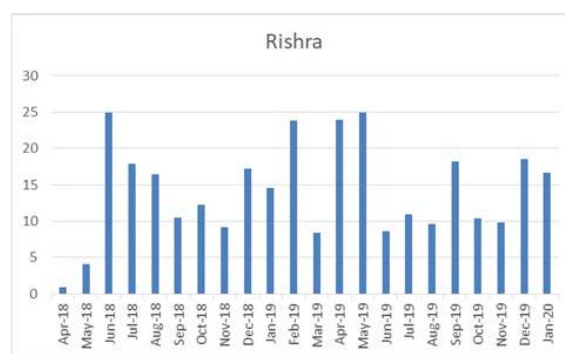
3) Collection of Night Soil Sludge

[Status at the start of TA Project (2): as of April 2018]

- Almost the whole amount of collected night soil sludge was illegally dumped in bogs and rivers.
- The equipment was not maintained

[Status at the end of TA Project (2): as of January 2020]

- Rishra checked the collection situation of night solid sludge.
- Although Rishra has transported the collected night soil sludge to the treatment facility in RWMC since June 2018, the collection amount of night soil sludge was few for some months because there was a breakdown of collection equipment at that time broken. Rishra repaired the equipment by their own budget.
- As Rishra is far from RWMC, transportation cost of night soil sludge is costly. Therefore not all sludge could be brought to RWMC.
- Rishra has carried out the regular maintenance of waste collection equipment.
- On the other hand, Rishra is applying for a subsidy from the ED of WB State in order to purchase a large tanker for transporting the night soil sludge to RWMC.



Source: Data collected from the municipalities

Figure 2-15 Amount of night soil sludge brought to RWMC (t/month)

[Issues]

- After getting a big tanker provided from the ED of WB State for transportation of night soil sludge, Rishra will bring all the sludge to RWMC.

(4) Serampore

1) Waste Collection

[Status at the start of TA Project (2): as of April 2018]

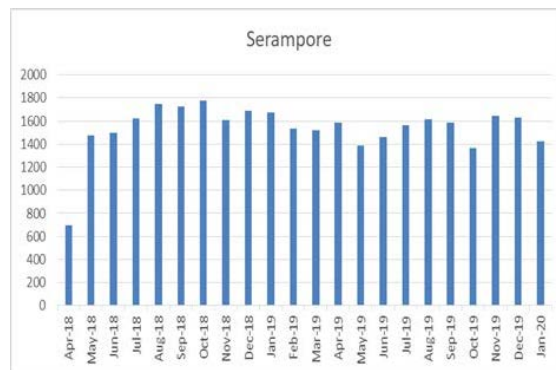
- The ratio of waste separation at each household was 0% and the ratio of waste collection was

35%.

- The weighbridge was operated.
- The waste collection equipment was not maintained.

[Status at the end of TA Project (2): as of January 2020]

- The ratio of waste separation at each household increased to 25% and the ratio of waste collection also increased to 85%.
- Serampore has periodically implemented waste collection in accordance with the O&M improvement plan created in TA Project (1).
- Serampore periodically maintained the equipment regularly.
- Having not yet conducted waste separation, Serampore started collection of separated waste since July 2019.
- Though the JPT strongly instructed discharging separated wastes, Serampore did make a decision that they will not implement it until receiving waste bins for the wastes from the UD&MAD of WB State.



Source: Data collected from the municipalities

Figure 2-16 Amount of collected waste (t/month)

[Issues]

- In terms of discharging separated wastes, waste bins will be distributed based on the Micro Plan. Though Serampore will resume waste separation at household level after they received the bins, the severe instruction from the UD&MAD of WB State to Serampore is required to do it. The UD&MAD of WB State is expected to provide the insufficient waste collection equipment and support the cost of the shortage of human resources based on the Micro Plan, same as Uttarpara-Kotrung mentioned above.

2) O&M of CP and TS

[Status at the start of TA Project (2): as of April 2018]

- CP and TS were not operated and existing mixed wastes are piled up in CP and TS.
- The roof in CP was damaged.
- The equipment was not maintained.

[Status at the end of TA Project (2): as of January 2020]

- From August 2018, Serampore started to move the existing mixed wastes piled up in CP and TS to RWMC. The piled wastes in TS was moved completely in January 2019.
- Serampore restarted making composting products with the existing mixed wastes, and moved approximately 80% of the piled wastes in CP.

- Serampore also started making composting products with the separated wastes from the markets from July 2019.
- These products are periodically sold to distributors of composting products.
- The quality of composting products made of the mixed wastes does not meet the standards.
- The roof in CP was repaired in November 2019.
- The equipment has been maintained regularly.



Photo 6 Situation in CP in Serampore (as of December 2019)

[Issues]

- Serampore makes composting products with not the separated wastes, but the mixed wastes. As stated previously, based on the Micro Plan, after the UD&MAD of WB State distributed the waste bins at household level, the severe instruction from the UD&MAD of WB State to Serampore is required to start waste separation at each household.

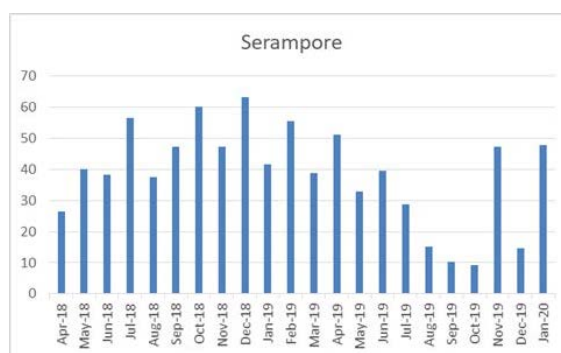
3) Collection of Night Soil Sludge

[Status at the start of TA Project (2): as of April 2018]

- Approximately 60% of the night soil sludge was transported to the treatment facility in RWMC and treated. The remaining 40% was illegally dumped in bogs and rivers.
- The equipment was not maintained.

[Status at the end of TA Project (2): as of January 2020]

- The JPT periodically checked the collection situation of night solid sludge.
- Although the collected night soil sludge has been transported to the treatment facility in RWMC since May 2018, more than half of the sludge is still illegally dumped.
- In July 2019, the transportation amount was decreased due to breakdown of the treatment facility in RWMC.
- The equipment has been maintained regularly.



Source: Data collected from the municipalities

Figure 2-17 Amount of night soil sludge brought to RWMC (t/month)

[Issues]

- Repairing the treatment facility is required urgently. WB State is preparing outsourcing of O&M managed by a private company in RWMC, including the repair.

[303] Operation guidance of RWMC

[Status at the start of TA Project (2): as of April 2018]

- The works of compacting and levelling were done sufficiently.
- The work of covering soil was not done sufficiently.
- The quality of leachate treatment water met the effluent standard.
- The environmental monitoring was not done regularly.
- The municipality and the private company held the monthly meeting.

[Status at the end of TA Project (2): as of January 2020]

- The works of compacting and levelling have been done sufficiently by using heavy equipment provided by the Japanese ODA loan project.
- Intermediate soil cover has been done in Cell-1 after the wastes filled up by the top of embankment.
- The quality test of leachate treatment water has been done regularly and the results have met the effluent standards. The amount of organic waste carried in RWMC was higher than the plan, and therefore circular treatment was implemented.
- The environmental monitoring has been done regularly by using equipment provided by the Japanese ODA loan project.
- Baidyabati and the private company held the monthly meeting.



Photo 7 Soil covering work (as of December 2019)



Photo 8 Leachate treatment (as of December 2019)

[Issues]

- Baidyabati entrusts O&M of RWMC to the private company with the subsidy from WB State. However, the slow payment of WB State puts a burden on the private company. It is required to establish a system to receive the subsidy from WB State at a fixed time according to the contract.

[304] Improvement guidance on environmental education

(1) Awareness Raising Activity on Environmental Education

1) Target Areas

Champdani, Rishra, Konnagar, Uttarpara-Kotrung and Baidyabati



2) Activity Contents

Activity contents and photos of environmental education are shown in Table 2-1.

Table 2-1 Activities and Photos of Environmental Education

| Activities | Photos |
|--|--|
| <p>1. Awareness raising activity on discharging separated wastes (guidance by door-to-door visits)</p> <p>The JPT visited each household in each Ward; show the leaflet for awareness raising; explain the importance of waste separation at each household and discharging wastes appropriately without illegal dumping; and encourage the participation and cooperation of residents. And the JPT distributed a booklet which explains the waste disposal system to residents who did not well understand the system so that they can easily do so. The JPT conducted this activity for 51,951 families in Uttarpara-Kotrung, 24,635 in Konnagar, 32,817 in Rishra, 23,598 in Baidyabati and 27,594 in Champdani.</p> |  <p>Guidance of waste separation by door-to-door visits</p> |
| <p>2. Community meeting for people handling wastes at home such as housekeepers</p> <p>The JPT provided education about responsibility and awareness raising for waste separation and environmental conservation on a community basis, including slum areas. Firstly, the JPT showed a DVD to have the attendances easily understand outline of the waste disposal system. Secondly, the JPT explained the necessities of current state and requested them to cooperate with the waste separation and environmental conservation. After that, the JPT held a meeting for exchanging opinions with them, and the JPT has collected opinions and complaints from them. Finally the JPT shared them with the chairmen and SIs.</p> |  <p>Community meeting</p> |
| <p>3. Meetings for residents and schools</p> <p>The JPT provided explanations twice a month in each municipality for the purpose of promoting residents' understanding of SWM fee collection. In the meetings as well as the above community meeting, firstly, the JPT showed a DVD to have the attendances easily understand outline of the waste disposal system. Secondly, the JPT explained the necessities of current state and requested them to cooperate with the waste separation and environmental conservation. After that, the JPT held a meeting for exchanging opinions with them, and the JPT has collected opinions and complaints from them. Finally</p> |  <p>Meeting at a school</p> |

| Activities | Photos |
|--|--|
| <p>the JPT shared them with the chairmen and SIs. In primary and secondary schools, the JPT installed the banner, booklet and leaflet to promote waste separation.</p> | |
| <p>4. Bus tour</p> <p>The JPT held a bus tour to request SHG and municipalities (Uttarpara-Kotrung, Konnagar and Rishra) to promote understanding and cooperation on waste collection. They visited Chandrahati and Gram Panchayat where waste collection implemented by SHG is being done and exchanged opinions.</p> |  <p style="text-align: center;">Bus tour</p> |
| <p>5. Sales promotion campaign for composting product</p> <p>The JPT carried out the sales promotion campaign of composting products for residents in municipalities (Uttarpara-Kotrung, Konnagar, Rishra and Baidyabati) in order to encourage the improvement of use and awareness of composting products, and the cooperation in discharging separated wastes. The JPT sold them in venues of book fair and community meeting as well as streets.</p> |  <p style="text-align: center;">Sales promotion campaign for composting product (Venue of Book Fair)</p> |
| <p>6. Street drama</p> <p>The JPT carried out street drama in collaboration with the sales promotion campaign of composting products in Uttarpara-Kotrung, Konnagar, Rishra and Baidyabati in order to encourage the cooperation in discharging separated wastes, and the improvement of use and awareness of composting products. The places were selected by the JPT and SI of each municipality in advance to secure safety.</p> <p>And the JPT conducted miking for the promotion so that many residents can know it.</p> |  <p style="text-align: center;">Street drama in collaboration with the sales promotion campaign</p> |

| Activities | Photos |
|--|---|
| <p>7. Monitoring of primary collection</p> <p>The JPT visited each household and sites of primary collection workers in order to check the accuracy of waste separation, collection time, discharging situation, etc. If the quality of waste separation is bad, the JPT reported the situation to the chairmen and SIs to request their cooperation for waste separation by each household, and the JPT conducted guidance of waste separation depending on the situation.</p> |  <p style="text-align: center;">Monitoring of primary collection</p> |
| <p>8. Weekly meeting with SI</p> <p>The JPT reported opinions and complaints from residents in addition to the collection situation in order to promote and improve the awareness on SWM of SI.</p> |  <p style="text-align: center;">Weekly meeting with SI</p> |

3) Awareness raising activities on waste separation and SWM fee collection

[Status at the start of TA Project (2): as of April 2018]

- The awareness raising activity on waste separation was not done in all 5 municipalities other than Uttarpara-Kotrung.
- The awareness raising activity on SWM fee collection was not done in all 5 municipalities.

[Status at the end of TA Project (2): as of January 2020]

- As shown in Table 2-2, the awareness raising activities on waste separation and SWM fee collection were carried out in all Wards in all 5 municipalities other than Serampore. Serampore did make a decision that they will not implement it until receiving waste bins for the wastes from the UD&MAD of WB State.
- The awareness raising activity on waste separation were carried out in the following Wards. And [301], [305] and [401] show the results of the ratio of waste separation and SWM fee collection in each municipality.

Table 2-2 Nos. of awareness activities in the wards of each municipality

| Timing | Uttarpara-Kotrung | Rishra | Konnagar | Serampore | Baidyabati | Champdani |
|------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| As of April 2018 | 24 Wards / 24 Wards | 0 Wards / 23 Wards | 0 Wards / 20 Wards | 0 Wards / 29 Wards | 0 Wards / 23 Wards | 0 Wards / 22 Wards |
| | Waste separation | — | — | — | — | — |
| As of | 24 Wards / 24 | 16 Wards / 23 | 20 Wards / 20 | 0 Wards / | 23 Wards / 23 | 18 Wards / 22 |

| | | | | | | |
|--------------|---------------------------------|---------------------------------|---------------------------------|----------|---------------------------------|---------------------------------|
| January 2020 | Wards | Wards | Wards | 29 Wards | Wards | Wards |
| | Waste separation Fee collection | Waste separation Fee collection | Waste separation Fee collection | — | Waste separation Fee collection | Waste separation Fee collection |

Source: Edited by the JPT

[Issues]

- For 5 municipalities excluding Serampore, it is necessary to work on the awareness raising activities regularly after the completion of TA Project (2).
- For Serampore, it is necessary to work on waste separation at each household in all Wards immediately.

[305] Guidance on financial improvement related to SWM

(1) Guidance on collection of necessary data for SWM budget request and practical training of SWM cost estimate

[Status at the start of TA Project (2): as of April 2018]

Both conservancy and financial departments made an estimate of the SWM cost through the JPT instruction for the first time in April of 2017 during the phase-1 of the Technical Assistance (TA) project aiming to require SWM sector-own budget to municipality. However, their knowledge and skills have not yet reached a practical level because of only one-time practice that they ever experienced. In this context, a regular training to them was considered necessary accordingly.

[Status at the end of TA Project (2): as of January 2020]

Have been done twice ever: from July through October of 2018, and from January through February 2019.

The conservancy and financial departments of the target 6 municipalities have completed the SWM cost estimate of FY 2019/20 jointly with the JPT and presented it at the Board of Councilors’ meetings respectively as well as to the Chairmen.

[Issues]

Cost estimation is an important management standard for the SWM and essentially is to be calculated regularly.

(2) Guidance to establish the SWM budget system

[Status at the start of TA Project (2): as of April 2018]

The system of the municipality budget is stipulated by the State Government applying the single account system that is to say one account for all municipal departments. A “department-wise or function-wise

budget system” has not been applied yet.

The available funds of the municipalities are not sufficient enough. It is why the function-wise budget system is strongly recommended so that the each department head can deepen the financial management on his own department and execute the budget effectively and efficiently. The JPT had to ignite the municipality in adopting separate budget, firstly of SWM sector.

[Status at the end of TA Project (2): as of January 2020]

The JPT instructed the finance department head through intensive discussions and appealed the necessity at the BOC meetings. Consequently, two municipalities, namely Konnagar and Rishra, have understood and formulated the separate budget of SWM, and committed that they will prepare it constantly every financial year.

[Issues]

Other 4 municipalities are yet to put it into practice.

(3) Establishment of users’ fee collection system and guidance on its implementation

[Status at the start of TA Project (2): as of April 2018]

In July 2017, the State Government and the target 6 municipalities resolved that the SWM fees for household would be 5 to 20 INR /month and the fees for commercial/industrial users would be optional for each municipality. Following this resolution, three municipalities, namely Serampore, Konnagar and Baidyabati, have started the collection of commercial/industrial users’ fee from October 2017, November 2017 and April 2018 respectively.

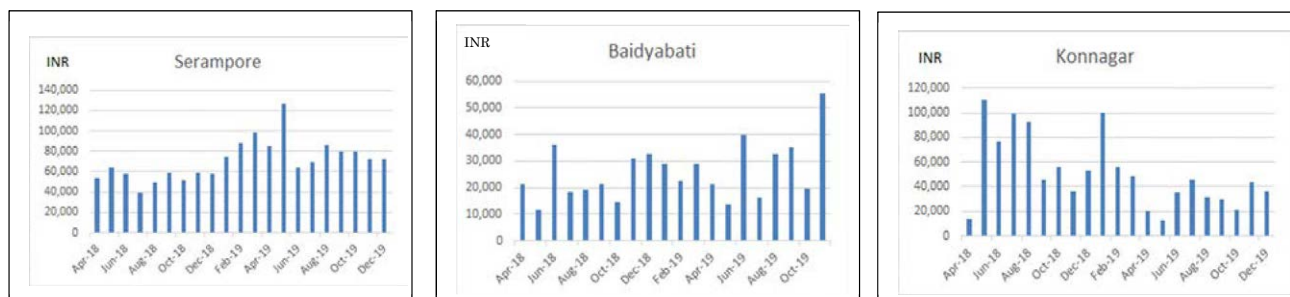
[Status at the end of TA Project (2): as of January 2020]

The JPT visited and appealed intensively the chairmen and councilors to get them start and expand, and has reached the following development.

1) Fee Collection: Business establishment

i) Serampore, Baidyabati and Konnagar-Kotrung

The collection amount of 3 municipalities is presented below. Firstly they started the fee collection from celebration houses only. Then they have extended it to other business establishment such as restaurants, hotels, markets, etc.: Serampore in September 2018, Baidyabati in September 2019 and Konnagar in November 2019 respectively.

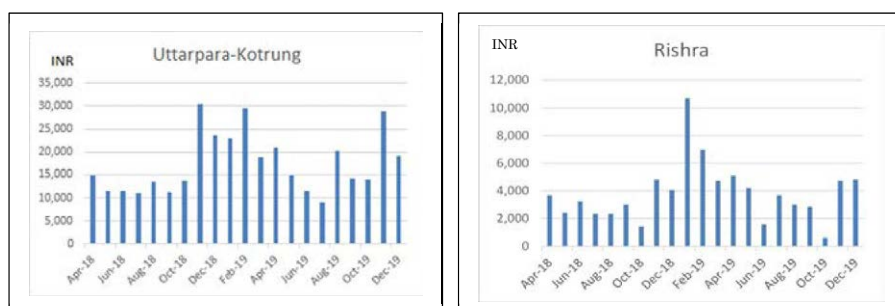


Source: Data collected from the municipalities

Figure 2-18 Actual fee collection from business establishment in the three municipalities

ii) Uttarpara-Kotrung and Rishra

It gets unveiled for the first time in January 2020 that both municipalities have been actually collecting the fees from celebration houses. Until that time the JPT could not confirm the data in the budget book due to their mixed- use of budget-code number that hid the data behind. The collection amount is figured out below. With regard to extension, Uttarpara-Kotrung finally resolved it at the BOC meeting held on 27th of January. The chairman of Rsihra stated to start it as well.






Source: Data collected from the municipalities

Figure 2-19 Actual fee collection from business establishment in the two municipalities

Table 2-3 Progress of the period

| Municipality | Activities |
|--------------|--|
| Baidyabati | <ul style="list-style-type: none"> Celebration houses were the main targets for fee collection. In addition, on June 21st of 2019, the Board of Councilors resolved to expand the collection to other business establishment such as hotels, restaurants and shops. In August 2019, the municipality has finally started to collect from all these establishment. |
| Serampore | <ul style="list-style-type: none"> Being suggested by the JPT, the meeting with business owners was held on 9th September 2019 at Ward #20, where the chairman is elected, with more than 200 participants including citizens. The chairman gave a speech telling the experiences in Japan, the necessity of garbage segregation at source and cooperation of users' fee payment. |



| | | |
|-------------------|--|---|
| Konnagar | <ul style="list-style-type: none"> The third awareness meeting was held on 26th August 2019 with 16 participants. The chairman explained the necessity of users' fee and stated the collection in compliance with the BOC resolution. |  |
| Rishra | <ul style="list-style-type: none"> The meeting was held on 17th September 2019 with participants of 35 business owners as well as 20 persons of the municipality including chairman, councilors and executive officer, etc. The chairman and the executive office stated to start collection from November 2019; however, it is yet to start at moment but committed it from February 2020. |  |
| Uttarpara-Kotrung | <ul style="list-style-type: none"> The meeting was made on 24th September 2019 at Ward #2 and Ward #7 with participants of 40 business owners and 25 SHG individual members. The councilor of Ward #7 explained the importance of SWM and asked the cooperation of users' fee payment stating that the chairman will go through with it also from other establishment than celebration houses. The results of questionnaire revealed that 24 business owners (more than 90 % among 26 respondents) showed a favor of paying users' fee |  |
| Champdani | <ul style="list-style-type: none"> Yet to collect even from celebration houses. The authorities stated to plan it after the election is over, so that the JPT provided some examples of resolutions adopted by other municipalities. | |

2) Fee Collection: Households

SWM fee collection by municipalities is clearly stipulated in the municipality law “The West Bengal Municipal Act, 1993” and the State Government’s SWM strategy “State Policy and Strategy on Solid Waste Management for Urban Areas of West Bengal”. However, for political and other reasons, the collection of service fee (including SWM fee and water charge) has been stopped from around 2011 by the State Government order. In recent years, the amount of discharged waste has increased due to the population increase and life standard improvement, and the SWM expenses are also increasing every year accordingly. However, as a matter of fact, the municipalities’ financial resources are limited and depend largely on the State Government subsidies. Taking into consideration this, the JPT has continued the awareness activities to the municipal authorities and citizens.

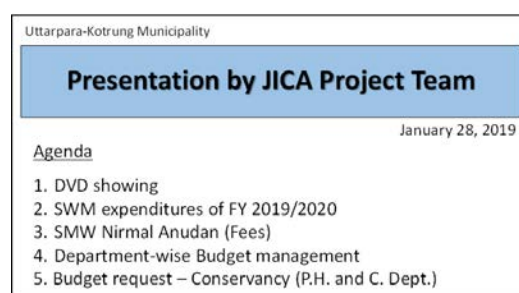


Photo 9 Agenda of presentation

i) Presentation to Board-of-Councilors

- The JPT jointly with SIs made a presentation (see the agenda shown on the right) at BOC meetings of the target 6 municipalities over the months of January and February 2019, when the year budget was simultaneously under the preparation there.
- The recovery cost was calculated at 60 to 100 INR/month/household like below. However, the JPT suggested to set at 30 INR/month/household for first 3 years, that is “1 Rupee per Day”, to mitigate the financial impact to citizens. The BOC supported the suggestion.

Table 2-4 Fee suggested by JPT

| Date of BOC Meeting | | January 2019 | | | February 2019 | | |
|---------------------------|----------|---------------------------|----|----|---------------|----|----|
| | | 28 | 29 | 30 | 2 | 5 | 20 |
| Municipalities | | UKM | KM | RM | BM | SM | CM |
| Cost (1&2 collection) | INR/M/HH | 100 | 70 | 90 | 60 | 80 | 70 |
| Suggested fee (2~3 years) | INR/M/HH | 30 (= 1.0 INR/Day) | | | | | |

Note: UKM=Uttarpara-Kotrung, KM=Konnagar, RM=Rishra, BM=Baidyabati, SM=Serampore, CM=Champdani
Source: Edited by the JPT through joint-work with the municipalities

ii) Awareness convention with citizens

Konnagar and Serampore held a large scale of awareness convention with 200 to 300 participants (see the right photo in Konnagar). The chairman, other municipality top management and the JPT made a speech appealing the citizens’ support to sustain the municipal SWM operation. Both chairmen mentioned the necessity of segregation at source and users’ fee payment. In Konnagar, more than 70% of 180 respondents to questionnaires answered YES to paying users’ fee.



Photo 10 Scene of awareness convention

Table 2-5 Results of questionnaire

| Date of Convention | 12 th June 2019 | 9 th September 2019 |
|-------------------------|-------------------------------------|--------------------------------|
| | Konnagar | Serampore |
| Nos. of participants | 300 | 200 |
| Q to users’ fee payment | 70% of 180 respondents answered YES | — |

Source: Edited by the JPT

iii) Awareness meeting with ward community

Considering the possible commencement of users’ fee collection from citizens in near future, despite of against wind blowing at the time before municipal council member election in April 2020, the JPT jointly with ward councilors held the awareness meetings at ward community like below table (the photo on the right is Rishra #12 ward). At the meeting, the JPT appealed how



Photo 11 Scene of awareness meeting

important the segregation at source is by showing visually the SWM services of municipality with 2 DVDs. It should be noted that many opinions arose from citizens saying “we are ready to pay the fee but why the municipality does not collect it”.

Table 2-6 Ward meetings and nos. of participant

| Municipality | Uttarpara-Kotrung | Konnagar | Baidyabati | Rishra |
|----------------------|------------------------------|------------------------------|-----------------------------|------------------------------|
| Ward no. and date | # 9 (19 th Nov.) | # 18 (23 rd Nov.) | # 3 (26 th Nov.) | # 12 (27 th Nov.) |
| | # 10 (21 th Nov.) | # 10 (25 th Nov.) | - | # 7 (28 th Nov.) |
| Nos. of participants | 190 (M:60, F:130) | 210 (M:160, F:50) | 50 | 95 (M:50, F:45) |

Source: Numbers counted by the municipality and the JPT

As described above 1) to 3), a mood that is favor to users’ fee collection, has been created among the municipalities and citizens. However, despite of this favor wind, political atmospheres brought by the elections (both Federal Parliament in April/May 2019 and municipal council in April 2020) have shrunk the climate of collection of service fee and charges.

[Issues]

1) Business establishment

5 municipalities (Baidyabati, Serampore, Rishra, Konnagar and Uttarpara-Kotrung) have already prepared their fee table, and every chairmen and SIs have a firm intention to enlarge more the target numbers.

2) Households

Citizens now recognize through the awareness meetings the importance of municipal SWM services for their daily life and a large mobilization of human and financial resources spent to it, so that the citizens are now having a will to pay fees for the services delivered. On the other hand, in spite of intensive meetings with the chairmen and the BOC, the chairmen have been yet to decide due to political involvement with then elections. Obviously the fee collection from household will definitely contribute a lot to municipal revenue increase and secure the sustainable funds for the SWM O&M expenditures, so that the chairmen’s decisive step toward this is strongly expected.

(4) Proposal on other financial resources

[Status at the start of TA Project (2): as of April 2018]

The following financial resources are also important as well as the users’ fee, so that the JPT planned to provide guidance and support to the municipalities.

- Funds for the expenses of road sweeping and drainage cleaning
- Funds for the expenses of septic sludge cleaning
- Revenue increase from property tax

[Status at the end of TA Project (2): as of January 2020]

1) Funds for the expenses of road sweeping and drainage cleaning:

It is revealed that; the Central Government guidelines state that these expenses shall be appropriated with such municipal taxes, namely property tax, etc. The JPT explained it and suggested the municipality self-financing at the Board of Councilors' meeting of the target 6 municipalities in January and February 2019 respectively.

2) Funds for the expenses of septic sludge cleaning:

The municipalities collect the fees for on-demand service delivery. However, the fees collected could cover only 1/7 of the entire cost. The JPT strongly recommended the municipalities to review the fee.

3) Revenue increase from property tax:

The annual value of lands and building is re-assessed periodically in 5 years by the Central Valuation Board of the State Government. The municipalities revealed that the last re-assessment was carried out in 2016 and 2017 and could not expect an increase of revenues on property tax for a while until year 2021 and 2022 accordingly.

[Issues]

The municipalities need to review the above-mentioned 1) and 2) by themselves. On the other hand, none of intervention right in 3) can be given to the municipalities.

[306] Guidance on expansion of regional SWM

- Rishra has received wastes from Rishra Gram Panchayat and Uttarpara-Kotrung has also received wastes from Konaipur and Nabagram Gram Panchayat. Both municipalities have kept records of the received amounts from each Gram Panchayat.
- The SUDA of WB State hired a local consultant, and is making a plan of a regional SWM system including two municipalities (Dankuni and Bhadreswar) in addition to the target 6 municipalities covered by TA Project (2). And the SUDA of WB State requested The JPT to extend TA Project (2) and to support the above work.

2.4 Support for the Japanese ODA Loan Project and Extraction of Lessons Learnt

[401] Support for preparation of Quarterly Progress Report (QPR) and Project Completion Report (PCR)

The JPT assisted the KMDA to prepare Project Completion Report (hereinafter referred to as "PCR"), and the KMDA submitted PCR to JICA in April 2019. Moreover the JPT conducted the regular check on the progress of the KMDA's preparation of Quarterly Progress Report (hereinafter referred to as "QPR"), and reported its progress to JICA. Since all members of the KMDA related to the Japanese

ODA Loan Project have retired or moved to other department, the KMDA could not make QPR.

[402] Confirmation of the situation in SWM field in India

In order to compare the contents of Municipal Solid Waste (hereinafter referred to as “MSW”) Rules 2016, and of the state and country SWM strategies to the situation of MSW in large, middle and small cities in India, the JPT gathered information, which is bibliographic survey, and created a comparison table as mentioned in Table 2-7. Improvement rate of each process related to SWM supported by TA Project (2) is shown in Table 3-3. Uttarpara-Kotrung and Serampore are categorized as middle cities. Rishra, Konnagar, Baidyabati and Champdani are categorized as small cities. Waste collection ratio, which is door to door collection from households, in the target 5 municipalities except for Champdani are 83-93% that is higher than average in large middle and small cities in India. In addition, the ratio of waste separation at source in the target 6 municipalities are higher than average in large middle and small cities in India. Especially the ratio which is 75-90% in Uttarpara-Kotrung, Rishra and Baidyabati are outstanding. Moreover the JPT confirmed that processing ratio of wet base for recycle in the target 5 municipalities except for Serampore is higher than the average of each scale. In Kolkata which is categorized as a large city, Asian Development Bank (ADB) is implementing a SWM improvement project which is including a feasibility study on introduction of Waste to Energy. Therefore it is expected that SWM in Kolkata will be improved more than before.

Table 2-7 Situation of waste management in large, middle and small cities in India

| Item | Small City | Middle City | Large City |
|--|-----------------------------|---|--|
| Population | Less than 1 lakhs | 1 to 10 lakh | 10 lakh and above |
| Number of cities | 2500 | 396 cities | 40 cities |
| Per capita waste generation | 0.2-0.35 kg/capita/day | 0.3-0.45 kg/capita/day | More than 0.45 to 0.7 kg/capita/day |
| Waste separation ratio at source | 0-15% | 0-20% | 0-25% |
| Door to door collection from household | 30-70% | 60-75% | 65-80% |
| Wet waste processing | Less than 5% | Less than 15% | Less than 15% |
| Dry waste processing | Less than 5% | Less than 10% | Less than 10% |
| Type of vehicles used for Transportation of waste | Semi-trailers and Tricycles | Tricycle, Hydraulic dumper, Compactors and Trucks | Tricycle, Hydraulic Dumper, Compactors and Trucks |
| Treatment Facility | Compost Plant | Compost Plant RDF Plant Waste-to-Energy Plant | Compost Plant, Biomethanation Plant RDF Plant Waste-to-Energy Plant |
| Disposal Facility | Landfill & Dumpsite | Landfill & Dumpsite | Landfill & Dumpsite |
| Waste transferred to Landfill against total generation | 50-70% | 65-75% | 70-85% |

Source: Bibliographic survey by JPT

[403] Extraction of lessons learnt from the Japanese ODA loan project

See Chapter 4.

2.5 Others

2.5.1 Implementation of business tour in Japan and in-country training

See 5.1.2.

2.5.2 Coordination meeting

During the implementation of TA Project (2), Coordination Meeting organized by the Minister of the UD&MAD of WB State was held 4 times as follows. This meeting discussed the progress of TA Project (2) and countermeasures of the issues.

Table 2-8 Agenda items of coordination meeting

| | Schedule | Agenda Items |
|-------------------------|----------------------------------|---|
| 1 st meeting | August 8 th , 2018 | <ul style="list-style-type: none"> • Improvement of the ratio of waste separation • Securement of manpower and equipment which are currently lack for waste collection • Improvement of the ratio of carrying night soil sludge in RWMC |
| 2 nd meeting | December 18 th , 2018 | <ul style="list-style-type: none"> • Improvement of the ratio of waste separation • Establishment of monitoring committee • Securement of manpower and equipment which are currently lack for waste collection • Securement of equipment for quality management at CP |
| 3 rd meeting | August 6 th , 2019 | <ul style="list-style-type: none"> • Establishment of monitoring committee • Securement of manpower and equipment which are currently lack for waste collection • Extension of the project |
| 4 th meeting | December 19 th , 2019 | <ul style="list-style-type: none"> • Establishment of monitoring committee • Securement of manpower and equipment which are currently lack for waste collection |

Source: the JPT

2.5.3 Site visit by West Bengal Pollution Control Board (WBPCB)

On June 6th, 2018, the JPT invited the WBPCB to TS, CP and RWMC being assisted by TA Project (2). After discussing the outline and issues of TA Project (2) with the WBPCB, the JPT requested the WBPCB to support TA Project (2). As a result, the WBPCB provided Uttarpara-Kotrung with buckets for waste separation and E-Rickshaw Van after this site visit,



Photo 12 Scenes of site visit of the WBPCB

2.5.4 Information exchange with Hoogly District

On April 9th, 2019, representatives of Hoogly District visited TA Project (2) in order to visit the sites of facilities of TA Project, and to discuss the possibility of the regional SWM in TA Project (2) to be expanded to other areas.





Photo 13 Scenes of site visit by Hoogly District

2.5.5 Advertising activity for the successful case of waste management

TA Project (2) invited the media and advertised two municipalities, which were Uttarpara-Kotrung Municipality in July 2019 and Konnagar in December 2019, as successful cases of SWM in the 6 target municipalities. Certificates of commendation were awarded to these municipalities from the Chief Representative of JICA India Office.



Photo 14 Scenes of advertising activities

2.5.6 Site visit by Musashi University, Embassy of Japan in India, Consulate General of Japan in Kolkata and Japanese companies

Musashi University and the Embassy of Japan in India jointly visited the sites of TA Project (2) on August 28th, 2019.

1) Purpose

The purpose of the site visit of Musashi University is to understand the following two points through visiting the assistance projects and related organizations.

- i) Factors of the Indian economy development
- ii) Roles of the Japanese government and companies to improve India's sustainable development issues (aspects related to Sustainable Development Goals (hereinafter referred to as “SDGs”) such as gender equality, education, environmental issues and infrastructure development)

2) Participants

Participants were 9 persons from Musashi University (2 faculty members, 6 students and 1 guide), 1 person from the Japanese Embassy in Japan (Secretary), and 1 person from the Consulate General of Japan in Kolkata.

3) Schedule

The schedule of site visit is shown in Table 2-9.

Table 2-9 Schedule of site visit

| Embassy of Japan in India and Japanese Companies | Musashi University |
|---|---|
| 10:05 am : Arrival at Kolkata airport | 9:40 am : Departure from Jameson Inn Shiraz |
| 10:20 am : Departure from Kolkata airport | |
| 11:00 am : Site visit for collection of separated wastes in Konnagar Municipality | |
| 11:30 am : Site visit for CP and TS (recycling facility) in Konnagar Municipality | |
| 12:00 am : Site visit for sales promotion campaign for composting products in Konnagar Municipality | |
| 0:30 pm : Lunch break | |
| 1:30 pm : Site visit for RWMC in Baidyabati Municipality | |
| 2:30 pm : End of site visit | |

Source: the JPT



Photo 15 Scenes of site visit

2.5.7 Site visit by Hiroshima University

The professor and students of the Asian politics seminar in School of Law, Hiroshima University visited the sites of TA Project (2) on November 5th and 6th, 2019.

1) Purpose

This Asian politics seminar has been presented together with seminars from more than 10 other universities at the "Nagoya International Relations Joint Seminar" held at the beginning of December every year. In 2019, they decided to conduct a survey on the theme of "wastes in Asia" and to make a presentation of the survey results. A series of past projects related to TA Project (2) is a large-scale infrastructure development project among the waste management improvement projects supported by Japan in Asia. And their operational support project, TA Project (2), is continuing even now. For this reason, this seminar aims to consider Japan's involvement in Asian waste management from the tangible and intangible aspects. Furthermore, this seminar also aims to understand roles of the Japanese government and companies to improve India's sustainable development issues (aspects related to SDGs, such as gender equality, education, environmental issues and infrastructure development) through visiting the assistance projects and related organizations.

2) Participants

Participants were 4 persons (1 faculty members and 3 students).

3) Schedule

The schedule of site visit is shown in Table 2-10.

Table 2-10 Schedule of site visit by Hiroshima University

| Time and Date | Itinerary | |
|---------------|-----------|--|
| November 5th | 8:30 am | Departure from the Astor Hotel and Hotel Kolkata |
| | 9:30 am | Sites of waste separation, and primary and secondary collection in Uttarpara-Kotrung Municipality |
| | 11:00 am | CP and TS (recycling facility) in Uttarpara-Kotrung Municipality |
| | 1:00 pm | Lunch break |
| | 2:00 pm | RWMC in Baidyabati Municipality |
| | 3:00 pm | End of site visit |
| November 6th | 9:00 am | Departure of the Astor Hotel and Hotel Kolkata |
| | 10:00 am | Awareness raising program for residents (street drama) in Konnagar Municipality |
| | 12:00 pm | Environmental education program (in secondary school) in Uttarpara-Kotrung Municipality |
| | 2:00 pm | Lunch break |
| | 3:00 pm | Awareness raising program for residents (sales promotion campaign of composting products) in Baidyabati Municipality |
| | 4:00 pm | End of site visit |

Source: the JPT



Site visit in primary collection



Site visit in CP

Photo 16 Scenes of site visit

Chapter 3 Achievement of TA Project (2)

The achievements of the Project Purpose and Outputs are described below. And Table 3-1 show the summary of the achievements.

3.1 Achievement of the Project Purpose

TA Project (2) aims to expand the regional SWM to the WB State. Though the KMDA was, at the beginning of TA Project (2), in charge of SWM in Kolkata Metropolitan Area including the target 6 municipalities, the SUDA of WB State is now being in charge of SWM in all municipalities of the WB State including the Area. At present, the SUDA of WB State is planning a regional SWM system for 8 clusters in the WB State based on TA Project (2). Moreover Uttarpara-Kotrung, Rishra and Konnagar receive wastes from neighboring Gram Panchayats, that is, the regional SWM area of TA Project (2) is expanding. Consequently, the Project Purpose, “The regional SWM system is expanded to the WB State”, is considered to be achieved.

3.2 Achievement of Outputs

The achievement of each output is described as below. And the summary is shown in Table 3-1.

3.2.1 Equipment provided by the Japanese ODA loan project is fully utilized (Output 1)

At the beginning of TA Project (2), collection equipment for waste and night soil sludge is utilized in the target 6 municipalities. CP was operated only in Uttarpara-Kotrung and Baidyabati. TS was operated in the target 6 municipalities other than Champdani and Serampore. The weighbridge was operated only in Uttarpara-Kotrung and Rishra. However all equipment and facilities are operated with regular maintenance. Accordingly this Output 1 is considered to be achieved.

3.2.2 SWM in the target 6 municipalities is improved (Output 2)

Among the target municipalities of TA Project (2), three municipalities (Uttarpara-Kotrung, Rishra and Baidyabati) were awarded by the WB State in 2019 as model municipalities for SWM in the state. Uttarpara-Kotrung, Konnagar and Baidyabati, who had improved their SWM, were commended by TA Project (2) under the name of the Director of JICA Delhi office.

Regarding the actual status of SWM improvement, the waste separation and collection ratios have greatly improved compared to those before TA Project (2). The waste collection was improved and collected wastes have been treated in RWMC appropriately. This fact greatly reduces illegal dumping into rivers and other areas, and is thought to have contributed significantly to the reduction of marine plastic wastes. Although the treatment amounts in CPs are not so large, CPs are operated and all composting products are sold. However, SWM in Champdani has not improved as expected. Champdani has 2 major problems at present; 1) human resources, equipment and budget for waste collection are

insufficient; and 2) separated wastes collected in the primary collection are mixed together at the secondary collection points. To resolve these issues, Champdani has submitted a subsidy application to the WB State. Furthermore the JPT has proposed and implemented pilot projects such as waste collection work by SHG and free waste withdrawing by private companies. If these pilot projects are successful, it can be expected that waste collection costs will be significantly reduced. From the above, Output 2 is considered to be almost achieved.

3.2.3 The financial resources of SWM are secured (Output 3)

Aiming to secure the resources for SWM O&M expenditures, the users' fee has been actually collected from the business establishment in the five municipalities (Baidyabati, Serampore, Rishra, Konnagar and Uttarpara-Kotrung) as presented in Table 3-10. However, the target 6 municipalities have yet to charge the household for the delivery of SWM services. Despite of intensive meetings with the chairmen and the BOC, the chairmen have been yet to decide due to political involvement with then elections. Meanwhile, the State Government subsidized the municipalities the waste collection equipment but only in indeterminate term. And the municipalities are selling now all their compost products; however, the revenues cover still only 10%-40% of CP facilities operating costs. On the other hand, WB State, under the assistance of TA Project (2), decided the outsourcing of O&M of RWMC together with TS and CP of each target municipality. WB State is preparing the bid now, and the contract period is 20 years. In addition, WB State decided to support of waste collection and separation in each target municipality by hiring a local consultant in accordance with the Micro Plan. Therefore, the objective of output 3 could be attained unsuccessfully in terms of securing full resources for entire SWM costs. On the other hand, National Green Tribunal (hereinafter referred to as "NGT"), which is an extraordinary tribunal established for solving problems relating to environment in India, issued to each state a notice which stated that the tribunal will impose a penalty to municipalities which did not comply with the MSW rules, and the NGT is monitoring the situation of SWM improvement in municipalities of each state. So WB State is also putting effort into SWM improvement by creating the Micro Plan and the other actions. Though user's fee collection did not achieve a satisfactory result, Output 3 is considered to be achieved because the target 6 municipalities will receive financial support relating to SWM from WB State based on the monitoring by the NGT.

Table 3-1 Summary of achievements of each activity on project purpose and outputs

| Indicators | Achievements |
|---|---|
| [Project Purpose] The regional SWM system is expanded to the WB State. | |
| 1. The regional SWM system of TA Project (2) is expanded to other areas. | Though the KMDA was, at the beginning of TA Project (2), in charge of SWM in Kolkata Metropolitan Area including the target 6 municipalities, the SUDA of WB State is now being in charge of SWM in all municipalities of the WB State including the Area. The SUDA of WB State has been preparing a regional SWM plan for 2 Phases targeting 8 clusters in total since 2019. [Phase-1] 1) Cluster-1: Kamarhati, Banamangar Dum Dum, North Dum Dum and South Dum Dum (4 municipalities) |

| Indicators | Achievements |
|--|--|
| <p>2. The target areas of regional SWM system in TA project (2) is expanded.</p> | <p>2) Cluster-2: Bidhannagar, New town and Kolkata (3 municipalities) 3) Cluster-3: the target 6 municipalities of TA Project (2) + Dankuni and Bhadreswar (8 municipalities) 4) Cluster-4: Habra and Asshokenagar (2 municipalities)</p> <p>[Phase-2] 1) Cluster-1: Panihati, Khardha, Titagarh, Barrackpore, North Barrackpore and Garulia (6 municipalities) 2) Cluster-2: Kalyani, Gayeshpur, Haslisahar, Naiihari and Kachrapara (5 municipalities) 3) Cluster-3: Birnagar, Ranaghat, Cooper's Camp and Taherpore (4 municipalities) 4) Cluster-4: Santipur, Krishnanagar and Nabadwip (3 municipalities)</p> <p>The KMDA requested the JPT to extend TA Project (2) as the Project Management Unit of the above plan.</p> <ul style="list-style-type: none"> ◆ Baidyabati, Rishra and Uttarpara-Kotrung receive wastes from neighboring Gram Panchayats. <ul style="list-style-type: none"> • Pearapur Gram Panchayat → Baidyabati • Rishra Gram Panchayat → Rishra • Raghunathpur Gram Panchayat → Uttarpara-Kotrung ◆ As shown the above 1, Dankuni and Bhadreswar in addition to the original 6 municipalities will be the target areas of regional SWM system in TA Project (2) as Cluster-3 in Phase-1 of the above plan. |
| [Output 1] Equipment provided by the Japanese ODA loan project is fully utilized. | |
| <p>1. Waste collection</p> | <ul style="list-style-type: none"> ◆ All target municipalities collect wastes by using the equipment provided by the Japanese ODA loan project. ◆ All target municipalities maintain equipment regularly. ◆ However, since the provided equipment has reached its end of life and the necessary equipment is insufficient, there is an issue that separated wastes are mixed together at the secondary collection points. ◆ On the other hand, the UD&MAD of WB State provided the target 6 municipalities with part of the insufficient equipment and prepared the Micro Plan. And based on the plan, they will provide the insufficient equipment. |
| <p>2. Compost Plant (CP)</p> | <ul style="list-style-type: none"> ◆ At the beginning of TA Project (1), CP was operated only in Uttarpara-Kotrung and Baidyabati. Though the treatment amounts are not so large, all target municipalities operate CPs at present and make composting products, which the all are sold, with the all separated organic wastes. And sales of the products covered 10%-40% of O&M expense of CP. ◆ All target municipalities maintain equipment and facilities regularly. ◆ Konnagar, Uttarpara-Kotrung and Rishra repaired roofs with their own budgets. ◆ Konnagar and Champdani repaired tromeels (sorting machine) with their own budgets. |
| <p>3. Transfer Station (TS)</p> | <ul style="list-style-type: none"> ◆ At the beginning of TA Project (2), TS was not operated in Serampore and Champdani. However the all municipalities owing TS operate TSs at present. ◆ All target municipalities maintain heavy equipment of TS regularly. ◆ Waste pickers or municipal workers extract the valuables at TS in all target municipalities. ◆ Similarly, the weighbridge was operated only in Uttarpara-Kotrung and Rishra. However all target municipalities operate weighbridges at |

| Indicators | Achievements | | | | | | | | | | | | | | |
|---|--|------------------------|-----------------------|-----------------------|------------------------|------|----|------------------------|------------------------|------------------------|-----------------------|-----------------------|------------------------|-----|-----|
| | <p>present.</p> <ul style="list-style-type: none"> ◆ Konnagar and Champdani repaired breakdowns with their own budgets. ◆ Uttarpara-Kotrung and Konnagar repaired wall of TS with their own budgets. | | | | | | | | | | | | | | |
| 4. Regional Waste Management Center (RWMC) | <ul style="list-style-type: none"> ◆ The private company carries out O&M of RWMC almost properly by using equipment provided by the Japanese ODA loan project under the control of Baidyabati. ◆ The UD&MAD of WB State is supporting O&M costs. | | | | | | | | | | | | | | |
| 5. Collection of night soil sludge | <ul style="list-style-type: none"> ◆ All target municipalities collect night soil sludge from each household by using equipment provided by the Japanese ODA loan project. ◆ All target municipalities maintain the equipment regularly. | | | | | | | | | | | | | | |
| [Output 2] SWM in the target 6 municipalities is improved. | | | | | | | | | | | | | | | |
| 1. WB State recognizes SWM improvement. | <ul style="list-style-type: none"> ◆ WB State recognized Uttarpara-Kotrung, Rishra and Baidyabati as SWM model municipalities in November 2018. ◆ JICA commended Uttarpara-Kotrung, Konnagar and Baidyabati as SWM model municipalities in the WB State. | | | | | | | | | | | | | | |
| 2. Discharging separated wastes (1) All Wards are instructed on discharging separated wastes. | <ul style="list-style-type: none"> ◆ Table 3-2 shows the number of wards which are implementing discharging separated waste in the target 6 municipalities. All Wards were instructed on discharging separated wastes in all target municipalities except for Serampore. In terms of Serampore, TA Project (2) instructed only markets. Serampore is currently scheduled to resume discharging separated wastes based on the Micro Plan, and the preparation is ongoing. <p style="text-align: center;">Table 3-2 The number of wards which are implementing discharging separated waste in the target 6 municipalities</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> <th>CM</th> </tr> </thead> <tbody> <tr> <td>24 wards / 24 wards</td> <td>23 wards / 23 wards</td> <td>20 wards / 20 wards</td> <td>0 wards / 29 wards</td> <td>23wards / 22 wards</td> <td>22 wards / 22 wards</td> </tr> </tbody> </table> <p>UKM: Uttarpara-Kotrung, KM: Konnagar, RM: Rishra, SM: Serampore, BM: Baidyabati, and CM: Champdani</p> | UKM | KM | RM | SM | BM | CM | 24 wards / 24 wards | 23 wards / 23 wards | 20 wards / 20 wards | 0 wards / 29 wards | 23wards / 22 wards | 22 wards / 22 wards | | |
| UKM | KM | RM | SM | BM | CM | | | | | | | | | | |
| 24 wards / 24 wards | 23 wards / 23 wards | 20 wards / 20 wards | 0 wards / 29 wards | 23wards / 22 wards | 22 wards / 22 wards | | | | | | | | | | |
| (2) The separation ratio is secured to be more than 70% in Wards receiving the instruction on discharging separated wastes. | <ul style="list-style-type: none"> ◆ Table 3-3 shows the ratio of waste separation in the target 6 municipalities. The average separation ratio was 66%. The target 70% was almost achieved. In detail, Uttarpara-Kotrung, Konnagar, Rishra and Baidyabati achieved 70%, but Serampore and Champdani did not achieved. It is expected that Serampore will improve the ratio of discharging separated wastes as they prepared for resuming it as mentioned in the above (1). In terms of Champdani, they purchased six primary collection equipment which was insufficient in January 2020, so it is expected that collection amount of wastes will increase by using the equipment. <p style="text-align: center;">Table 3-3 The ratio of waste separation in the target 6 municipalities</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> <th>CM</th> <th>Ave.</th> </tr> </thead> <tbody> <tr> <td>85%</td> <td>80%</td> <td>75%</td> <td>25%</td> <td>90%</td> <td>40%</td> <td>66%</td> </tr> </tbody> </table> | UKM | KM | RM | SM | BM | CM | Ave. | 85% | 80% | 75% | 25% | 90% | 40% | 66% |
| UKM | KM | RM | SM | BM | CM | Ave. | | | | | | | | | |
| 85% | 80% | 75% | 25% | 90% | 40% | 66% | | | | | | | | | |
| 3. Waste collection (1) The waste collection ratio is more than 70%. | <ul style="list-style-type: none"> ◆ Table 3-4 shows the ratio of waste collection in the target 6 municipalities. The average waste collection ratio was 78%. The target 70% was achieved. In detail, only Champdani did not achieved 70%. | | | | | | | | | | | | | | |

| Indicators | Achievements | | | | | | | | | | | | | | | | | | | | | | |
|---|--|-------------|-------------|-----------|------|------|----|------|--------|------|------|--------|------|-----|-----|----|----|----|-----------|-----------|-------------|-------------|-----------|
| <p>(2) Equipment is regularly maintained.</p> | <p>However as mentioned above, Champdani purchased six primary collection equipment which was insufficient in January 2020, so it is expected that collection amount of wastes will increase by using the equipment.</p> <p>Table 3-4 The ratio of waste collection in the target 6 municipalities</p> <table border="1" data-bbox="587 416 1390 483"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> <th>CM</th> <th>Ave.</th> </tr> </thead> <tbody> <tr> <td>90%</td> <td>83%</td> <td>85%</td> <td>87%</td> <td>97%</td> <td>27%</td> <td>78%</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ◆ The pilot project of waste collection by SHG was started in Konnagar. Cost of waste collection by SHG is cheaper than new permanent workers to be hired, and it will be possible to expand areas of waste collection. The other target municipalities are considering the same if Konnagar made it succeed. ◆ The pilot project which collects dry waste such as plastic waste by private companies for free was started. The amount of wastes transported from TS to RWMC has been reduced by 40%, and therefore it will be possible to reduce transportation cost of wastes and extend life span of waste disposal in RWMC. The private companies are considering horizontal expansion to other municipalities. ◆ The waste collection equipment is maintained regularly in the workshop in each municipality. | UKM | KM | RM | SM | BM | CM | Ave. | 90% | 83% | 85% | 87% | 97% | 27% | 78% | | | | | | | | |
| UKM | KM | RM | SM | BM | CM | Ave. | | | | | | | | | | | | | | | | | |
| 90% | 83% | 85% | 87% | 97% | 27% | 78% | | | | | | | | | | | | | | | | | |
| <p>4. CP</p> <p>(1) The minimum staff required for operation and maintenance (O&M) is allocated.</p> <p>(2) The treatment volume is increased by 100% from the start of TA Project (2).</p> <p>(3) The quality of composting product meets the standards.</p> | <ul style="list-style-type: none"> ◆ The minimum staff required for O&M is allocated in each target municipality, and O&M were conducted. Relationship between the staff and waste pickers who are collecting recyclables in TS was built because the waste pickers extracted improper waste from mixed waste in CP to contribute to making composting products. ◆ All the target municipalities increased the treatment volumes by more than 100% as mentioned in Table 3-5. <p>Table 3-5 Rate of changes of the treatment volume from the beginning of the TA Project (2)</p> <table border="1" data-bbox="644 1406 1331 1473"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> <th>CM</th> </tr> </thead> <tbody> <tr> <td>250%</td> <td>1,250%</td> <td>320%</td> <td>300%</td> <td>2,000%</td> <td>200%</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ◆ As result of the quality test in December 2019 as mentioned in Table 3-6, the composting products in Uttarpara-Korung, Konnagar and Baidyabati, which have been active in waste separation, met the standards. The composting products in Serampore and Rishra, which has utilized mixed wastes, did not meet the standards. However, Serampore is making the products by using wastes collected from markets and will resume discharging separated wastes, and therefore it is expected that the quality of composting products will meet the standards in the future. In terms of Rishra, it is necessary to strengthen waste separation more because the composting products made in TA Project (1) met the standards. <p>Table 3-6 Result of quality test of composting product</p> <table border="1" data-bbox="608 1944 1350 2011"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> </tr> </thead> <tbody> <tr> <td>Satisfied</td> <td>Satisfied</td> <td>Unsatisfied</td> <td>Unsatisfied</td> <td>Satisfied</td> </tr> </tbody> </table> | UKM | KM | RM | SM | BM | CM | 250% | 1,250% | 320% | 300% | 2,000% | 200% | UKM | KM | RM | SM | BM | Satisfied | Satisfied | Unsatisfied | Unsatisfied | Satisfied |
| UKM | KM | RM | SM | BM | CM | | | | | | | | | | | | | | | | | | |
| 250% | 1,250% | 320% | 300% | 2,000% | 200% | | | | | | | | | | | | | | | | | | |
| UKM | KM | RM | SM | BM | | | | | | | | | | | | | | | | | | | |
| Satisfied | Satisfied | Unsatisfied | Unsatisfied | Satisfied | | | | | | | | | | | | | | | | | | | |

| Indicators | Achievements | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----|-----|----|----|----|----|----|----|----|----|----|----|-----|----|----|----|----|----|----|-----|-----|----|
| (4) Others (Odor Control) | <ul style="list-style-type: none"> ◆ TS and CP of Uttarpara-Kotrung and Baidyabati are located in residential area, and these were often stopped because bad odor was occurred when organic waste was decomposed and neighbors complained it. In order to cope with the matter, Uttarpara-Kotrung constructed a facility which sprays mist of air freshener and Konnagar covered CP by vinyl sheet and fired straw to prevent from occurring bad odor with their own budget. They have become able to think by themselves and taken countermeasures | | | | | | | | | | | | | | | | | | | | | | |
| <p>5. TS</p> <p>(1) The minimum staff required for O&M is allocated.</p> <p>(2) Valuables are extracted.</p> <p>(3) Others (Supply of safety gear)</p> | <ul style="list-style-type: none"> ◆ The minimum staff required for O&M is allocated in each target municipality, and O&M were conducted. Previously, bad odor was occurred in TS because the wastes carried in TS were left for few days, and neighbors often complained it. ◆ Valuables are extracted in TS in each target municipality although the extraction amounts are small as mentioned in Table 3-7. <p style="text-align: center;">Table 3-7 Current status on extract of valuables</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> <th>CM</th> </tr> </thead> <tbody> <tr> <td>OK</td> <td>OK</td> <td>OK</td> <td>OK</td> <td>OK</td> <td>OK</td> </tr> </tbody> </table> <ul style="list-style-type: none"> ◆ Waste pickers who are working in TS are supporting operation of TS by helping extraction of dry waste that private companies are collecting. The relationship between municipalities and waste pickers is built because the municipalities supplied safety gear for them. <p style="text-align: center;">Table 3-8 Current Status on SWM fee collection</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>UKM</th> <th>KM</th> <th>RM</th> <th>SM</th> <th>BM</th> </tr> </thead> <tbody> <tr> <td>OK</td> <td>OK</td> <td>OUT</td> <td>OUT</td> <td>OK</td> </tr> </tbody> </table> | UKM | KM | RM | SM | BM | CM | OK | OK | OK | OK | OK | OK | UKM | KM | RM | SM | BM | OK | OK | OUT | OUT | OK |
| UKM | KM | RM | SM | BM | CM | | | | | | | | | | | | | | | | | | |
| OK | OK | OK | OK | OK | OK | | | | | | | | | | | | | | | | | | |
| UKM | KM | RM | SM | BM | | | | | | | | | | | | | | | | | | | |
| OK | OK | OUT | OUT | OK | | | | | | | | | | | | | | | | | | | |
| <p>6. RWMC</p> <p>(1) Compaction and levelling are done sufficiently.</p> <p>(2) Soil covering is done regularly.</p> <p>(3) The quality of leachate treatment water meets the effluent standard.</p> <p>(4) The environmental monitoring is done regularly.</p> | <ul style="list-style-type: none"> ◆ Compaction and levelling have been done sufficiently. There are no complaints such as bad odor and waste flying in the air from neighbors. ◆ The intermediate soil covering was done in Cell-1. There are no complaints such as bad odor and waste flying in the air from neighbors. ◆ The quality test of leachate treatment water has been done regularly and the results have met the effluent standards. The amount of organic waste carried in RWMC was higher than the plan, and therefore circular treatment was implemented. ◆ The environmental monitoring have been done regularly by using equipment provided by the Japanese ODA loan project. | | | | | | | | | | | | | | | | | | | | | | |
| <p>7. Collection of night soil sludge</p> <p>(1) Proper amount of sludge is collected and brought to RWMC.</p> | <ul style="list-style-type: none"> ◆ Each target municipality has collect sludge appropriately. ◆ However as Uttarpara-Kotrung, Konnagar and Rishra are far from RWMC, it is tough to bring sludge to RWMC by using the tractor provided in the Japanese ODA loan project. Therefore Uttarpara-Kotrung purchased a big tanker after the UD&MAD of WB State provided a subsidy for it, and brought sludge to RWMC. In terms of Konnagar and | | | | | | | | | | | | | | | | | | | | | | |

| Indicators | Achievements | | | | | | | | | | | | | | | | | | |
|---|---|------------------------|-----------|----|--|----|-----|----------------------|--------------------|--|--|--|--|-------------------------|-----------------|--|-----------|--|--|
| | Rishra, they are preparing for purchasing same tanker by using a subsidy provided by the ED of WB State. | | | | | | | | | | | | | | | | | | |
| [Output 3] The financial resources of SWM are secured. | | | | | | | | | | | | | | | | | | | |
| <p>1. Fee collection</p> <p>(1) Households</p> <p>(2) Business establishment</p> | <ul style="list-style-type: none"> ◆ The minister of the UD&MAD of WB State has ever stated to grant subsidies to the municipality in order to cover their non-sufficient finances for the SWM O&M expenditures. None of target 6 municipalities have come to implement the collection accordingly. ◆ Baidyabati, Konnagar and Serampore have started the collection and have been expanded it to numbers of other commercial entities. ◆ Uttarpara-Kotrung and Rishra have started the collection from celebration houses so far and are to extend to other commercial owners. <p style="text-align: center;">Table 3-9 Current Status on SWM fee collection</p> <table border="1" data-bbox="555 734 1394 869"> <thead> <tr> <th data-bbox="555 734 874 768">Business establishment</th> <th data-bbox="874 734 938 768">BM</th> <th data-bbox="938 734 1002 768">SM</th> <th data-bbox="1002 734 1098 768">KM</th> <th data-bbox="1098 734 1209 768">RM</th> <th data-bbox="1209 734 1394 768">UKM</th> </tr> </thead> <tbody> <tr> <td data-bbox="555 768 874 801">1.Celebration houses</td> <td colspan="5" data-bbox="874 768 1394 801" style="text-align: center;">Already collecting</td> </tr> <tr> <td data-bbox="555 801 874 869">2.Other establishment *</td> <td colspan="2" data-bbox="874 801 1098 869" style="text-align: center;">Under expansion</td> <td colspan="2" data-bbox="1098 801 1209 869" style="text-align: center;">To expand</td> <td data-bbox="1209 801 1394 869" style="text-align: center;">Resolution finally on 27th Jan. 2020</td> </tr> </tbody> </table> <p data-bbox="539 875 916 898">* Hotel, restaurant, mall, shop, market, etc.</p> | Business establishment | BM | SM | KM | RM | UKM | 1.Celebration houses | Already collecting | | | | | 2.Other establishment * | Under expansion | | To expand | | Resolution finally on 27 th Jan. 2020 |
| Business establishment | BM | SM | KM | RM | UKM | | | | | | | | | | | | | | |
| 1.Celebration houses | Already collecting | | | | | | | | | | | | | | | | | | |
| 2.Other establishment * | Under expansion | | To expand | | Resolution finally on 27 th Jan. 2020 | | | | | | | | | | | | | | |
| <p>2. Assistance from the WB State is secured.</p> <p>(1) O&M expense</p> <p>(2) Equipment</p> <p>(3) SWM improvement plan (Micro Plan)</p> | <p>Each municipality received the following assistance under the guidance of the JPT. On the other hand, the NGT issued to each state a notice which stated that the tribunal will impose a penalty to municipalities which did not comply with the MSW rules. So WB State is also putting effort into SWM improvement by creating the Micro Plan and the other actions.</p> <ul style="list-style-type: none"> ◆ Subsidy for O&M expense of RWMC was provided by the UD&MAD of WB State. The UD&MAD of WB State decided the outsourcing of O&M of RWMC together with TS and CP of each target municipality. WB State is preparing the bid now, and the contract period is 20 years. ◆ In November 2018, each Municipality received Small Dumper, Fuel Operated Tipper and Battery Operated Tipper from the SUDA of WB State. ◆ Uttarpara-Kotrung, Rishra and Baidyabati received Tricycle, Fuel Operated Tipper and Battery Operated Tipper from the SUDA of WB State in December 2019. ◆ In December 2019, the ED of WB State provided a large tanker for Konnagar to transport the night soil sludge. ◆ The WBPCB provided 15,800 sets of waste segregation bin and 25 units of Electrical Rickshaw Van for Uttarpar-Kotrung. ◆ CEO of the KMDA requested the JPT to create Micro Plan on 5th August 2019. ◆ In the coordination meeting which the Minister of the UD&MAD of WB State participated on 6th August 2019, Principal Secretary of the UD&MAD of WB State and CEO of the KMDA requested the JPT to preparer the Micro Plan again. The Minister said responsibility of the implementation is the KMDA, and the Principal Secretary also said WB State will consider the support immediately after receiving the Micro Plan. ◆ Superintending Engineer of the KMDA requested the JPT on 21st October to prepare the Micro Plan and support the implementation by extending TA Project (2) for one year. ◆ The JPT asked the KMDA to directly request the extension to JICA. | | | | | | | | | | | | | | | | | | |

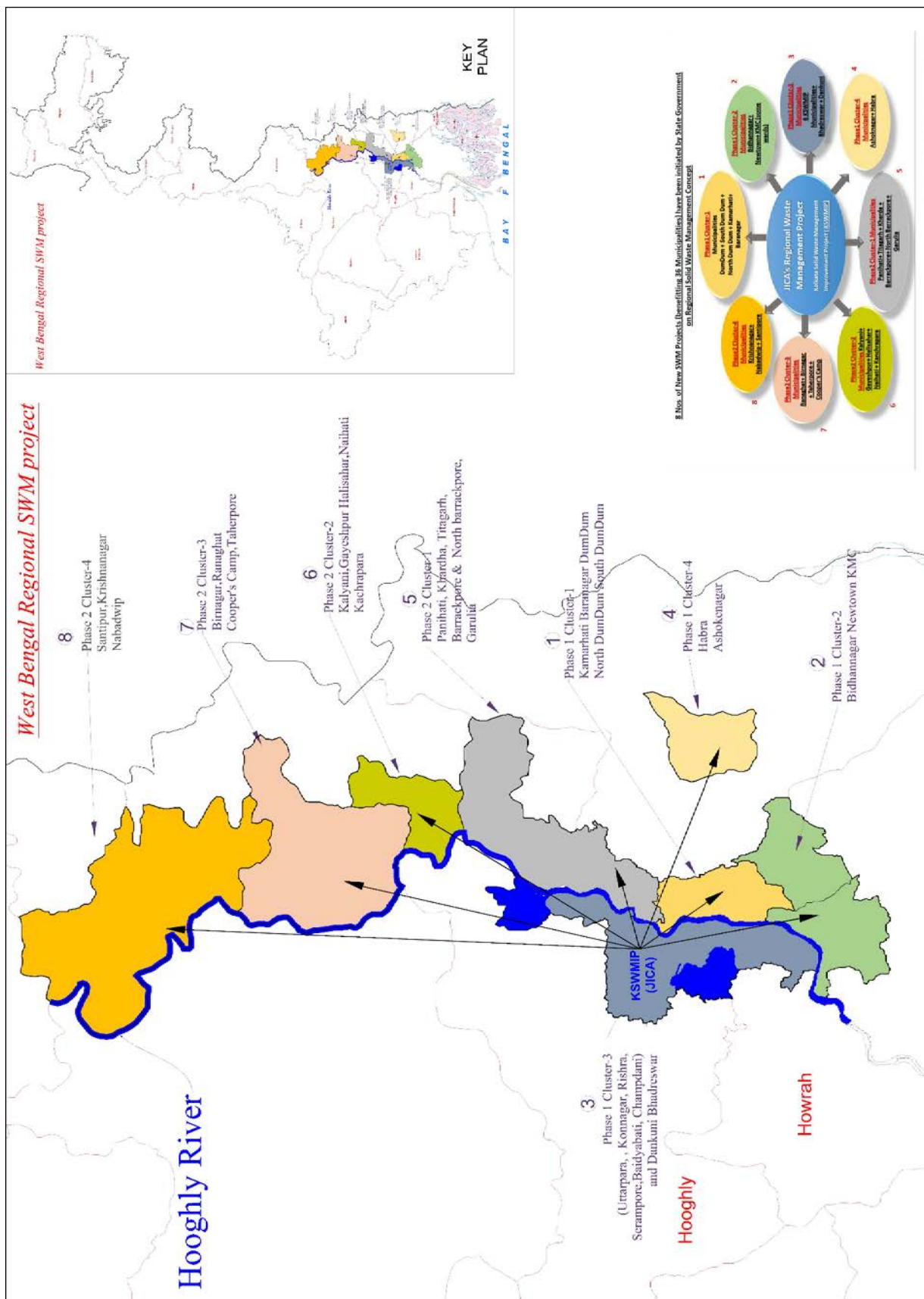
| Indicators | Achievements |
|---|--|
| | <p>However the KMDA did not request it officially JICA.</p> <ul style="list-style-type: none"> ◆ After that, the KMDA decided that the extension is tough, and sent an offer to a local consultant. ◆ In accordance with the Micro Plan, the UD&MAD of WB State decided to support SWM in each target municipality. ◆ The local consultant submitted the draft Micro Plan to each target in February 2020. |
| 3. Securing the sales channels of composting products | <ul style="list-style-type: none"> ◆ Uttarpara-Kotrung, Konnagar, Rishra, Serampore and Baidyabati made contracts with composting product distributors. All of their products have been sold to residents and distributors. ◆ Konnagar has opened two sales stores of the products. ◆ The above five municipalities sold the products including public awareness activities during some local events like book fair. ◆ Uttarpara-Kotrung and Konnagar are implementing a pilot project which the system is that after the municipalities received an order of the products from residents, primary collectors will bring the products to their houses. |

Source: the JPT

Table 3-10 Users' fee actually collected during the TA Project (2)

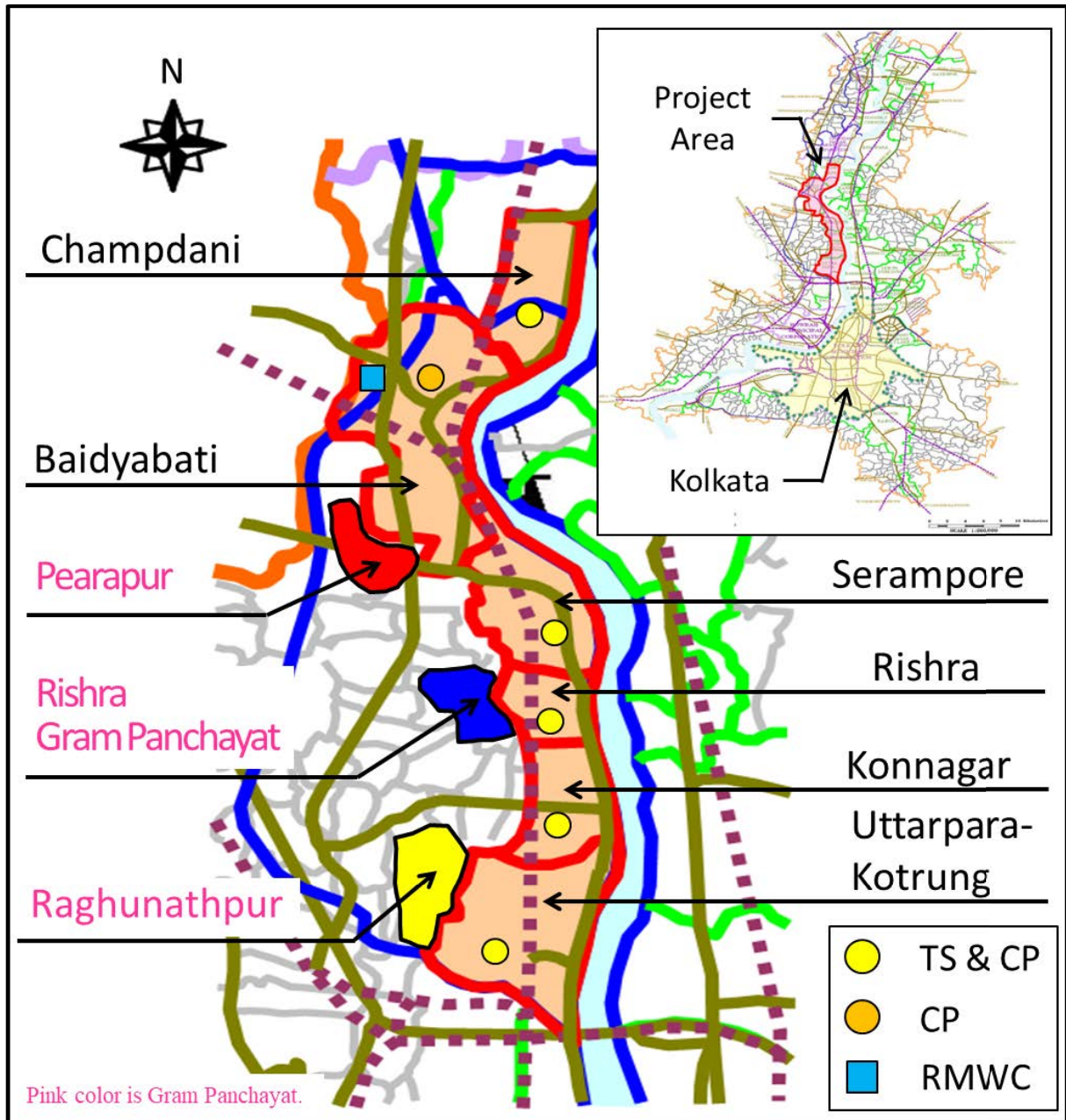
| Municipality | Start | Collected Amount (INR) | | | Remarks |
|--------------------|-----------|------------------------|--------------|-----------|-----------------------------------|
| | | Start month | Latest month | 1 year | |
| Baidyabti | Apr. 2018 | 21,000 | 56,000 | 350,000 | Expansion from Aug/ 2019 |
| Serampore | Oct.2017 | 56,000 | 72,000 | 1,000,000 | Expansion from Sept./ 2019 |
| Rishra | Apr. 2018 | 3,400 | 3,300 | 40,000 | Currently from Celebration houses |
| Konnagar | Nov. 2017 | 15,000 | 36,000 | 500,000 | Expansion from Nov./ 2019 |
| Uttarpara-Koturung | Apr. 2018 | 14,000 | 19,000 | 200,000 | Currently from Celebration houses |

Source: Data collected from the municipalities



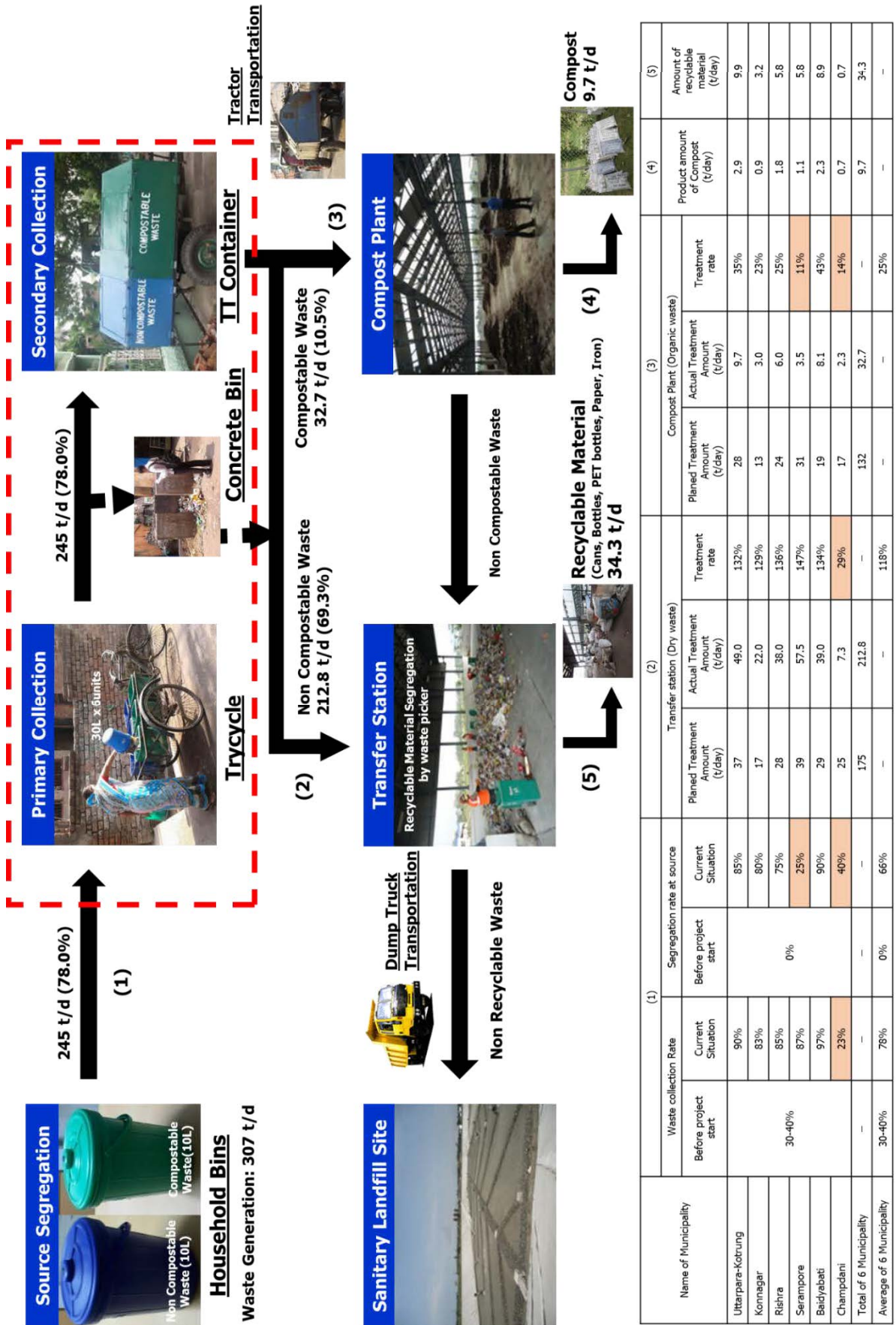
Source: Edited by the JPT

Figure 3-1 Expansion of regional SWM led by WB State



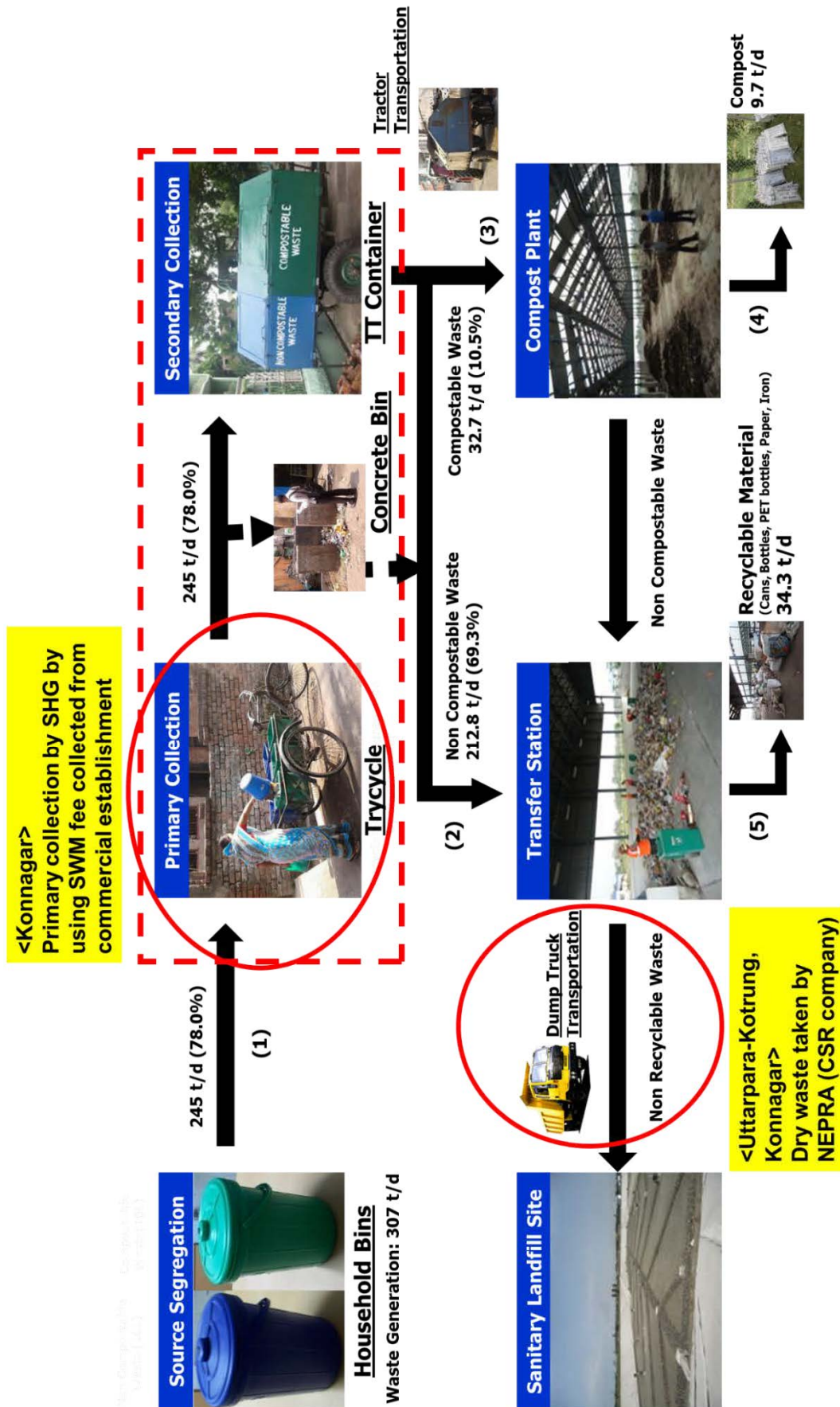
Source: Edited by the JPT

Figure 3-2 Expansion of regional SWM by receiving waste from Gram Panchayat



Source: Data collected from the municipalities

Figure 3-3 Waste flow and improvement rate of each process



Source: Edited by the JPT

Figure 3-4 Pilot project for waste collection improvement

Chapter 4 Work Results of Japanese Experts

The work results of each Japanese expert are shown in Table 4-1.

Table 4-1 Work results of each Japanese experts

| Name of Japanese Expert (field in charge) | Work Results |
|---|--|
| Masahiro SAITO (Team leader/ SWM planning/ Maintenance guidance of SWM system) | <p>[Preparation in Japan]</p> <ol style="list-style-type: none"> 1. Preparing Project Plan (draft) and Inception Report (draft) <p>[Work in India (1st assignment: April 8th to May 1st, 2018)]</p> <ol style="list-style-type: none"> 1. Setting up the local office 2. Holding Kick-off Meetings in the KMDA and the target 6 municipalities 3. Sharing the progress and issues of this Project with the Additional secretary of WB State, the Principal secretary of WB State and Environmental Department 4. Explaining the contents and progress of this Project to the Consul General and special researcher of Consulate-general of Japan in Kolkata 5. Conducting surveys to understand the current state of overall SWM in the target 6 municipalities 6. Carrying out SWM improvement guidance for 2 model municipalities and other 4 municipalities 7. Carrying out the operation improvement guidance of RWMC 8. Carrying out the guidance on financial improvement related to SWM 9. Supporting for preparation of QPR and PCR 10. Conducting surveys to confirm of the situation in SWM field in India <p>[Work in Japan after the 1st assignment]</p> <ol style="list-style-type: none"> 1. Reporting the progress to JICA <p>[Work in India (2nd assignment: July 18th to August 11th, 2018)]</p> <ol style="list-style-type: none"> 1. Carrying out the JICA Site Visit 2. Carrying out the Site Visit of the WBPCB 3. Sharing the progress and issues of this Project with related |

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| | <p>agencies</p> <ol style="list-style-type: none"> 4. Supporting the holding of the Coordination Meeting organized by the UD&MAD of WB State. 5. Attending the social gathering organized by the Consul General of Consulate-general of Japan in Kolkata for the person in charge of each relevant organization of WB State 6. Conducting surveys to understand the current state of overall SWM in the target 6 municipalities 7. Carrying out SWM improvement guidance for 2 model municipalities and other 4 municipalities 8. Carrying out the operation improvement guidance of RWMC 9. Carrying out the guidance on financial improvement related to SWM 10. Supporting for preparation of QPR and PCR 11. Conducting surveys to confirm of the situation in SWM field in India <p>[Work in India (2nd assignment: July 18th to August 11th, 2018)]</p> <ol style="list-style-type: none"> 1. Carrying out the JICA Site Visit 2. Carrying out the Site Visit of the WBPCB 3. Sharing the progress and issues of this Project with related agencies 4. Supporting the holding of the Coordination Meeting organized by the UD&MAD of WB State. 5. Attending the social gathering organized by the Consul General of Consulate-general of Japan in Kolkata for the person in charge of each relevant organization of WB State 6. Conducting surveys to understand the current state of overall SWM in the target 6 municipalities 7. Carrying out SWM improvement guidance for 2 model municipalities and other 4 municipalities 8. Carrying out the operation improvement guidance of RWMC 9. Carrying out the guidance on financial improvement related to SWM 10. Supporting for preparation of QPR and PCR 11. Conducting surveys to confirm of the situation in SWM field in India |
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| | <p>[Work in India (3rd assignment: September 20th to October 12th, 2018)]</p> <ol style="list-style-type: none">1. Carrying out the Site Visit for Mr. Osaka, the Japanese Consulate General2. Accepting JICA On-the-Job Training (hereinafter referred to as “OJT”)3. Supplementing the preparation of the back to office report on the JCIA Site Visit in August4. Sharing the progress and issues of this Project with related agencies5. Supporting the application of subsidy to Uttarpara-Kotrung from the WBPCB6. Discussing with the SUDA of WB State about the shortage of waste collection equipment7. Carrying out SWM improvement guidance for 2 model municipalities and other 4 municipalities8. Carrying out the operation improvement guidance of RWMC9. Carrying out the guidance on financial improvement related to SWM Supporting for preparation of QPR and PCR10. Conducting surveys to confirm of the situation in SWM field in India <p>[Work in India (4th assignment: November 29th to December 22nd, 2018)]</p> <ol style="list-style-type: none">1. Coordinating and carrying out the 2nd JICA Site Visit2. Sharing the progress and issues of this Project with related agencies3. Supporting the holding of the Coordination Meeting organized by the UD&MAD of WB State.4. Carrying out SWM improvement guidance for 2 model municipalities and other 4 municipalities5. Carrying out the operation improvement guidance of RWMC6. Carrying out the guidance on financial improvement related to SWM7. Supporting for preparation of QPR and PCR8. Conducting surveys to confirm of the situation in SWM field in India |
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| | <p>[Work in India (5th assignment: February 7th to March 1st, 2019)]</p> <ol style="list-style-type: none">1. Sharing the progress and issues of this Project with related agencies2. Carrying out SWM improvement guidance for 2 model municipalities and other 4 municipalities3. Carrying out the operation improvement guidance of RWMC4. Carrying out the guidance on financial improvement related to SWM5. Supporting for preparation of QPR and PCR6. Conducting surveys to confirm of the situation in SWM field in India <p>[Work in India (6th assignment: May 5th to 29th, 2019)]</p> <ol style="list-style-type: none">1. Sharing the progress and issues of TA Project (2) with related agencies2. Carrying out SWM improvement guidance for model municipalities and other 4 municipalities3. Carrying out the operation improvement guidance of RWMC4. Carrying out the guidance on financial improvement related to SWM5. Supporting for preparation of PCR and QPR6. Conducting surveys to confirm of the situation in SWM field in India7. Preparation of the business tour in Japan <p>[Work in India (7th assignment: August 1st to 29th, 2019)]</p> <ol style="list-style-type: none">1. Sharing the progress and issues of TA Project (2) with related agencies2. Carrying out SWM improvement guidance for model municipalities and other 4 municipalities3. Carrying out the operation improvement guidance of RWMC4. Carrying out the guidance on financial improvement related to SWM5. Supporting for preparation of PCR and QPR6. Conducting surveys to confirm of the situation in SWM field in India7. Preparation of training in India |
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| | <p>[Work in India (8th assignment: October 16th to November 9th, 2019)]</p> <ol style="list-style-type: none"> 1. Sharing the progress and issues of TA Project (2) with related agencies 2. Carrying out SWM improvement guidance for model municipalities and other 4 municipalities 3. Carrying out the operation improvement guidance of RWMC 4. Carrying out consideration on SHG and private companies. 5. Preparation of the sales promotion campaign for composting product <p>[Work in India (9th assignment: November 30th to December 21st, 2019)]</p> <ol style="list-style-type: none"> 1. Sharing the progress and issues of TA Project (2) with related agencies 2. Carrying out SWM improvement guidance for model municipalities and other 4 municipalities 3. Carrying out the operation improvement guidance of RWMC 4. Preparation of a bus tour to promote waste collection by SHG 5. Checking the status of waste collection by the private company 6. Preparation of the sales promotion campaign for composting product 7. Holding a media conference of Konnagar as a model municipality 8. Holding the Coordination meeting 9. Carrying out the training in India <p>[Work in India (10th assignment: February 14th to 29th, 2020)]</p> <ol style="list-style-type: none"> 1. Sharing the progress and issues of TA Project (2) with related agencies 2. Holding a media conference of Konnagar as a model municipality 3. Holding a meeting to discuss the waste collection by SHG 4. Checking the status of waste collection by the private company 5. Holding the closing workshop of TA Project (2) |
| <p>Kozo NAGAHIRA (O&M guidance of SWM treatment facility)</p> | <p>[Preparation in Japan]</p> <ol style="list-style-type: none"> 1. Preparing Project Plan (draft) and Inception Report (draft) 2. Preparing and arranging business tour in Japan |

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| | <p>[Work in India (1st assignment: April 8th to May 1st, 2018)]</p> <ol style="list-style-type: none">1. Conducting surveys to understand the current state of overall SWM in the target 6 municipalities2. Carrying out SWM improvement guidance for 2 model municipalities and other 4 municipalities3. Carrying out the operation improvement guidance of RWMC4. Carrying out the administrative work (mainly related to contracts and procurement) <p>[Work in India (2nd assignment: September 20th to October 6th, 2018)]</p> <ol style="list-style-type: none">1. Carrying out SWM improvement guidance for 2 model municipalities and other 4 municipalities2. Carrying out the operation improvement guidance of RWMC3. Carrying out the administrative work (mainly related to contracts and procurement)4. Accepting JICA OJT <p>[Work in India (3rd assignment: July 29th to 31st, 2019)]</p> <ol style="list-style-type: none">1. Sharing the progress and issues of TA Project (2) with related agencies2. Preparing the explanation meeting for fee collection3. Preparing report on business tour in Japan and carrying out the related administrative work4. Carrying on environmental raising activities for waste separation twice5. Preparing meeting for SWM fee collection <p>[Work in India (4th assignment: November 4th to 30th, 2019)]</p> <ol style="list-style-type: none">1. Carrying out the operation improvement guidance of CP, TS and RWMC2. Preparing sales promotion campaign for composting product3. Discussing repair of the digester tank at RWMC with the KMDA4. Preparing in-country training in Surat5. Preparation of a bus tour to promote waste collection by SHG6. Preparation of environmental raising activities at venues of book fair7. Carrying out the administrative work (mainly related to contracts and procurement) |
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| | <p>[Work in India (5th assignment: January 26th to February 19th, 2020)]</p> <ol style="list-style-type: none"> 1. Carrying out the operation improvement guidance of CP, TS and RWMC 2. Carrying on environmental raising activities for waste separation twice 3. Preparation of draft final report 4. Explanation of draft final report to the target 6 municipalities 5. Carrying out the administrative work for closing the project |
| <p>Noboru Osakabe (Organizational and financial guidance)</p> | <p>[Work in India (1st assignment: May 16 to June 9, 2018)]</p> <ol style="list-style-type: none"> 1. Explained the sector support to conservancy and financial departments and asked them the related data 2. Held meetings with the KMDA to confirm and urge them the full payment of outstanding subsidies. 3. Selected a producer of DVD for raising awareness activities on users' fee 4. Attended the monthly meeting at RWMC and Uttarpara-Kotrung 5. Attended the meeting held between the JICA India and Uttarpara-Kotrung on the dispatch of Japan Overseas Cooperation Volunteers (JOCV) to the municipality <p>[Work in India (2nd assignment: August 29 to September 22, 2018)]</p> <ol style="list-style-type: none"> 1. Obtained the budget and actual financial statements of 6 ULBs 2. Instructed the SIs through OJT how to estimate the entire SWM cost by envisaging FY2019/20 budgeting. 3. Surveyed the property tax collection system of 6 ULBs. 4. Urged the ULBs to impose the commercial establishments users' fee and expand the numbers 5. Promoted the DVD editing <p>[Work in India (3rd assignment: October 24 to November 14, 2018)]</p> <ol style="list-style-type: none"> 1. Instructed again the SIs through OJT the SWM cost estimates and completed (Champdani: not completed) 2. Got the permission from the chairmen of 4ULBs (Uttarpara-Kotrung, Konnagar, Rishra, Baidyabati) to make a presentation at the BOC meeting in January. |

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| | <ol style="list-style-type: none">3. Simultaneously requested the SIs to explain the necessity of manpower and procurement at the BOC meeting and got their positive answers. And agreed to hold a strategy meeting prior to the BOC meeting.4. Commenced editing the DVD5. Explained the JICA India the progress at present and actions to be taken <p>[Work in India (4th assignment: January 15 to February 8, 2019)]</p> <ol style="list-style-type: none">1. Met with CEO of the KMDA to confirm whether received the requisition letter about additional manpower and procurement of equipment from 6 ULBs2. Completed the DVD-1, and almost DVD-2. Utilized these DVDs at the BOC meeting of the ULB. The DVDs are to be played at the wards from now on.3. Gave the SIs a guidance how to estimate the SWM cost for FY 2019/20 and completed it4. Made a presentation at BOC meeting of 5 municipalities (Champdani: coming 20th of February). And, prior to the BOC meetings, held the meetings with the SWM standing committee members of each municipality to discuss about SWM costs and the way how to make a nice presentation. <p>[Work in India (5th assignment: May 23 to June 14, 2019)]</p> <ol style="list-style-type: none">1. Met the chairmen, requested to start the collection from residence and expand it to other commercial entities.2. Planned and held the community meeting and business entities meeting3. Discuss with the municipal authorities about the possibility of ward awareness meeting on users' fee <p>[Work in India (6th assignment: August 29 to September 21, 2019)]</p> <ol style="list-style-type: none">1. Met with chairmen and requested the commencement of residential fee collection as well as that of commercial users' fee collection & expansion2. Held and supported the public awareness meeting of both citizens and business owners (5 times in the period)3. Explained and discussed with the Director Magistrate of Hoogly |
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| | <p>District about the project</p> <p>[Work in India (7th assignment: November 8 to December 1, 2019)]</p> <ol style="list-style-type: none"> 1. Requested the 5 chairmen the commencement of commercial users' fee collection & the expansion again and again 2. Held the awareness meeting on user fee and waste visually by projecting DVD at source at 8 wards of 4 municipalities segregation 3. Participated the joint collaboration meeting among SHG/ICDs/the JPT-mobilizer organized by Konnagar <p>[Work in India (8th assignment: January 8 to February 5, 2020)]</p> <ol style="list-style-type: none"> 1. Visited Uttarpara-Kotrung and Rishra and found that they have been collecting users' fee from cerebrating houses. And gathered the data and evidence. 2. Requested the both chairmen to expand the fee collection to other business owners than cerebrating houses. 3. Visited Champdani and discussed about commercial users' fee giving them the resolutions of other municipalities for their reference. |
| <p>Eri ITO (Guidance of environmental education and source separation/ Sludge treatment)</p> | <p>[Work in India (1st assignment: July 18th to August 4th, 2018)]</p> <ol style="list-style-type: none"> 1. Confirming each awareness raising activity 2. Preparing materials on environmental education |
| <p>Kazuya YAO (Guidance of environmental education and source separation/ Sludge treatment)</p> | <p>[Work in India (2nd assignment: December 9th to 22nd, 2018)]</p> <ol style="list-style-type: none"> 1. Coordinating and carrying out the 2nd JICA Site Visit 2. Confirming each awareness raising activity 3. Preparing materials on environmental education |

Chapter 5 Inputs in TA Project (2)

5.1 Input of Japan Side

5.1.1 Result of assignment

Actual record of assignment is shown in Figure 5-1.

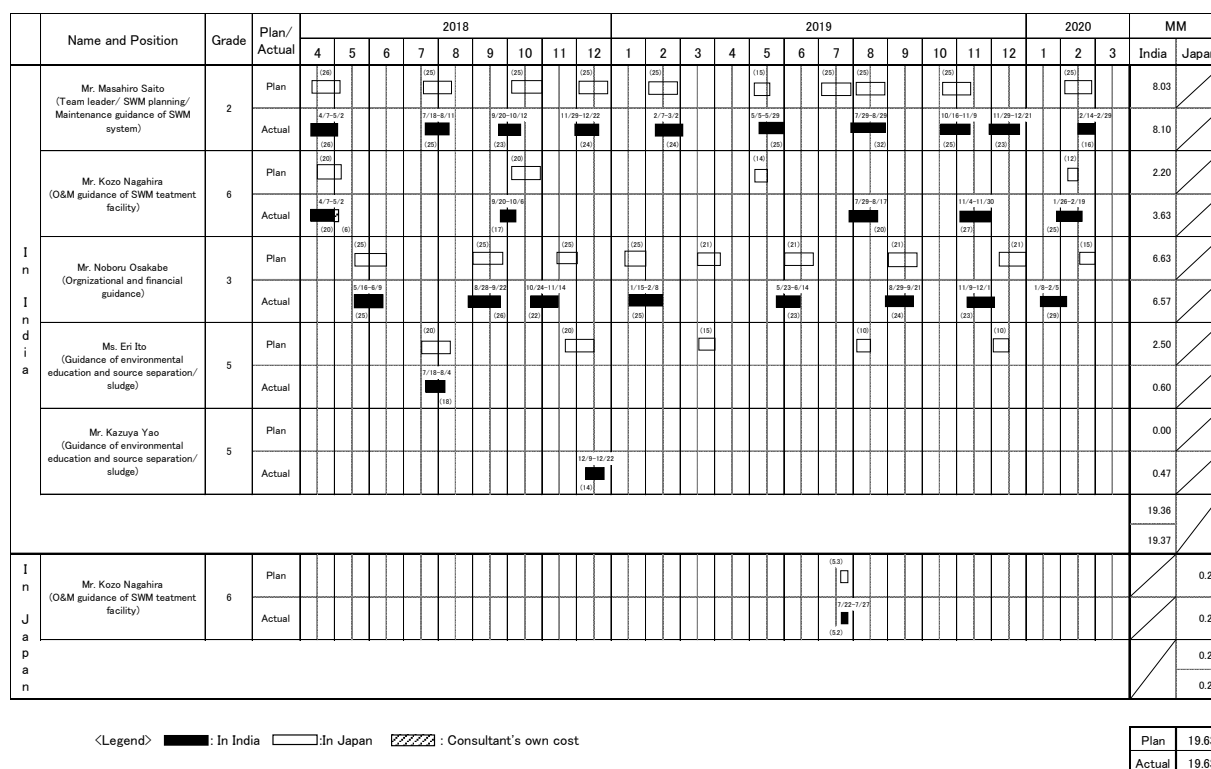


Figure 5-1 Actual record of assignment

5.1.2 Results of business tour and in-country training

(1) Business tour in Japan

1) Purpose

Solid waste management business tour in Japan 2019 has been conducted for the following two purposes.

- i) Build Net Work of SWM with Japanese Municipality
- ii) Business Matching with Japanese Companies

2) Schedule

The business tour was conducted for 6 days including travel days from 22nd to 27th July, 2019. Detail schedule of the business tour is the following Table 5-1.

Table 5-1 Schedule of business tour in Japan

| No. of Day | Date | | Time | Activity |
|------------|-----------|-----|------|--|
| 1 | 22nd July | MON | AM | - Leave Kolkata for Hong Kong Airport at 1:15 am by CX5169 |
| | | | PM | - Arrive at Narita Airport at 2:30 pm - Hotel check-in and briefing of business tour |
| 2 | 23th July | TUE | AM | - Visit to incineration plant of medical waste and conduct business matching |
| 3 | 24th July | WED | AM | - Visit to compressed package and plastic crusher equipment of plastic, bin, can and PET conduct business matching |
| | | | PM | - Visit to compressed package and crusher equipment of plastic, bin, can and PET and conduct business matching |
| 4 | 25th July | THU | AM | - Visit to Arakawa Recycling Center |
| | | | PM | - Visit to Adachi Incineration Plant - Lecture on Waste Management Policy in Tokyo by Clean Authority of Tokyo (CAT) - Make a presentation of KSWMIP to CAT - Exchange opinion with CAT |
| 5 | 26th July | FRI | AM | - Exchange opinion on future plan of solid waste management in Yachiyo Headquarter |
| | | | PM | - Leave Haneda for Hong Kong Airport at 4:25 pm by CX549 |
| 6 | 27th July | SAT | AM | - Arrive at Kolkata Airport at 00:20 am |
| | | | PM | |

Source: the JPT

3) Participants

List of the Participants is shown in Table 5-2. Chairman of Uttarpara-Kotrung who was going to participate the business tour could not have attended suddenly.

Table 5-2 List of participants of business tour in Japan

| No. | Full Name | Organisation | Position |
|--------------------|------------------------|-------------------------|-----------------------|
| Participant | | | |
| 1 | Mr. Amiya Mukherjee | Serampore Municipality | Chairman |
| 2 | Mr. Arindam Guin | Baidyabati Municipality | Chairman |
| 3 | Mr. Tapas Ghosh | Rishra Municipality | Conservancy Staff |
| 4 | Mr. Alok Mukherjee | Konnagar Municipality | Conservancy Manager |
| 5 | Mr. Sisir Kumar Baidya | KMDA | Chief Engineer |
| 6 | Mr. Ajeet Singh | JICA Project Team | Leader of Local Staff |

Source: the JPT

4) Achievement

Through the discussion of the CAT, the Participants and the CAT promised to have network of SWM from now on. It is expected that they will build good relationship for their future SWM by email.

In regard to business matching, all the private companies have willingly stated that they would like to keep on having a relationship with the Participants. The Participants have also expressed appreciation since they could have made a relationship with some Japanese companies. It is expected that the Participants will contact the companies in the future if they decided to install such a plant.

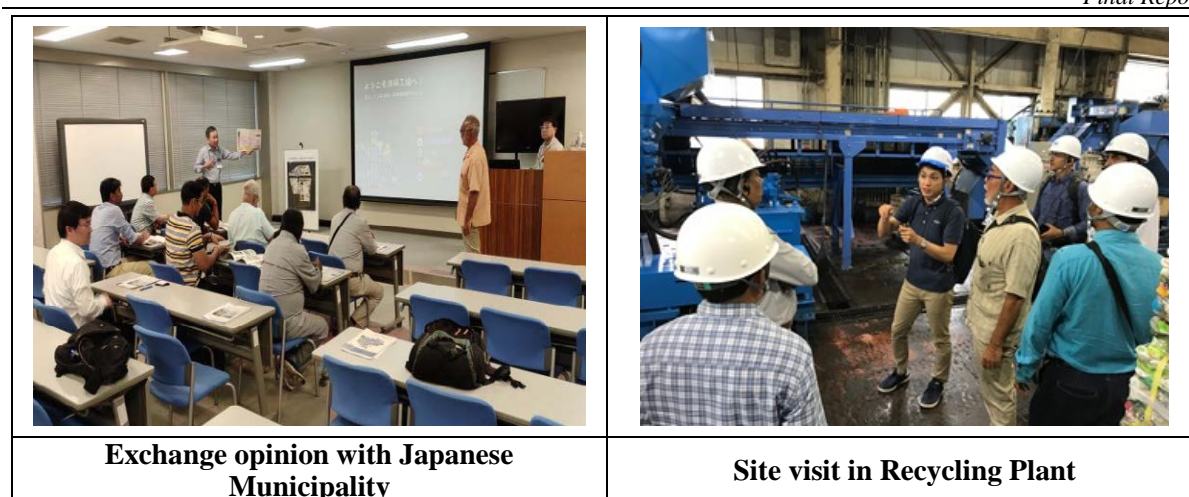


Photo 17 Scenes of business tour in Japan

(2) In-country training in Surat

1) Purpose

Surat Municipality was commended as the second beautiful city in India in 2019. SWM of Surat, especially in the recycling field, is advanced more than those of the target 6 municipalities. The purpose of this training is to acquire knowledge of the SWM fields that are more advanced than the present 6 municipalities and utilize this knowledge to improve their SWM. This training also aims to establish a SWM network with Surat in order to receive advice on SWM from Surat after TA project (2).

2) Schedule

The schedule of the training is shown in Table 5-3. This training was carried out for three days from December 16th to 18th, 2019. In order to grasp the comprehensive SWM in Surat, participants visited all sites from the separation at each household to the final disposal site. In the end, they exchanged opinions with staff of Surat.

Table 5-3 Schedule of training in Surat

| No. of days | Date | Time | Activities |
|-------------|------------------------------------|------|---|
| 1 | 16 th December, 2019 | PM | - Leaving from Kolkata for Surat Airport at 4.40 pm |
| | | PM | - Arrival at Surat Airport on 7.25 pm - Hotel check in and briefing of exposure tour |
| 2 | 17 th December, 2019 | AM | - Visiting Surat Municipal Corporation to meet with Solid Waste Manager of SMC - Visiting West zone of SMC to observe Door to Door - Waste collection and conducting discussion sessions with SMC officials about collection system - Visiting Transfer Station of South West zone of SMC to observe Separation and Transportation of Waste. |
| | | PM | - Visiting Construction & Demolition Waste Plant of SMC - Visiting Bio-methanation plant of SMC and exchanging opinion with SMC officials. |

| No. of days | Date | Time | Activities |
|-------------|------------------------------------|------|--|
| 3 | 18 th December, 2019 | AM | - Visiting Compost Plant and RDF Plant of Khajod - Visiting Closure Dumpsite of Khajod |
| | | PM | - Visiting Scientific Landfill of Khajod - Visiting Plastic Recycling Facility of SMC and exchanging opinion with SMC officials. - Departure from Surat for Kolkata Airport at 5.30 pm - Arrival at Kolkata Airport at 10.50 pm |

Source: the JPT

3) Participants

Participants of this training were SIs of 5 municipalities, Conservancy Manager from Konnagar and three local staff of the JPT, as shown in Table 5-4.

Table 5-4 List of participants of training in Surat

| No. | Full Name | Organisation | Position |
|-----|-----------------------|--------------------------------|----------------------------------|
| 1 | Mr. Anjan Banik | Uttarpara-Kotrung Municipality | Sanitary Inspector |
| 2 | Mr. Alok Mukherjee | Konnagar Municipality | Conservancy Manager |
| 3 | Mr. Pulin Das | Rishra Municipality | Sanitary Inspector |
| 4 | Mr. Anuj Banerjee | Serampore Municipality | Sanitary Inspector |
| 5 | Mr. Krishnendu Kundu | Baidyabati Municipality | Sanitary Inspector |
| 6 | Mr. Shisham Jaiswal | Champdani Municipality | Sanitary Inspector |
| 7 | Mrs. Mita Dhar | JICA Project Team | Social Coordinator |
| 8 | Mr. Mithun Patra | JICA Project Team | Social Coordinator |
| 9 | Mr. Biswadwip Bardhan | JICA Project Team | Expert of SWM Treatment Facility |

Source: the JPT

4) Results

As a result of opinion exchange with Surat, it was agreed that participants and staff in Surat would exchange opinions again in the future. The participants also declared to the mayor of Surat that the lessons learned during this training would be reflected in their SWM. Each participant held a debrief meeting after returning to the municipality, and shared the knowledge with the stakeholders. The scenes of the site inspection are shown below.



Photo 18 Scenes of site visit in Surat

5.1.3 Provision of equipment

The main equipment provided in TA Project (2) is as shown in Table 5-5.

Table 5-5 Provision of equipment

| No. | Equipment | Amount | Price (Japanese Yen) |
|-----|-----------|--------|----------------------|
| 1 | Printer | 1 | 41,854 |

5.1.4 Administrative and operational expenses

Table 5-6 shows the administrative and operational expenses spent in India.

Table 5-6 Administrative and operational expenses in India

(Unit: 1,000 Japanese Yen)

| Expense Items | | Amount (scheduled settlement amount) From April 2018 to March 2020 |
|---------------|---|--|
| 1 | General operation | |
| 1.1 | Employment | 47,494 |
| 1.2 | Supplies | 233 |
| 1.3 | Travel | 2,915 |
| 1.4 | Communication and transportation | 1 |
| 1.5 | Document materials preparation | 903 |
| 1.6 | Rent | 2,764 |
| 1.7 | Miscellaneous | 42 |
| 2 | Cost of report preparation (printing and binding costs) | 236 |
| 3 | Meetings | 1,308 |
| Total | | 55,083 |

Source: the JPT

5.2 Input of Indian Side

Table 5-7 shows input for SWM by the State Government and the target 6 municipalities themselves during the period of TA Project (2).

Table 5-7 Input by the State Government and the target 6 municipalities

| Authorities | Items | Quantity | Total (INR) |
|-----------------|---|----------|-------------------|
| WB State | | | |
| SUDA | Dumper - 10m ³ | 6 | 11,646,000 |
| | Auto tipper - Fuel Operated | 47 | 28,059,000 |
| | Auto Tipper -Batter Operated E- Rickshaw | 54 | 10,800,000 |
| | Tricycle | 128 | 2,816,000 |
| | Compactor | 1 | 3,500,000 |
| | house hold bins | 164,000 | 14,760,000 |
| | Loader Cum backhoe | 5 | 11,600,000 |
| | - | - | - |
| Total | | | 83,181,000 |
| ED | Septic tank sludge collection tanker - 5000 L | 1 | 1,550,000 |

| Authorities | Items | Quantity | Total (INR) |
|-------------------------------------|---|----------|-------------------|
| | - | - | - |
| Total | | | 1,550,000 |
| WBPCB | Household bins | 15,890 | 2,701,300 |
| | - | - | - |
| Total | | | 2,701,300 |
| Total of WB State Government | | | 87,432,300 |
| Municipality | | | |
| Uttarpara-Kotrung | Repair of TT Container | 15 | 600,000 |
| | Repair of Tricycle | 20 | 160,000 |
| | - | - | - |
| Total | | | 760,000 |
| Konnagar | Repair of TT Container | 15 | 600,000 |
| | - | - | - |
| Total | | | 600,000 |
| Rishra | Tricycle | 45 | 990,000 |
| | Auto Tipper -Battery Operated E- Rickshaw | 1 | 200,000 |
| | Repair of TT Container | 10 | 400,000 |
| | Repair of Tricycle | 25 | 200,000 |
| | - | - | - |
| Total | | | 1,790,000 |
| Serampore | - | - | - |
| Total | | | 0 |
| Baidyabati | Tricycle | 6 | 132,000 |
| | - | - | - |
| Total | | | 132,000 |
| Champdani | Tricycle | 16 | 352,000 |
| | - | - | - |
| Total | | | 352,000 |
| Total of Six Municipalities | | | 3,634,000 |
| Grand Total | | | 91,066,300 |

Source: Edited by the JPT through interview with the SUDA, ED, WBPCB of WB State and the target 6 municipalities

Chapter 6 Elaborate Plans and Lessons Learnt through Managing TA Project (2)

The following contents show the elaborate plans and lessons learnt through managing TA Project (2).

6.1 Elaborate Plans at the Beginning (Preparation Period)

6.1.1 Formation of Japanese experts

TA Project (2) emphasizes the efficient and prompt transfer of the technologies cultivated in Uttarpara-Kotrung and Baidyabati in TA Project (1) to the remaining four municipalities. As technically advanced Uttarpara-Kotrung and Baidyabati needed to lead technical assistance to the remaining four municipalities, Japanese experts, who had already established trust with Uttarpara-Kotrung and Baidyabati through TA Project (1), were assigned to the JPT. As a result, the training in the four municipalities was smoothly carried out under the leadership of the C/Ps in Uttarpara-Kotrung and Baidyabati.

6.1.2 Mobilization of local experts

In order to facilitate the smooth communication with the C/P team, that is, the exchange of information based on the background in addition to the communication of words, the JPT was formed with the Japanese and local experts. The following effects were confirmed by the mobilization of local experts.

- TA Project (2) hired local experts who worked in TA Project (1) and Japanese ODA loan project. It brought the smooth communication.
- The local experts were familiar with the issues and customs related to SWM technology in India. Accordingly the issues to be improved were compiled as realistic ones.
- The C/Ps' local skills and technologies were effectively incorporated into the activities in TA Project (2).
- TA Project (2) was able to explain Japanese SWM technology in the local language in relation to the local technology.
- Even during the absence of Japanese experts, TA Project (2) was able to continue to exchange information with the C/P team and support activities.

6.2 Elaborate Plans during the Whole Period of TA Project (2)

6.2.1 Cooperation and competition among municipalities

In bus tours, SWM staff of the remaining four municipalities visited facilities in Uttarpara-Kotrung and Baidyabati which had been supported in advance in TA Project (1). In the SWM improvement workshops in the four municipalities, the C/Ps of Uttarpara-Kotrung and Baidyabati were invited as lecturers to share the progress and issues of SWM improvement and to examine the improvement

measures. This information exchange on technological improvements encouraged the building of cooperative relationships among municipalities. It also created a competitive spirits in the target municipalities and contributed to efficient development of TA Project (2).

6.2.2 Holding monthly progress meeting with each municipality and Coordination Meeting with the KMDA

In order to facilitate “the transfer of technology and experience through cooperation among municipalities”, TA Project (2) held Coordination Meetings regularly. This Coordination Meeting was organized by the Minister and Principal Secretary of the UD&MAD of WB State, CEO and engineers of the KMDA, CEO of the SUDA of WB State, mayors of each municipality and JICA experts. It was a forum for mainly discussing the issues on operating TA Project (2). Furthermore, the JPT held monthly progress meetings once a month with the mayor and SI of each municipality, and once a month with CEO and engineers of the KMDA in order to share activity information and to increase the motivation. These monthly meetings supported the C/P activities and encouraged the active involvement in TA Project (2).

6.2.3 Elaborate plans to strengthen involvement of related organizations in TA Project (2)

The motivation of the KMDA for TA Project (2) is decreasing since they handed over the facilities constructed by the Japanese ODA loan project to the target 6 municipalities last year. According to MSW Rule 2016, the UD&MAD of WB State shall manage SWM of each municipality and the WBPCB shall manage pollutions from each municipality. The JPT proposed the UD&MAD of WB state and the WBPCB to establish a new committee to monitor TA Project (2). As a result, the Coordination Meeting organized by Principal Secretary of the UD&MAD of WB State was held on August 14th, 2018. Issues of TA Project (2) were discussed, but no constructive discussion was made. Then the JPT strengthened the WBPCB's involvement in TA Project (2). The WBPCB carried out the quality test of composting products of Uttarpara-Kotrung and Rishra in August and October 2018. The WBPCB also decided to provide Uttarpara-Kotrung 55 Lakh Rupee subsidies aimed at improving SWM, and paid 23 Lakh Rupees in October 2018. The JPT reported the issues of TA Project (2) to the Minister of the UD&MAD of WB state during JICA Site Visit in August 2019. At that time, it was assured to establish Monitoring Committee organized by CEO of the KMDA, to consider the SWM subsidy, and to provide Uttarpara-Kotrung the quality test equipment for composting products. However these have not been realized yet. In November 2019, it was decided to obtain support from the ED of WB State for a large tanker for night soil sludge transportation work in Konnagar. This tanker will be delivered in February 2020.

6.2.4 Elaborate plans to secure O&M funds for SWM

It was found that the subsidy for O&M of SWM approved in TA Project (1) were the surplus fund for the operation fund of WB State in the Japanese ODA loan project. This surplus fund is managed by the KMDA and it can be used as a subsidy for this fiscal year. Accordingly it is particularly important to secure the O&M funds of facilities newly constructed by the Japanese ODA loan project, that is, RWMC,

CPs and TSs.

Regarding the O&M fund for RWMC, it was decided that “Baidyabati would carry out O&M of RWMC, and its cost would be supported by the UD&MAD of WB State” in the Coordination Meeting organized by the Minister of the UD&MAD of WB State in August 2016. The JPT will appeal to the UD&MAD of WB State in order that the UD&MAD of WB State will continue to support O&M costs. Regarding the O&M funds for CPs and TSs, there is no decision on how to secure these funds. However the following documents clearly indicate that the O&M costs will be covered by the fee collection. The JPT encouraged the UD&MAD of WB State to carry out the fee collection from residents as soon as possible.

- 1) Minutes of Discussion of the Japanese ODA loan project
- 2) West Bengal State Policy and Strategy on Solid Waste Management (Issued by the UD&MAD of WB State)
- 3) Memorandum of Understanding (MoU) Between the KMDA and the target 6 Municipalities

The JPT has been requesting supports not only from the UD&MAD of WB State, but also related agencies of WB State including ED, AD, and Forest Department (hereinafter referred to as “FD”) and the WBPCB. The ED and WBPCB provided subsidies to Uttarpara-Kotrung. The AD and FD supported the sale of composting products. The JPT also introduced waste collection by SHG and a private company to support reduction the SWM cost of each municipality.

6.2.5 Elaborate plans to improve motivation for SWM

In the Kick-off Meetings in April and June 2018, the JPT had the impression that all municipalities except for Uttarpara-Kotrung had low motivation for SWM. When the JPT proposed to provide SWM technical assistance in the same meeting, Rishra, Konnagar, and Champdani decided to carry out O&M of TS and CP directly under each municipality. It was found that they had a willingness to improve SWM as far as they could if they received with the technical assistance of TA Project (2). In order to improve the motivation for SWM in 5 municipalities, TA Project (2) planed an inspection tour to the facilities of Uttarpara-Kotrung which was a successful case. After 100% of composting product of Uttarpara-Kotrung can be sold, TA Project (2) used the media to advertise the SWM status of Uttarpara-Kotrung extensively as a great success case of the target 6 municipalities in August 2019. The JPT expected that this event would inspire other 5 municipalities. As expected, Konnagar and Baidyabati were interested in this media conference and made further improvements to SWM. The JPT held similar media conferences in Konnagar in December 2019 and in Baidyabati in February 2020. Including recycling

Moreover, the JPT provided business tour and trainings to learn advanced SWM knowledge including recycling and to increase motivation for SWM. Business tour in Japan was conducted in August 2019 for officers at the mayor level, and training in India was conducted in December 2019 for staff at the field level such as CI. The trainees felt the importance of environmental education again during them,

and planned and implemented activities, such as an environmental education workshop, by themselves after returning.

6.2.6 Elaborate plans to expand and improve efficiency in the awareness raising activity on environmental education

When the standard of living becomes lower, cooperation of residents on the waste separation tends to be less. For this reason, the JPT proactively carried out the awareness raising activity in areas with low standard of living. It is required to continue the awareness raising activity until the waste separation becomes a common practice in the whole target areas. TA Project (2) negotiated with municipalities to secure budget so that each municipality would be able to continue even after the end of TA Project (2). In addition, The JPT were seeking cooperation for the awareness raising activity by making calls at residential meetings, etc. Several problems were found from the experience of instruction of waste separation in TA Project (2). For example, bins for separation were not installed in public facilities such as a school; primary collecting workers sometimes did not come to collect, stray dogs scattered wastes; and some houses did not have bins. TA Project (2) reported these problems to SIs of each municipality, and SIs examined the countermeasures.

6.2.7 Elaborate plans to secure the sales channels of composting products made in CPs

In TA Project (1), the composting products made in CP was sold to residents as a part of environmental awareness in Uttarpara-Kotrung. Although it gave a certain result, it was found out that selling the whole amount was difficult and securing various sales channels was required urgently. The JPT met with the following agencies in WB State related to composting production: a) AD, b) Department of Food Processing Industries & Horticulture (hereinafter referred to as “DFPIH”), c) Water Resource Investigation & Development Department (hereinafter referred to as “WRIDD”), and d) TALL TREE NURSERY (operated by the FD). The JPT confirmed how to obtain the Production and Selling License of composting product; conditions for subsidy application; private companies selling composting products; and conditions of each agency to purchase composting products. In November 2018, Uttarpara-Kotrung made a contract with a composting product distributor introduced from the AD. And the AD told the JPT that the selling price of composting products with a license for sale would be traded at about twice than that without license. In order to acquire this license, it is required to set up a laboratory for testing the quality of composting products. The JPT asked the Minister of the UD&MAD of WB State for support in purchasing the equipment, and obtained consent to subsidize Uttarpara-Kotrung and Baidyabati. The JPT also asked the UD&MAD of WB State to consult with the AD aiming that the other 4 municipalities could use the laboratories of Uttarpara-Kotrung and Baidyabati to obtain a license because it was uneconomical to set laboratories in each of the target 6 municipalities. Furthermore the JPT also proposed to ask the AD to carry out the quality test regularly if it would be difficult to set laboratories. However O&M methods of TS and CP will be outsourcing, and private companies will test the quality.

6.2.8 Improving motivation by acquiring successful experiences and knowledge

Recently several activities of mayors and SIs in Konnagar and Rishra were successful, such as increasing the collection amounts of organic wastes by Auto tippers, active participation of residents in the sales promotion campaign for composting products, and so on. Also these mayors and SIs have obtained knowledge on SWM and come to be able to manage the residents little by little. For example, they gave notice to the residents of the collective housing, who did not separate wastes, referring to the rule book. In this way, as a result of accumulating small successful experiences and acquiring SWM knowledge little by little, their motivation for SWM has improved considerably compared to before.

6.2.9 Creation of a mood favorable for users' fee payment

SWM fee collection by municipalities is clearly stipulated in the municipality law "The West Bengal Municipal Act, 1993" and the State Government's SWM strategy "State Policy and Strategy on Solid Waste Management for Urban Areas of West Bengal". However, for political and other reasons, the collection of service fee (including SWM fee and water charge) has been banned since 2011 by the State Government order. In recent years, the amount of discharged waste has increased due to the population increase and life standard improvement, and the SWM expenses are also increasing every year accordingly. However, as a matter of fact, the municipalities' financial resources are limited and depend largely on the State Government subsidies.

Taking into consideration this, the JPT has continued the awareness activities to the municipal authorities and citizens. As the result of these activities, five municipalities have started the collection firstly from celebration houses and now extended to other business establishment such as restaurants, hotels, etc. This implementation has brought a good effect to municipal authorities and citizens to create a favorable mood for household users' fee collection, though it is yet to be started.

6.2.10 SI experience about budget request activity at BOC meeting

In order to operate an appropriate SWM service, necessary budget sufficient for the operation has to be secured. On the basis of the saying, "budget is a fund to acquire but not to be given", the concerned departments are required to appeal aggressively the budget-request after careful study to municipal top management, BOC and financial department.

The JPT supported the joint-work between the financial department and SI for cost estimation and budget-request preparation, and finally got the SI explain these worked figures at the BOC meeting. This kind of presentation was a first experience for the BOC meeting. Through this challenging experience, the SIs learned skills how to request the budget and convince the councilors.

6.3 Lessons

6.3.1 High evaluation for the Project by adopting suitable technology

The target areas of the Project are 6 small local municipalities. At the beginning, the budgets for SWM were limited, and the capacities of staff in charge of SWM in the municipalities were not so high.

Accordingly the Project introduced a regional SWM system, and aimed to reduce the costs of SWM by recycling as much as possible of what can be recycled. And the Project proposed a non-high level SWM system allowing the staff of municipalities to operate and maintain. After facility construction, various instruction and guidance have been provided to the above target 6 municipalities through the technical assistance of JICA. Currently, 4 of the target 6 municipalities are able to manage wastes almost properly. As the capacity of SWM in each municipality develops, the number of visitors, such as people in charge of SWM, in other cities and states in India is increasing year by year. Furthermore, TA Project (2) received the excellence award in the solid waste category of C40 in 2016. In 2019, WB State selected 3 out of the target 6 municipalities in TA Project (2) as the model cities for waste management. Currently the SUDA of WB State is promoting the regional SWM and requested JICA to provide technical assistance to other regional SWM groups.

6.3.2 To maintain close linkage with financial department

SWM expenditures take a large part of entire municipal budget in general. However, financial departments have paid a small attention on it. Obviously O& M activities and financing are closely linked each other. Taking into consideration this, the conservancy department has to provide the financial department with proper information and data of expenses necessary for O&M in early stage as possible.

6.3.3 To prepare medium- and long-term plan

A single year budget is predominant for the municipalities; none of longer-term plan exist. Besides, the municipalities are bound by the State Government in formulating the year budget itself. Provided a 3-years' plan is prepared, SWM activities could be more effective envisaging a permissible procurement of equipment, manpower, O&M expenses in future.

Chapter 7 Activity Results and Recommendations on Securing Sustainability of Japanese ODA Loan Project

The feasibility of Japanese ODA loan project requires to secure “Human resources and organizations”; “Equipment and facility” and “O&M financial resources”.

7.1 Human Resources and Organizations

7.1.1 Human resources

(1) Activity results

In all target municipalities except for Champdani at the beginning of TA Project (2), human resources were insufficient, and equipment and facility were not operated mostly. At present, a minimum number of human resources are allocated for each SWM work with the budgets of municipalities. Thorough OJT by the JPT, staff obtained O&M skills to some extent. In each SWM work, some staff have played roles of leaders. They are expected to further improve SWM in the future. It was decided that Social Mobilizers, who were employed by TA Project (2) to do public awareness activities, would be hired with the municipality budget in Uttarpara-Kotrung, Rishra, Baidyabati and Konnagar after the completion of TA Project (2). A formal SI was assigned in Champdani in December 2019, and SWM will be improved leading by SI. However, since TA Project (2) ends in February 2020, OJT to SI is certainly insufficient. Currently, there is a shortage of human resources for the waste collection work. According to the instruction of WB State, the JPT submitted the Micro Plan, in which the shortage of human resources for each Ward was calculated, in November 2019. WB State plans to support the cost of the shortage of human resources based on this Micro Plan.

(2) Recommendations

Regarding Champdani, it is desirable that SIs in municipalities, which SWM improvements are advanced, such as Uttarpara-Kotrung and Baidyabati, will support SI in Champdani. In addition, other municipalities are required to share the progress of SWM improvement and technical improvement information among the target municipalities and in the network established in the training in Surat, and to aim for further SWM improvement. As for the shortage of human resources, WB State will provide assistance according to the Micro Plan as mentioned above. However, it may take some time, so it is necessary to realize to collect waste by SHG using the fee from the commercial areas, and to withdraw plastic wastes for free by private companies. These activities are effective because they lead to the reduction of human resources, and they need to be expanded.

7.1.2 Organizations

(1) Activity Results

For a smooth and sustainable operation, it is essential to share information and data with each other

among concerned departments and put it into practice together. However, the cross-organizational (or – departmental) cooperation atmosphere of municipality did not seem to be solid. With regard to financial issues, this departmental collaboration functioned well by means of (i) setting up an ad-hoc SWM committee on SWM composed of councilor-in-charge, SI and financial department, (ii) discussing what needs among members and working together toward one objective, and (iii) making presentation at BOC meeting. All of these activities have tightened the onward linkage for mutual understanding and cooperation among the concerned municipal officials. In terms of technical aspect, as mentioned in the above human resources, the organization of O&M was strengthened compared to the beginning of TA Project (2) since workers who work in the sites, through the OJT of the JPT, have acquired the limited skill of O&M in the each process and existence like leaders have been discovered among them.

(2) Recommendations

Through the discussion with chairman, the ad-hoc SWM committee was set up by his order. The committee especially endorsed by chairman has a power and gets the concerned department officials act quickly and smoothly. As the O&M method of TS and CP will be changed from direct management to outsourcing managed by private companies in near future, the monitoring will be quite important in cooperation with the SUDA of WB State which will make contract with private companies.

7.2 Equipment and Facility

(1) Activity Results

At the beginning of the TA Project (1), many of the equipment provided by the Japanese loan project were broken over their life or needed to be repaired. Among the broken equipment, the JPT screened those that could and could not be repaired. With the support of the JPT, repairable equipment (Tricycles of primary collection equipment, TT containers of secondary collection equipment, small tankers for collecting night soil sludge, etc.) was repaired at the workshop with the budgets of municipalities. The JPT provided not only technical support for staff working in the workshop, but also occupational health and safety. Weighbridges, trommels, heavy equipment and roofs were repaired by outsourcing with the budgets of municipalities. For equipment that had been broken and needed to be replaced, the JPT asked the KMDA to help with the purchase costs, and the municipalities received approximately 20% of their applications. The JPT had the WB State organizations on SWM involved because the assistance from the KMDA alone was not enough. The ED of WB State provided the tanker transporting night soil sludge for Konnagar, and the WBPCB provided buckets for waste separation and E-Tricycles for Uttarpara-Kotrung. Both organizations provided supports for these two municipalities because they promoted SWM improvement, and said that both organizations were ready to support other municipalities if further improvement of SWM would be confirmed. On the other hand, the municipalities purchased a small amount of primary and secondary collection equipment within the budgets of municipalities. Even with these efforts, there is a shortage of waste collection equipment. WB State plans to support the cost of the shortage of human resources based on this Micro Plan.

(2) Recommendations

At present, it seems that the priority of SWM work is considerably higher in the administrative services of each municipality than at that the beginning of the TA Project (2). However, the SWM budget of each municipality is not enough to purchase equipment, and is barely enough to provide repair costs. Each municipality is required to secure the SWM budget by increasing the fee collection from business establishments. At the same time, each municipality needs to make efforts to receive supports by the related organizations by reporting the status of SWM improvement. Uttarpara-Kotrung, Baidyabati and Rishra, which were commended by WB State as model municipalities of SWM, have received sufficient support from WB State. In the remaining three municipalities, Konnagar needs to appeal to WB State because Konnagar is improving SWM at least as well as the above three cities.

7.3 O&M Financial Resources

Activity results of obtaining O&M fund and recommendations are mentioned below.

7.3.1 Activity Results

In order to secure the sustainable funds for O&M expenditure continuously, the best is to appropriate the users' fee in parallel with governmental subsidies. Although the municipalities are yet to collect from households, they have already started it from business establishment and are to expand it to other business areas. Moreover, financial support of outsourcing expenses for O&M of RWMC, TS and CP of the each target municipality by WB State could have been led.

7.3.2 Recommendations

The State Government have banned the collection of water charges since 2011. Despite this against wind, in 2013 before handover of the facilities, the KMDA and the target 6 municipalities signed the memorandum of understanding (MoU) agreeing that the municipalities collect SWM fees from every polluter? However, the municipalities have started only from business establishment in 2017 and 2018. The collection from household have not yet started despite the citizens' showing their willing- to-pay. With regard to this household fee, though the possibility still remains, more scrutinized study and careful judgement on the possibility of collection should have been made before the hand-over of facilities.

Attachment 1

3

Meeting with the Chairman, Uttarpara-Kotrung Municipality

Date: 10th April, 2018

Venue : Chamber of the Chairman, U-K Municipality

Attendance ;

Uttarpara-Kotrung : ^{Chairman} Sanitary Inspector

JICA Project Team (JPT) : Saito, Nagahira, Mukherjee, Jana

The JICA Project Team consisting of Mr Saito, Mr Nagahira of Japan and their Indian Consultant Mr R Mukherjee and Mr S Jana expressed the line of action of JICA Project Team provided for Technical Assistance Program under Phase II about KSWMIP Project implemented by KMDA under Japanese ODA Loan in view of upgradation of mobility and sustainability against running of SWM Project. JPT explained the contents of this project to the Chairman and the SI. In this context, JICA Project Team wanted the Chairman to state what further action they have been taking in respect of Man Power for primary collection and collection of tipping fee.

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The Chairman explained his work status in respect of primary collection of waste and uses of primary equipment provided for direct transport from source to the Compost Plant/ Transfer Station. They have no issue against manpower. Collection is going on regularly, Production of Compost as organic manure are taking place and its sale also being improved day by day. Last Month they have sold more than 1000MT to a gout department.

Regarding Tipping fee there are some policy constraint by the State Government. So, it can't be charged straight but can be done by imposing over to commercial establishment, Bazar and celebration houses or be implemented by enhancement of existing Taxes being charged for similar nature of municipal services. About disposal of septic sludge from collection point to Regional Waste Management Center (RWMC), the Municipality is disposing 70% of total quantity to RWMC and balance portion are being reused in the form of culture to increase NPK value of compost. The Chairman wanted the JICA Project Team to take up public awareness activities with more organised manner and assured that all Social Mobilizers would be placed under the control of JICA Project Team.

Considering that the SI of Uttarpara-Kotrung can give his knowledge and experience of Solid waste management to other municipality, JPT suggested the SI to support JPT as trainer. The Chairman and the SI agreed with JPT's suggestion.

Mr Saito, a Leader of JICA Project Team informed that JICA consider to dispatch one Japanese Junior Volunteer for improvement of public awareness and environmental education. The Chairman welcomed the idea and agreed to accept the Volunteer and extend all support from the Municipality.

The Chairman also requested JICA Project Team to suggest better plan for improvement of SWM and assured that he would be able to arrange fund for any improvement necessary.

Meeting ended with thanks to and from the Chairman.

Meeting with the Chairman, Rishra Municipality

Date: 13th April, 2018

Venue : Chamber of the Chairman, Rishra Municipality

Attendance ;

Rishra : Chirman, Vice-Chairman, Sanitary Inspector, Section Officer/ Head Clerk
JICA Project Team (JPT) : Saito, Nagahira, Mukherjee, Jana

The JICA Project Team (JPT) consisting of Mr Saito, Mr Nagahira of Japan and their Indian Consultant Mr R Mukherjee and Mr S Jana expressed the line of action of JICA Project Team provided for Technical Assistance Program under Phase II about KSWMIP Project implemented by KMDA under Japanese ODA Loan in view of improvement of operation of Transfer Station & Compost Plant including sale of organic manure and sustainability of SWM Project. JPT explained the contents of this project to the Chairman and the Sanitary Inspector. In this context, JICA Project Team requested the Chairman to state what further action they have been taking in respect of collection of segregated waste, regular operation of compost plant and collection of tipping fee.

The Chairman explained his work status in respect of primary collection of waste wherein segregated waste is being collected from 06 Wards out of 23 Wards. Waste of adjacent Panchayet is also collected and transported to Transfer Station / Compost Plant and so they have purchased 06 nos. T.T. Containers out of their own fund. Inadequate manpower is always a constraint but the Municipality is trying to maximise the services of available manpower. While segregated collection is being carried out in 06 Wards, waste collection is there from all the Wards. Operation of compost machineries is not regular for paucity of green waste. Sale of organic manure is yet to finalised. The Chairman stated that they have exchanged dialogue with a vendor as well as decided to install plastic recyclable machine adjacent to Compost Plant for separation of plastic in large quantity from street waste as well as household waste. This will not only contribute to the decrease of waste amount to be disposed but also help to earn some revenue and ensure employment of the rag pickers.

Regarding Tipping fee the Chairman said, tipping fee can't be charged from the common households but agreed to impose over the commercial establishment, Bazar and celebration houses. About disposal of septic tank sludge from collection point to Regional Waste Management Center (RWMC), the Municipality is working out regularly. The Chairman requested for funding in respect of procurement of bins (Blue + Green) to be placed in added area. Besides , the Municipality is going to launch Waste vehicles with sound recorder attachment for delivering recorded message in respect of ways of

segregation and its benefit to sustain healthy environment of the locality while collecting primary waste from households and other establishments.

The Chairman agreed to run TS & CP by the Municipality itself and requested JPT for advocating for release of balance instalments of sanctioned subsidy from KMDA and proposed for seeking financial support from Government for the period of 02 Years to improve fund resource for the sake of sustainable SWM system.

JPT suggested that the mayor and city council member visit CP & TS of Uttarpara-Kotrung and they should confirm the situation of the operation and maintenance before giving a conclusion.

Disposal of medical waste as well as that of Carcass is an urgent issue at Rishra. The Chairman requested JPT to share an idea for resolving the same. JPT explained that we have experience to construct small size incinerator for medical waste by using grant aid grass-root in Dhaka of Bangladesh to the Chairman. It is necessary to develop the medical waste collection system and conduct EIA for the construction of the incinerator of the medical waste. In addition, it is necessary for the NGO which can operate an incinerator. JPT requested the Chairman to identify personnel who will be trained by JPT for upgradation of designated services of SWM system. The Chairman insisted to provide immediate training to the persons entrusted with operation of TS&CP and its Laboratory. The Chairman assured that within the next week he will get back to JPT with its responses to the list of commitments provided.

The Meeting ended with thanks to and from the Chairman.

Meeting with the Chairman, Champdani Municipality

Date: 18th April, 2018

Venue : Conference room of Champdani Municipality

Attendance ;

Municipality : ~~Chairman~~, Vice-Chairman, C-I-C, Executive Officer, Sanitary Inspector, Account Officer and Councillors.

JICA Project Team (JPT) : Saito, Nagahira, Mukherjee, Jana

The JICA Project Team (JPT) consisting of Mr Saito, Mr Nagahira of Japan and their Indian Consultants Mr R Mukherjee and Mr S Jana expressed the line of action of JICA Project Team provided for Technical Assistance Program Phase II to KSWMIP Project implemented by KMDA under Japanese ODA Loan in view of improvement of operation of Transfer Station & Compost Plant including sale of organic manure and sustainability of SWM Project. JPT explained the contents of this project to the Chairman and others present. In this context, JICA Project Team requested the Chairman to state what further action they have been taking in respect of collection of segregated waste, regular operation of compost plant, collection of tipping fee, transportation of inert waste & septic tank sludge to RWMC.

The Chairman regretted their inaction in respect of primary collection during the period of 06 months and directed his concerned officer, Sanitary Inspector to look after for resumption of SWM services in regular and proper way. The EO of the Municipality expressed the reason of inactiveness/ irregularity of primary collection owing to insufficient primary collection equipment e.g. bins (Blue+ Green), Community bins as well as primary collection equipment for which fund assistance was sought to KMDA. JPT insisted to resume the SWM activities basically primary collection by selecting no. of Wards with existing equipment in running condition and available waste handlers . The Chairman also agreed to resume primary collection on and from May 2nd, 2018 from 07 Wards. JPT will extend every assistance out of their scope of action. JPT also insisted to confirm engagement of personal who will look after the activities in TS & CP. The Chairman agreed to undertake all possible ways to resume operation & maintenance of TS&CP and accordingly, instructed EO & C-I-C to prepare name list of the same by April 23rd, 2018.

JPT will prepare the list of minimum number and position of staff for TS&CP operation and send those to EO. JPT suggested engagement of rag pickers for segregation of recyclable (plastic) materials in Transfer Station and wanted to know what they have planned for sale promotion since it's a valuable source of fund. JPT can also support to promotion of

sale of compost. EO said that they were yet to prepare any planning and insisted for JPT's help in this matter. JPT agreed to support by all possible means by conducting promotion meeting with Farmers Association, Firms establishments and Agricultural Industries etc. who are using organic manure. In this respect Laboratory report consisting of valuable ingredients essential for good quality organic manure is necessary and that will be supported by JPT. JPT requested that the Municipality confirm condition of equipment of TS&CP and Weighbridge.

Regarding Tipping fee the Chairman said, in the beginning municipality had collected tipping fee from households with their consent but now no tipping fee is collected from them. The Chairman agreed to take action in new mode of assessment by conducting a joint meeting with the Bazar Committee and JPT within a short period. About disposal of septic tank sludge to Regional Waste Management Center (RWMC), the Municipality is working out regularly.

The Chairman requested JPT for advocating for release of balance instalments of sanctioned subsidy for operation & maintenance of TS & CP and fund allotted for repairing of T.T. Container from KMDA.

On conclusion of the meeting the Chairman and his associates agreed to undertake all steps as hereunder for improvement and sustainability of the SWM project.

SUMMARY OF RESOLUTION

The Chairman & others present confirmed that the Municipality will:

- a) Run the TS&CP and not give it to any private Agency.
- b) Commence Segregated Primary Collection from families of 07 (seven) Wards and from the market on and from 02nd May, 2018
- c) Extend primary collection services to other Wards gradually.
- d) Clean the TS&CP within Monday (23.04.2018).
- e) Ensure safe and regular transportation of collected waste to TS&CP.
- f) Finalise deployment of required manpower for O&M of TS&CP by Monday (23.04.2018) and inform JPT for their hands on training.
- g) Finalise user fee structure by the next week and ensure regular collection of user fee from commercial establishment.
- h) Try to reintroduce collection of user fee from families after consolidating segregated primary collection.
- i) Extend full support to JPT in public awareness programme after redeployment of social mobilisers and also arrange programmes for social mobilisation.

The Meeting ended with thanks to and from the Chairman.

Meeting with the Chairman, Baidyabati Municipality**Date: 18th April, 2018****Venue : Chamber of the Chairman, Baidyabati Municipality**

Attendance ;

Municipality : Chairman, Sanitary Inspector.

JICA Project Team (JPT) : Saito, Nagahira, Mukherjee, Jana

The Chairman welcomed the JICA Project Team (JPT). JPT expressed the line of action of JICA Project Team provided for Technical Assistance Program under Phase II about KSWMIP Project implemented by KMDA under Japanese ODA Loan in view of improvement of operation of Transfer Station (TS) & Compost Plant (CP) including sale of organic manure and sustainability of SWM Project. JPT explained the contents of this project to the Chairman and the Sanitary Inspector and requested the Chairman to state what action they have been taking on collection of segregated waste, regular operation of compost plant and collection of tipping fee.

The Chairman stated that primary collection is going on as usual in segregated manner and since the Compost Plant is maintained by a private party, there are no scope of technical assistance on operation & maintenance of compost plant directly by JPT. He appealed JPT that public awareness programme may be resumed under the control of JPT to strengthen the workability of primary collection from Wards.

JPT drawn the Chairman's attention about sales promotion of organic manure. JPT insisted the Chairman to utilise the provision of Govt. subsidy @ INR 1500 per Ton on sales of organic manure and JPT will support by all possible means. Since a private party is handling operation of CP, JPT requested the Chairman to arrange a meeting where a private party will present as an associate.

About collection of user fee, in the beginning municipality used to collect user fee from households but now it is discontinued. The Chairman agreed to conduct a joint meeting with the Bazar Committee, Housing Societies and celebration house owners and JPT within a short period for assessment of new charges and its collection.

JPT asked to the Chairman that who will operate RWMC in next contract stage, and the Chairman replied that private company will operate to RWMC. JPT also asked that the

Technical Assistance for Kolkata Solid Waste Management Improvement Project (Phase-2)

Municipality needs the technical cooperation for RWMC operation, and the Chairman replied that the Municipality needs technical cooperation by JET. JET agreed the Chairman's opinion.

Disposal of septic tank sludge to Regional Waste Management Center (RWMC) is doing properly by the Municipality.

JPT suggested engagement of rag pickers for segregation of recyclable (plastic) materials from mixed waste dumping in compost plant.

The Chairman requested JPT for advocating on release of balance instalments of sanctioned subsidy for operation & maintenance of TS & CP and fund for repairing of T.T. Container from KMDA since administrative approval has been released.

The Meeting ended with thanks to and from the Chairman.

Meeting with the Chairman, Konnagar Municipality**Date: 19th April, 2018****Time : 3 pm****Venue : Chamber of the Chairman, Konnagar Municipality****Attendance ;****Municipality : Chairman, Alok Mukherjee****JICA Project Team (JPT) : Saito, Nagahira, Mukherjee, Jana**

The Chairman welcomed the JICA Project Team and expressed satisfaction about the presence of JICA Project Team for second time provided for Technical Assistance Program Phase II about KSWMIP Project implemented by KMDA under Japanese ODA Loan in view of improvement of operation of Transfer Station (TS) & Compost Plant (CP) including sale of organic manure and sustainability of SWM Project.

JPT explained the purpose of this project and briefed the Chairman about the functions and responsibilities of the JPT in the second phase. It was clearly stated that JICA, having studied the prevailing state of affairs, offered to extend support by appointing the JICA Project Team Phase II, so that things may prove and the project may transform into a viable one.

In response, The Chairman confirmed that :

- a) The Municipality will not let out the TS&CP to any private Agency and run it by itself.
- b) The Municipality will take two weeks time to deploy necessary manpower for O&M of the TS&CP.
- c) The Municipality will request the JPT to extend skill training support to the personnel engaged.
- d) The TS&CP will be cleaned and made suitable for O&M within the next two weeks.
- e) Primary collection being carried out in all the 20 Wards will be, with support from JPT, properly planned for gainful utilisation of available manpower and equipment.
- f) The Municipality will ensure to bring collected biodegradable waste in the Compost Plant and operate machine to produce compost which the quality will be checked by JPT for providing technical support.
- g) Septic sludge is being regularly transported to RWMC. The Sanitary Inspector (SI) demanded a large cesspool of 5000 L capacity to minimise fuel cost.

- h) The Municipality will prepare a fee structure and get it approval by the Board and start user fee regularly. By the time this process is complete, primary collection is expected to be more stable and uninterrupted.

The SI during interaction pointed to a few constraints as hereunder and requested JPT to take up the issues with the Gout:

- a) Roof sheet over the Compost Plant is full of Leaks and the platform gets inundated during rain. It would require additional expenditure to remove water from the platform for keeping it workable. The Municipality has no fund for this capital expenditure.
- b) The Weighbridge and its allied components require repairing/servicing for operation of the Plant.

The meeting ended with thanks to and from the Chairman.

23.04.2018

Meeting at Serampore Municipality

Minutes of the Meeting

Date: 20.04.18

Time: 3:30 p.m -

Venue: The chamber of the Chairman

Attendees

Municipality: Chairman
C-I-C, Conservancy
Councilor
Sanitary Inspector

JICA Project Team (JPT) : Mr. Masahiro Saito, Team Leader
Mr. Kozo Nagahira
Mr. Satinath Jana
Mr. Ranjit Mukherjee

After exchange of pleasantries, the JICA Project Team briefly narrated the purpose of introducing the second phase of the Technical Assistance Programmed by JICA. It was for enabling the municipalities further to implement KSWMIP more efficiently and effectively. The JICA Project Team has the scope of extending Technical expertise for operation and maintenance of TS & CP, for primary collection from households and commercial establishments, secondary transportation, promotion of the sale of compost, transportation of waste to RWMC and in respect of security and safety of the system and the personnel involved. If the municipality so feels the JPT will implement social mobilisation programmes for improvement of source separation. JPT will also make a survey of the state of affairs, including that of finance to identify the mismatch between **what the municipality can do with available resources** and **what the municipality should do**, so that quantum of support required from the state can be definitively ascertained.

In response the municipality stated the following:

- 1) To undertake O&M of the TS & CP by the municipality is not possible at the moment. However the issue will be discussed in the next Board meeting on 27.04.2018 and a resolution would be adopted.
- 2) For want of equipment like HH bins and Tractor Trailer Container (TTs) segregated primary collection from families cannot be carried out.
- 3) Collection of waste from commercial establishments is being carried out regularly.

Technical Assistance for Kolkata Solid Waste Management Improvement Project (Phase-2)

- 4) User fee has been imposed and is being collected from the commercial establishments on a regular basis.
- 5) The municipality will extend full cooperation to JPT for the survey to determine the status of the Project including that of finance.
- 6) Social mobilization activities should be reintroduced and the municipality will extend full support to JPT in this respect. But this activity should be continuously carried out.

The C-I-C stated that it was primarily because the TTs supplied are all damaged and are beyond repair, the municipality does not have any secondary collection point (SCP) and this is the predominant predicament towards continuous primary collection of waste and secondary transportation of collected waste. The municipality bring collected waste to RWMC directly.

The Chairman committed that the resolution of the Board of councilors will be communicated to JPT after the Board meeting on 27.04.2018.

The meeting ended with thanks to and from the Chairman.

Visit to TS/CP

Both TS and CP are too full of mixed waste. Since the tenure of the private agency is over and new contract has not been offered, the plants are lying idle.

Attachment 2

Proceedings of the Coordination meeting on Solid Waste Management Project for 6 municipalities namely Baidyabati, Uttarpara-Kotrung, Konnagar, Serampore, Rishra & Champdany (JICA funded Project) held on 06.08.2019 at 5.00 P.M. in the VIP conference Hall, Unnayan Bhavan.

The members present were,

1. Mr. Subrata Gupta, Principal Secretary, UD&MA Department, Govt. of West Bengal.
2. Ms. Antara Acharya, CEO, KMDA.
3. Mr. Sisir Kumar Baidya, Chief Engineer-in-charge, S&SWM, W&S Sector, KMDA
4. Mr. Utpal Mandal, Superintending Engineer, Planning Circle, S&SWM, W&S Sector, KMDA
5. Mr. Tarak Nath Banerjee, Executive Engineer, Planning Division, S&SWM, W&S Sector, KMDA
6. Mr. Amiya Mukherjee, Chairman, Serampore Municipality.
7. Mr. Arindam Guin, Chairman Baidyabati Municipality.
8. Mr. Alope Mukherjee, Konnagar Municipality.
9. Mr. Tapash Ghosh, Rishra Municipality.
10. Mr. Pulin Das, Rishra Municipality.
11. Mr. Anuj Banerjee, Serampore Municipality.
12. Mr. Pradip Biswas, Champdani Municipality.
13. Mr. Sesam Jaiswal, Champdani Municipality.
14. Mr. Vineet Sarin, Additional Chief Development Specialist, JICA India.
15. Ms. Yoki Sinohara, Representative, JICA India.
16. Mr. Masahiro Saito, Project Manager, JICA Project Team.
17. Mr. Ajeet Sing, JICA Project Team.
18. Mr. Ranjit Mukherjee, JICA Project Team.

The meeting was chaired by the Hon'ble MIC, UD&MA Department, Govt. of West Bengal & Chairman KMDA.

To begin with the CEO, KMDA initiated the discussion stating that though SWM is the most priority issue achievement remains poor primarily because of the absence of any MICRO-PLAN. It is therefore felt that a Micro Plan of each of the 6 municipalities be prepared first, & JICA Project Team, working intimately with the 6 municipalities for several years may help in preparing the Micro Plan as early possible. The CEO, KMDA also stressed the need of extension of the tenure of JPT to help KMDA for implementation of Micro Plan.

The Hon'ble MIC, UD&MA Department requested Mr. Sarin of JICA to respond. Mr. Sarin stated that after the JICA ODA Loan period, JICA extended technical support with an additional extension because JICA expected the Project (KSWMIP) would turn out to be a flagship one for replication elsewhere.

In this regard few suggestions have been delivered by Mr. Sarin.

1. The municipalities are handicapped in respect of manpower, equipments & vehicles & also with fund constraints. Since the municipalities do not have any additional source of revenue the problem of inadequate manpower & equipments continue to remain & solution still remains remote. JICA therefore request the Government to intervene & help the project be sustainable.
2. The municipalities are now producing compost out of segregated compostable waste. They are selling manure in small quantity. JICA requested the department to negotiate with appropriate government

outlets (e.g. The Department of Forest) for bulk sale of compost which will fetch some revenue to the municipalities.

The Principal Secretary stated that the demands being placed by the municipalities regarding requirement of manpower, machineries & vehicles which can only be assessed or justified if there is a Micro Plan.

The CEO, KMDA also asserted that Micro Plan is the most essential input to help those 6 municipalities. The JICA Project Team committed that the Micro Plan will be prepared by them within a month & on the basis of the Micro Plan further action may be taken up.

The Principal Secretary, UD&MA Department wanted to know what support is actually extended by JPT and in response JPT informed that:-

- a) Day to Day monitoring & supervision of the technical activities are done & feed back for improvement is provided.
- b) Capacity building of those engaged in SWM in each municipality is done through training & demonstration.
- c) Advocacy meeting with Chairman & Board of Councilors on policy issues are done from time to time.
- d) Arranging exposure visits for Councilors/Sanitary Inspectors/ Chairman to appreciate the significance of SWM.
- e) Planning, implementation & paying for public awareness & environmental education activities through large varieties of programme.

The Principal Secretary recommended that since JPT has data, information & experience, Micro Planning should be done by JPT in a month's time as committed.

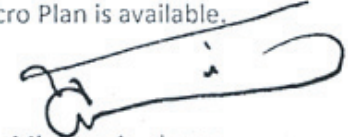
JPT wanted to know who will take care of Micro Plan from Government side & how much time would the Government take to support the municipalities after the preparation of Micro Plan is complete. The Hon'ble MIC replied that KMDA would take care of the Micro Plan. The Principal Secretary stated that after the approval of the Micro Plan, manpower sanction will be done immediately & in respect of equipments, since tendering is involved it will take about a month or so to resolve.

Chairman Baidyabati Municipality stated that manpower assistance should be given immediately for primary collection. He also stated that though the segregation at source is nearly 99 % it will take adverse affect manpower is not increased. He also expressed his willingness to set up a recycling unit to ensure that only inert portion is disposed to Land fill site.

JPT informed about not functioning of the digester. The Principal Secretary informed that operation & maintenance of the facility with all assets is the responsibility of the private agency selected by Baidyabati Municipality & hence repair should be done by the private agency concern.

The Principal Secretary in his response advised the municipalities to arrange manpower with funds available for Urban Employment Programme, which if necessary may be further redesigned. In respect of recycling unit, the Principal Secretary said that other issues will be taken care of after the Micro Plan is available.

The meeting ended with a vote of thanks to and from the chair.



Minister-in-charge

UD&MA Deptt. and Chairman, KMDA

KOLKATA SOLID WASTE MANAGEMENT IMPROVEMENT PROJECT (KSWMIP)

Summary Record of the discussion in the Review meeting on progress of Kolkata Solid Waste Management Improvement Project (KSWMIP) held on the 18th December 2018 at 12:30 pm at Mayor's Chamber, Kolkata Municipal Corporation,

Officials Present

Mr Firhad Hakim, Hon'ble Minister, UD & MA Deptts. and Chairman KMDA

Mr Sanjay Bansal, CEO KMDA

Mr. Dilip Yadav, Chairman, Uttrapara- Kotrung Municipality

Mr Vineet Sarin, Additional Chief Representative, JICA Delhi office

Mr X Kaigai, YYY, JICA Delhi office

Mr M. Saito, JICA Project Team (JPT)

Mr Yio, JP, (JPT)

Mr Ajeet Singh, JPT

Mr Ranjit Mukherjee, JPT

- The Review Meeting was presided over by the Hon'ble Minister – in – Charge, UD & MA Department and Chairman KMDA.
- Hon'ble MIC asked JICA official to comment. The JICA officials raised the following issues:
 1. Lack of ownership of project by municipalities. No significant segregated waste collection is being done by the Municipalities except Uttarpara- Kotrung Municipality and very less quantity of segregated waste collected and transported to compost plant. Most of the waste collected and directly send to sanitary landfill (RWMC) in mixed form without any processing.
 2. Lack of monitoring from government regarding collection, transportation, O & M of TS & CP plant and O & M of RWMC.
 3. Municipalities claiming shortage of manpower and equipments for primary collection and secondary collection of waste in a segregated manner;
 4. Inadequacy of fund for O&M Transfer station and Compost plant Continuous financial support from O & M of RWMC where all the six municipalities dump their waste.
- The Hon'ble Minister instructed the Uttrapara Chairmen to become leader of SWM services in the 6 municipalities and guide all the other municipalities about segregation of waste and O & M of TS & CP
- The Hon'ble Minister instructed CEO KMDA to form a monitoring committee comprising CEO, KMDA as head and all the six municipality chairmen as member of the committee and check Collection of waste condition of equipments and O & M of all the facilities.
- The Hon'ble Minister instructed municipalities to submit their demand of manpower, equipments and O & M fund required for TS&CP and RWMC and directed CEO KMDA to send the proposal through U D Dept. for approval and Minister will provide necessary fund .
- The Hon'ble Minister instructed KMDA to setup two full fledge laboratory to test all the parameters of compost, one at Uttrapara and one at Badiyabati for getting compost manufacturing license. Minister will also talk to Fertilizer department to issue compost manufacturing license to all the 6 municipalities based on two laboratories set up at above two location.

The meeting ended with a vote of thanks to and from the chair.

KOLKATA SOLID WASTE MANAGEMENT IMPROVEMENT PROJECT (KSWMIP)

Summary Record of the discussion in the Review meeting on progress of Kolkata Solid Waste Management Improvement Project (KSWMIP) held on the 18th December 2018 at 12:30 pm at Mayor's Chamber, Kolkata Municipal Corporation,

Officials Present

Mr Firhad Hakim, Hon'ble Minister, UD & MA Deptts. and Chairman KMDA

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Mr. Dilip Yadav, Chairman, Uttarpara- Kotrung Municipality

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Mr M. Saito, JICA Project Team (JPT)

Mr Yio, JP, (JPT)

Mr Ajeet Singh, JPT

Mr Ranjit Mukherjee, JPT

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- The Hon'ble Minister instructed CEO KMDA to form a monitoring committee comprising CEO, KMDA as head and all the six municipality chairmen as member of the committee and check Collection of waste condition of equipments and O & M of all the facilities.
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The meeting ended with a vote of thanks to and from the chair.

KOLKATA SOLID WASTE MANAGEMENT IMPROVEMENT PROJECT (KSWMIP)

Summary Record of the discussion in the Review meeting on progress of Kolkata Solid Waste Management Improvement Project (KSWMIP) held on the 28th May 2019 at 17:30 pm at office of Chairman, KMDA and Hon'ble Minister UD & MA, Govt. of West Bengal.

Officials Present

Mr Firhad Hakim, Hon'ble Minister, UD & MA Deptts. and Chairman KMDA

Mr Sanjay Bansal, CEO KMDA

Mr M. Saito, JICA Project Team (JPT)

Mr Ranjit Mukherjee, JPT

Mr Ajeet Singh, JPT

The Meeting was presided over by the Hon'ble Minister – in – Charge, UD & MA Department and Chairman KMDA and following has being discussed and concluded

JPT informed that there is long pending approval of Japan Overseas Corporation Volunteers (JoCV) Program for Uttarpara Kotrung Municipality which needs to be sent from UD dept. of state to Minister of Urban Development (MoUD), Government of India (GoI) with the approval/recommendation of the Hon'ble Minister. The Hon'ble minister signed the application and send to UD dept for onward submission to GoI, and assured that this will be sent to MoUD of GoI within this week.

JPT raised urgent requirement for formation of a Monitoring committee to monitor SWM activities of municipalities and monitor Proper utilisation of fund provided by state govt for SWM services. JPT suggested that the Monitoring Committee may comprise of 6 municipalities chairman, CEO KMDA, District Magistrate and Higher official of Pollution Control Board. The Hon'ble MIC assured that he will form a Monitoring Committee chaired by CEO, KMDA and other department members.

JPT raised the issue of non improvement of Solid waste management system, especially segregated collection system as the municipalities demand fund for procurement of additional items (Household bins, tricycle, TT containers etc.), vehicles, deployment of additional manpower for segregated collection and Operation and Maintenance fund for Transfer Station, Compost Plant and RWMC. The Hon'ble MIC informed that UD&MA Dept. will provide fund direct to all the six municipalities so that the municipalities can directly procure all the items and manage the operation of TS&CP and RWMC and improve collection system.

JPT raised the issue of setting up of laboratories at Compost Plants so that municipalities can get **compost manufacturing licence**. The Hon'ble MIC assured that they will provide direct fund to municipalities for procurement of lab equipments for setting of full fledged laboratories.

JPT informed about non performance of private agency operating the TS & CP of Badiyabati, The Hon'ble MIC informed that he will talk to the agency and if they do not improve the operations then appropriate action will be taken.

JPT also informed that special care need to be taken for assistance and motivation of Champadani municipality as they are lagging behind as compare to all other municipalities of the project.

JPT informed Hon'ble Minister about JICA's resolution to sponsor 6 chairman of KSWMIP municipalities for training in Japan. The Hon'ble Minister has his consent and advice JPT to write a letter to him in this regard and he will approve the same.

