

MIT (USA) - SRGC Joint Research Project on

Municipal Waste Management in Muzaffarnagar City

Memorandum of Understanding

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Between

Massachusetts Institute of Technology, Cambridge, USA (The First Party)

And

Shri Ram Group of Colleges, Muzaffarnagar, (UP), INDIA (The Second Party)

This Memorandum of Understanding (MOU) sets for the terms and understanding between Massachusetts Institute of Technology (MIT), Cambridge, USA and Shri Ram Group of Colleges (SRGC), Muzaffarnagar, (UP), INDIA for **Tata Waste Systems Project (2015 – 2017)**.

Management of waste in an environmentally sustainable manner is a challenging task. Rapid economic growth is leading to urbanization and industrialization generating waste which is adversely affecting the environment. Converting the wastes into some useful product seems to be of utmost importance for the economically, socially and environmentally sustenance.

Therefore, this MOU will be serving the following Goals:

- Enable Muzaffarnagar's transition into a model for the productive management of municipal & industrial waste.
- Create the tools to guide effective design of waste value chains for any Indian context. Demonstrate methods (technologies and operational strategies) to value addition to waste in India.
- Create a living laboratory for waste systems improvement in Muzaffarnagar city.

The above goals will be accomplished by undertaking the following Specific activities:

SRGC Side:

SRGC will establish a team comprising of faculty members and students from Bio Sciences, Engineering and Management. First of all, SRGC team will identify the study wards in Muzaffarnagar city and bulk generators with the discussion with MIT team. SRGC team will collect the baseline data for study wards as well as for large generators. Baseline data will be comprising of households demographic and waste audit data. School awareness program will be initiated in some of the selected schools by SRGC team with the discussion with MIT team. SRGC team will start source segregation and composting at SRGC campus. Initial bulk generator and ward level experiments will be done by SRGC team. The viability of biogas or other food waste to energy will be checked by SRGC team with the consultation of MIT team.

MIT Side:

MIT team will help in identifying the test wards in Muzaffarnagar city and bulk generators. The complete segregation guide along with waste audit data sheet and demographic questionnaire will be

provided by MIT team. MIT team with the SRGC team will analyze the baseline data collected by SRGC team. MIT team then will develop an analytical model of system costs and performance. The flow of waste in the city will be analyzed. Small scale installation plan of waste to energy technology like bio gas or other food waste to energy will be provided by MIT team. Specific implementation strategies will also be explored and selected.

Communication:

- i. MIT and SRGC team: through Skype call in every two weeks.
- ii. MIT(USA) team shall be visiting SRGC (India) in the fall and summer every year.

Reporting:

MIT Principal Investigators: Prof. Rauldolph Kirchain and Prof. Jeremy Gregory

SRGC Principal Investigators: Dr. Ashwani Kumar and Dr. M. Asif

Funding:

Required Fund will be made available by TATA Centre for Technology & Design, through Massachusetts Institute of Technology, Cambridge, USA (The First Party) for purchasing the instruments, consumables/non-consumables items and manpower on demand by Shri Ram Group of Colleges, Muzaffarnagar (The Second Party). The initial budgetary allocation for the Project is \$(US) 24000 for project operation in India by SRGC.

Duration:

This MOU shall become effective upon signature by the authorized officials from the Massachusetts Institute of Technology, Cambridge, USA and Shri Ram Group of Colleges, Muzaffarnagar. It will remain in effect until modified or terminated by any one of the partners by mutual consent. In the absence of mutual agreement by the authorized officials from SRGC and MIT, this MOU shall end with the completion of project i.e. upto March 2017. The period may be extended further with mutual consent.

Partners Information:

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(Prof. Rauldolph Kirchain)



(Prof. Jeremy Gregory)

Date: 15-01-2015

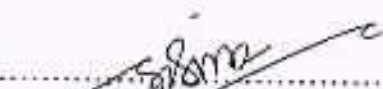
SRGC:

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(Dr. Ashwani Kumar)



(Dr. M. Asif)

Date: 15-01-2015

Principal
Shri Ram College
Muzaffarnagar

**MEMORANDUM OF UNDERSTANDING AMONG
TAISEI KOUGYOU CO. LTD.,
THE MUNICIPALITY OF MUZAFFARNAGAR,
AND
SRI RAM COLLEGE
ON
THE VERIFICATION SURVEY WITH THE PRIVATE SECTOR FOR
DISSEMINATING JAPANESE TECHNOLOGIES IN INDIA**

PREAMBLE

Taisei Kougyou Co., Ltd. (hereinafter referred to as "TAISEI"), the Municipal Board of Muzaffarnagar (hereinafter referred to as the "MUNICIPALITY") and Sri Ram College, Muzaffarnagar (hereinafter referred to as "SRC") aim to enter into an agreement for the purpose of implementation of the Verification Survey with the Private Sector for Disseminating Japanese Technologies for "Talgard Technology for Environmentally Friendly Toilets" in India (hereinafter referred to as the "Survey.") The parties share a common view and have confirmed their intended collaboration to implement the Survey.

Article 1: BACKGROUND

TAISEI has been contracted by the Japan International Cooperation Agency (hereinafter referred to as "JICA") to implement the abovementioned Survey. To carry this out as smoothly as possible, it has solicited the cooperation of the MUNICIPALITY (Counterpart). Construction of a pilot installation for the Survey will take place on the SRC campus in Muzaffarnagar, with operation, maintenance, and monitoring activities to be carried out afterwards. Accordingly, the MUNICIPALITY seeks to sign an MOU with SRC to facilitate the local coordination of, and activities related to, the Survey's implementation.

Article 2: IMPLEMENTATION PERIOD

The Survey will be implemented over the following period: June 2018 – February 2021.

Article 3: PURPOSE

The purpose of this MOU is to have a common understanding regarding the roles of each party in the effective implementation of the Survey.

Article 4: THE PRODUCT

JICA will own the materials, equipment, and their incidental facilities prepared by the Survey Team for the purpose of implementing the Survey (hereinafter referred to as the "Product") and reserve its ownership throughout the implementation period. After the completion of the Survey, based on the result, ownership of the Product will be handed over and transferred to the MUNICIPALITY, which will consider how the Product will be handled going forward in light of its installation location at SRC.

Article 5: ROLES OF PARTIES AND CONDITIONS

A) TAISEI

1. Collaborate with the MUNICIPALITY and SRC in assuring the successful implementation of the Survey throughout the implementation period.
2. Develop a detailed design and execution plan for the Product installation works.
3. Install the Product with close cooperation or collaboration from the MUNICIPALITY and SRC.
4. Collaborate with the MUNICIPALITY and SRC to implement the operation and


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IQAC, Shri Ram College,
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- maintenance of the Product.
5. Carry out the improvement of the Product based on local climate/materials.
 6. Provide appropriate training for the MUNICIPALITY and SRC and its stakeholders concerning installation, monitoring, and maintenance of the Product.
 7. Collaborate with the MUNICIPALITY and SRC to implement seminars and workshops.
 8. Collaborate with the MUNICIPALITY and SRC to examine the feasibility of a school toilet model.
 9. Collaborate with the MUNICIPALITY and SRC to confirm business development risks and regulations.

B) The MUNICIPALITY

1. Cooperate with TAISEI and SRC in assuring the successful implementation of the Survey throughout the implementation period without any financial implications.


C) SRC

1. Cooperate with TAISEI and the MUNICIPALITY in assuring the successful implementation of the Survey throughout the implementation period.
2. Ensure proper and effective operation and maintenance of the Product.
3. Provide TAISEI and its Survey Team with reasonable support, including the following, as requested throughout the implementation period in cooperation with other organizations concerned in India at its own expense:
 - (1) Select and assign project members from SRC staff to the Survey.
 - (2) Provide statistical information, maps, photographs, and other data related to the Survey.
 - (3) Carry out public relations and utilize the project site as a showcase for dissemination of the Product.
 - (4) Participate in local seminars and workshops and provide venues for these.
 - (5) SRC shall bear the costs incurred for the activities below:
 - a) Water and electricity expenses for existing toilets
 - b) Costs for data acquisition activities
 - c) Personnel expenses and other costs relating to maintenance activities
 - d) Construction activities and costs for the replacement of existing pipes arising from the installation of the Product
 - e) Costs and activities for securing alternative toilets during the Product installation works period

Muzaffarnagar, August, 2018


Mr. Hiroyuki Mihara
Managing Director
Taisei Kougyou, Co., Ltd.


Ms. Anju Agarwal
Chairperson
Municipal Board,
Muzaffarnagar


Dr. S C Kulshreshtha
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