

Case Study

**MUNICIPAL SOLID WASTE COLLECTION
AND TRANSPORTATION
– NEW DELHI MUNICIPAL COUNCIL**

Solid Waste Management

CASE OVERVIEW

Country: India

ULB: 12 Select Circles of the New Delhi Municipal Council (NDMC), Delhi

Sector: Urban Basic Services **Sub-Sector:** Solid Waste Management (SWM)

Award Date: September 2006

Type of concession: Build-Operate-Transfer (BOT) Concession for a period of 8 years

Stakeholders:

Contracting Authority	New Delhi Municipal Council (NDMC)
Concessionaire	M/s Ramky Energy and Environment Limited
Oversight Arrangement	Concessioning Authority and Independent Agency - M/s SENES Consultants India Pvt. Ltd – for detailed project monitoring

Present Status of Project: The project is operational and is meeting expected outcomes.

PROJECT TIMELINE:

1996	<i>Supreme Court judgement issuing several directives to the Municipal Corporation of Delhi (MCD) and NDMC for proper conduct of Solid Waste Management</i>
1998	<i>Supreme Court judgement reprimanding NDMC and MCD for non compliance with earlier directives, and setting up the Asim Burmon Committee, whose recommendations were used to formulate the Municipal Solid Waste (Management and Handling) Rules 2000</i>
2004	<i>Appointment of a transaction advisor and conduct of technical and feasibility studies</i>
2005	<i>Competitive bidding process with lowest quote for tipping fee as the bid parameter</i>
2006	<i>Award of the contract to M/s Ramky Energy and Environment Limited</i>

1. PPP CONTEXT

The following formed the background for the NDMC Waste Management Concession:

1. The Supreme Court of India made a series of judgements (in the *Dr. B L Wadehra versus Union of India* case, 1996 and the case of the *writ petition filed by Almitra H Patel*, 1998) - upholding the right of citizens of Delhi to live in a clean city, emphasizing the statutory obligation of NDMC and the MCD towards waste management and issuing directives towards efficient management of wastes in the city.
2. As part of the proceedings in the Almitra Patel case, the Supreme Court set up a Committee in 1996 under the chairmanship of Mr. Asim Burmon to make recommendations towards SWM in urban

areas. Based on the recommendations, the Ministry of Environment and Forests notified the Municipal Solid Waste (Management and Handling) Rules, 2000. These rules are time bound, hold the Urban Local Bodies (ULBs) accountable and prescribe penalties for non-compliance and non-performance.

3. The existing system of waste management through NDMC staff was fraught with issues such as high manpower and operation costs, inefficiencies in collection and transportation, technologically archaic equipment and installations, mixing of wastes reducing efficacy of land fills and treatment plants etc.
4. Analysis of the system suggested that a large proportion of the cost incurred was on account of collection and transportation – Rs.556 (54%) out of an average cost of Rs.1029 per metric ton (MT). Analysis also indicated that costs could be significantly lower if such functions were carried out by a private operator.

2. PROJECT DEVELOPMENT

2.1 PROJECT CONCEPTUALIZATION

In order to overcome capacity and financial constraints and to develop an efficient SWM system, the NDMC opted to engage the private sector for managing labour intensive tasks of collection and transportation of wastes. This was envisaged as part of a larger strategy, where better segregation would be practised at source, collected at the household level through rag pickers organized through NGOs, and collected, further segregated and transported separately to existing landfill and treatment sites by the operator. The project was expected to facilitate better collection/transportation at lower costs and increase the efficiency of post processing of wastes.

2.2 PROJECT DEVELOPMENT

1. The NDMC established an Advisory Committee for facilitating the decision making process, ensuring stakeholder participation, facilitating approvals and co-coordinating with various associated departments. The Committee was headed by the Chairman of NDMC and comprised of the Project Director, various technical advisors and a representative of the Health Department (Anchor Department).
2. Technical studies were conducted through a Transaction Advisor¹ to review the gaps in existing mechanisms and ascertain the quantum of wastes to be handled by the private agency in addition to feasibility and value for money analysis.

2.3 PROCUREMENT PROCEDURE

The contract was awarded in the form of an 8 year concession for 12 selected circles within NDMC through a competitive bidding process in 2006. Pre-qualification criteria included (other than financial profile of company) the experience of bidders in any of the following criteria:

1. Collection-transportation of at least 20000 tonnes/annum or annual billings of at least Rs.10 million from collection-transportation of any kind of wastes for each of the last 2 financial years

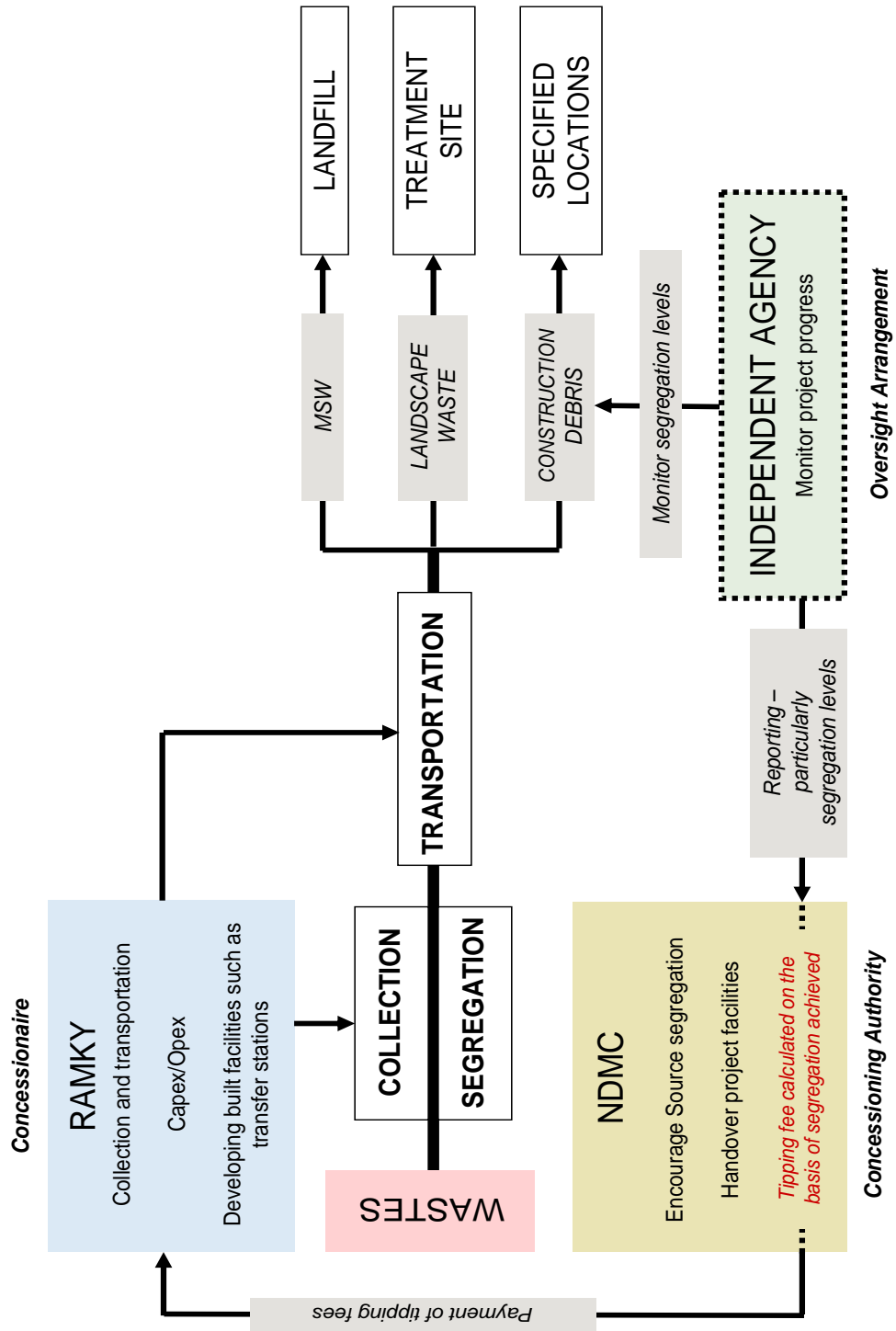
¹ Infrastructure Development Finance Company Limited (IDFC)

2. Handling of a fleet of at least 20 goods vehicles for each of the last 2 financial years
3. Transportation of at least 1 Lakh tonnes per annum of minerals, metals and materials such as iron ore, steel, coal, sand for each of the last 2 financial years
4. Development of at least one core sector project with a project cost of at least Rs.150 million for government agencies in the last 5 financial years

The award – based on the lowest quote for tipping fee payable by NDMC (bid parameter) – was made to M/s Ramky Energy and Environment Limited based on their quote of Rs.468 per MT as the tipping fee.

3. CONTRACTUAL ARRANGEMENTS

3.1 PROPOSED CONTRACTUAL STRUCTURE



3.2 OPERATOR OUTPUT OBLIGATIONS

The contract detailed the scope of services to be provided by the Operator as follows:

1. Provision of new facilities such as street corner bins, garbage stations and equipment and vehicles
2. Collection of Municipal Solid Waste (MSW) and Landscape Waste (LW) from street corner bins and garbage stations and provision of sorting facilities for segregating bio-degradable and non-degradable components of MSW
3. Transportation of MSW to Treatment or Landfill facility and LW to Treatment facility and ensuring that construction debris is not mixed with the MSW
4. Deployment of requisite manpower for carrying out various functions, and providing them with uniforms and safety equipment
5. Adherence to segregation benchmarks and transportation of degradable and non-degradable wastes in separate colour coded vehicles
6. Provision of a Workshop facility outside the NDMC area for servicing and maintenance of vehicles
7. Operation and Maintenance of all project facilities in accordance with requirements as notified by the Independent Engineer.
8. Conduct of awareness campaigns in collaboration with NDMC to sensitize citizens to practice source segregation of wastes
9. Development of a Complaint Handling Cell and establishment of standard protocol for grievance redressal
10. Handover vacant and peaceful possession of project facilities (excluding equipment and vehicles) free of cost and in good operating condition at the end of the Concession period.

3.3 OBLIGATIONS OF THE CONCESSIONING AUTHORITY

Obligations of NDMC as per contract included peaceful and timely handover of all related project facilities free of all encumbrances within 15 days and granting and facilitating timely approvals required by the Concessionaire for carrying out his obligations.

3.4 REGULATORY AND MONITORING ARRANGEMENTS

M/s SENES Consultants India Pvt. Ltd was appointed as an independent monitoring agency for the project. Responsibilities of the agency included:

1. Monitoring of performance under project and approving (where required as per contract) the design, implementation and maintenance of facilities
2. Reporting to both the parties involved on various physical, technical and financial aspects of the project based on field visits and inspections
3. Verification of weighing equipment and testing of MSW at treatment/landfill facility to measure segregation levels
4. Review matters related to safety and environmental management and assisting the parties in amicable settlement of disputes

3.5 PROJECT FINANCIALS

1. All investments (including built facilities such as transfer stations and obtaining land for the purpose) were to be made by the Concessionaire.
2. The Concessionaire was to recover his investments through tipping fees, payable monthly by the NDMC on a tonnage basis. While a base fee was fixed as per contract, the tipping fee was calculated through a prescribed formula using factors such as actual segregation achieved and penalty for non-compliance with segregation benchmarks. An escalation rate for the tipping fee was also incorporated within the contract.
3. The Concessionaire was entitled to further recovery of investments through the sale of recyclable and other material collected.
4. Revenue from all advertisements (except at NDMC dhalaos which were contracted on a BOT basis prior to this contract) was to be shared on a 3:1 basis between the Concessionaire and NDMC.

3.6 PROJECT RISKS AND ALLOCATION

Construction Risk	Including time and cost overruns due to contractor default, was borne by the operator. Only certain approvals and risks due to unforeseen conditions were shared between the Concessionaire and NDMC. Overruns due to delays in handover by NDMC, including removal of encumbrances obstructing free access to sites, was borne by NDMC.
Operating Risk	Including design of the system, procurement, operation and maintenance of equipment, management of nuisance such as birds/animals at dhalaos, ensuring segregation of wastes at dhalaos before transportation etc. were borne by the Operator. Allied factors such as closure/shifting of prevalent landfill site which could affect operations were borne by NDMC
Revenue Risk	Borne by the Concessionaire since tipping fee was based on tonnage and segregation levels achieved and the NDMC did not guarantee complete source segregation or a minimum quantum of waste supply.
Performance Risk	Borne by the operator through a performance guarantee for a period of 18 months from the date appointed as per contract. The tipping fee also took into consideration performance of the operator in terms of level of segregation achieved.
Force Majeure	The Concessionaire was protected against Political Force Majeure such as changes in laws regarding segregation, and other regulations affecting operations.

3.7 DISPUTES RESOLUTION MECHANISM

All disputes were to be resolved amicably through direct discussion between the parties involved (with the help of the independent oversight body where needed). In the event of non-resolution the dispute was to be settled through arbitration processes as prescribed under the Arbitration and Conciliation Act, 1996.

4. PARTNERSHIP IN PRACTICE

Notwithstanding initial delays during the bid process, the project has been successful in meeting general expected outcomes. Segregation benchmarks have however not been achieved, largely because of inadequate monitoring at the primary stage of the waste collection chain. Such segregation was initially envisaged through a mix of source segregation by residents and segregation through ragpickers (co-ordinated through NGOs). This has however not been achieved.

5. LESSONS LEARNT

1. Importance of structuring operator obligations in a way that monitoring is in-built into the structure and quality services are ensured. In this case the linking of tipping fee with other obligations such as maintenance of a certain level of segregation of waste acts as a monitoring device.
2. While the project has largely been successfully implemented, the expected levels of segregation have not been achieved. It was expected that a larger city level strategy where community groups would practice source segregation and undertake primary collection could be implemented. The efficiency of the private partner to deliver segregated wastes was contingent upon the efficiency of such a primary system. It was also thought that the private partner would work actively with the community groups and stakeholders like rag pickers to ensure that the waste segregation targets are achieved. However, lack of adequate efforts to operationalise and incentivise such systems, have led to non-achievement of segregation benchmarks. It is also clear that NDMC also has a critical role to play in this process and cannot leave it entirely to the private partner.