Private Sector Participation in Solid Waste Management in India

&

Contracting Mechanisms

Aim of the module

Provide an understanding to the municipal authorities for the need to consider Public Sector Participation (PSP)

It shows the advantages with regard to efficiency as well as possible pitfalls of PSP.

Furthermore, the module shows how the private sector can be involved in SWM services.

Learning Objectives

- To learn the advantages of private sector participation for SWM services.
- To understand the key characteristics, merits and demerits of each contracting option and their suitability under Indian conditions.
- To know about the contracting options in various SWM services.
- Get an overview of contracting mechanism including the entire bidding and evaluation process and monitoring of contracts.
- To learn lessons from the national and international experiences in privatization of SWM services.

Key Messages Delivered

- It is necessary for the municipal authorities to change there role of being a 'service provider' to that of a 'facilitator of service'
- Private Sector Participation (PSP) can bring finances for modernisation of SWM services, help in providing efficient MSW management services
- PSP helps in cost savings as it raises productivity of manpower and machinery.
- PSP can deliver service expeditiously as it enjoys more freedom from bureaucratic and political interference.

MSWM service is perceived as the responsibility of Municipal authorities only but it difficult to manage all SWM operations by themselves becoz...

- Low priority is given to SWM service
- Poor community participation
- Low quality of service despite substantial costs
- Engagement of huge labour force having low productivity
- Low cost recovery or not cost recovery
- The work force has a large number women and member of weaker sections of the society
- Lack of technically competent staff
- Lack of technological know how

None of the 4378 municipal authorities in the country has implemented all the seven steps within the set timeframe.

Reasons ...

- Lack of priority to the subject
- Lack of in house capacity to deal with the subject
- Lack of technical know-how
- Inadequate financial resources
- Poor community participation
- Engagement of huge labour force having low productivity

Situation of solid waste management in the country makes it necessary for the municipal authorities to seriously consider to change there role of being a 'service provider' to that of a 'facilitator of service'.

Private sector participation is an interesting option to boost the performance of public services like solid waste management.

While the municipal authority focuses its activity on planning and management, a private company takes over the day to day operation of a service in a defined area.

However, the success of a private service provider strongly depends on the political will for a change, the skills of the public authority and mutual trust between all partners.

The goal of a PSP must be cooperation for improved performance to benefit the citizens.

Advantages of PSP includes

- More flexibility in management to :
 - -Hire qualified staff
 - -Pay according to their performance
 - Terminate the employment of unsatisfactory workers
 - Adjust working hours according to service demand
- Access to technology and expertise.
- Higher level of efficiency and accountability.
- Focus on customer satisfaction
- Low cost of service because of competition.
- Access to finances for new investments.

Public Private Sector
Participation (PSP) as an option
seems to very attractive but they
too carry with them potential
risks which need to be carefully
considered when municipalities
decide to go for PSP...

Disadvantages of PSP includes

- Insufficient competition.
- There is risk of commercial failure, resulting in breakdown of essential public services.
- Private sector may pay very low salaries to the workers causing social distress and labour problems
- Lack of transparency
- Require close collaboration between public and private stakeholders
- Requires management and monitoring skills of the public authority

Many of the above mentioned disadvantages can be avoided if all the above risks to PSP can be avoided with improved tendering process and appropriate contracting mechanisms.

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Many municipal authorities are not yet comfortable with PSP as they do not have the clarity about their authority to do so.

Therefore a need to have a state policy and legal frame work to facilitate PSP in providing various types of SWM services

Recently the State of Rajasthan and State of Karnataka have declared state policy on Solid Waste Management and State of Gujarat, West Bengal; Kerala etc. have created high power state missions to facilitate expeditious implementation of MSW rules in their respective states.

There are number of options available, the design of the contractual agreement depends on the type of work or service delivered

Option	General characteristic	Contract duration
Service contract	The private partner has to provide a clearly defined service to the public partner	1-2 years/ 5-8 years
Management contract	The private partner is responsible for core activities like operation and maintenance	3-5 years
DBO	The private contractor is responsible for the design, construction and operation	5-8 years

Option	General characteristic	Contract duration
Lease	The private partner is fully responsible for operation and maintenance, the public partner is responsible for new investments	8-15 years
ВОО	The private partner builds a facility based on a defined design and owns and operates it	15 to 30 years
ВООТ	Same as BOO with an additional clause for later transfer of the asset to the public partner	15 to 30 years
Concession (including fee collection)	The private partner is fully responsible for operation, maintenance and investments	25-30 years

Figure out what do you need from a PSP arrangement?

- 1. Allocation of limited responsibility without asset ownership
- 2. Need only management expertise
- 3. Capital investment by ULB but rest to be manage by private sector
- 4. Initial capital investment and management by private sector, later assets to be transferred to ULB
- 5. Capital investment and management both by private sector

Service Contract

Used for Waste collection, transport, transfer and operation

of treatment and disposal facilities

Payment Quantity of waste, number of beneficiaries or

based on lumpsum

Contract Based on competitive procurement procedure

award

Ownership Facilities are owned by the municipal authority but

mobile equipment in most cases are owned by

private contractors

Contract

period

2 to 8 years depending on local conditions

Share of risks Contracting authority is responsible for fee

collection and cost recovery

Private sector bears the risk of operation

Examples of Service Contracts for SWM in India

- 1. Service Agreement between BMP and Contractor (s) for collection and transportation of MSW Bangalore
- 2. Service Agreement for street sweeping in Hyderabad
- 3. Service Agreement between Ahmedabad Municipal Corporation and RWAs/NGO

Management Contracts

- The private company takes over the management and operation of an defined department or entity with its staff, facilities and machineries.
- He brings in its own staff for key management positions, however is unlikely to make major capital expenditure.
- Management contracts are more frequently used in drinking water and waste water sector but lesser in SWM due to the more complex asset structure.
- Payment of the contractor typically bases on a fixed fee and a performance fee and is paid by the public authority.
- Contractor must be given enough autonomy to implement commercial reforms.
- There should be provision for penalties for failures to meet agreed performance goals and incentives for good performances.

DBO Contracts

- Here the contractor has to bear the responsibility for the project including design, building and operation.
- The financing is however provided by the contracting authority like any other construction contracts.
- The payment is made step by step as per the stages of construction.
- DBO approach appears most suitable where financing is done by the contracting authority and the systems are designed, constructed and operated by professional agencies.
- DBO contracts minimize critical interface and makes the contractor responsible for successful implementation of the facility.

Build Own and Transfer (BOT)

- BOT arrangements are more common in treatment (like composting, WTE, etc) and disposal (sanitary landfills) facilities.
- In BOT arrangement, the private sector is responsible for construction, financing and operation of the facility during the contracting period.
- After the completion of the contracting period, the facility and assets are transferred to the public entity.

Build, Own, Operate and Transfer (BOOT)

- Here the contractor is expected to build the facility at his own cost operate the facility for a long term as per the agreement.
- Recover his cost and transfer the assets to the Municipal authorities in a working condition at the end of the agreement with or without any compensation as agreed between the parties.
- The municipal authorities prefer this type of contract to get the assets free at the end of the agreement.

Build Operate and Own (BOO)

- This type of contract is very much similar to the BOT arrangement except in this the private is not obliged to transfer the facilities are asset to the public entity.
- In BOO arrangement, Private sector is responsible for design, construction, operation, services and financing of the investment.
- Contract documents have to balance sharing and tariff adjustments to avoid unreasonable high price offers and refusing contracts.

Concession Agreements

- Under a concession arrangement, the private operator manages the infrastructure facility, operates it at commercial risk and has to invest in creating new facility or to rehabilitate the existing facility.
- A typical contract has a fixed term and involves transferring the assets back to the municipality at the end of the term.
- Concession contracts generally are from 25 to 30 years facilitating the private party to recover the invested capital expenditures.

Lease

- A lease contract entitles a private company to operate a service with assets owned by the public sector.
- The private partner is responsible for fee collection to cover the operation and maintenance costs.
- The profits are shared with the public sector as he is responsible for new investments.
- Such a contact might be suitable for the operation of waste treatment facilities such as composting plants or biogas plants.

Implication of the Labour laws on SWM

Under the Contract Labour (Regulation and Abolition) Act, 1970 there is a provision under which contracting out of service can be prohibited if the same service is already being provided departmentally by any municipal authority.

■ The Municipal Authorities have therefore to carefully take into account the provisions of this Act and the interpretation of this law given by the Hon'ble Supreme Court of India.

Example of legal exemptions

The State Government of Tamil Nadu has exempted the Chennai Municipal Corporation from the purview of contract labour (Regulation & Abolition) Act 1970 vide its order No. 40 MS No. 99 Dated 8th July 1999 allowing the said municipal corporation to engage contract labour for sweeping and scavenging activities.

Considering the current legal situation and labour laws, the Municipal Authorities may involve the private sector in following SWM tasks:

- Door to door collection of waste as this service is not being provided by municipal authorities.
- Street sweeping only in unserved areas. The existing street sweepers may not be disturbed/retrenched.
- Providing of large containers for secondary waste storage in various parts of the city.
- Construction, operation and maintenance of transfer stations.

Continue...

- Augmentation of transportation of waste without replacing existing work force.
- Providing fleet of vehicles and equipment for transportation of waste.
- Construction of treatment facilities such as composting, waste to energy, etc.
- Operation and maintenance of treatment facilities.
- Construction of engineered landfills.
- Operation and maintenance of landfills.

Recently, many cities have taken a lead in involving private sector in various areas of solid waste management service

Considering the current legal situation and labour laws, the Municipal Authorities may involve the private sector in most of the SWM activities

Many cities have involved the private sector in door-to-door collection and transportation.

- Ahmedabad in Gujarat State,
- North Dumdum and new Barrackpore in West Bengal

Some cities combined door to door collection as well as transportation of waste in one contract.

- Bangalore
- Surat
- Jaipur

Some contracts involve resident welfare association, NGOs whereas some involve only private companies

Contracting of waste collection service is very significant due to its visibility and cost effectiveness.

- These contracts are very easy to begin with at a low investment.
- Aim at saving in operational cost with private sector efficiency
- Can be packaged in small units
- Can be terminated easily if not performed satisfactorily
- The contractor need to clearly understand the scope of his work and the level of service he is expected to provide before bidding the contract to avoid conflicts in future.
- Standard tender documents could be prepared for such contracts.

The municipal authority must know before hand what are the current costs of comparable service in the region.

Municipality should compare the market cost with the current cost of provision of public service and ascertain the extent to which added efficiency of the private sector could result in reduced cost for the municipal authority by awarding the contracts and then evaluate the bids or negotiate the rates.

The example of Bangalore illustrates this mechanism.

Size and cost of contracts for primary collection

- These contracts should be of reasonable size.
- They should not be very large to create a monopoly of one or two parties and should not be very small to make the contracts unviable for lack of economy of scale.
- Bigger cities might split service areas into several zones and award contracts for each zone to promote healthy competition among the contractors.

Street sweeping contracts involving private sector are very few as municipalities face stiff resistance from existing staff employed under public regulations.

However contracts for street sweeping is being successfully executing at

Hyderabad, Chennai, Rajkot for selected areas

The norms of work could be prescribed and the minimum wages could be ensured in such contracts to prevent exploitation of labour by the private operators.

Transportation is an important element of SWM

Municipal authorities generally do not have modern covered vehicles for transportation of waste and their efficiency is very low.

Private sector participation would help as under:

- Private sector can bring new vehicles
 - Make large number trips in each shift.
 - Maintain the fleet of vehicles in a good condition.
 - Result in substantial cost saving

The private sector participants in the activity range from individuals and proprietorship/ partnership firms (service contracts with Bangalore Mahanagara Palike) to companies and consortia (Concession contracts with Delhi Municipal Corporation and Corporation of Chennai).

The duration of these contracts range from two to nine years.

- 1. In traditional approach, separate contracts are awarded for design, construction and operation of a waste treatment and disposal facility resulting in conflicts between the designer and the operator of the facility.
- In cases where all the three tasks are assigned to one party through a single contract, the contractor has to bear full responsibility of the project.
- 3. In such cases the critical interfaces are minimized and the contractor focuses full attention from the very beginning to make the project economically viable and efficient.

Treatment facilities have also been set up in a few cities in India through PSP arrangements

- The most common PSP arrangements are for composting
- Pelletisation of waste is another alternative being considered by some ULBs in the recent past – functional in Hyderabad and Vijayawada.
- Small bio-methanation plants have been set up at Vijaywada and eight other towns in Maharashtra State recently and they are functioning well.
- A large plant in Lucknow has however failed for various reasons and has been shutdown.

Special attention need to be given while preparing and entering into contract for treatment of waste

- 1. Appropriate site selection.
- 2. Necessary environmental clearances from the SPCB.
- 3. The provision of adjustments of price should be made as the duration of contract would be very long.
- 4. The financing mechanism should be clearly defined to avoid paucity of funds
- 5. The sharing of finance could be considered as an option.
- 6. The municipal authority could facilitate extension of loan facility to the private operator.
- 7. The termination of long term contracts is complicated. They need to be handled carefully.

For the economic viability of such facilities, the size of the facility should be large to attract a private operator and it should be designed to last at least for a period of 15 to 20 years, so that it allows depreciation of the works, buildings and equipments.

The construction of land fill could however be phased out in cells which may last 3 to 5 years each.

PSP for Disposal of Waste (Sanitary landfills)

- Some landfills have been constructed in Surat, Ahmedabad in Gujarat, Karwar and Puttur in coastal Karnataka, Navi Mumbai and Pune in state of Maharashtra.
- But these plants are yet to be fully operationalized. PSP has not been introduced so far but it is under active consideration of the cities.
- Contract has been awarded in Bangalore for construction of compost plant and landfills on the basis of Build-Own-Operate (BOO) contract but the plants are not yet put to use.

Labour Redundancy - Major obstacle to Privatization

The concern of labour redundancy must be addressed

- Freezing the hiring of new staff for additional work to be done.
- Not to fill the vacancies
- Offer better opportunities or similar work opportunities
- Introduce private sector step by step in selected areas

Important Contractual Issues

To attract private sector participation and cutting costs of service it is important to have appropriate contract periods.

To make the contracts with the private sector effective and bankable their duration & compensation should be sufficient.

They should be for a period which is long enough to enable the contractor to repay the loans which he has taken to purchase the equipment or refinance the facilities for the work.

The start of operation must be clearly defined -Putting undue pressure on the contractor to start early quite often leads to improper start and disrepute.

- Adequate preparation time should be provided to the contractor to start the operation.
- Special consideration should be given when certain tools and equipments are to be manufactured or imported and need several clearances.
- In case of large contracts for collection of waste, the insistence should be to start in phases and scale it up over a reasonable period of time for the smooth operations of the contract.

Terms of Payment

- The most commonly used payment methods are lumpsum and unit price.
- In the lump sum contract, the contractor has no risk, gets a fare deal and the risk is reduced.
- In unit price method it is necessary to verify the measurement procedure from time to time and adequately supervise the same
- The concept of "tipping fee" payable by the contracting agencies, of late, is being accepted (integrated treatment landfill at Bangalore, collection & transportation concessions at MCD etc).

Terms of Payment

- 1. Collection & transportation services are usually paid either based on quantum of MSW handled or on the number of vehicle trips for transportation.
 - 2. Street sweeping contracts are either lump sum based or manpower based.
- 3. Urban local bodies incline to treat MSWM as a profitable operation, have been demanding sharing of revenues/ royalty payments for providing waste, for example compost plants at Thiruvananthapuram & Mysore and Bio methanisation plant at Lucknow

Delay in Payments

- 1. In collection contracts generally a large work force is engaged and they are to be paid on a monthly basis. Therefore, the contractor needs to be paid on a regular basis in order to ensure the cash flow of the company.
- 2. Delay in payment can cause labour unrest and adversely affect the services. A provision should be made to pay penal interest by the contracting authority if payments are delayed beyond the reasonable time prescribed.

Allocation of Risks

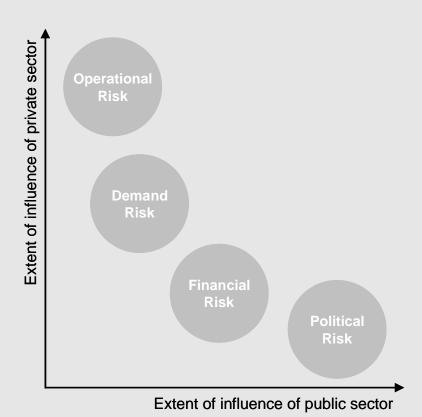
There is a need to define the project appropriately to resolve all the issues and to allocate risks equitably (to the party which is best able to manage the same).

Lack of clarity or excessive transfer of risks to private sector may actually lead to lack of participation. Hence, there is a need for contracting agencies to invest in requisite technical, market, financial viability studies to reduce project risks and attract bidders to the project.

For example, North Dum Dum in West Bengal. Here the contractor is at a risk if citizens fail to pay the fees and municipalities does not under write or assist in cost recovery.

Risks and potential influence of partners within a public-private partnership

Risk Category	Examples
Operational risk	Delay in construction
	Cost overrun
	Quality and performance failures
	Increasing operation costs
Demand risk	Change in demand
	Cost increase for resources
	Change of tariffs
Financial risk	Delayed or canceled payment
	Fluctuation of foreign exchange rates
	Fluctuation of interest rates
Country risk/ political risk	Expropriation/ breach of contract/ war
	Cancellation of credits
	No refund of profits



Preparation of project for PSP by contracting

- 1. Data gathering and preliminary assessment
 An assessment of the present infrastructure delivery
 service is the first step for municipalities in the process of
 determining how best to improve service provision
- 2. Creation of an independent review team Ideally the review team should include at least a financial expert, a management expert, a legal expert, a technical expert and an accounting person.

Consideration could also be given to an economist who understands tariff issues.

Preparation of project for PSP by contracting

3. Evaluation of current system

If the municipality decides to move forward with a public-private partnership. The evaluation should include financial, technical, legal and administrative assessment

An understanding on the following would need to be attained during the project development phase

Current practices of collection and transportat ion system

Service coverage

Current segregation practices

Pre-collection & collection practices

Availability of resources, their adequacy and cost of delivery of the services

Zoning practices

Design and capacity of transportation resources

Mapping of current transportation practices

An understanding on the following would need to be attained during the project development phase

Assessment of economics of service delivery

Feasibility report for outsourcing the collection and transportation activities, if applicable

Critical steps that need to

be assessed

for

transportatio n of the waste Design, capacity and adequacy of the transportation resources

Mapping of the system to ascertain if the same adheres to the

characteristics of the local collection system,

Need for transfer stations

Resource requirements

Assessment of economics of service delivery

Feasibility report for outsourcing the collection and transportation activities, if applicable

Critical steps
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Design, capacity and adequacy of the transportation resources Mapping of the system to ascertain if the same adheres to the characteristics of the local collection system, Need for transfer stations Resource requirements Critical Adequacy of available capacities, if any Status of existing resource and waste recovery need to be systems (rag pickers, recycling of paper, plastic, assessed glass, metal etc.), and the consequent characterization of waste being received at the treatment treatment plant Options for treatment facilities and suitability to waste ULB

Key factors Selection of site impacting Selection of technology
Sanitary Project implementation structure
Landfill Operations, maintenance and monitoring developme protocols

nt

Cost-benefit analysis

- 4. Investigation of alternative delivery mechanisms

 The choice of which type of public-private partnership arrangement to use, if any, will depend on the municipality and review team's evaluation of the current system and the municipality's needs.
- 5. Involvement of stakeholders
 Stakeholder- analysis is a vital tool for strategic managers as it gives an indication of whose interests should be taken into account and why they should be included in the decision making process.

Bidding Process

- 1. Prequalification
- 2. Preparation of Bid document
- 3. Invitation of bids or expression of interest.
- 4. Invitation of technical Proposal

Indicative experience criteria for collection & transportation projects

- 1. The price (e.g. stated as price or tariff /ton, price/year or total price of the work) is the most important criteria and often the one that is used for final ranking of bidders and selection of the contractor.
- 2. In standard collection and transportation contracts the price will usually remain the only variable selection criteria.
- 3. Quality and technical criteria become more important as the services and works become more complex and challenging.

Indicative experience criteria for treatment & disposal projects

- Experience in operating and maintaining a waste processing facility of requisite capacity.
- 2. Experience in operating and maintaining a landfill of requisite capacity.
- 3. Experience in construction and/or operating and maintaining a power plant of requisite capacity.
- 4. Experience in development of core sector projects developed for government agency
- 5. Experience in mining operations

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