# CHAPTER 6: PUBLIC PRIVATE PARTNERSHIP (PPP)

## 6.1 INTRODUCTION

The schemes in which a government service or private business venture funded and operated through a partnership of government and one or more private sector companies are sometimes referred to as PPP or P3. Recently, another P has been added to the PPP framework, i.e., People, and is now described as Public, Private, People Partnership and the new concept of PPPP or P4, is being applied. In the PPPP concept, people are involved actively in investments and infrastructure development, aiming at increase in a sense of ownership and enhancing sustainability of services.

However this PPPP is still in the process of familiarization and it will take some more time before it can become a reality. Accordingly, the remaining text in this chapter will deal with mainly PPP and PPPP only wherever relevant.

PPP involves a contract between a public sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project. In certain types of PPP, the cost of using the service is borne exclusively by the users of the service and not by the taxpayer. In other types notably the private finance initiative capital investment is made by the private sector on the strength of a contract with government to provide agreed services and the cost of providing the service is borne wholly or in part by the government. The contributions by the government to a PPP may also be in kind (notably the transfer of existing assets).

In projects that are aimed at creating public goods like in the infrastructure sector, the government may provide a capital subsidy in the form of a one-time grant, so as to make the project more attractive to the private investors. In some other cases, the government may support the project by providing revenue subsidies, including tax breaks or by providing guaranteed annual revenues for a fixed period. Typically, a private sector consortium forms a special company called a “special purpose vehicle” (SPV)” to develop, build, maintain and operate the asset for the contracted period. In cases where the government has invested in the project, it is typically (but not always) allotted an equity share in the SPV. The consortium is usually made up of a building contractor, a maintenance company and bank lender(s). It is the SPV that signs the contract with the government and with subcontractors to build the facility and maintain it. In the infrastructure sector, complex arrangements and contracts that guarantee and secure the cash flows make PPP projects prime candidates for project financing. A typical PPP example would be a hospital building financed and constructed by a private developer and then leased to the hospital authority. The private developer then acts as landlord, providing housekeeping and other non-medical services while the hospital itself provides medical services.

The GOI defines a P3 as “a partnership between a public sector entity (sponsoring authority) and a private sector entity (a legal entity in which 51% or more of equity is with the private partner/s) for the creation and/or management of infrastructure for public purpose for a specified period of time (concession period) on commercial terms and in which the private partner has been procured through a transparent and open procurement system.”

In PPPP, people could contribute towards both the capital and O&M investments, and can be actively involved in the development and O&M of infrastructure leading to an enhanced sense of ownership and sustainability of the project. This needs to be supported by the Governance structure that involves greater people participation and hence promote greater accountability and transparency.

The need for PPP in sewerage and sanitation services, various aspects that need to be considered to promote PPP, efforts encouraging PPP, potential PPP models, sustainability of PPP contract, addressing the concerns of stakeholders and funding institutions / banks etc., are discussed.

## 6.2 NEED FOR PPP

### 6.2.1 PPP in Sewerage and Sanitation Services

The aim of PPP is to increase fund flow and efficiency, and to improve the quality of service delivery by leveraging the expertise of the private sector and raising the level of satisfaction among users.

Sewerage and sanitation service is an obligatory function of urban local bodies (ULBs) in the country. The local bodies are therefore, required to provide adequate services for sewage collection, treatment and disposal.

Currently STP projects are put to tender on Engineering Procurement and Construction (EPC) basis and have a limited role for the EPC contractor in O & M of assets. In many instances, the assets so created are of relatively poor quality, inadequately maintained and do not comply with the required effluent treatment norms stipulated by the Pollution Control Boards. In order to ensure optimum utilization of funds deployed and proper creation and maintenance of assets, it is desirable to explore the option of PPP contracts wherein the long-term commitment of the Private Sector Participants would be ensured due to continued deployment of their own funds.

Sewerage and sanitation services need huge capital investment, high cost for operation and maintenance of facilities and considerable human resources; so this service is becoming more and more expensive. Besides, the efficiency of the labour force employed in the ULBs is far from satisfactory. High wage structure and inefficiency of the work force results in steep rise in the cost of service and yet the people at large are not satisfied with the level of service being provided by the ULBs. It is, therefore, necessary that the local bodies seriously consider private-sector participation in sewerage and sanitation services.

There are various technology options available for treating sewage. The DPR will outline the technology option as well as the project cost. Irrespective of the technology chosen, STP projects could be developed on a long term commitment from the Private Sector Partner on PPP basis.

In recent years, public-private partnerships in sewerage facilities are on the rise. Local governments now are more aware of the benefits of privatisation, and private companies are eager to enter the market. Currently, the policy environment is not very conducive to private-sector participation in sewerage. In addition, getting and retaining qualified staff, challenges in complying with ever-stricter regulations and catering to the need for financing, designing and building a new or expanded system are the challenges.

Compliance to regulatory pressures, rising public awareness and Public Interest Litigations (PIL) often strengthen the reasons for privatisation. However, public-private partnerships are not the cure-all. When a municipality does decide to privatise, it is imperative to do so in a competitive environment where it seeks partners who are financially stable, experienced and have the ability to deliver the services. The contractual conditions specified by the ULB must clearly state how the services of the private operator will be measured and what are the deliverables as well as penalties for lapses. Uninterrupted and safe collection, treatment and disposal of sewage are essential basic services to be rendered by a civic body interested in ensuring the quality of life of its residents. The predominant problems in sewerage services are:

a. Inadequate coverage of the sewerage system
b. Inadequate O & M
c. Lack of public awareness
d. High level of fiscal dependence
e. Inefficient and inequitable utilization of resources (capital and human)
f. Low responsiveness to user needs and preferences
g. Partial recovery of O&M cost and with no scope for capital investment
h. Manual cleaning of sewers and septic tanks
i. Poor septage management
j. Leakages polluting the environment
k. Burdening of sewage network by storm water and effluent from industries
l. Inefficiency in intermediate pumping stages
m. No provisions for standby power arrangements

A priority issue for most towns and cities will be to improve the management and accountability of sewerage collection and treatment systems through PPP to make the services market-oriented, efficient and demand-responsive.

Investment in other areas should then be determined by the private operator who should have financial incentives for meeting the desired service standards at the least cost, ensuring that low cost rehabilitation, efficiency enhancement and demand management measures precede capital intensive sewers, treatment plants or pumping stations.

### 6.2.2 Project Types

Sewage treatment projects can be of two types:

#### a) Treatment for Disposal

The basic objective of this type of project is sewage collection, treatment and disposal to meet the norms of the SPCB. This type of project can be developed either on PPP / Build Own Operate and Transfer (BOOT) basis or on EPC with long-term O&M obligations for the contractor.

**b) Treatment for Reuse**

In cities with large number of industrial establishments and scarcity of water, sewage treatment projects for reuse can be developed for supply of industrial/non-potable water for industries. This type of project can be developed with the private sector on PPP basis. The private sector partner will implement the project, treatment plant, conveyance system and bill and collect on behalf of the ULB from the end consumer industries. The ULB will pay annuity to the private sector partner on take or pay basis.

### 6.2.3 Present Method of Financing

In the current scheme of things, varied sources of financing are employed towards the sanitation sector. The programmes undertaken by central government agencies, like JnNURM and National Ganga River Basin Authority (NGRBA), form the sources of funding from central agencies. State governments and the revenue base of the local governments form the primary source of O&M. Bilateral and multilateral donor agencies have also contributed significantly to the development of the sector. Other financial sources include the user charges collected from domestic/industrial/others users of treated water, connection charges, etc.

In most cases, the government provides financial assistance to the municipalities for improving the sanitation and sewerage system. Due to paucity of funds, the municipalities are often faced with high indebtedness and money has been a major constraint on the municipalities for improving/providing these basic services. A clear assessment of the time frame required for the local bodies with their tight budgetary provisions is important. The improvement of the basic services of sewerage system reflects the need for alternative options, which can ensure sustainable services in much shorter times. As an alternative to traditional management and funding, the most suitable option is to bring in private management and finance to improve the provision and development of basic urban services. Under the PPP structure, the private sector partner who invests in the project assets and recovers it over a project life cycle of say 15–20 years, is likely to ensure better management of project assets and delivery of committed service level parameters during the project term.

Going forward under the PPP structure, JnNURM has helped kick-start PPPs in the urban sector. One of the innovative aspects of the JnNURM model of infrastructure finance is that it encourages the use of government funding as a catalyst for private investment. PPPs in the urban sector often require higher grant support than the 40% grant provided by the Viability Gap Funding (VGF) scheme sponsored by Ministry of Finance (MoF). JnNURM has filled this gap and encouraged PPP transactions that would have not been viable in the absence of a dedicated centrally sponsored scheme. States and ULBs have creatively used JnNURM grants as viability gap funds to finance economically sound, but financially unviable projects on a PPP basis.

The remaining of the project cost may be funded by Private Sector Participation (PSP) who will also operate and maintain the plant over the concession period, for which the PSP will be paid annuity over the concession period. The annuity payable to the PSP will include the following:

Fixed Charges: These charges will be for recovery of capital expenditure for creating the project. This will include fixed costs such as interest, depreciation, investment returns and fixed O&M costs including manpower.

Variable Charges: These charges shall include all variable costs including, but not limited to consumables, chemicals, power, etc., and will be subject to indexation to reflect the change in the prices.

The fixed charges component of the annuity will be paid out of the various Grants of the Central and State Government. The payment of variable charges component of the annuity will be the responsibility of the ULB implementing the project.

The current tariff levels are too low across ULBs in India, and do not reflect the true economic cost of providing sewage treatment and disposal service. Hence, increasing the tariffs to a level to ensure that the sewerage system generates sufficient revenues to meet its fixed and variable expenses and become self-sustainable may not be possible all at once. This could be achieved by increasing tariffs gradually over a period of time.

In the initial years, tariff should be set to ensure that it recovers at least the variable costs of the sewage system. Once operational efficiency is demonstrated, the ULBs can increase the tariff to recover the fixed costs in addition to the variable costs.

## 6.3 ADVANTAGES OF PPP

Massive investments are required towards infrastructure creation, capacity building, and O & M of the assets to improve the coverage and service levels of sewerage and sanitation services. This makes PPP an important strategy in improving the service levels of sewerage and sanitation services.

The promotion of PPP has some advantages as:

a. Investments by private firms may be quick and prompt and the waiting time is shorter compared to traditional government funding, thus ensuring early completion of construction or improvements in sewerage system.

b. Through increased investment and greater focus on customer services, the private firm will be able to ensure adequate sewerage facilities and better services.

c. With enormous potential for expansion of the facilities, the private firm can enhance the efficiency of services.

d. Users are kept informed by the publication of performance data.

e. Private firms are more flexible in their approach to solve related problems.

f. The private firm does not have the constraint of working within yearly budgetary allocations, (which is usually a critical factor in public sector funding) and can borrow money as required, which can be spent efficiently and in a timely manner.

g. There could be a gradual change in work culture of the employees resulting in a more flexible structure that allows individuals to show more initiative.

## 6.4 CHALLENGES AND ISSUES

The PPP has some challenges listed as follows:

a. In the process of private partnership, there may be a natural aversion to changes from the people themselves or from public representatives.

b. The utility and the consumers/users may have fears that they will have no control over the pricing of the services to be provided by the private firm.

c. There will always be some members of the less privileged society in the served area for whom sewerage and sanitation service is either free or heavily subsidised by government, and hence some persons may object to private partnership.

d. The employees may have fears in respect of their existing benefits as government employees like pension rights, retrenchment, salary cuts and more importantly, the loss of identity of a government servant or civic employee.

e. The taking over of part of a public service by the private sector will require a well-defined contract in order to safeguard all parties, including government, but primarily the user, who would be the main beneficiary. The hand-over process at the end of a private sector arrangement needs to be defined, at least in outline, when the initial deal is made.

Some of the main issues in PPP are listed below.

f. Since the utilities depend on the governments for provision of funds for improving the sewerage services, the responsibility for providing this basic service has shifted from government to utility. This is a vital issue since the 74th Constitutional Amendment, which empowers the ULBs to manage their affairs and hence places the responsibility for provision of these services on the local body.

g. The utility should give sufficient thought to all aspects and properly assess how it is doing the job of providing the water supply and sewerage services and how soon it can improve the services with available/government funds.

h. The utility can also weigh the advantages and drawbacks of entrusting these services to a private firm as against management by the utility and then decide accordingly.

i. The utility and government should dispel the fears of the employees in respect of their existing benefits like pension rights, retrenchment, salary cuts and more importantly the loss of the identity of a government servant or civic employee.

j. From the perspective of the private sector, the following risks need to be addressed in the Model Concession Agreement from the view point of the bank and successful private participation.

**i) Source risk:**

The major input for any wastewater reuse project is the continuous supply of sewage. The source of sewage is usually identified by the Government Agencies with diligence after getting necessary in-principle approvals from the concerned authorities. High cost infrastructure has to be put in place for water / sewerage, which cannot be redeployed and are inextricably linked to the source. Since the source is identified by the Government agencies, it is essential that they also provide guarantee on the source.

**ii) Credit risk:**

In case of PSP, the investment is made upfront by the private sector player. The return on investment to the private party is either by direct collection of revenues from users and/or annuity payment by the Government Agencies. The public sector counterpart could be usually a State Government, ULB or Water/Sewerage Boards, etc. The repayment capacity of each Government body would vary and would be dependent on the financial strength and the powers vested to the public agency. To ensure the bankability of a project and also to avail of lower interest rates from the lenders, the following are to be addressed:

a. The credit rating of the public party to be at investor grade

b. In case of parastatal agencies/boards, the State Government should provide:

   i. Certification of the payment capacity of the boards

   ii. Guarantee to bridge the gap in case of shortfalls due to change in law or lapses by public party where the public party is also responsible for routing the grant funds from Central/State Government

   iii. Insistence on ULB/Government agency to open escrow account wherein it will escrow its identified revenue streams and mark a lien on the account in favour of the private sector player

   iv. Mortgaging rights to the private sector for assets created

   v. Insistence to provide a revolving Letter of Credit (LoC) for at least six months of annuity payments with a provision that the letter of credit will be replenished every time the concessionaire draws the LoC.

**iii) Contract structure risk:**

The following clauses are to be incorporated in the agreement for any project to be taken up by the private party

a. Step in rights to lenders: Step-in rights are the rights given to lenders to step in to the project company's position in the contract to take control of the infrastructure project when the project company is not performing. The concession agreement should provide provisions for lenders to step in through a substitution agreement for lenders.

b. Termination Payments: The termination payments should be acceptable to both the equity investors and the lenders.

   i. In case of termination due to Concessionaire Event of Default, the termination payments payable by the Client/Municipal Corporation/Government Agency shall be the entire senior and subordinate debt/mezzanine debt deployed in the project.

   ii. In case of termination due to Client/Municipal Corporation/Government Agency Event of De fault and termination due to various Force Majeure events, the termination payments payable by Client/Municipal Corporation/Government Agency shall be the entire equity along with desired returns and entire senior and subordinate/mezzanine debt deployed in the project.

## 6.5 ENABLING ENVIRONMENT AND NEED FOR REFORMS

### 6.5.1 Enabling Environment

The GOI is committed to improving the level and the quality of economic and social infrastructure services across the country. In pursuance of this goal, the Government envisages a substantive role for PPP as a means for harnessing private sector investment and operational efficiencies in the provision of public assets and services.

The GOI has set up PPP Appraisal Committee to streamline appraisal and approval of projects. The transparent and competitive bidding processes have been established. To provide a broader cross-sectorial fillip to PPPs, extensive support has been extended through project development funds, viability gap funding, user charge reforms, provision of long-tenure financing and refinancing as well as institutional and individual capacity building. Sewerage services are one such area where private sector has still not found much interest.

Private sector must, therefore, be given some incentives by way of long-term contracts, lease of land at nominal lease rent, and so on, for attracting it to this field.

a. The MoUD identified the need for Guidelines for Sector Reform and Successful PPP in late 2001, recognizing:

   • the enormous potential benefits of a bigger role for the private sector in improving urban water supply and sanitation services; and

   • the inherent risks of executing poorly designed private transactions in this sector.

• The guidelines are designed to sensitize State Governments and ULBs to the policy and procedural issues that need to be addressed as they reform urban water supply and sewerage services. They also seek to:

   • embed an evolving role for the private sector into this broader sector reform;

   • facilitate a systematic assessment of the issues and options for successful private sector participation; and

   • prevent improperly designed and executed PSP transactions.

b. Contracts may be given for cleaning sewer or sewerage facilities for a period of not less than 3 years so that the contractor may be in a position to invest money for buying equipment. The contractors will have no interest in short-term contract, as investment made may become redundant if the contract is not subsequently renewed.

c. The private sector may be offered land for sewerage facilities at a nominal rent for not less than 15 years for setting up STPs, SPS, etc. The terms for obtaining royalties from the private sector can be worked out by local bodies through mutual negotiations. There may be situations where ULB may not have adequate land for sewage treatment and/or disposal or ULB may find it difficult to manage the same departmentally. In such situations, they may consider private sector providing sewage treatment and disposal facilities on its own land or on municipal land and local body may pay the tipping fees. However, cost benefit analysis should be carefully carried out by the ULB before concluding such an agreement.

d. The private sector participation may be encouraged in such a way that it does not affect the interests of the existing labour force, does not violate the provisions of the Contract Labour (Regulation and Abolition) Act 1970 of the GOI, and does not exploit private labour, yet reducing the burden of the urban local body for new establishment. This will substantially help in improving the quality of service of the ULB, reduce the expenditure and provide opportunity to the private sector to enter the sewerage services market.

e. An arrangement of BOO, BOOT or any other arrangement which may be transparent and beneficial to the ULB may be made keeping in view the above observations.

### 6.5.2 Need for Reforms

#### 6.5.2.1 Need for Sector Reforms and the Status of Reforms

The functions of the administration are divided mainly into three kinds, namely “policy making”, “administration/regulation of policy” and “execution of public works”. Sector reforms imply that the framework of “execution of public works” may be rearranged in order that it is entrusted to the private sector from the public sector based on the market principle.

There is need for a radical reform of the urban infrastructure sector, particularly in sewerage services to ensure that the quality of services in the urban areas, particularly to the urban poor is improved. Traditional mechanisms, relying on unreliable flows of insufficient public funds to finance piecemeal projects cannot fill the urban infrastructure gap. Hence, reform of the urban sewerage sector is particularly urgent because without such reform, fiscal resources will continue to be used sub-optimally and urban population will continue to spend significant portions of their time and income in coping with the costs of poor service, depriving themselves of their full economic and civic potential. The situation is also complex because:

- Sewerage is an essential service.
- Sewage management is a local issue with local solution, but failure to tackle them successfully can have regional and national implications.

- There is a need to introduce the reform agenda.
- The private sector can play a positive and long-lasting role.
- Reforms must be properly sequenced and managed, based on key lessons learned from application of reforms in other sectors.

While recognizing that urban reforms are State subjects, the GOI through the MoUD and the Ministry of Housing and Urban Poverty Alleviation (MoHUPA) is facilitating these reforms, including designing and disseminating among others, a model Municipal Act, important guidelines for public private partnership in sewerage services and overall framework for GOI support.

Within the framework, the ministry has proposed the “Urban Challenge Fund” and the “Pooled Finance Mechanism” to catalyse urban change through an active partnership with the States and their towns and cities by a combination of strategic engagements, capacity and regulatory support, and fiscal incentives. These will be further complemented by the “Urban Reform Incentive Fund” under the Ministry of Finance of GOI.

#### 6.5.2.2 Key Principles for Policy Framework

A publicly endorsed policy framework would give decision makers the mandate for systematic reform and private partnership. Various initiatives are required for creating an enabling environment among all the stakeholders for private partnership as a viable alternative.

To create such an environment, there is a need to assure the underprivileged and weaker sections of society the continued government support (subsidies) and dispel the fears of retrenchment and salary cuts of the present employees, even if the sewerage and sanitation services are provided and managed by the private sector.

The key principles for such a reform policy framework are to:

- Introduce public service obligations, prudent financial constraints and accountability obligations for ULB/service providers/sewerage utilities.
- Commercialise service providers under transparent governance structures – professional management, insulation from political influence, revenue adequacy and suitable auditable accounts and performance measures.
- Establish an autonomous and competent economic regulator when there is a clear demand for its services and the political will for its empowerment.
- Put in place specific incentives and regulations to improve services for the poor.
- Create a flexible demand-responsive industry structure
- Encourage PPP, prioritising distribution system management, O&M and planning.
- Set service charges that reflect costs with better targeted public subsidies.

- Create an enabling legal, regulatory and institutional environment; delineate the roles of state and local regulatory agencies and establish an empowered Sector Reform Team to facilitate the reforms.

- ULB/Sewerage Utilities would restructure the service providers, assess costs, tariff and subsidy requirements for better services, prepare for and execute the envisaged form of Public Private Partnership and manage the Public Private Partnership contract (with support from State institutions).

#### 6.5.2.3 Apprehension by Bankers/Lenders

Some of the key issues and challenges faced by Bankers/Lenders while appraising urban infrastructure projects under PPP include the following:

a. Structuring of the PPP projects in urban infrastructure is not up to the expectation of the various stake holders on account of the following reasons:

i. The project documents (bid, concession agreement, etc.) are not standardized at the State and Central level, unlike in the case of road or power sector leaving considerable scope for negotiation between Concessioning Authorities and bidders during development, execution and operations. This leads to delay in project development and execution, leaving residual risks.

ii. Lender's interests are to be adequately and appropriately protected in the Concession Agreements like in the model concession agreement of transportation or power sector.

iii. Urban Infrastructure sector is today at the same stage where the road sector was about 15 years back– the route adopted and lessons learnt in the privatization process of the road sector should be put to use to an optimum level for successful privatization of urban infrastructure projects.

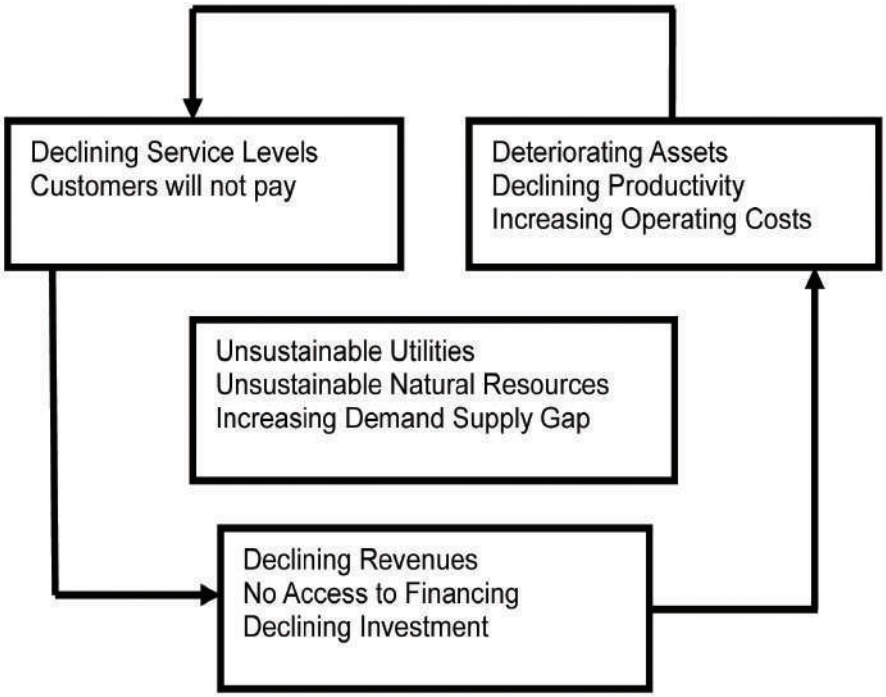
iv. The "User pay" principle is not yet established for urban infrastructure services leaving the private sector to manage the project on behalf of the government with respect to collection of user charges.

v. For the payment of annuity, appropriate escrow account would have to be created as the ULBs lack financial credibility because of their weak finances.

#### 6.5.2.4 Unsustainable to Sustainable

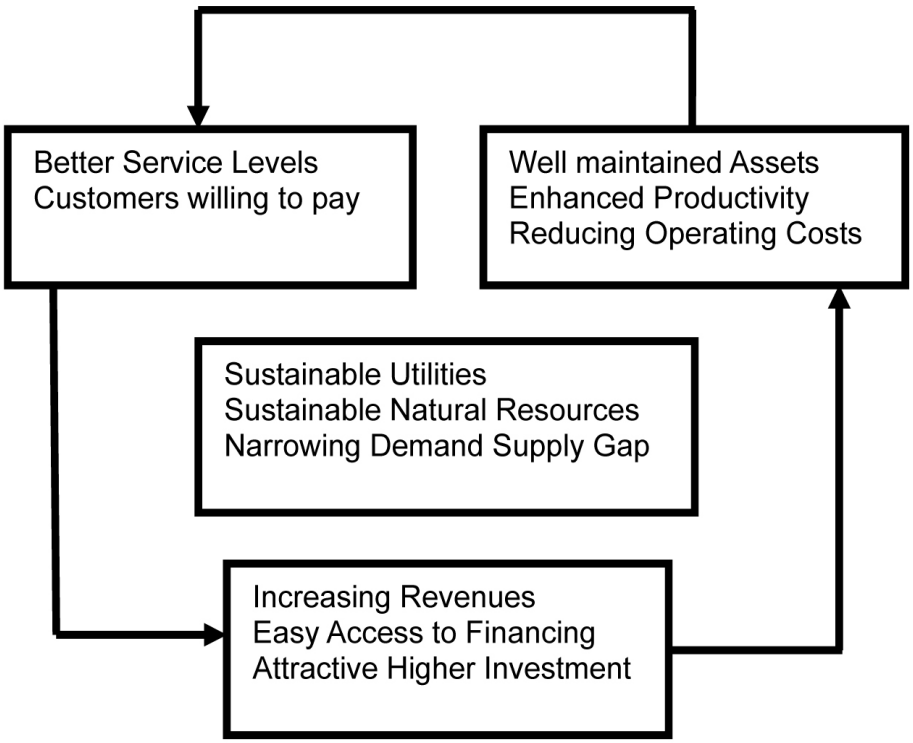
The HPEC has graphically portrayed the situation of unsustainable to sustainable. This is shown in Figure 6.1 and Figure 6.2 overleaf.

There is scope for expanding PPP in urban sector, especially in water, sanitation and waste to energy. While there are established models and a sizable number of projects in certain sectors, the number of PPP projects in urban social infrastructure (water supply, sanitation and SWM) are limited. PPP projects in water sector for loss reduction, introducing 24x7, 100% metering and billing are to be encouraged in the form of management contracts in the States.




Source: High Level Committee on Financing Infrastructure, MoUD. Report of the Sub-committee on Financing Urban Infrastructure in the 12th Plan, 2012, p.43-44.

Figure 6.1 Portrayal of Unsustainable Nature of PPP in Urban Sector Infrastructure




Source: High Level Committee on Financing Infrastructure, MoUD. Report of the Sub-committee on Financing Urban Infrastructure in the 12th Plan, 2012, p.43-44.

Figure 6.2 Portrayal of Sustainable Nature of PPP in Urban Sector Infrastructure

A few states have taken the initiative, which needs to be replicated in the country. Some of the key issues and challenges faced by Bankers / Lenders while appraising urban infrastructure projects under PPP include the following:

1. Structuring of the PPP projects in urban infrastructure is not up to the expectation of the various stake holders on account of the following reasons:

A. The project documents (bid, concession agreement, etc.) are not standardized at the state and central level unlike in the case of Road or Power sector leading to lot of scope for negotiation between concessioning authorities and bidders during development, execution and operations. This leads to delay in project development and execution having residual risks.

B. Lender's interests are to be adequately and appropriately protected in the Concession Agreements, like in the model concession agreement of transportation or power sector.

C. Urban Infrastructure sector is today at the same stage where the road sector was about 15 years back – the route adopted and learning's in the privatization process of the road sector should be put to use to an optimum level for successful privatization of urban infra projects.

D. The "User pay" principle is not yet established for urban infra services – leaving the private sector to manage the show on behalf of the government with respect to collection of user charges.

E. The Urban Infra sector needs to be handled with soft gloves, like in case of the transportation sector where after the initial debacle of the toll road projects; the concept of annuity was brought in successfully. Similarly, for the Urban Infra sector projects, policy should graduate slowly from Government run to Private with the initial route of annuity before switching over completely to user-pay principle basis.

F. For the payment of annuity, appropriate escrow account would have to be created as the ULBs lack financial credibility on account of their weak finances.

G. Proper quality of service and upkeep of the existing urban infra assets are not being done.

H. This leads to poor service quality, which does not enthuse the end user to pay service charges for the urban facilities being used and leading to the user-pay principle not being established. The un-sustainable cycle above needs to be broken and converted into a sustainable cycle.

#### 6.5.2.5 Land Based Financing

The HPEC cites the case of sales from MMRDA land auctions in just one complex (Bandra-Kurla complex) in January 2006, which was a staggering Rs. 23.0 billion; two times more than the total infrastructure investment made by the Mumbai Municipal Corporation, during 2004–05 (which was only Rs.10.4 billion) and four times more than MMRDA's own infrastructure investment in 2004–05, which was a mere Rs.5.4 billion.

However, there are several other questions which would be worth examining:

Are the proceeds from land lease/sales used to finance "related" infrastructure, such as access roads, water and sewerage systems to service the development to take place on the land that is sold? Or is a significant part of the proceeds used for more general infrastructure purposes? What procedures are followed in allocating funds, how fully defined is the process, and how much public disclosure takes place?

A news item on Aug 2, 2012, reports that, "The Indian Prime Minister's Office partially lifted curbs on the transfer of government land for infrastructure projects, a move that the government claims will reduce the time needed to build roads, railway lines, airports and ports". A similar model for sewerage projects, which are held up for "right of way" to lay sewers and locate STPs by the PPP route, is to be explored.

## 6.6 EFFORTS IN ENCOURAGING PPP

Some examples of success stories of PPP project in the water and sewerage sector in India are summarised below. Some international examples of success stories of PPP in water and sewerage sector are also summarised below.

### 6.6.1 National Projects

#### 6.6.1.1 Alandur Sewerage Project

**a. Project Description**

The Alandur Sewerage Project (ArSP) was initiated in the year 1996 by the Chairman of the Alandur Municipality (AM). The AM, located adjacent to Chennai, forms a part of the Chennai Metropolitan Area. With a population of around 165,000, the municipality is a residential suburb of Chennai with predominantly residential and some commercial activities. Approximately one-fourth of its population live in slums. The proposed sewerage system was to be designed for the estimated population of about 300,000 in 2027 and was planned to be completed within a five-year period from its inception date. The project components included:

- A sewerage network consisting of the main sewer line, branch sewer line and manholes;
- Construction of a sewage pumping station;
- A sewage treatment plant; and
- Low cost sanitation

In the initial phase the plant was to treat 12 million litres per day (mld) of sewage supplied to it by the municipality. The ultimate capacity was to be 24 mld. To plan this complex and politically challenging project, the AM worked in partnership with the Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL), the state asset management company and with USAID Financial Institution Reform and Expansion (FIRE) Project. The ArSP was the first project in the municipal water sector to be taken through the PPP route in India. The underground sewerage system in Alandur town, involved the laying of pipes and construction of pumping station. This was done on a BOQ (Bill of Quantities) basis. The STP was on a Build, Operate and Transfer (BOT) basis. The contractor was also required to undertake the O&M for a period of five years from the date of completion of the construction, on a fixed fee basis.

The collection of tariff and provision of new connections during the O&M phase was to be undertaken by the AM directly. Accordingly, the PPP structure of this complex project was governed by three contracting mechanisms awarded to an Engineering Procurement and Construction (EPC) contractor selected through a competitive bidding process:

- A *Works Contract* for construction of the sewage network, using the World Bank's Contract for National Competitive Bidding (NCB-W2) as the template;
- An *O&M Contract*, also using NCB-W2. The selected contractor would operate and maintain the underground sewerage system for a period of five years on a fixed fee basis.
- A *Lease Contract* (in the nature of a BOT Agreement) for the STP, using guidelines from the International Federation of Consulting Engineers (FIDIC). Through this Agreement, the contractor would finance, build and operate the STP for a period as proposed in the contractor's successful bid. The contractor would be required to recover the investment on the STP on the basis of a per unit rate payment from the AM for treatment of sewage delivered. The AM agreed to provide a minimum payment level per annum regardless of the volume of sewage actually delivered. It was designed to cover the company's minimum fixed operating cost and capital investment. Accordingly, the PPP structure was technically in the nature of BOT-Annuity.

  The ArSP is summarised in Table 6.1.

Table 6.1 Alandur Sewerage Project

| Sector | PPP Project structure | State and Year PPP Contract Signed | Government / Public Sector Entity / Entities | Private Sector Promoter / Sponsor / Consortium Members | Project Cost | Concession Period |
|---|---|---|---|---|---|---|
| Sewerage | Construction Contract (Underground Sewerage System)<br><br>O&M Contract (Underground Sewerage System)<br><br>Build-Operate Transfer (BOT) Annuity (Sewage Treatment Plant) | Tamil Nadu 2000 | Alandur Municipality and the Tamil Nadu Urban Infrastructure Financial Services Limited (TNUIFSL) | IVRCL Infrastructures and Projects Ltd.<br><br>and<br><br>V A Tech Wabag Technologies Ltd. | Rs. 34.6 crores Sewerage Network<br><br>Rs. 6.68 crores Sewage Treatment Plant | O&M Contract 5 years<br><br>BOT Annuity 14 years |

Source: Ministry of Finance (2010). Public Private Partnership Projects in India, Compendium of Case Studies, p.2

**b. Key Learning and Observations**

A brief on the difference made by the ArSP, as captured below, illustrates that the 'value for money' brought in by the project far exceeded any monetary consideration. The comparative difference before and after PPP intervention is summarised in Table 6.2

Table 6.2 Brief on the Difference 'before' and 'after' PPP intervention

| Sr. No. | Parameter | Situation before PPP intervention | Situation after PPP intervention |
|---|---|---|---|
| 1. | Urban service | No sewerage system for a population of 165,000 | 120 km of underground sewerage system, pumping stations and an STP of 24 MLD |
| 2. | Urban service | Water borne sanitation facilities, septic/holding tanks for disposal of night soil | Underground sewerage system with direct connection to each household |
| 3. | Urban service | Unregulated disposal of sewerage in storm water drainage and low lying areas | Modern sewerage treatment plant designed to international standards. |
| 4. | Environment and health | Open storm water drains stagnating in outer areas of town – environmental and health hazard | Underground sewerage system has eliminated risk of mosquitoes and related diseases for the citizens of Alandur and surrounding areas. |
| 5. | Environment and health | Contamination of underground water sources due to open drains | Almost 100% eradication of ground water contamination through underground sewerage system and waste water treatment plant. |
| 6. | Public participation | - | Rs. 12 crores out of the capital cost was through public contribution |

Source: Ministry of Finance (2010). Public Private Partnership Projects in India, Compendium of Case Studies, p.24

### 6.6.1.2 Salt Lake Water Supply and Sewage Disposal System

**a. Project Description**

The Kolkata Municipal Development Authority (KMDA) along with the Nabadiganta Industrial Township Authority (NDITA) planned a combined water supply-cum-sewerage project. This project was planned to be implemented under the BOT - PPP arrangement. The project was developed with financial assistance under the central government scheme of the JnNURM.

The PPP contract for the project is a Concession Agreement for the development of the project on BOT basis. The contract involves the following parties, viz., KMDA, NDITA and the consortium of private developers.

As per the Concession Agreement, the private developer is required to undertake the development, design, engineering, financing, procurement, construction, completion, commissioning, implementation, management, administration, O&M of the water supply network, sewerage network and the sewage treatment plant (STP) at the site. Against the capital investment made, the private developer is permitted to charge the consumers a water supply-cum-sewerage tariff. The Concession Agreement requires the private developer to operate and manage the water supply and sewerage system for a time period of 30 years.

As part of the pre-implementation activities, the private developer was required to prepare a DPR for the project to be implemented. The detailed design of the capital works to be undertaken was to be provided by the private developer and, subject to approval from KMDA and NDITA; the works were to be implemented by the private developer. The grant under the JnNURM scheme is subject to approval of the DPR by the MoUD. The tariff to be levied and the structure of the same will be determined by the private developer in consultation with KMDA, NDITA and the concerned stakeholders which include the representatives of the offices located in the project area.

After completion of the construction phase, the private developer is required to purchase the treated water from NDITA and supply water to all the connected units and collect the sewage; to be disposed of following treatment. Further, the generation of bills and its collection is to be managed by the private developer. The private developer will retain the user charges so collected from the consumers. For undertaking the construction works, and for setting up the STP, the private developer will be provided the required land area free of cost. Additionally, the private developer is also not required to make any type of licensee fee payment or annuity payment to the KMDA or NDITA during the period of the contract. At the end of the tenure of the contract, the water supply and sewerage network has to be handed back to NDITA for future O&M. The gist of the project is summarised in the Table 6.3.

Table 6.3 Project of Salt Lake Water Supply and Sewage Disposal System

| Sector | PPP Project structure | State and Year PPP Contract Signed | Government / Public Sector Entity / Entities | Private Sector Promoter / Sponsor / Consortium Members | Project Cost | Concession Period |
|---|---|---|---|---|---|---|
| Water & Sewage | BOT (includes Design and Finance) | West Bengal 2007 | Kolkata Metropolitan Development Authority (KMDA) and Nabadiganta Industrial Township Authority (NDITA) | Jamshedpur Utilities and Services Company Limited and Voltas Limited | Rs.70.09 crores | 30 years |

Source: Ministry of Finance (2010). Public Private Partnership Projects in India, Compendium of Case Studies, p.2

**b. Key Learning and Observations**

- Pre-project assessment and feasibility studies are critical: Before tendering out the project, it is important that the government undertakes a first level assessment of the project area.

This assessment should be able to indicate the status of the physical infrastructure and the service delivery gaps. On the basis of the assessment, it should ascertain the nature of infrastructure required and the investment needed. Such an assessment would give a realistic picture of the on ground situation to the government and the private developer. Additionally, a detailed feasibility study should also be undertaken, especially in the case of a greenfield project to determine the commercial viability of the proposed project.

- Effective facilitation of project implementation by the government: KMDA and NDITA played a critical role in providing key concessions to the private developer to arrive at a rational water-plus-sewerage tariff. KMDA had several rounds of discussions with the stakeholders, that is, the IT firms to ascertain the acceptable tariff.
- Government needs to provide full cooperation to the private developer at various stages: The private developer needs to be provided with maximum cooperation for the implementation of the project. There were delays in handing over of land free of cost to the private developer, which resulted in delays in commencement of the construction work. It is important for the government agencies to avoid such delays. However, in all other areas, the private developer has received substantial assistance from KMDA and NDITA to ensure smooth implementation of the project.

### 6.6.2 International Projects

#### 6.6.2.1 Manila Water Supply Project (Philippines)

**a. Project Description**

The Manila Metropolitan Waterworks and Sewerage Services (MWSS) have been operating the water supply and sewerage services for metro Manila since 1971. Its performance was so poor, (with water supply coverage of 68%, unaccounted for water ratio of 44%, unpaid charges and illegal connections) that half of the population had access to water for only half a day.

In 1995, the MWSS was privatised, following the example of Buenos Aires. With competition introduced to a local monopoly environment, the city of Manila was split into eastern and western areas to invite private bids for services in separate areas, to prevent cessation in the water supply citywide even in the event a privatised business should go bankrupt. As a result, the Manila Water Services (MWSI) won a 25-year concession to operate the services for the west area while the Manila Water Company (MWCI) was successful for the east area.

The biggest achievement of the MWSI and the MWCI was expansion of their areas of coverage. Five years after inauguration of the service, the number of connections soared by about 30%. The daily average water-availability duration increased to 17–21 hours. However, the performance of their sewerage services remained far short of the goal. The unaccounted for water (UFW) ratio still remains the same with no reduction.

Introduction of private capital led to service expansion. However, it cannot be said to have completely improved the financial position. In the wake of the 1997 Southeast Asian economic crisis and slumping currency in the Philippines, the cumulative debts in Philippine peso swelled by 60%. This was partly because a large portion of the debts of the MWSI for the western district was in foreign currencies.

In March 2001, the annual debt repayment in the west area became equal to the fees charged. The MWSI was obliged to raise the tariff. The tariff increases were approved by the government in October 2001 and in July 2002 the financial position finally improved. Later, the government declared a freeze on water tariff hikes. In response, the MWSI informed the government it planned to relinquish its operational rights on the grounds that the contractual terms for tariff revisions were violated.

In the east district, the MWCI increased operational efficiency to achieve profitability. It has yet to remove the entire governmental financial burden. Not all fiscal burdens for future investment plans, including water source development, have been eased. The east-west disparity in performance is partly attributable to differences between the two areas. The east has well-developed infrastructure and a business district, while the west lacks infrastructure and has many poverty zones.

The Manila Water Supply Project is summarised in the Table 6.4.

Table 6.4 Manila Water Supply Project

| Sector | PPP Project structure | State and Year PPP Contract Signed | Government / Public Sector Entity / Entities | Private Sector Promoter / Sponsor / Consortium Members | Project Cost | Concession Period |
|---|---|---|---|---|---|---|
| Water & Sewage | Concession Contract (Water Treatment, Distribution, Tariff Collection, Facility Improvement, Overall Management) | Manila, Philippines 1997 | Manila Metropolitan Waterworks and Sewerage System (MWSS) | Maynilad Water Services, Inc. Manila Water Company, Inc. | About 30 billion pesos (1.2 billion dollars in 1997) over the concession period | Concession Contract – 25 years |

Source: UTCE Ltd., Japan PFI Association, 2003

**b. Key Learning and Observations**

The key learning from the privatization of MWSS and the experience of Manila Water are as follows:

- To ensure successful implementation of privatization, the Government must have clear objectives, firm political will, focused execution of its action plans and programmes, and unwavering support from the private sector.
- The close link and unique relationship between MWSS and the “Regulatory Office” would require experienced regulators to manage, considering that the regulators do not have complete independence.
- Concessionaires need a strong balance sheet and cash flows to address “regulatory lag” and survive liquidity problems resulting from external factors (for example, currency devaluation as a result of the Asian financial crisis).

- MWSS privatization showed success initially, but establishing a credible regulatory structure requires more time and effort. Changes in policy and contract will present new challenges and opportunities to all stakeholders, particularly MWSS and its concessionaires.
- To ensure the success and sustainability of the MWSS privatization, both MWSS and its concessionaires should strengthen existing partnerships to ensure that the latter remains efficient in the delivery of service to its customers, especially the urban poor.

#### 6.6.2.2 PPP Water Project in Buenos Aires (Argentina)

The water supply and sewerage services in the Buenos Aires Metropolitan Region had been operated by OSN (Dirección Nacional de Obras Sanitarias de la Nación), a state-run sanitation public corporation, since 1912. Prior to the privatization project, its performance was very poor with a coverage ratio of 70%, an UFW ratio of 45%, water-meter coverage ratio of 20% and a sewerage coverage ratio of 58%. Rehabilitation of the business was an urgent issue.

In 1993, privatization of water services was approved as part of a programme for privatizing state-run companies with the help of the World Bank, to correct economic mismanagement. Under a 30-year concession agreement, the international joint venture called Aguas Argentinas (AA) took over the responsibility for operating the water services.

After the privatization, an amount equal to US$ 600 million was invested. The project was reported to be a success, with tariffs lowered by 27% and a water supply volume increased by 37%. However, when Argentina devalued its currency in the wake of its economic crisis in 2002, the AA experienced a two-thirds fall in revenues, and encountered serious financial difficulties. The concession agreement had a provision for renegotiation, including that based on foreign exchange risks. However, the government froze the reassessment and no tariff increase has taken place. AA's largest shareholder, Suez, suffered a loss of Euro 500 million in financial year (FY) 2002.

### 6.7 POTENTIAL PPP MODELS

There are several business models of PPP as described below.

a. Service contract

Service contract is a system in which the administration entrusts its specific and restrictive works to the private sector. This includes work such as cleaning of facilities or security services. The administration assumes total responsibility and private sector assumes management responsibility of employees. The service contract form includes a contract for one or multiple services to a private sector (outsourcing). The duration of contract is usually 1 to 2 years.

b. Management contract

A management contract is a system in which the administration entrusts management (O&M, etc.) of a complete facility, which the administration owns to a private sector. The private sector does not take financial risks such as financing, and the administrative side provides the private sector (trustee) with funds for operation or investment.

A private sector always acts on behalf of the administration (truster). The administration has the ultimate responsibility to the public services that the trustee provides. The contract duration in this case is 3–5 years.

c. Lease contract (Property rental contract)

A lease contract is a system in which the administration leases an institution to a private sector for a fixed period so that the private sector may perform O&M of a public facility. The administration collects investments by collecting a rental fee from the private sector over a long period of time. The private sector performs O&M of the facilities. When additional investment or renewal of facilities becomes necessary, the administration pays for these expenses. The contract duration in this case is usually 8 to 15 years.

d. Concession contract (Business right contract)

A concession contract is a system in which the administration entrusts the management of public works to a private sector that has acquired a business license (managerial right), and this contract is called a business right contract.

The private sector, which acquires a business license, performs business management including O&M of facilities and investment for business expansion. Although the facilities are publicly owned, the management is entrusted to the business license holder during the duration of the contract.

The facilities are transferred and received by the administration from the private sector upon completion of duration of the contract. In this case, the duration is usually continued for 25 to 30 years in order to recover the investment.

e. BOOT (Build-Own-Operate-Transfer) contract

A BOOT contract is a system in which a private sector raises funds by itself for building a new facility or acquiring equipment, and builds, owns, and operates the facility. Upon completion of the contract, the facilities and equipment are transferred to the administration. The duration of contract should be long enough to redeem the long-term debt and distribute dividend to investors. Although the scale and term of contract are influenced by the scale of debt, the duration of the contract in this case is usually 20 to 30 years.

Contracts such as BOO, BOT, and BTO are basically modifications of the BOOT contract.

- BOO (Build-Own-Operate)

In this system, ownership of the facility is not transferred from a private sector to the administration after the private sector builds the facility. The private sector owns it and carries out operation and maintenance of the facilities continuously.

- BOT (Build-Operate-Transfer)

In this system, a private sector builds the facility, operates and maintains it, and transfers the ownership to the administration after the end of the contractual period.

- BTO (Build-Transfer-Operate)

In this system, a private sector builds the facility and transfers the ownership to the administration immediately after completion of construction of the facility. The private sector performs O&M of the facility continuously during the contractual period.

The burden sharing between the administration and private sector in the business models of the PPP is summarized in Table 6.5.

Table 6.5 Burden Sharing in the Business Scheme of PPP

| Business Schemes of PPP | Owner of Assets | Operation & Maintenance | Investor | Business Risk | Contract Term |
|---|---|---|---|---|---|
| Service contract* | Public | Private/Public | Public | Public | 1-2 years |
| Management contract | Public | Private | Public | Public | 3-5 years |
| Lease contract | Public | Private | Public | Share | 8-15 years |
| Concession contract | Public | Private | Private | Private | 25-30 years |
| BOT/BOO contract | Private/Public | Private | Private | Private | 20-30 years |

* Private Sector Participation (PSP)
Source: World Bank, 1997

### 6.7.1 Sample PPP

A sample draft concession agreement of the Shimla Water supply and Sewerage System Project to build, refurbish, operate and maintain the Water supply and Sewerage System of Shimla City, Himachal Pradesh (India) on PPP Mode is in Appendix C 6.1.

## 6.8 SUITABILITY OF PPP CONTRACT

Benefits from PPP will grow, as increasing responsibility and risks are transferred to the private partner. Hence, simple service management contracts generate less benefits compared to performance based management contracts, leases, concessions and divestitures. Concession contracts may be suited for most urban areas as they mobilize capital and high quality human resources but may not be feasible until market conditions are better developed. However, management contracts can be expedient and cost effective if used as leverage for a deeper form of public private partnership. Hence, the private partners in such contacts should have sufficient rights and responsibilities to improve services and prepare for a deeper form of PPP.

Any form of PPP should contain a clear obligation to improve services to the poor. PPP transactions should be executed in a transparent and competent manner, with the assistance of qualified transaction advisers. Maximizing competition from qualified bidders is one of the ideal methods of assuring the best outcome to the consumers. Capacity should be continually strengthened at the local and State levels so that utility performance is monitored effectively and the PPP contracts are managed efficiently to ensure quality of economic regulation.

## 6.9 LEGAL FRAMEWORK

An act with legal provisions is required for creation of an authority for approval of public private partnership projects, with specific authority to negotiate, accept or reject the PPP proposals submitted by the bidders. Any act shall also include provision for creation of a regulatory authority independent of private sector participants and the Government, not only for regulating the tariffs but also for ensuring that the private sector participants are discharging their obligations as per their contracts. This is also required to ensure expansion and upgradation of facility in future.

## 6.10 SUBSIDIES TO THE POOR

Sewerage charges in India generally form part of the water supply charges. The economically disadvantaged consumers may not be able to pay the full cost of the water and sewage. Therefore, it is important to consider issues such as: the minimum quantity required for sustaining, amount spent for providing this quantity, the least amount that the poor/low use consumer will be able to pay, and the costs that can be mobilised from the poorest and amount that can be shared by those who can afford to pay. There is a need for coming out with the policy for continuation of subsidies to the underprivileged sections of society who require the support of the Government for availing drinking water supply and sanitation services even if the service is managed by a private firm.

## 6.11 COMPETITIVE BIDDING

Often a lot of time and effort are spent on finding finances from international financial lending institutions due to the complex procedural formalities. Since funding is not focused on privatisation, the grant processes are generally too slow to meet the requirements of fast track projects involving water supply/sewerage services. The regulatory authority can compare the alter natives available for implementation of a project. If any utility desires to take up improvements in its service to achieve increased coverage and better service levels, it has two alternatives, namely traditional funding or private financing.

### 6.11.1 Tariff Charges for Traditional Funding

Any utility can approach the government for funds by plan provisions and/or procure loans from national, international and bilateral funding agencies. Due to limited availability of such funds, the investment for improvement projects may spill over longer periods, i.e., about 5 to 7 years. Accordingly, the technical estimates and financial projections will be prepared for O&M costs and probable tariff charges to be recovered by the utility from users can be worked out to meet the O&M costs, debt servicing and depreciation plus some capital reserve for extension of services.

### 6.11.2 Tariffs for Private Financing

As an alternative to traditional funding, a suitable option is to bring in private finance for provision and development of sewerage systems. The utility can accept without bidding and by negotiation, the proposals submitted by private firms if their tariffs are comparable with those of the alternative under traditional funding.

## 6.12 ADDRESSING THE CONCERNS OF STAKEHOLDERS

PPP is not a one stop solution for all the issues of the sewerage sector. There are concerns of stakeholders, which have been frankly brought out by the Infrastructure Development Corporation of Karnataka (IDCK) as in Table 6.6.

Table 6.6 Key concerns of stakeholders

| Government and Civic Society | Private Developers |
|---|---|
| 1. Look at Private Sector for Capital Infusion | 1. Lack of reliable baseline information |
| 2. Concern about loss of control | a) Haste in bidding out the projects to avail funds under the schemes<br>b) Inadequate technical studies while preparing DPRs<br>c) Has impacted the due diligence prior to bidding |
| 3. Resistance to levy or increase of user Charges | d) Landed cost much higher than estimated by the Government agency |
| 4. Conditions of assets on handing over | 2. Technology prescribed by the Government Agency |
| 5. Civil Society-Tariff Implications | 3. Payment guarantee<br>4. No business case |
| 6. General Acceptance by the community | 5. Obtaining applicable permits |

Source: Infrastructure Development Corporation (Karnataka) Ltd., 2012

It needs to be recognized that these concerns are legitimate from the respective points of view. Consequently, it is clear that each PPP has to have its own “rules of the game” and it is not possible to create a uniform model for all PPP.

For example, if we consider a new technology to be implemented for the first time in the country for a STP, the whole complexion of PPP changes. To start with, the most crucial parameter of target setting is the raw sewage BOD itself.

There is no sewerage system in the first place and it is not possible for the local agency to specify this BOD. The same is the position for the investor.

Thus, the project, from a commercial and bankable sense is a non-starter. Given this position, how to get started is a unique solution to the habitation, the lifestyle of people, the trading, the tourism, the academic centres of excellence, etc., are all involved.

If the habitation is essentially a trading centre, the cooperation of the population to be willing to pay is suspect and would be dependent on their market fortunes.

Similarly, if the habitation is essentially agriculture related, the monsoon patterns will influence the willingness to pay. If the habitation is essentially a centre of excellence in learning, a better understanding by the habitation can be expected. There are many such dimensions. Each situation needs to be appraised. Blindly copying the model from elsewhere will not work. Coming back to the raw sewage BOD, a realistic way will be to have a flexible PPP for various ranges of raw sewage BOD as it occurs.

A classical case study is the venture to implement the zero liquid discharge of industrial effluent treatment of textile dyeing industries at Tiruppur. Among the many Common Effluent Treatment Plants (CETPs), some of them chose the PPP model with the Tamil Nadu Water Infrastructure Company Limited (TWICL) initiative and some of them chose the EPC model by investing from loans secured from banks. The project is still being refined in its technical infrastructure as constructed even after nearly 8 years, even though it was to be completed in 4 years. The reason here is not that the raw BOD was unknown. The raw effluent was very much there. The issue was the absence of proven technology. With no uniform technology, each contractor and CETP combine chose its own technology and discovered a few areas of need to refine the technology itself and reinstall different equipment. Obviously, contentious issues between the contractor and the CETPs have arisen and a resolution is pending; at the same time, the revisions are being physically pursued. The key lessons in this case could have been (a) piloting instead of embarking based on surmises and assumptions or (b) at least erecting a parallel pilot plant to validate the technologies continually over a period of time. All the same, the fact remains that initiative and effort have to be recognized and complimented.

Another successful case study is the PPP model seawater-desalination plant at Chennai, where a private party invested its funds for building India's first plant for supplying drinking water to Chennai city and the local agency has contracted to pay the contractor on a formula of fixed cost and variable cost and is working well. Though this is the first of its kind in India, the project is on stream from day one except of course some issues of seawater intake refinements, which are understandable. The reason behind this success is that the technology of treatment is the same everywhere in the world for the chosen treatment process and there is a compulsion for the local agency to buy and distribute the water to the public to sustain the public water supply.

## 6.13 ADDRESSING THE CONCERNS OF FUNDING INSTITUTIONS (FIs)/BANKS

Here again, it is not that PPP is a one stop solution for all the issues of sewerage sector. There are concerns of Funding institution /Banks, which have been rather frankly brought out by the IDCK as in Table 6.7 overleaf.

Recalling the above example of raw sewage BOD itself being uncertain, the "externalities to the project" being the "proven technology" is interesting. This is similar to the chicken and egg syndrome. Unless a new technology is implemented, there is no way it can be proven.

Unless it is proven, there is no way to invest on it. All the same, new technology cannot be ignored. It is here that the PPP has immense potential. The MoUD has appropriately brought out in March 2012,a publication titled "Recent Trends in Technologies in Sewerage System" which suggests the following:

Table 6.7 Key concerns of FIs/banks

| No | Financial Close | | |
|---|---|---|---|
| | Economic Features of the project | System of Financing | Externalities of the project |
| 1 | Characteristics of the infrastructure being constructed | Robustness of the take or pay arrangement | Proven Technology |
| 2 | Capacity ( development and financial ) of the sponsor or its associates | Commitments of financial guarantees from the Government | Degree of exposure of the project to political risks |
| 3 | Ability of the project to generate cash flows | Mechanism for managing the project's cash flows | Legal and regulatory framework within which the project is to be developed |
| 4 | Structuring framework demand or cost | Arrangement for risk allocation envisaged in the project | Effects of social decisions |
| Resulted in conservative lending / equity participation<br>DE ratio 1.5 : 1 or lower<br>Interest rates 13 to 14 %<br>Need for corporate guarantee<br>In cost based models – working capital loan being extended. | | | |

Source: Infrastructure Development Corporation (Karnataka) Ltd., 2012

"Other new technologies (listed under section 1.3 at page 4 of the note) which are not proven for municipal wastewater applications under Indian conditions, shall not be considered at large scale under EPC contract as the performance of the plants may not be guaranteed. Before any new technology is considered at large scale under EPC contract, pilot plants/ trial testing / demonstration plants (up to 3 MLD capacity for the technologies listed from Sl. 4 to 8 and up to 1 MLD capacity for the technologies listed at Sl. 9 & 10 under section 4 at Page 4) have to be set up and the same need to be evaluated by the State Govt's / ULB's through IIT's / NEERI / reputed Govt. Academic Institutions within a period of one year. Any of the aforesaid technologies set up already and functioning in any part of the country may also be considered for performance evaluation. However, based on the performance, STP at larger scale may be proposed under EPC contract/PPP model. In the meantime, if State Govt's / ULB's intend to adopt other new technologies (listed from 5-8 under section 1.3 at page 4 of the note) at larger scale, these new technologies which have already been set up at large scale in India or elsewhere in the world and operated successfully may be considered under Build-Own-Operate-Transfer (BOOT) model in view of the fact that the part or full capital cost of construction of the plant based on new technology and its performance is guaranteed by the private firms and the annuity payment is linked with the performance of the plants. In regard to this, adequate provision shall be made in the BOOT agreement by ULBs. While inviting tenders on BOOT basis, all the available technologies may be considered."

This shows a way forward to avail of new technologies even under a PPP model to be funded by the Funding Institutions / Banks.

## 6.14 ENABLERS

The set of enablers brought out by the IDCK and reproduced in Table 6.8 is to be duly evaluated for each PPP.

Table 6.8 Enablers to be duly appraised before a PPP is ventured into:

- Public Funding
  - Cost based models could be adopted for developing the projects
  - Could ease financing arrangements as the developers would need to raise working capital
- Tariff Determination
  - Tariff regime ranges from part of property tax / water charges
  - Could be levied separately as the beneficiaries and benefits can be identified
- Setting up of a regulator for water supply and sanitation sector (pricing & service)
- Adequate project development activities prior to bidding
- Balanced sharing of risks
- Payment guarantee mechanism
- Allowing private partner to implement a technology of its choice
- Developing of model contract documents

Source: Infrastructure Development Corporation (Karnataka) Ltd., 2012

## 6.15 KEY LEARNINGS FROM OTHER PPP PROJECTS

A compendium on Public Private Partnership in Urban Infrastructure – Case Studies – has been brought out by the CII-MoUD, with 7 cases of water supply and sewerage, 7 cases of solid waste management, 8 cases of urban transport, and 4 cases of miscellaneous, which identify the objectives and key learning as under.

Possible objectives are improving governance, superior project delivery, improving quality of service, investment required, reducing tariffs, and reducing costs to government.

### a. Improve quality of supply and reduce cost

The objective of the SWM projects is to improve quality of supply and reduce costs, therefore there are penal clauses for non-conformance to Standards of Quality (SOQ) and the tipping fee is the bid parameter.

### b. Achieving operating efficiency and improving service standards

The objective of PPP can also be achieving operating efficiency and improving service standards. The Latur management contract specified various service quality parameters as well as performance parameters for improvement of operating efficiency.

### c. Leveraging funds

The increasing urbanization and consequent stress on existing urban infrastructure needs huge investment by local authorities. PPP can be useful for leveraging the funds available with them. The Haldia WTP project was envisaged with a need to reduce operating losses to increase production and to enhance quality of water and services.

### d. Regulatory mechanism

The regulatory mechanism for the project might also have been prescribed by the concession or license agreements. The contractual agreement in the Chandrapur water supply project specified the water-quality measurement system and penal provisions for deficiency in specified water quality parameters.

### e. Commercial viability

Viability analysis requires technical studies to determine the physical requirements of the project. Traffic or demand analysis is done in parallel so as to determine one component of the revenue stream. To make projects more PPP amenable, certain volume or capacity utilization is being guaranteed by the Government. The CMWSSB entered into a Bulk Water Purchase Agreement, specifying 95% of the contracted capacity as the minimum quantity of takeoff.

### f. Tariff determination

Tariff determination, the other segment of the revenue stream could either be a bid parameter as it is in the water sector, determined ex ante to the bid as it is in the transportation case studies or determined by the Regulator. The tariffs could alternately be market determined and then neither the Regulator nor the Concession Agreement specifies the tariff; it is at the discretion of the Concessionaire in the case of the Commercial complex in Indore.

### g. Viability gap funding

In case of non-viable projects, the Government might need to pay the operating or capital grant. This grant could be a capital grant under the VGF scheme or the JnNURM schemes. Several Water and Solid Waste management projects have availed the JnNURM grant of 35% from GOI. In the KMDA Salt Lake Water & Sewerage Project, the developer was given a capital subsidy of 35% of the project cost from JnNURM funds.

### h. Institutional mechanism (SPV)

The institutional mechanism for development of projects will be a special purpose vehicle (SPV), either joint venture or not-for-profit organization. The SPV can be jointly formed by government, users and private developers.

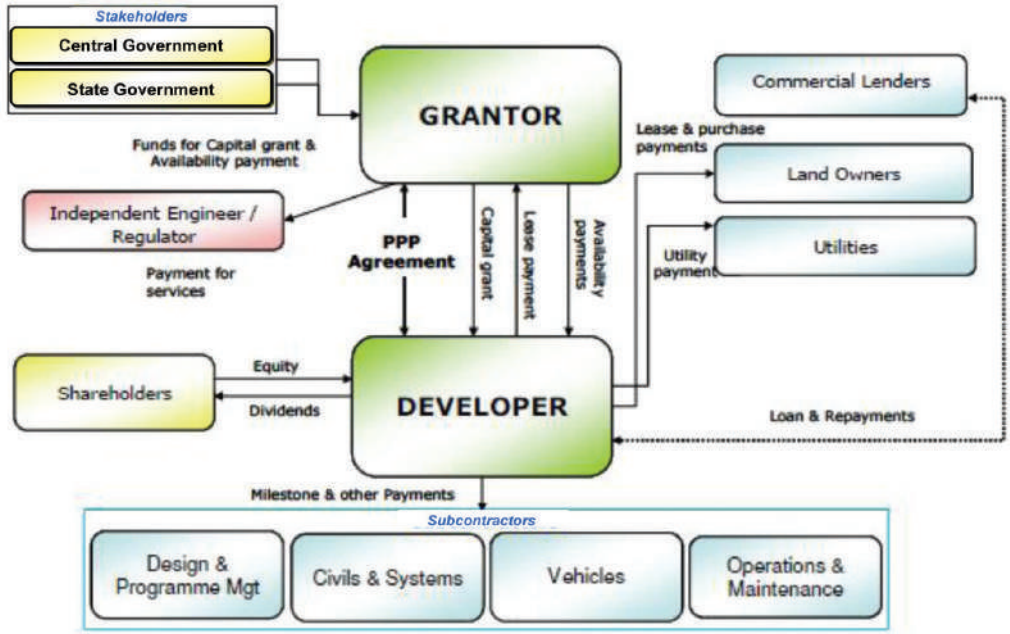
The SPV for Haldia Waste Management Facility was a joint venture between Haldia Development Authority (HDA) and Ramky Environ Engineers Ltd. The SPV for the Tiruppur water supply and sewerage project was jointly promoted by TWICL (concessionaire) and TEA (users association).

### i. Capacity building

Development of PPP projects requires capacity building of staff of local bodies. Even though each sector of urban infrastructure will require specific skill set, the general understanding of project structuring, contractual provisions and risk transfer can be utilized in each sector. The Pune Municipal Corporation (PMC) has started BOT cell for project development. The BOT committee takes decision about non-commercial and donation types of projects, while commercial projects are submitted to the appropriate authority (standing committee and/or general body of PMC) for approval depending on project cost.

## 6.16 COMPLEXITIES OF FUNDING ARRANGEMENTS

A fairly well compiled depiction of funding arrangements for PPP models has been presented in respect of rail PPP in India as shown in Figure 6.3. It needs to be recognized that funding of PPPs need careful and patient efforts to sustain the initiatives.




Source: Iain Menzies, Cledan Mandri-Perrott, 2009

Figure 6.3 Complexities of Funding Arrangements in PPP

## 6.17 SUMMARY

The following summary can be made based on the discussion above.

- The decision as to whether private partnership is a viable option or not, or which solution will be the best for a specific utility can only be made on a case by case basis considering the technical, environmental and economic conditions.
- It is important to note that a private firm despite having better resources can function effectively only on a sensible economy of scale.
- A routine customer satisfaction survey may be necessary to reveal whether the majority of customers are willing to pay for improved services and if they want better value for their money.