IMPROVEMENT AND MAINTENANCE MANAGEMENT OF PUBLIC TOILETS IN LIUZHOU: A STUDY

Prepared for the World Bank
By Somnath Sen And Yue Ma

December 2005

This report was funded by the Bank-Netherlands Water Partnership, a facility that enhances World Bank operations to increase delivery of water supply and sanitation services to the poor (for more information see www.worldbank.org/watsan/bnwp).

The views and opinions expressed in this report are those of the author(s) and do not necessarily reflect those of the World Bank, its Executive Directors, or the countries they represent. Any references provided in this document to a specific product, process, or service is not intended as, and does not constitute or imply an endorsement by the World Bank of that product, process, service, or its producer or provider.
## CONTENTS

EXECUTIVE SUMMARY .................................................................................................................... 4

1. Introduction ................................................................................................................................... 18

2. Public Toilets in Liuzhou: Existing Conditions and Arrangements................................. 20

3. Public Toilets in Nanning and Guilin ..................................................................................... 57

4. Public Sanitation delivery and PPPs: Select International Experiences.............................. 62

5. Options for Improvements in PT Provision and Management in Liuzhou ....................... 72

6. Recommendations and Next Steps ........................................................................................... 79

Select References .......................................................................................................................... 83

### ANNEXES

Annex 1: Terms of Reference

Annex 2: Terms of Reference of Technical Assistance under LZEMP

Annex 3: Team Itinerary

Annex 4: Photo-documentation of PTs in Liuzhou, Nanning and Guilin
## ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOOT</td>
<td>Build-Own-Operation-Transfer</td>
</tr>
<tr>
<td>BOT</td>
<td>Build-Operation-Transfer</td>
</tr>
<tr>
<td>cum</td>
<td>cubic meter</td>
</tr>
<tr>
<td>DESD</td>
<td>District Environmental Sanitation Division</td>
</tr>
<tr>
<td>DN</td>
<td>Normal Diameter</td>
</tr>
<tr>
<td>DRC</td>
<td>Development and Reforms Commission</td>
</tr>
<tr>
<td>ESCO</td>
<td>Environmental Sanitation Company</td>
</tr>
<tr>
<td>ESD</td>
<td>Environmental Sanitation Division</td>
</tr>
<tr>
<td>FS</td>
<td>Feasibility Study</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Production</td>
</tr>
<tr>
<td>LMG</td>
<td>Liuzhou Municipal Government</td>
</tr>
<tr>
<td>LZ</td>
<td>Liuzhou City</td>
</tr>
<tr>
<td>LZEMP</td>
<td>Liuzhou Environment Management Project</td>
</tr>
<tr>
<td>m</td>
<td>Meter</td>
</tr>
<tr>
<td>mm</td>
<td>Millimeter</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>Operations and Maintenance</td>
</tr>
<tr>
<td>PAU</td>
<td>Pay and Use</td>
</tr>
<tr>
<td>PMO</td>
<td>(World Bank) Project Management Office</td>
</tr>
<tr>
<td>PPP</td>
<td>Public-Private Partnership</td>
</tr>
<tr>
<td>PSP</td>
<td>Private Sector Participation</td>
</tr>
<tr>
<td>PT</td>
<td>Public Toilet</td>
</tr>
<tr>
<td>RMB</td>
<td>China Renminbi (currency unit)</td>
</tr>
<tr>
<td>SARS</td>
<td>Severe Acute Respiratory Syndrome</td>
</tr>
<tr>
<td>SOE</td>
<td>State Owned Enterprise</td>
</tr>
<tr>
<td>Sq km</td>
<td>Square Kilometer</td>
</tr>
<tr>
<td>sqm</td>
<td>Square meter</td>
</tr>
<tr>
<td>SWM</td>
<td>Solid Waste Management</td>
</tr>
<tr>
<td>TA</td>
<td>Technical Assistance</td>
</tr>
<tr>
<td>ToR</td>
<td>Terms of Reference</td>
</tr>
<tr>
<td>USD</td>
<td>United States Dollar</td>
</tr>
<tr>
<td>WB</td>
<td>The World Bank</td>
</tr>
</tbody>
</table>

**Currency Units:**
- 1 USD = 8.08 RMB
- 1 RMB = 0.12 USD
EXECUTIVE SUMMARY

Introduction

The Liuzhou Municipal Government (LMG) is implementing the Liuzhou Environment Management Project (LZEMP), with assistance from the World Bank. The project’s development objective is to improve environmental conditions in Liuzhou by improving wastewater treatment, industrial pollution control, municipal sanitation and solid waste services and management. The World Bank, in consultation with the LMG, commissioned a study on improvement and management of Public Toilets (PTs) in Liuzhou. The purpose of this study mission was to support the improvement of public toilet facilities and their management in Liuzhou Municipality, by carrying out an initial financial, institutional and technical review of existing systems, including a review of international best-practice in this regard for comparison; and through the preliminary development of proposals for their improved management. Over the period Oct 27 to Nov 11, the team carried out sites visits and detailed discussions mainly in Liuzhou. This was supplemented by short visits to neighbouring Nanning and Guilin cities to assess their experience with PTs. Apart from situational analysis in Liuzhou and the other two cities, the team carried out a review of best practices in respect of urban sanitation service delivery and public-private participation, and drew up options Liuzhou to consider.

Liuzhou city has 1.2 million inhabitants that are expected to rapidly increase to 1.8 million people by 2020. Rapid urban population growth and industrial and economic development have strained Liuzhou’s already burdened water and sanitation infrastructure. Liuzhou Environment Management Project (LZEMP) will support US Dollars (USD) 205 million worth of investment in wastewater management, urban rehabilitation, municipal sanitation, solid waste management, and institutional development and capacity building. Under the project, about USD 8.8 million will be spent on construction of 62 public toilets, and 30 portable public toilets, two mobile public toilets, and six sanitation trucks. In this context, the Liuzhou Environmental Sanitation Department (LZ ESD) is exploring options for improved provision and management for the city’s existing and proposed public toilets. To support the LZ ESD in doing this, Technical Assistance (TA) (about USD 60,000) has been budgeted for in the LZEMP. The findings of the current Mission are also expected to assist in scoping of the proposed TA.

Public Toilets in Liuzhou: Status and Challenges

Liuzhou city is governed by the Liuzhou Municipal Government and the four District Governments at the next-lower tier. Under the supervision of the LZ City Appearance Bureau, the LZ ESD, working along with counter-part ESDs in the four districts, is responsible for municipal sanitation functions in the city including solid waste management and public toilets. Since 1997, operations and maintenance of PTs have been devolved to District ESDs (DESDs) and assets were transferred to the district governments in 2004. At present, the LZ ESD is responsible for planning and implementation of construction of new PTs, for providing guidance to DESDs on maintenance management, some of the major repairs, and for regular monitoring and evaluation of outcomes of O&M by the DESDs.

The city has 249 Public Toilets, of which the ESD has constructed and manages 140 PTs. The Railway Bureau and the Steel Company have constructed and currently manage 50 PTs. The balance 59 PTs are in shopping centers, cinemas and parks etc, and managed by these establishments. The city is at present looking to address the following issues:

(1) Absolute Gap: With the growth and development of the city in the last decade, not only has the need for PTs increased significantly that the city has been unable to cater to, but also city development has meant that many PTs have been dismantled to make place for widening of roads new buildings, or constructing new buildings. There is at present a PT for every 4,000-5,000 persons – more than 50 percent of the Social Assessment survey (conducted in preparation of the LZEMP) respondents noted scarcity of PTs as a key issue. Broadly, there are broadly two user segments:

* Floating population in the city’s public spaces and commercial centres using “Public Toilets” – these are more in the nature of civic, and a core group of regular users is difficult to identify;
Residents who may be using PTs near their residences, in absence of or as a supplement to toilet facilities in their homes. Since a core group of users can be identified for these toilets, these are more in the nature of “Community Toilets” that also have many casual/public users. More than seven percent of residential buildings in the city do not have independent toilet facilities, and hence residents from these properties are entirely dependant on this type of PTs. This segment needs special attention.

While the above two categories are relative (not “pure”), it will be useful to determine the different types in the city to craft appropriate management arrangements for these –this type-classification has not been possible under the current assignment although DESDs will be in a position to provide their assessments. The bottom-line is that Public Toilets in Liuzhou need to cater to the needs of both the user segments above – about 75 percent of the Social Assessment survey respondents reported using PTs some time or other. About 60 percent were occasional users, and 15 percent regular users – about 11 percent used PTs more than four times a day (this probably includes the seven percent population entirely dependant on PTs).

About 60 of the 149 PTs are pay-and-use toilets, at the rate of 0.2 RMB (0.025 USD) per use. The rest of the PTs are free to use. Using population projections and urban China norms for provisioning (one PT per 2,500-3,000 persons, and one every 300-500 m on busy streets, or every 750-1,000 m in other streets), the LZ ESD’s Master Plan projects that in addition to its existing 260 PTs, the city will need to build more than 150 PTs to bring the total up to 410-420 PTs by 2015. As a result, there is an absolute shortage of PTs that the city is seeking to address at present.

Upgradation Required: National standards (Grades III, II and I) determine the design features and amenities provided in Public Toilets in Chinese cities. Grade III PTs have very basic features whereas Grade II PTs have centralized water flushing systems, separate close stools or troughs with ceramic tile in cubicles separated by up to 1.5 m high walls but usually no doors and ceramic-tiled troughs as urinals. Grade I PTs have manual or other water-saving flushing systems, separate seats in slightly larger cubicles separated by up to 1.8 m high walls with doors, stand-up urinals, and caretaker’s/tool rooms. The main differences thus are in the different specifications for height of separators between cubicles and provision of doors, and the water-flushing systems. The Tourism Grade toilets (rated as Three Star, etc.) utilize much better quality of materials, as also provide larger spaces, and a number of sophisticated fixtures (full-wall tiles, exhaust fans, etc.) and amenities (e.g. soap dispensers, basins, etc.). As cities grow, they upgrade their PTs from lower to higher grades. In Liuzhou, the existing stock of PTs belongs to Grade II, and more than three-fourths of the ESD PTs, were constructed more than ten years ago. The city wishes to provide to its citizens at least Grade I PTs. This poses a considerable demand for new construction of PTs – to replace the old Grade II stock with Grade I PTs.

Distribution of PTs across the city: is uneven - the existing toilets cater to the central areas of the city (even though these are also in shortage), whereas there is a deficit of PTs in the remote areas away from the centre. About 14 percent of the Social Assessment survey respondents highlighted this as a problem.

Service Levels: the scarcity of toilets and poor facilities in many of them (being old design type), coupled with reported poor maintenance management in many, frustrate citizens’ expectations of PTs. More than a quarter of the respondents to the Social Assessment Survey noted poor sanitary conditions and bad management as problems – in addition, about a third of respondents who never used PTs (a quarter of total respondents), said they did not use PTs because these were dirty.

Design and Appraisal of Proposed PTs under LZEMP

With the Master Plan as the basis, and on the basis of the Social Assessment and the Feasibility Study, 76 locations were identified and proposed for construction of PTs. The parameters for identifying the proposed locations for PTs were:

- Targeted users of proposed public toilet
- The ratio of land requisition cost to construction cost of proposed public toilet.

(Weightage of 20 percent each to above two)
• Distance between proposed public toilet site and the nearest existing public toilet.
• Distance between proposed public toilet site and sewerage system.
• Degree of acceptance of proposed public toilets by neighboring residents.
• Degree of environmental impacts of proposed public toilet

(Weightage of 15 percent each to above four)

The factors considered were thus a mix of provision norms, technical and cost considerations, and limited demand parameters. The low priority to demand estimation poses risks of:

a) Provision norms determining siting even if demand may not justify the location; and
b) Over-provision of number of seats in a PT that may not be able to earn a reasonable portion of O&M costs (by users per seat considerations even taking account of peak-loading).

Improved usage of demand and preference estimation can reduce the above risks in the future if LMG consider according greater weightage to demand in preference to norms only. After appraisal of the proposed locations, 62 PTs have been selected and approved for design and construction. The proposed PTs under LZEMP are well-dispersed across the city and partially seek to redress the skewed distribution, apart from increasing the stock of toilets. With the completion of these PTs, more than a quarter of the PTs in the city will become Grade I standards.

According to the Design Institute commissioned to design the PTs under LZEMP, preliminary designs for the first batch of 19 PTs in the LZEMP, has been completed and these are currently under review pending finalization. The Land requisition process for these PTs has also been initiated. Comments on preliminary designs are provided below.

**Liuzhou PT Designs and Capital Costs**

LZ has experimented with various types of design over the last decade, moving from stand-alone PTs (single-storey building) to the two-storey PTs combined with solid waste transfer depots on the ground floor - these are all Grade I PTs, the difference between these two being the type of structure only (i.e. one or two-storeyed). The city has built one Three-star toilet in 2004. Portable Toilets have been installed in different locations in the city in 2004 – typically in Parks and public places like markets. These toilets are light pre-fabricated one-seat or four-seat toilet blocks set up in locations where permanent concrete structures are inappropriate, or serve temporarily for 6-12 months till a proper PT is built. The City is also planning to purchase Mobile Toilet units in the future – these can be carried on trucks and installed temporarily (for a day or two) to cater to high-population events like fairs, etc.

The preliminary layout and design under the LZEMP Grade I PTs mark a significant improvement over the existing Grade II PTs and also respond to customer preferences while achieving a balance on costs. Provision of higher separators and doors for cubicles, proposed squat type pans, stand-up urinals, basins in each of the men’s and women’s sections, better tiling height and quality, water-saving flushing system, toilets for disabled, and improvements in approach, circulation-area and attention to local architectural context, are significant improvements both for improved service standards as well as attractiveness of the PT to users. The higher number of cubicles in the proposed design responds to practical needs of women. While the provision for the elderly and disabled is also a good feature, there are no provisions for girls and boys. Experience from other countries shows that they may face difficulties in using facilities meant for adults, and this is recommended for consideration in the proposed designs. Other features included are water-saving mechanisms, and connecting as many PTs to sewers as possible. This will support the other components of LZEMP too, especially the improvements in the wastewater collection and treatment systems in the city.

**Capital Costs**

The siting of the PTs in planned locations (following population and distance norms) is constrained by the availability of land which results in high capital costs and implementation delays pending completion of the land requisition process. The high costs of land account for half of the total PT capital costs. If the cost of land is netted out, the capital cost per-seat cost averages about 32,000 RMB (USD 4,000) for the PTs proposed under LZEMP. Quick estimates show that capital costs
excluding land per seat varied from 23,000 to 45,000 RMB (2,800 to 5,600 USD) per seat for earlier Grade II PTs. LZ ESD do not have the benefit of systematic data on capital costs and the physical performance of assets over a period of time. This makes it difficult to carry out a life-cycle costing (and appreciate operational O&M cost implications) of the PTs.

Planning for PTs in LZ

The City ESD and other government agencies are involved in planning, financing and construction of PTs. The process of planning of PTs involves multiple agencies and has adequate checks and balances to ensure that decision-making considers the multiple dimensions involved. However, the following issues emerge as significant:

- **Limited availability of land**: scarcity of land is the major bottleneck in proper planning, and rational siting of PTs across the districts of the City – PTs have also been lost to land-use changes where building or roads have caused them to be demolished without compensatory provisions. This emphasizes the need for according high priority to PTs in the City’s land-use Master Plans and their strict enforcement, including rules to provide compensatory PTs in wake of development activities in existing locations.

- **Unclear inter-governmental jurisdictions**: After decentralization of roles and responsibilities, and transfer of assets from LZ ESD to District Governments’ ESDs, the relationship between the two levels is currently undergoing transformation. Potential issues of mismatch of cost, revenue, functional and capacity assignments across the City and District levels, need to be addressed for proper functioning of institutions, for planning and proper PT O&M management.

- **Organizational and Capacity Issues**: there is a need for re-organization and capacity building of the city ESDs for improved performance as efficient entities delivering environmental sanitation services to the city (or managing these functions whereas they strive to change to facilitators and bring in other agencies as providers of PT services). One of the key issues in this regard is the lack of an identifiable team that focuses on improved provision and management of PTs at the city and district levels (besides the dedicated frontline caretaker staff).

Management Arrangements for PTs in LZ

The revenue generation potential of PTs (as revealed by annual demand surveys conducted by DESDs) determines what O&M management arrangement is used for them – the loss-making toilets are maintained by the district ESDs whereas toilets earning a surplus or breaking even (in terms of operational costs) are usually contracted to contractors. Thus, the O&M management of PTs on a day-to-day basis is carried out through the following three methods:

1. **DESD Staff managed PTs**: DESDs assign their temporary and/or permanent workers to carry out cleaning of some PTs in the district. This essentially involves regular cleaning and since more than one PT is assigned per worker, these PTs are not manned full-time. These PTs are typically the free-to-use PTs in the city, commonly located in or near residential and mixed areas, and not earning revenues (revenues are so low that they do not justify manning these full-time, only cleaning these regularly). About half the PTs in the city are managed in this manner.

2. **Contracted Out Type I No-revenue Deposit PTs**: these are PTs that managed by individual contractors who collect tariffs from users, but do not submit any contract fees to the district ESD, as user-charge collections are estimated to just about covering the operational maintenance (mainly labour) expenses. The contractor or his/her agent is present at the premises during the hours that the PT is open, and collects user-charges from users. About 20 percent of PTs are under this arrangement.

3. **Contracted Out Type II Revenue Deposit PTs**: these PTs are managed by individual contractors who collect tariffs from users, and submit contract fees to the district ESD every month, on the basis of the price quoted by the contractor in an annual auction. These are for
PTs that are estimated to make operational profits (over and above covering labour costs), and the contractor or his/her agent is present at the premises during the hours that the PT is open. About 30 percent of PTs are managed by this method.

Overall, labour costs account for more than half the total costs. This is the expense head that is most affected by replacing full-time staff with temporary staff, and by contracting out to contractors. The Type I contracts essentially replace “labour” and only in the Type II (where the contractor pays contract fees to DESD), there are beginnings of introducing enterprise from the private sector. This arrangement however results in DESDs having to manage a huge number of individual contractors, as also potential loss of economies of scale that larger contract packets could permit.

The city has recently entered into a contract with the Beijing-based Jingtao Company, to built and operate 20 PTs (on a BOOT-like contract) in the city – two of these PTs are currently under construction. This is a new approach to PT provision and management being tried out at Liuzhou.

Outcomes of Management Arrangements and Key Issues

The general standard of upkeep and maintenance of the PTs in Liuzhou was found to be satisfactory. However, PTs that are manned (under Type I and II contracts) show signs of better upkeep and maintenance, in comparison with those that are cleaned by DESDs. Limited budgets of district governments encourage them to economize on personnel deployed to O&M of PTs under their management. As a result, even if these PTs are cleaned (usually twice daily), they are not manned full-time. Further, free use means little regard on part of users to use these responsibly. As a result, these PTs are not maintained well. Type I and II contracted PTs have attendants manning the toilets to collect user fees, and to regularly clean the facilities - these tend to be maintained better since contractors do not wish to offer poor service to paying customers.

The following management issues need further consideration:

* Devolution and Involvement of Private Sector: Experimentation with contracting out PTs, has demonstrated the potential of considerable savings for DESDs, especially on manpower costs. Since labour cost saving is the basis for contracting out, one contractor is awarded not more than one PT to manage, contractors being typically retired personnel, friends and relatives of ESD personnel, and a few from farm households in the city. Hence, this arrangement involves each of the DESDs managing a number of individual (mainly labour) contractors instead of one or few contracts. This method of contracting also limits the economies of scale and management innovations that larger contract packets could permit contractors to bring. Finally, the contract conditions also differ across the districts at present - there is a case for immediately standardizing these contracts.

* O&M Costs and Recovery: Data is sparse and not systematically collected at present on key parameters of O&M management, including costs and revenue collection. Analysis from available data shows that while cost of O&M management varies across locations and toilet types, the annual per PT O&M Cost across districts varies from 15,000 to 21,000 RMB (USD 1,850 to 2,600) with an average of 18,700 RMB (2,300 USD) (more than half being wage costs). Small-sample estimates place the total annual per seat O&M costs for Grade II PTs about 1,400 RMB (USD 175). The O&M costs for LZEMP Grade I PTs are estimated about 2,000 RMB (USD 250) per seat per annum. In order to fully recover the above O&M costs (or break-even in operational cost terms at the current 0.2 RMB per use rate), the number of users per day per seat needs to increase from about 20 at present to 27 to cover the O&M costs of the LZEMP PTs. In contrast, the overall receipts from PT user charge pay only for a small (5 to 15 percent in two districts) of the total O&M costs. While the Liuzhou City Government wish to partially subsidize the use of PTs in the city, consciously linking and tracking O&M costs to revenues (not carried out at present) is essential for efficient management of PTs. Thus, in order to increase the recovery of operational costs (even if not full costs), greater emphasis will be required on managing O&M costs, closely linking design features to user preferences, and maximizing usage of PTs to generate revenues. Better demand assessments also will play a part in planning PTs with attention to O&M costs.
* Institutional and Organizational Issues: A number of institutional, organizational and human resources issues need to be addressed to improve the PT O&M management in the city. This will include a review of the future roles of the LZESD and DESDs in PT management – a move from being providers to facilitators of PT provision is called for. This will require investigations into possible re-organization and stream-lining of the entities into performance-oriented business-like units, and development of their capacities and systems, especially those pertaining to PT construction, O&M and contract management. Not having an identifiable team to focus on strategies of PT provision and management also leads to limited or diluted attention – this needs to be corrected.

* Monitoring and Customer Orientation: Monitoring and review systems are regular and involve officers from City and District agencies. Customer feedback is an important step to strengthen the monitoring system – and more generally, make the PT management responsive to demand and preferences of users, in preference to the existing provision-led approach (as also outlined above in respect of planning and siting based on better demand-estimation methodologies).

* Pricing of PT: use poses a tricky question (especially in view of other cities like Nanning and Guilin opting for free PTs) – even with only about half of the PTs being pay-and-use, it is difficult to ascertain the right price per use across the city. However, distribution of PTs across the city shows that different locations imply somewhat different functionality that PTs serve ("public" or general toilets), to PTs that have a "community" character with an identifiable group of users apart from general public). This determines revenue potential on the one hand, and underlines the need for making PTs affordable for all socio-economic categories especially the poorest, on the other.

At present, the pricing per use of 0.2 RMB needs to be extended to all PTs (also in consideration of the proposed hike in user charges for households/properties for solid waste collection and disposal) without considering an increase. However, there is a possibility of considering differential pricing of PTs by location so that while revenue potential is maximized, affordability and quality standards are also given due consideration, especially for poor families in residential locations. A related option to explore involves issuance of monthly family passes to poor families. One of the ways of closely linking preferences to quality standards and price, is to sequence the new construction of PTs in such a manner that high revenue areas are targeted first, hand in hand with manning PTs and improving maintenance standards in those that are interior residential areas. The city has not yet carried out a systematic promotion or "marketing" of use of PTs, and generate awareness of the health benefits – this also has potential to increase use per seat and revenue collection.

Learning from PT experiences in Nanning, Guilin and outside China

Nanning and Guilin have adopted different approaches to PT provision and management, including different institutional arrangements. Use of PTs in both cities has been made free. In Guilin, owners of premises are expected to operate and maintain PTs – City authorities regulate planning, encourage establishments to construct PTs, and monitor maintenance standards through a directorate of PTs (ESD being only devoted to solid waste management). Nanning have devolved construction and maintenance functions to district ESDs, city ESD monitoring and assisting districts – supplemented with strongly urging commercial area establishments to open their toilets for public use in Nanning’s quest to becoming an international city hosting a number of global events. From the experience of the two cities, a number of issues emerge for Liuzhou to consider:

- Both the cities have accorded high important to PTs in the city’s affairs. The Master Plans have properly provided for PT sites and these have been reviewed when not found adequate or unbalanced, and then these PT sites have been “protected” i.e. by enforcing rules on developers to build PTs on these sites.
- Guilin took the route of a campaign to mobilize popular support for, and for involving a large variety of stakeholders to build, take over and run PTs. It also tried to devolve PT management to respective private and public establishments, and changed the role of the government away from direct provision to becoming a facilitator and a monitor.
- Nanning on the other hand, showed very strong supervision and control over implementation of construction, as well as close attention on maintenance monitoring.
- The experience from these cities however demonstrates the inevitable difficulties of quality PT service provision on a sustainable basis if given free. Not charging user-charges has meant an
extra-ordinary demand on monitoring and supervision on part of the government in Nanning (apart from cost subsidies). A number of contract-related issues have arisen in case of Guilin. In this respect, Liuzhou is in a much better position since the accountability relationship of the PT providers to users is clearly signaled through the user-charge in the PTs that are pay and use. But Liuzhou will also have to address a number of challenges ahead in respect of contract management for planning and management of PTs (especially for BOOT contracts), as emerging experience in Guilin shows for these type of contracts.

Global experiences in sanitation provision and management have provided a number of innovations and lessons that Liuzhou can benefit from. These include the potential benefits from:

- A demand and customer-oriented approach;
- Ability and willingness of users to pay for good quality and well-maintained facilities;
- Tariffs as a mechanism for improving management;
- Better methods recovery of operational and maintenance costs (directly through user charges or through establishments’ commercial earnings indirectly like in Singapore and to some extent, Guilin);
- Governments working in partnership with private sector and user communities to make the provision and O&M of sanitation facilities sustainable in terms of management arrangements, and in terms of operational costs and revenues.
- Providing incentives to the private sector and community groups to participate in provision and O&M, and instituting these in policies and contractual instruments.
- Appreciating differentiated user-segments: community toilets (i.e. with a clearly identifiable core set of users) and public toilets (i.e. for use by the general public).

In cities with strong city planning and strict implementation e.g. Singapore, where a number of community groups too, construction and management of PTs is devolved to the respective commercial and public establishments – Nanning and Guilin have also experimented with a similar approach. This approach runs into difficulties of easy access when the city is not uniformly dotted with such public/commercial establishments – like in Liuzhou where a number of mixed and residential areas exist (where BOOT-kind of contracts are also unlikely to fully make up the shortage of PTs). Nanning has taken the route of free public provision with strong monitoring and budgetary support (supplemented with encouraging commercial districts opening establishments’ toilets for public use).

Liuzhou is currently witnessing considerable real estate and infrastructure development making planning and protection of PT sites difficult; and it also faces the challenge of filling the absolute shortage, in different types of areas (residential, mixed, and commercial). The city has not experimented with asking its commercial and other public and private establishments to open their toilets to public use. In this context, it becomes difficult in Liuzhou to take the risk of expecting existing toilets (Publicly provided plus those in private establishments) to provide for the shortfall. Similarly, new construction/installation is necessary to take care of proper distribution of toilet facilities across the city. Therefore, while at a later stage (when basic shortage has been addressed to a great extent), Liuzhou can consider devolving PT management to commercial, public and private establishments, at present, the city government will need to take the lead in construction (on their own or through BOOT-kind of contracts) and maintenance management at least in the near future. Based on experience in other cities, Public Private Partnerships (PPP) provide an appropriate framework for improved provision and management of PTs in Liuzhou.

Options for Improvement and Management of PTs in LZ

The generic models for consideration in Liuzhou, and their merits and demerits are:

1. **Forming an Environment Sanitation Management company (ESCO) to carry out the functions of ESD (either separately for PTs or a combined one for PTs and SWM)**

This option involves corporatizing the ESD functions into a state-owned enterprise. While not a PPP model, this provides a route to immediate performance improvements in planning and management of

---

1 This needs detailed analysis of SWM operations which will take place under separate TA, proposed under LZEMP.
PTs; and for development of the market for PT provision and management services. This option will involve consideration of whether Solid Waste Management functions are to be bundled with PT provision and management as the Company’s business areas, since PT services may not make it a financially viable entity. Performance contracts (based on say number of PT seats managed) can be developed for LMG to transfer resources in a transparent manner to ESD. Sub-options will also include the extent to which ESD staff at the city level and those at districts are combined into the company – one option is to change LZ ESD into a Environmental Sanitation Management Company, while continuing DESDs as management agents for PTs, especially the unviable ones. The management-company nature can be bolstered by according it preferential development rights over land on which PTs can be sited along with other revenue-generating facilities. They could also be given rights for commercial development of existing PTs that become a part of its assets.

Experience in some other countries shows that while corporatization brings immediate benefits and efficiency improvements, it could become an obstacle to further movements (by the corporate entity not wanting to let go of its functions to the private sector). Liuzhou has in the past, demonstrated its considerable capacity in transforming departments into SOEs, and then into private sector organizations. Hence, reforms of ESD and bringing in private participation later may not pose a problem if this interim route is adopted in Liuzhou.

2. **Contracting out management of PTs to Individuals, Informal Sector and Small Enterprises (an improvement over the present arrangements)**

This option will involve the strengthening the ESD at the City and District Levels; contracting out the management of all the PTs in the city to private informal sector individuals (as at present), and opening the bidding to small enterprises too. To increase the commercial attractiveness of these contracts, PT premises may be allowed for putting up advertisements, and running small kiosks, shops, etc. Additional measures will include mobilizing community groups such as residents’ committees, youth groups, and social service organizations to manage PTs in their areas - while the government can continue to subsidize utility and material costs, they would hire the caretakers, and supervise the proper maintenance management of the PTs. Innovation in contracts to will be a must for this option to succeed – groups of PTs (not single PTs) need to be parcelled out for contracts.

<p>| <strong>TABLE (E.1): STATE-OWNED ENVIRONMENTAL SANITATION COMPANY</strong> |</p>
<table>
<thead>
<tr>
<th><strong>MERITS</strong></th>
<th><strong>DE-MERITS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Immediate performance improvements are possible by re-organizing and professionalizing ESD. Performance contracts may result in higher efficiencies.</td>
<td>1 Low revenues from PTs will imply continued dependence upon budgetary resources of city government for time to come.</td>
</tr>
<tr>
<td>2 Possible to introduce best-practice organizational management systems and capacities, and operational autonomy not bound by government/departmental systems and regulations</td>
<td>2 Difficulty in finding land for PTs and assigning management rights to the new Company</td>
</tr>
<tr>
<td>3 The company can concentrate on proper management of land assets over which it is given control; become the sole contract management agency for all PTs; and develop the private sector for participating in O&amp;M management</td>
<td>3 This option may not be preferred by the District Governments, who might perceive this against decentralized governance, and encroachment of their roles and responsibilities.</td>
</tr>
<tr>
<td>4 Company can carry out holistic planning, including identifying PTs that can be handed over to community groups to manage.</td>
<td>4 Company may not have competencies in mobilizing communities leading to uncertainties regarding management of unviable PTs, and necessity for continued subsidized O&amp;M by DESDs</td>
</tr>
</tbody>
</table>

<p>| <strong>TABLE (E.2): MANAGEMENT CONTRACTS TO INDIVIDUALS AND SMALL BUSINESSES</strong> |</p>
<table>
<thead>
<tr>
<th><strong>MERITS</strong></th>
<th><strong>DE-MERITS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Extending the PT management contracts to small enterprises who will be better placed to manage a group of PTs than individual contractors managing one</td>
<td>1 No enterprises in Liuzhou with experience in PT management, and small bids may not attract capable service providers</td>
</tr>
</tbody>
</table>
### TABLE (E.2): MANAGEMENT CONTRACTS TO INDIVIDUALS AND SMALL BUSINESSES

<table>
<thead>
<tr>
<th><strong>MERITS</strong></th>
<th><strong>DE-MERITS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Type I and Type II PTs can be combined into contract packets thus reducing the number of contracts to tender and manage.</td>
<td>2 Size of contracts will still remain small necessitating a large number of contracts to be tendered and managed by ESD/DESDs</td>
</tr>
<tr>
<td>3 Allowing commercial activities will attract small enterprises, especially in some of the locations with commercial potential</td>
<td>3 Uncertainty about existence and willingness of community and voluntary groups in Liuzhou, who might be interested in taking over management of PTs in their areas</td>
</tr>
<tr>
<td>4 Improved revenues can be expected as compared to current collections; and better management outcomes can also be expected.</td>
<td>4 Commercial incentives (advertisements, shops, kiosks) will require regulation; and may divert the attention of the contractors away from PTs</td>
</tr>
</tbody>
</table>

### 3. **Centralized PT Management at the City Level with Private Sector Agencies as Delegated Management Contractors**

This option will involve letting out Delegated Management Contracts to Private Companies (formal organizations, not individuals) to manage PTs in the city. Depending on the size of the estimated revenue flows, this could be one or more contracts for different parts of the city. The contract amount will need to be determined on the basis of estimation of costs of management, and revenue from PTs (about 2.5 to 3 million RMB is estimated to be costs of O&M at present). The contract management fee will have to compensate the contractor for net losses incurred (Revenues are about 5 to 15 percent of costs at present). Performance clauses will need to be included so that management standards improve and costs reduce over a period of time. To make contracts large and attractive, the contracts will need to be let out and managed centrally by the City level ESD, District ESDs can fully concentrate on Solid Waste Management, and possibly only look after the non-profitable PTs in their area. The key functions of the ESD will be financing (through budgetary sources, BOOT and other mechanisms), planning and construction of new PTs, monitoring of PT O&M standards, and monitoring the performance of the operator. For PTs in interior areas, some sort of output-based subsidies could be provided to the operator/s. Contract may involve part-commercial activities/advertising etc. to shore up revenue flows for operator/s. Developing private sector agencies (absent at present) to provide such PT management services will be a critical condition for this option.

### TABLE (E.3): CITY LEVEL DELEGATED MANAGEMENT CONTRACTS TO OPERATOR/S

<table>
<thead>
<tr>
<th><strong>MERITS</strong></th>
<th><strong>DE-MERITS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Possible to bring in professional capacity to manage PTs – even if these contracts are for profitable PTs only</td>
<td>1 No enterprises in Liuzhou with experience in PT management - it will take time for the market for management services to develop</td>
</tr>
<tr>
<td>2 Possible saving on O&amp;M costs for government, some of which can be applied to maintenance of non-profitable PTs</td>
<td>2 The current O&amp;M costs (about 2.5-3.5 million per annum) and revenues (0.3-0.4 million per annum) do not present an attractive financial picture of the business. This will then necessitate the government to pay out the difference by way of management fees to compensate for losses – and/or allow other/commercial use of premises. This will be difficult to administer and operators will not have incentives to improve performance.</td>
</tr>
<tr>
<td>3 ESD can concentrate on policy-making, implementation of new projects for PT provision, contract management, and regulation – and reduce its role in direct management</td>
<td>3 Operator may tend to run down or strip assets and save on O&amp;M expenditure.</td>
</tr>
<tr>
<td>4 Operator will be able to demonstrate considerable management innovations and efficiencies, leading to improved services to customers.</td>
<td>4 It will be difficult to contract out non-profitable PTs, and even if they are parceled into contracts along with profitable PTs, as these locations will suffer from lack of attention. Further, output-based subsidies (especially</td>
</tr>
</tbody>
</table>
4. **Centralized PT Management at the City Level with Private Sector Participation, but combined with the business of the Solid Waste Management in the city (for improved commercial viability)**

This option is a variation of Option 2 above. Since PT management may not be an attractive business proposition for private agencies of reasonable size and with sufficient business expertise, bundling in (some portions or all) of the solid waste management business, may make the proposition attractive to capable private organizations (this needs proper examination especially in terms of the business asset base and revenue flows). This will have advantages and disadvantages similar to the option above: on the positive side, bundling in solid waste management may improve the commercial attractiveness of the business. On the other hand, PTs may not receive sufficient attention if bundled in with solid waste management, and may be treated as a burden by operators leading to their neglect. Again, developing the private sector to come forward as operators will be a key pre-condition.

5. **Multiple Provision and Management Arrangements with Private Sector Participation and Community Roles, involving a clear segmentation of PTs and differing roles and responsibilities for public sector, private agencies and community groups.**

This option is a bit like the present arrangements except that clear segmentation of PTs is involved in this – with clear delineation of roles and responsibilities for different set of PTs. This option will involve the private and community sector in a number of ways depending on the location and viability of the PTs. Public institutions can also be brought in participate in supervision of PT management.

BOOT Contracts like Jingtao –could be used in commercial and public areas/areas with high revenue potential. Some of the current PTs in need for replacement in locations with moderate commercial potential, may be offered for reconstruction by private parties in a BOOT-like contract. Further, private institutions like Hotels and Street-side larger establishments could be provided incentives to rebuild PTs and open them for public use. The city government could provide some incentives for them to do this (e.g. technical advice and cash construction/upgradation support subsidy) and support this by making appropriate regulations. (This will result in saving land costs primarily but increase the stock of PTs). Like railway bureau, Steel industry, and market committees currently run PTs in the city, other public and private institutions could be urged to adopt and run select PTs near their offices/facilities. Options 1 and 2 could be part of this constellation of arrangements. This option will require considerable enterprise and capacity to evoke public response on part of the LMG and ESD.

| TABLE (E.4): SEGMENTED APPROACH – MULTIPLE MANAGEMENT MECHANISMS |
| MERITS | DE-MERITS |
| 1 Provision and O&M management arrangements, can be tailored to suit the type of PT on the basis of its location and commercial potential – government-private sector partnering for commercially viable locations, and government-public sector-community partnering for non-viable locations |
| 2 ESD can concentrate on policy-making, implementation of new projects for PT provision, contract management, community mobilization for taking over non-viable PTs and regulation – and again, reduce its role in direct management except in case of unprofitable PTs till such time that community groups are ready to take these over. |
| 1 Lack of experience in PT management may not attract private sector in management, but skew their interest and incentives to take advantage of land/property being offered under the BOOT-type terms where profits are higher. |
| 2 Public and private institutions may not want to adopt PTs, or build new, or upgrade existing ones and open them to public use – coercion and incentives may not work |
| 3 Development/mobilization of community groups may involve substantial expenditure that may not be feasible unless incentivized. |
Common across the above options are the issues of land mobilization; greater involvement of communities and private and public agencies to participate in provision and O&M of PTs; and the need to introduce measures to improve the operational viability of PTs (managing costs and increasing revenues of PTs). Each of the above comes with its drawbacks and advantages. Table (E.5) presents a preliminary comparative assessment of the above options, on certain key illustrative parameters (other local parameters will need to be added to these), in order to arrive at the preferred option.

![Table E.4: Segmented Approach – Multiple Management Mechanisms](image)

<table>
<thead>
<tr>
<th>MERITS</th>
<th>DE-MERITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>not be feasible in a short time-frame leading to continued management of PTs by DESDs, and continuation of organizational apparatus to operate and maintain these PTs</td>
<td></td>
</tr>
</tbody>
</table>

On the basis of above preliminary assessment, it is clear that while the Centralized Delegated Management option (with or without SWM) may come at a possibly higher costs to users (this is possible for LMG to subsidize), it scores high on management efficiency. However, at present, little experience exists in the private sector for offering such services, thus necessitating an interim phase to develop this capacity. Contracting out to individuals (current scenario) and small businesses provides the avenue for low-risk gradual improvements but is not likely to lead to sustained efficiency gains in management standards. This option is appropriate if the LMG choose strengthening district governments and devolving construction and management functions to them.

The multiple management arrangements option is attractive for quick saturation of the demand for PTs, but is likely to be difficult to sustain. The corporatization option provides an interim way forward – this allows for the development of private sector operators, as also provides the time needed for mobilizing communities to take over management of PTs in select locations. This assumes that the state owned enterprise will be an interim stage before moving on to getting the private sector to operate PTs, while the enterprise becomes an asset management company. Over time, as PT provision becomes adequate, further options of devolving PT management to premises owners can be explored.
Recommendations and Next Steps

As Liuzhou launches its ambitious program for construction of new PTs and experiments with BOOT type contracts, the following long-term recommendations and immediate next steps are proposed:

**Long-term Recommendations**

1. **Commit and “Protect: more Land for Public Toilets in Liuzhou:** more options need to be examined for mobilization of land so that PT capital costs are not prohibitive and implementation delays are curtailed. Measures include: updating of the Master Plan with locations for PTs clearly identified; strict enforcement to “protect” PT locations; making provisions for compensatory PT construction; regulations that allow for putting up portable PTs on public lands (without attracting land requisition compensation); and working with public and private institutions to donating their lands for PT construction. Since PTs are civic amenities, costs of land need to be absorbed by the City government and not charged to PTs.

2. **Identify and monitor Capital and O&M costs:** A proper system of data collection and analysis needs (for each PT type as well as districts) to be instituted immediately for capital costs and monitoring O&M costs. The current method of costing is done on an area-basis – this needs to change to calculations for Capital and O&M Costs per toilet seat. Further analysis of break-even calculations will help in focusing the areas for efficient cost management, as well as point to the need for close attention to increasing the per seat utilization as much as possible. This will also serve as an input to design, especially the number of seats in a given PT.

3. **Recover O&M Costs:** Liuzhou is fortunate in not declaring its PTs free (although many are free to use) since global and local experiences show that while proper maintenance of free PTs is possible albeit at the cost of operational subsidies from the government, and strong supervision and monitoring; user charges provides greater incentive for quality provision responding to user needs. The city must strive for full recovery of operational costs of PT management since subsidizing operational costs introduces perverse incentives for cost inefficiencies. Options such as differential pricing and introduction of family passes (for poor households) may also be considered.

4. **Put Customer at the Centre:** While the inspection and monitoring systems are functioning well (including periodic public disclosure), of particular importance is the institution of customer feedback into PT management systems. Improved demand estimation methodologies will also assist in correct siting and design of PTs. The city needs to carry out a systematic promotion or “marketing” of use of PTs (including improved visibility and attractiveness of PTs).

5. **Learn from Others:** It is recommended that city and district government officers, private sector representatives and community representatives are exposed to first-hand experience of cities in other countries. Learning exchanges may be set up with select other cities to learn from each other on different aspects of PT provisioning and management, and ways of developing the private sector and mobilizing communities.

6. **Adopt a time-bound pilot and scale-up strategy:** The LMG and ESD have indicated their preference for testing the new institutional and management approaches under the LZEMP, and then take these lessons to city-scale. It is recommended a time-frame may be established for scaling up, and proposed TAs under LZEMP, may be used for extracting emerging lessons and scale-up.

**Next Steps**

1. **Review and Decide upon Institutional Arrangements within LMG for PT provision and management arrangements:** The LMG are currently considering options for institutional reforms for the environmental sanitation functions in the city. Two scenarios are worthy of consideration at present:
   a) **Deepening decentralization and enhancing the capacities of DESDs**
b) **Corporatization of environmental sanitation functions in the city** (it is recommended that the experience of Chongqing is reviewed (where the Chongqing Environment & Sanitation (Group) Co. Ltd, was established in December 2002 under the Company Act).

A related consideration in taking this route is consideration of solid waste management together with PTs to improve the business fundamentals of the proposed entity. Even in the current organizational structure of ESDs, the lack of an identifiable team that focuses on improved provision and management of PTs possibly leads to little or diluted attention.

2. **Review and Standardize Contracts**: There is need to review the performance of the contracts to individuals by District ESDs. Standardization of contracts across all districts may be considered immediately. Attention to the details of the BOOT contracts is also recommended.

3. **Train Staff in Contract, Asset and Project Management**: LZ and District ESD Staff will benefit from training, especially on contract and asset management, and project management, as well as from institutionalization of improved business processes for planning, budgeting, human resources, O&M cost management, etc. The LMG are proposing training for ESD staff on organizational management improvements, and it is recommended that the above aspects are included.

4. **Define and Use Technical Assistance to achieve above objectives**: resources available under LZEMP for the proposed TAs for PTs and SWM, need to be utilized to maximise the benefits for LMG/ESD in making quantum improvements to environmental sanitation systems in the city. The procurement methods and timing are different for these TAs. The SWM TA proposes considerable work on i) options for organisational transformation of the ESDs; ii) training and capacity building; and iii) assistance on technical and operational systems. It is recommended that the solid waste TA is modified to cover the organisational transformation and capacity building dimensions for PTs too. It needs to be ensured however that attention to PTs is not diluted and appropriate changes need to be reflected in the scope of services. In addition, steps are required to focus on specific aspects of PT management (as outlined above), including land mobilization, capital and O&M cost information systems, cost recovery, customer orientation and marketing, and assistance in development of private and community participation.

If corporatization is preferred, establishment of the new institution will be the main focus of the Solid Waste TA (in which PTs can also be considered) whereas if the other options are chosen, TA contents will need to be accordingly modified. If the Corporatization Option is chosen, the following activities need to be carried out:

- Devising the organizational structure and staffing for the PT Planning (including Asset Management and Business Development), and Maintenance Management (including information systems, and monitoring and review) divisions of the Environmental Sanitation Management Company (ESCO).
- Develop and implement the business processes and operational systems, including best practice systems for cost information and management
- Training for ESCO PT staff, to build their skills and capacities in planning; contract, asset and project management; and private sector participation in PT provision and management
- Consultations with private sector in Liuzhou, and BOOT/management service providers from other cities (e.g. Guilin, Nanning, and other cities in China) in PTs (or related infrastructure services sectors like water, sewerage, solid waste, roads, electricity etc.) to assess and develop conditions for their participation in construction and/or management of PTs in Liuzhou
- Identify and organize consultations with community groups in Liuzhou (e.g. residents groups, women’s groups, youth groups, shopkeepers’ associations, etc.) to develop their interest in participating in taking over the supervision and monitoring of PTs in their areas
- Institutionalize customer preference and feedback systems, as a part of monitoring functions, and as an input to pricing (including differential pricing), design and siting of PTs
- Demand-estimation for PT services in Liuzhou, and develop this model for later updation
• Model contracts for BOOT/BOT and delegated management services
• Business strategy in terms of use of assets and rights/privileges in leveraging resources and revenues using the best mix of opportunities for service delivery and capitalization/investment of non-PT receipts (say from commercial revenues)
• Devise between the ESCO and LMG, method and systems of subsidy transfer
• Coordinate with the work being done under the SWM TA contract, and ensure PT provision and management receives a clear mandate and importance in the restructuring process/creation of the ESCO.

Presentation

Chapter 1 introduces the assignment including a brief description of LZEMP. Chapter 2 provides a detailed assessment of different dimensions of PTs in Liuzhou. This is followed by comparisons with and lessons from PTs in Nanning and Guilin cities in Chapter 3. The following Chapter reviews international experiences in public sanitation service delivery and Public-Private Partnerships (PPPs). Chapter 5 lays out the options for planning and management of PTs in Liuzhou, and Chapter 6 presents conclusions and recommendations. Materials presented in Annexes include Terms of References (for this assignment – as also for other proposed TAs), Team itinerary, additional photodocumentation and select references.

Acknowledgement

The team would like to thank the City Government of Liuzhou, especially the Environmental Sanitation Department, for their generous help and assistance provided in making this mission successful. The City Governments of Nanning and Guilin were very helping in achieving the Mission’s goals and hosted the ESD Team from Liuzhou and the Team. The Team thanks the Development and Reforms Commission (DRC) of LMG for commissioning this study and providing support to it. Finally, the Team is grateful to the World Bank Netherlands Water Partnership Activity 89 without the support from which this exercise would not have been possible.
1. Introduction

Background: Liuzhou and LZEMP

The Liuzhou Municipal Government (LMG) is implementing the Liuzhou Environment Management Project (LZEMP), with assistance from the World Bank. The project’s development objective is to improve environmental conditions in Liuzhou by improving wastewater treatment, industrial pollution control, municipal sanitation and solid waste services and management. This objective will be achieved by: 1) developing autonomous public utilities and helping develop their institutional structures, financial systems and operational processes; and 2) introducing regulations and reforms of industrial pollution control; and 3) investing in sewer networks, wastewater treatment plants, public toilets, solid waste transfer station and waste collection stations.

Liuzhou city is located in the Guangxi Zhuang Autonomous Region, one of China’s 12 western provinces. Liuzhou has 1.2 million habitants and is the largest industrial center in the province with more than 1,300 small enterprises and 144 large and medium-sized industrial enterprises. Liuzhou’s population is expected to rapidly increase to 1.8 million people by 2020. Liuzhou has long been a commercial hub in southwest China and a major gateway for people and goods in the region. It is also an industrial city active in iron and steel production, paper making, electronics, textile production, general machining, chemicals, construction, pharmaceuticals, power generation, and food processing. Apart from industries, Liuzhou is ranked as first class tourism and historical city. The city’s GDP was RMB19 million in 2000, and according to the city’s long term development plan, the city’s GDP will reach RMB55 million by 2015.

Rapid urban population growth, and industrial and economic development have strained Liuzhou’s already burdened water and sanitation infrastructure. The city has plans to improve this infrastructure, capitalizing on the recent success of an urban air pollution program. The Liuzhou project (LZEMP) will support USD 205 million worth of investment in wastewater management, urban rehabilitation, municipal sanitation, solid waste management, and institutional development and capacity building. The components of LZEMP are:

Component A: Wastewater Conveyance/Collection and Treatment Component (US$ 164.95 million)
Component B: Municipal Sanitation Component (US$ 9.37 million)
Component C: Solid Waste Management Component (US$ 8.43 million)
Component D: Institutional Development and Capacity Building Component (US$4.18 million)

Liuzhou’s Environmental Sanitation Division (ESD) is responsible for implementing the project’s municipal sanitation and solid waste management components. It is anticipated that USD 8.8 million will be spent on construction of 62 public toilets, and 30 portable public toilets, two mobile public toilets, and six sanitation trucks. In addition, the project involves USD 70,000 worth of technical assistance (TA) to Liuzhou in developing public-private partnership models for public toilets.

Experience has shown that poor maintenance of public toilets reduces demand for services and increases public complaints and objections. Thus, the Liuzhou Environmental Sanitation Department (ESD) intends to introduce new management models to maintain the public toilets in Liuzhou. The main objective of the TA is to develop public-private partnership models that will engage private operators in strong legal and financial positions to participate in toilet operations, improve operational efficiency, reduce toilet costs and increase usage of public toilets through hygiene promotion.

Objectives of Study: Approach and Limitations

The purpose of this consultancy was to support the improvement of public toilet facilities and their management in Liuzhou Municipality, through the preparation of an initial financial, institutional and technical review of existing systems, and through the preliminary development of proposals for their improved management. The specific objectives of this consultancy were:

- To assist the Bank project team in supervising the implementation of the public toilet component of LZEMP.
• To identify general issues and lessons about the practical and financial sustainability and accessibility of the service.

• To identify ways to increase acceptance and use of public toilets.

The detailed Terms of Reference for this assignment are presented in Annex 1.

Methodology

The activities of this consultancy included:

• Review and evaluate the existing conditions of the public toilet operations in Liuzhou and Nanning and Guilin, and their comparison and presentation of international best practices and experiences.

• Review of technical aspects of the design of the public toilets with the design firm in Beijing/Guangxi.

• Development of recommendations and options for the improvement of public toilet design and management.

• Development of possible options of private sector participation.

• Recommendations on the finalization of the TOR for the TA component under LZEMP

Secondary data available on Liuzhou and its Public Toilets include the City’s Master Plan (2001-2020), and the Environmental Sanitation Master Plan (2000-2015). During the preparation of the LZEMP, two major studies were commissioned to provide the basis for planning: 1) A Feasibility Study (for PTs and Solid Waste Management) was carried out by the of Municipal Solid Waste Management, Ministry of Construction, P.R. China (Nov 2004) that summarized the existing conditions (including designs) of PTs in the city, collected and analyzed data to conduct the feasibility of proposed PTs; 2) A Social Assessment Study was conducted by the Economic, Legal & Social Consultancy Center, Shanghai Academy of Social Sciences (Oct, 2004) that involved a sample survey of 400 PT users/residents of the city (another 200 respondents were covered for the solid waste management component). The feasibility study and proposal put forward by the LMG was appraised by the WB in December 2004. The above documents provided the background information for this assignment.

The secondary material available was reviewed and further data collection was carried out during the mission. The team held extensive discussions with officers of the Institute of Municipal Solid Waste Management, Ministry of Construction, P.R. China, PMO at Liuzhou, Urban Appearance Bureau, and LZ ESD and District ESDs. Officers from the ESDs put together data on PTs including designs and costs. Site visits were undertaken across the city’s PTs to understand the range of technical/design features, existing conditions and management arrangements. This included interactions with District ESD’s PT caretakers, as well as caretakers looking after PT contracted out to individuals. Two short visits were undertaken with LZ ESD officers, to the cities of Nanning and Guilin (also in Guangxi) to compare the approaches to planning and management of PTs in these cities. Visits included discussions with the respective Urban Bureaus, ESDs and visits to select PTs. Discussions were held with the LZ Pricing Bureau. Finally, the team put together and shared with the LZ and District ESDs, international experiences of delivery of public sanitation services, and with Public-Private Partnerships. These provided the basis for discussions on and generation of options for planning and management of PTs in Liuzhou. These have also provided inputs to development of Terms of References for future Technical Assistance required for LMG/ESD on PTs.

Being a short assessment, this study predictably suffered from limitations of having to depend on secondary information, and discussions and site visits that did not allow adequate time for validation of observations. Further, data on costs has been a bit dated and difficult to accurately estimate at short notice. Therefore, the findings of this assessment, need to be treated as indicative and needing further investigations as recommended for the future TA.

2 The Social Assessment survey, although based on a small sample, covered respondents from different economic classes and ethnic backgrounds, as also sought to cover different types of areas viz. residential, commercial, public places, large institutional spaces, and mixed areas.
2. Public Toilets in Liuzhou: Existing Conditions and Arrangements

2.1. Overview and Evolution

Liuzhou Demography and Districts

By the end of 2002, the total population in Liuzhou is 943,800 (about 0.26 million floating population in addition), of which 87.99% are engaged in non-agricultural occupations. The male to female ratio in the city is 107.1. Liuzhou has a multiple-ethnic composition: about 32 ethnic minorities in Liuzhou, including Han, Zhuang, Miao, Tong, Yao, Molao, Hui, Shui, Man, Tujia, Maonane, etc. The Han majority constitutes 55% of the population, followed by the Zhuang, Molao, Yao, Tong and Miao minority groups. However, the minority groups are reported to be interspersed well with the Han community, with no noticeable differences in lifestyles (Social Assessment, 2004). The Social Assessment reported that by end 2002, the GDP of Liuzhou was RMB23 billion with a per capita GDP of RMB12,314. Based on the sample survey of 200 households conducted under the Social Assessment, the average individual income in the urban area was estimated at RMB 7,928, thus among the richer cities in the Guangxi Zhuang Autonomy Region. The average annual wage of employees was RMB 9,443 but the average individual net income of farmers was only RMB 1,657. About 0.39 million people in Liuzhou are considered to be in the “impoverished group” (of which 68,000 persons are absolutely impoverished, and 317,800 relatively impoverished) accounting for 18% of the total city population.

Liuzhou comprises of four districts, and a number of peri-urban areas have also become a part of the city with its expansion. The Social Assessment highlighted the contrasts across the districts, in terms of the composition of residents as well as infrastructure. Most of the city’s population is located in and around commercial areas such as Liubei and Liunan Districts, whereas Chengzhong District is the most densely populated. The other distinctive characteristics are summarized below in Box (1).

Box (1): Distinctive Character of the four districts in Liuzhou

**Chengzhong District** is spread over an area of 78 sq km with a population of 0.2 million and it is the center of Liuzhou in terms of politics, culture and commerce. It is awarded the first “Star District” of Liuzhou. The District has many educational institutes such as Guangxi Industrial Institute, Liuzhou High School and Jingxing Primary School. The People’s Square, Sanmenjiang National Forest Park, Liuzhou Garden, Liuhou Museum and Ancient Eastern Door are located in this district. The district has highly developed infrastructure, and is a central area for public institutions, as well as leisure activities, shopping and entertainment.

**Liunan District** has a complex population composition and varied economic situations in it. Spread over an area of 169 sq km, it has a population of 0.29 million (of which 83,400 are floating population). The district has many well-developed pockets mixed with areas that are undergoing transformation. This district has industries, numerous special markets, and other centers of commercial and transportation/distribution activity, being an important transportation switch center with both Liuzhou Railway Station and Liuzhou Bus Transportation Station being located there. The district has poor infrastructure in comparison to the demands on it.

**Liubei District** is the largest with a geographical spread of 321 sq km and 0.31 million permanent residents. This district has many large-scale enterprises such as Liuzhou Steel and Iron Group and Liangmianzhen Group. The district also has good quality infrastructure, and many office buildings, workshops and dormitories with complete facilities. This district has the largest extent of urban and rural areas in it. Baisha village, in the northeast of this district, is infamous for its poverty with an average individual annual income below RMB 950.

**Yufeng District** has an area of 91 sq km and 0.21 million permanent residents. Areas close to the Liu River enjoy higher urbanization degree, whereas areas farther from the River are agricultural, with families with lower incomes. Many of its sub-districts such as Yanghe and Jinglan are far away from centre of the city, and have just started becoming urbanized colonisations.

*Source: Social Assessment, 2004*
Previous studies have indicated that the distribution of Public Toilets in the city, has tended to be skewed towards the busy commercial areas, whereas residential and mixed areas have suffered a deficit of these facilities (Feasibility Study, 2004). Even in the commercial areas, the number of PTs is not adequate (in number or quality) and older PTs have been victims of demolitions to make way for roads and other developments. The different population characteristics and variable infrastructure conditions across the four districts, become a challenge in rational provision and O&M management of PTs across the city, in the wake of scarce land in this fast-growing city.

Public Toilets in Liuzhou

Liuzhou has attempted to respond to the demand for Public Toilet facilities over the last three decades in its quest to become a high-class modern city with quality infrastructure and civic amenities, with a healthy and clean environment, backed by its old economic base of industries, and facilitating the growth of trade and commerce, and tourism.

The Liuzhou Environmental Sanitation Department (LZ ESD) is responsible for solid waste management and public sanitation in the city. This department is a part of the LMG at the city level, and there are in turn counter-part ESDs under the four respective district governments (District ESDs or DESDs). As presented in Table (1), Liuzhou at present has 249 Public Toilets, of which the ESD has constructed and manages 140 PTs. The Railway Bureau and the Steel Company have constructed and manage 50 PTs. These are for use by their clients, personnel and others.

<table>
<thead>
<tr>
<th>Agency/Area</th>
<th>Population (million)</th>
<th>No. of Public Toilets*</th>
<th>Total Construction Area (sqm)</th>
<th>Average Construction Area (sqm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liuzhong District</td>
<td>0.20</td>
<td>26</td>
<td>1515</td>
<td>58</td>
</tr>
<tr>
<td>Liubei District</td>
<td>0.31</td>
<td>40</td>
<td>2573</td>
<td>64</td>
</tr>
<tr>
<td>Yufeng District</td>
<td>0.21</td>
<td>42</td>
<td>2372</td>
<td>56</td>
</tr>
<tr>
<td>Liunan District</td>
<td>0.29</td>
<td>32</td>
<td>1994</td>
<td>62</td>
</tr>
<tr>
<td><strong>Sub-Total (Under ESD)</strong></td>
<td><strong>1.01</strong></td>
<td><strong>140</strong></td>
<td><strong>8454</strong></td>
<td><strong>60</strong></td>
</tr>
<tr>
<td>Liuzhou Railway Bureau</td>
<td></td>
<td>42</td>
<td>2L24</td>
<td>51</td>
</tr>
<tr>
<td>Liuzhou Steel Company</td>
<td></td>
<td>8</td>
<td>450</td>
<td>56</td>
</tr>
<tr>
<td>Other Agencies</td>
<td></td>
<td>59</td>
<td>3540</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>249</strong></td>
<td><strong>14568</strong></td>
<td></td>
<td><strong>59</strong></td>
</tr>
</tbody>
</table>

* Data not available on the number of Toilet Seats in the PTs.

Source: Social Assessment And Feasibility Study Reports, 2004

The balance 59 PTs are in shopping centers, cinemas and parks etc, mainly serving customers and visitors at these establishments. Apart from the above PTs, a number of toilets exist in private premises e.g. in institutions and offices, hotels and restaurants, etc. However, these toilets are not open for public usage and serve their own employees or clients, and hence may be considered private in nature.

As presented in Table (2), more than three-fourths of the ESD PTs, were constructed more than ten years ago. Only about a quarter of the PTs under the ESD have been built in the last decade. Information is not available on the age-class distribution of PTs constructed and managed by other agencies, but the data on PTs under ESD management suggests that a considerable proportion of stock of PTs is old and as primary visits confirm, need to be refurbished and upgraded.
Except for one toilet in Liubei District, all the PTs are Grade II toilets. PTs are located along main roads and public areas, in commercial areas, and in some cases in or near interior residential or mixed areas. The city has a Grade I three-star toilet in one of its main streets, with high quality design and fixtures. Since the mid-1990s, the City has experimented with constructing PTs on top of solid waste transfer stations. About 30 such PTs (included in the enumeration in Tables above) exist in the City. While these “combined PTs” will continue, the City has discontinued its preference for constructing new PTs on this model since savings on land costs are not significant, and there is apparent public disapproval of such combined arrangements. Access to the first floor toilets for the elderly and physically challenged is also an issue.

In addition to the PTs enumerated above, Portable Toilets have been installed in different locations in the city in 2004. In a temporary construction locations (where PTs are being built), portable toilets installed have a battery of four toilet-seats each (this uses a proprietary technology of separately treating solid and liquid wastes). Another battery of four toilets has been installed in the city square that uses the method of recycling the liquid wastes using chemical treatment. Another eight of ten water-saving dry toilet seats of the portable type have been installed in the Jiangbin Park along the Liujiang River – these were received as gifts from other public institutions. The rest two water-saving dry toilet seats have been installed in the Sanitation Landfill for the worker use. The City is also planning to purchase Mobile Toilet units in the future, mainly to cater to high-population gathering events.

About 60 of the 149 PTs under ESD management are pay-and-use toilets, at the rate of 0.2 RMB (0.025 USD) per use. The rest of the PTs are free to use. (Management and tariffs are described in a later section.)

Need and Demand for Public Toilets

Public Toilets in Liuzhou are not only reported to be small in number (more than 4,000 residents per PT or more than 5,000 population if floating population is included), but also other factors have prevailed over adequate provisioning and maintenance. One, with high land prices and competing uses, space for PTs has not been accorded enough priority in planning. Two, due to new developments and construction, many of the PTs have been demolished and not been replaced. Finally, some PTs have been lost to planned works like widening of roads etc. It is reported that in recent years, as many as 25 public toilets were lost to such developments, and have not been replaced. Some of these served areas with large population flow (e.g. crossing of Chengzhan Road and Shengli Road) (Social Assessment, 2004).

The Social Assessment Survey also found similar responses being echoed by respondents about scarcity, apart from their dissatisfaction with the condition of PTs. The survey revealed that 16 percent of the respondents could not locate the public toilets when they needed them. More than a quarter reported that the PTs they used were shabby, dirty and/or with damaged fixtures. Table (3) presents

<table>
<thead>
<tr>
<th>Period of Construction</th>
<th>Number of public toilets</th>
<th>Proportion to Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979 – 1989</td>
<td>52</td>
<td>37.14%</td>
</tr>
<tr>
<td>1990 – 1994</td>
<td>57</td>
<td>40.71%</td>
</tr>
<tr>
<td>1995 – 1999</td>
<td>23</td>
<td>16.43%</td>
</tr>
<tr>
<td>2000 – 2003</td>
<td>8</td>
<td>5.71%</td>
</tr>
<tr>
<td>All Toilets</td>
<td>140</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Source: Feasibility Study Report, Nov 2004*
user perceptions, and it is clear that the shortage of PTs dominate the listing of problems – the skewed distribution across the city also noted by many. A third of the users appear to find the condition of PTs poor or poorly managed, whereas problems with user charges are reported by 6 percent. The Study also reported that women bore the brunt of all these problems more than men respondents.

<table>
<thead>
<tr>
<th>Priority</th>
<th>Problems Reported by Survey Respondents about PTs</th>
<th>Proportion of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Insufficient number</td>
<td>53.8%</td>
</tr>
<tr>
<td>2</td>
<td>Poor sanitation condition</td>
<td>15.4%</td>
</tr>
<tr>
<td>3</td>
<td>Unreasonable distribution (across city)</td>
<td>13.5%</td>
</tr>
<tr>
<td>4</td>
<td>Poor management</td>
<td>11.5%</td>
</tr>
<tr>
<td>5</td>
<td>Unreasonable toll (tariff)</td>
<td>5.8%</td>
</tr>
</tbody>
</table>

**TABLE (3): PROBLEMS REPORTED BY USERS ABOUT PTs**

*Source: Social Assessment, 2004*

User Segments

Even though a clear delineation has not been made, PTs in the different parts of the city serve two types of users: residents and floating population in the city’s public spaces, and commercial centres; and residents who may be using PTs near their residences, in absence of or as a supplement to toilet facilities in their homes. Since a core group of users can be identified for these toilets, these are more in the nature of “Community Toilets” that also have many casual/public users.

The Social Assessment estimates that more than seven percent of residential buildings in the city do not have independent toilet facilities, and hence residents from these properties are entirely dependant on PTs. Most of these buildings are housing on rental, private houses in rural areas, or those in mixed areas with poor and floating population (mainly in Liubei and Liunan Districts).

“Public Toilets” are more in the nature of civic amenities for the floating population – where a core group of regular users is difficult to identify, such as in commercial and public areas. While these two broad categories are relative (not “pure”), it will be useful to determine the different types in the city – it was not possible to carry out this type-classification under the current assignment although DESDs will be in a position to provide their assessments.

The current stock of Public Toilets need to cater to the needs of both the user segments above – about 75 percent of respondents reported using PTs. About 60 percent were occasional users, and 15 percent regular users – about 11 percent used PTs more than four times a day (this probably includes the seven percent population entirely dependant on PTs).

Among the quarter of the respondents who never used PTs, said their reasons for not using the PTs were that they had a toilet at home (46 percent), PTs were distant (19 percent), or were dirty (33 percent). The last two reasons again underline the need for greater number of PTs, and their proper upkeep and maintenance.

From the foregoing account, the following issues emerge in respect of PTs in Liuzhou:

1. **Absolute Gap:** With the growth and development of the city in the last decade, not only has the need for PTs increased significantly that the city has been unable to cater to, but also city development has meant that many PTs have been dismantled to make place for widening of roads new buildings, or constructing new buildings. Whereas regulations exist to provide for PTs (including temporary PTs when demolition is unavoidable), in actual practice, this has not been strictly followed, and the city has suffered the loss of PTs over the years. As a result, there is an absolute shortage of PTs that the city is seeking to address at present.
2. **Upgradation Required**: Since the existing stock of PTs is old, most of the PTs belong to Grade II and are therefore in need of immediate upgradation to Grade I standards that the city wishes to provide to its citizens. This poses a considerable demand for upgradation of existing PTs.

3. **Distribution of PTs across the city**: The Social Assessment as well as the Feasibility Study report that despite norms, the distribution of PTs is uneven - the existing toilets cater to the central areas of the city (even though these are also in shortage), whereas there is a deficit of PTs in the areas away from the centre. The response to this has been to choose locations under the LZEMP such that PTs are well-dispersed across the city and many cover outer city areas hitherto not adequately provided with PTs.

4. **Public Preferences and Service Levels**: the scarcity of toilets and poor facilities in many of them (being old design type), coupled with reported poor maintenance management in many, frustrate citizens’ expectations of PTs, and are also reported to be in many cases, difficult to clean and maintain to meet user expectations. Another related issue conspicuous by its absence, is the little “demand generation” done by way of promoting or marketing the use of PTs amongst the citizens, especially for its hygiene and health linkages.

**Liuzhou’s Response to PT provisioning: Projections for the future**

Planning for PTs in Liuzhou, as in rest of China, is based on norms of physical distance between PTs, area covered or radius, population served per PT, and the design standards or Grade of PT that the city wishes to build. The *Liuzhou City Master Plan (2001-2020)* provides the framework for projection of demand for public toilet facilities, on the basis of population, area and other considerations. Based on the above, the ESD have prepared their Master Plan – the *Liuzhou Environment Sanitation Master Plan (2000-2015)* in June 2000, of which the short-term targets were posed for the year 2004. The master plan bases its projection for PTs on the basis of the following population and distance norms:

1. There should be a PT within a distance of 300-500 m on busy streets, 750-1,000 m in other streets, and 300-500 m in residential areas.
2. There should be a PT provided for every 2,500-3,000 persons.

The Master Plan also estimated the average architectural area of the PT to be between 30 and 50 sqm, and projected land requirements of the order of 80 sqm.

The Liuzhou City Master Plan (2001-2020) projected a population of 1.1 million by 2005; growing to 1.25 million in 2010; and finally to 1.6 million in 2020. It envisaged the city area to grow to 116 sq km by 2005; 126 sq km by 2010; reaching 168 sq km in 2020. The ESD Master Plan took the short term (2004) planning area for the city as 105 sq km, whereas the long term (2015) planning area was taken as 135.8 sq km. For planning, the short-term 2004 population was taken as 0.98 million, with a floating population of 0.2 million; that is expected to grow to 1.24 million by 2010, with a floating population of 0.3 million.

In addition, the ESD Master Plan expresses the city’s desire to upgrade to quality standards of Grade I toilets. Using the above norms and guiding principles, the Master Plan projects that in addition to existing 260 PTs in the city (149 of which are under ESD management, the rest being in premises of and managed by other institutions, mainly the Iron and Steel Company, the Railway Bureau and other agencies like Market Committees), the city will need to build more than 150 PTs to bring the total up to 410-420 PTs by 2015.

**Design and Appraisal of Proposed PTs under LZEMP**

With the Master Plan as the basis, the LMG entrusted the preparation of the Feasibility Study for PTs under the WB-assisted LZEMP, to the Institute of Municipal Solid Waste Management, Ministry of Construction, P. R. China, (with a local Design Institute as partner). On the basis of the Social Assessment and the Feasibility Study, 76 locations were identified and proposed for construction of PTs. The basis for identifying the proposed locations for PTs was a survey and study that collected data on and analyzed different dimensions, presented in Table (4).
### TABLE (4): EVALUATION CRITERIA AND WEIGHTAGE FOR 76 PROPOSED PUBLIC TOILETS UNDER LZEMP

<table>
<thead>
<tr>
<th>NO.</th>
<th>EVALUATION INDEX</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Targeted users of proposed public toilet</td>
<td>0.20</td>
</tr>
<tr>
<td>2</td>
<td>Distance between proposed public toilet site and the nearest existing public toilet</td>
<td>0.15</td>
</tr>
<tr>
<td>3</td>
<td>Distance between proposed public toilet site and sewerage system.</td>
<td>0.15</td>
</tr>
<tr>
<td>4</td>
<td>The ratio of land requisition cost to construction cost of proposed public toilet</td>
<td>0.20</td>
</tr>
<tr>
<td>5</td>
<td>Degree of acceptance of proposed public toilets by neighboring residents.</td>
<td>0.15</td>
</tr>
<tr>
<td>6</td>
<td>Degree of environmental impacts of proposed public toilet</td>
<td>0.15</td>
</tr>
</tbody>
</table>

*Source: Feasibility Study, 2004*

The factors considered were thus a mix of norm-based parameters, technical and cost considerations, as also some beginnings of revenue and demand-estimation. It may be noted in the above approach, demand estimation enjoys low priority thus exposing the siting and design process to two hazards: a) provision norms determining siting even if demand may not justify the location; and b) over-provision of number of seats in PT that may not be able to earn a reasonable portion of O&M costs (by users per seat considerations even taking account of peak-loading). After appraisal of the proposed locations, 62 PTs were selected and approved for design and construction. All these PTs will be constructed to Grade I design specifications. The Appraisal Mission also found on basis of site and rapid user surveys that contrary to the Social Assessment Survey’s finding that willingness to pay could be as high as 0.4 RMB in some locations, users were perhaps not likely to pay more than the current 0.2 RMB for current facilities.

The proposed PTs under LZEMP are well-dispersed across the city and partially seek to redress the skewed distribution, apart from increasing the stock of toilets. With the completion of these PTs, more than a quarter of the PTs in the city will become Grade I standards.

According to the Design Institute, preliminary designs for the first batch of 19 PTs in the LZEMP, has been completed and these are currently under review pending finalization. The Land requisition process for these PTs has also been initiated.

In order to augment and upgrade PTs in the City, the LMG have also invited the Jingtao Company (a company based in Beijing) to construct and operate 20 Grade I PTs on a Build-Operate-Transfer basis on a 50-year lease, in return for rights to use two additional floors for commercial purposes (land being provided by the LMG). (More details on this are provided in a later section).

### 2.2. PT Technology and Design

China has a number of standards that are issued from time to time, by the National Ministry of Construction. These standards determine the designs that are followed by provinces and city administrations. The National Ministry also issues directives about standards to be followed in operations and maintenance of facilities. The following national standards are relevant to the construction of Public Toilets:

- Appearance of City Environmental Sanitary Administration Regulation (No. 101 State Department order)

---

3 Both the surveys elicited information based on direct questioning. Better methodologies of demand and preference estimation are available for use including Contingent Valuation, Revealed Preference, and a host of other Market Research techniques. Using these tools improves understanding of customers – this will provide better inputs but will need a change from the current norm-based provisioning to a more demand-based one.
In addition to the above, the designs also have to take account of standards for waste disposal, and facilities standards for special areas such as industries. Tourism standards are another set of specifications to upgrade construction and maintenance to a level that is suitable for areas frequented by tourists, Liuzhou being one such city in the Guangxi Province. LZ ESD have formulated their own standards for O&M of Public Toilets, based on which regular inspections are carried out by the ESD and Urban Appearance Bureau.

The main differences in design of Grade II and Grade I PTs are:
- Different specifications for height of separators between cubicles and provision of doors
- Water-flushing system from a centralized system in Grade II to one that is water-saving

The tourism grade toilets utilize much better quality of materials, as also provide a number of sophisticated fixtures and amenities. A comparison of the design standards is presented in Table (5).

It may be noted that most of the PTs in Liuzhou are Grade II, whereas there is one tourism grade toilet. Under the proposed LZEMP, all the PTs will emulate Grade I standards, and some additional modifications have also been sought to be incorporated including toilets for physically challenged or disabled persons.
<table>
<thead>
<tr>
<th>Dimension/Feature</th>
<th>Public Toilet Architectural Standard Classification Table (GJJ14-87) 1987</th>
<th>Classification and Evaluation of Tourism Toilets GB/T 18973—2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope/Area</td>
<td>Tourism Areas, Central and Busy Streets</td>
<td>Tourism sites opened to foreigner and busy streets</td>
</tr>
<tr>
<td>Water supply</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Drainage</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Heating facility (refers to North China)</td>
<td>Depends on conditions and demand</td>
<td>Force ventilation</td>
</tr>
<tr>
<td>Illumination</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Indoor ceiling height (m)</td>
<td>3.5～4.0</td>
<td>3.5～4.0</td>
</tr>
<tr>
<td>Close stool (Should install a certain number of seat close stools)</td>
<td>Separate seat or squat types</td>
<td>A trough with ceramic tile</td>
</tr>
<tr>
<td>Close stool flushing fixture</td>
<td>Manual ceramic water tank or advanced water flushing tank</td>
<td>Water flush</td>
</tr>
<tr>
<td>Distance between close stools (m)</td>
<td>0.90～1.20</td>
<td>0.85～1.20</td>
</tr>
<tr>
<td>Dimension/Feature</td>
<td>Public Toilet Architectural Standard Classification Table (GJJ14-87) 1987</td>
<td>Classification and Evaluation of Tourism Toilets GB/T 18973—2003</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Urinals</td>
<td>Standup urinals</td>
<td>a) Good material</td>
</tr>
<tr>
<td></td>
<td>Trough with ceramic tiles</td>
<td>b) Distance: &gt;0.8m</td>
</tr>
<tr>
<td></td>
<td>Trough with ceramic tiles</td>
<td>c) Separator: width &gt;0.5m, height &gt;0.6m. Damp proof, anti-erosion, easy to cleaning material.</td>
</tr>
<tr>
<td>Basin</td>
<td>Yes</td>
<td>a) Provide liquid soap or paper</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>b) A dryer each in men and women areas</td>
</tr>
<tr>
<td>Mop basin</td>
<td>Yes</td>
<td>Depends on conditions and demand</td>
</tr>
<tr>
<td>Toilet paper shelf (For selling toilet paper)</td>
<td>Yes</td>
<td>Depends on conditions and demand</td>
</tr>
<tr>
<td>Floor</td>
<td>Pave mosaic</td>
<td>Pave mosaic, quarry tile etc.</td>
</tr>
<tr>
<td>Indoor wall</td>
<td>Wall ceramic tile 1.5~1.8m</td>
<td>Wall ceramic tile 1.0~1.5m</td>
</tr>
<tr>
<td></td>
<td>Cement concrete</td>
<td>Cement concrete 1.0~1.2m</td>
</tr>
<tr>
<td>Floor drainage</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Cloth hook</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Mirror</td>
<td>Yes</td>
<td>Depends on conditions and demand</td>
</tr>
<tr>
<td>Separator between close stool (Height of separator starts from top of the close stool floor)</td>
<td>1.8m height with door</td>
<td>1.2~1.5m high, door may be installed</td>
</tr>
<tr>
<td>Indoor decoration</td>
<td>Ceiling with calcium models the board. Painting wall with kesai silver etc.</td>
<td>Paint ceiling and wall with kesai silver or other materials</td>
</tr>
<tr>
<td></td>
<td>Paint ceiling and wall with kesai silver etc.</td>
<td>Paint ceiling and wall with kesai silver etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a) Architecture area greater than 60m2. Architectural area for man and lady shall be 5:5.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Indoor ceiling height: greater than 3m.</td>
</tr>
</tbody>
</table>
### TABLE (5): COMPARISON OF PUBLIC TOILETS’ DESIGN STANDARDS

<table>
<thead>
<tr>
<th>Dimension/Feature</th>
<th>Public Toilet Architectural Standard Classification</th>
<th>Classification and Evaluation of Tourism Toilets GB/T 18973—2003</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Table (GJJ14-87) 1987</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Classification and Evaluation of Tourism Toilets GB/T 18973—2003</td>
<td></td>
</tr>
<tr>
<td>Outdoor decoration</td>
<td>Harmony with surrounding</td>
<td>Harmony with surrounding</td>
</tr>
<tr>
<td></td>
<td>Harmony with surrounding</td>
<td>Harmony with surrounding</td>
</tr>
<tr>
<td></td>
<td>Appearance, shape, and color shall be</td>
<td>Appearance, shape, and color shall be</td>
</tr>
<tr>
<td></td>
<td>harmony with surroundings. Door:</td>
<td>harmony with surroundings. Door:</td>
</tr>
<tr>
<td></td>
<td>reasonable design, good quality material</td>
<td>reasonable design, good quality material.</td>
</tr>
<tr>
<td></td>
<td>and with curtain. Material: weathering</td>
<td>weathering</td>
</tr>
<tr>
<td></td>
<td>protection, erosion protection, non-</td>
<td>protection, erosion protection, non-</td>
</tr>
<tr>
<td></td>
<td>pollution high quality architectural material.</td>
<td>pollution high quality architectural material.</td>
</tr>
<tr>
<td></td>
<td>Outdoor PT shall have lawn around. Indoor PT</td>
<td>Outdoor PT shall have lawn around. Indoor PT shall have</td>
</tr>
<tr>
<td></td>
<td>shall have adornments.</td>
<td>adornments.</td>
</tr>
<tr>
<td>Management room</td>
<td>Yes</td>
<td>Depends on demand</td>
</tr>
<tr>
<td></td>
<td>Depends on demand</td>
<td>Depends on demand</td>
</tr>
<tr>
<td></td>
<td>Depends on demand</td>
<td>Greater than 5m²</td>
</tr>
<tr>
<td>Tool room</td>
<td>Yes</td>
<td>Depends on demand</td>
</tr>
<tr>
<td></td>
<td>Depends on demand</td>
<td>Depends on demand</td>
</tr>
<tr>
<td></td>
<td>Depends on demand</td>
<td>Greater than 1m²</td>
</tr>
<tr>
<td>Night soil transfer room</td>
<td>Depends on situation</td>
<td>Depends on situation</td>
</tr>
<tr>
<td>Septic tank (not required if can discharge to municipal sewer)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>For the elderly</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimension/Feature</td>
<td>Public Toilet Architectural Standard Classification (GJJ14-87) 1987</td>
<td>Classification and Evaluation of Tourism Toilets GB/T 18973—2003</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>For disabled persons</td>
<td>a) Close stool seat: at least one each in men and women areas with standard handrail and close to entry. Door can be opened towards inside and outside.</td>
<td>b) Urinal: meet with standards for disables with handrail. No less than 1 set.</td>
</tr>
<tr>
<td>For blind</td>
<td>Signs and road for blind depends on conditions. No requirement.</td>
<td></td>
</tr>
<tr>
<td>For children</td>
<td></td>
<td>a) Infant station: depends on conditions. No requirement.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Mother and baby room: depends on conditions. No requirement.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c) Urinal for children: depends on conditions. No requirement.</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>a) Disposal basket in each cubic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) A bin each in men and women areas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Odor control facility in men and women area.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Public telephone service</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e) Chairs</td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td></td>
<td>Painting, music, flowers etc.</td>
</tr>
</tbody>
</table>

*Source: Min. of Construction, 1987; Min. of Tourism, 2003*
PTs in Liuzhou

As outlined above, the PTs in Liuzhou have been constructed and upgraded/repaired over the last three decades. Over this period, there have been efforts to upgrade the toilets from the earlier Grade III, to Grade II standards. In the last ten years, the city has also experimented with PTs combined with Solid Waster Depots – although the PT layout and design features in these PTs were the same as the stand-alone PTs built earlier. A three-star grade toilet was constructed in 2004 – this utilized land provided by school (on whose premises this PT is located) and the ground floor is the Three Star PT opening to the main street. The floor above is a PT for use by the school-children, and opens at the back of the structure into the school premises. Since 2004, Liuzhou has also put into use, portable toilets in different locations.

Table (6) summarizes the actual features of the PTs – the existing Grade II toilets, the three-star PT, and the portable toilets, are compared with the information available on design of the proposed Grade I PTs under LZEMP. Since the construction of the PTs by the Jingtao Company is yet to be completed in Liuzhou, PTs constructed by this Company in Nanning have been used as illustration of features (that are likely to be provided in Liuzhou too). Illustrations of the different types of PTs in the city are provided in Annex 4.
<table>
<thead>
<tr>
<th>No</th>
<th>TECHNICAL FEATURES</th>
<th>Grade II Toilets (Stand Alone and Combined with Solid Waste Transfer Stations)</th>
<th>Grade I (Proposed under LZEMP)</th>
<th>THREE STAR Toilet in Liuzhou</th>
<th>PORTABLE TOILETS</th>
<th>JINGTAO (NANNING design as Illustration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>LOCATION</td>
<td>All types of locations (Public/Commercial areas, mixed, and residential areas)</td>
<td>All types of locations</td>
<td>Public/commercial area on Main Street</td>
<td>At construction sites – 2 batteries of 4 each; and ten single PT units in busy areas; One with four cubicles in a busy public square.</td>
<td>Only in busy commercial/ public areas</td>
</tr>
<tr>
<td>C</td>
<td>FEATURES</td>
<td>A trough with ceramic tiles. No seat provided. Same design for men and women. Number of cubicles marginally higher for women.</td>
<td>Close-stool of squat type, with closet pan and flushing device. Higher number of seats in women's section (2.3 times no. for men)</td>
<td>Squatting type ceramic pan with doors. 15 seats in cubicles in women's section; 10 in men's.</td>
<td>Squatting type stainless steel pan</td>
<td>Close-stool of squat type, with closet pan and flushing device. A seat type close stool provided for elders each in men and women’s area close to the entry.</td>
</tr>
<tr>
<td>No</td>
<td>TECHNICAL FEATURES</td>
<td>Grade II Toilets (Stand Alone and Combined with Solid Waste Transfer Stations)</td>
<td>Grade I (Proposed under LZEMP)</td>
<td>THREE STAR Toilet in Liuzhou</td>
<td>PORTABLE TOILETS</td>
<td>JINGTAO (NANNING design as Illustration)</td>
</tr>
<tr>
<td>----</td>
<td>-------------------</td>
<td>-------------------------------------------------</td>
<td>------------------</td>
<td>-------------------------------</td>
<td>-----------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Mother and Child (infants)</td>
<td>No separate arrangements</td>
<td>No separate arrangements</td>
<td>One separate area each in men and women’s section. Each with: three basins, two adult seats in cubicles, and one baby cot.</td>
<td></td>
<td>One bigger cubicle each in men and women’s section close to the entry</td>
</tr>
<tr>
<td>2</td>
<td>Boys and girls children</td>
<td>No special arrangements in toilets</td>
<td>No special arrangements in toilets</td>
<td>No special arrangements in toilets (men’s Stand-up bowl-type high-grade ceramic urinaries – suitable also for boys)</td>
<td></td>
<td>No special arrangements in toilets (men’s Stand-up bowl-type high-grade ceramic urinaries – suitable also for boys)</td>
</tr>
<tr>
<td>3</td>
<td>Disabled</td>
<td>No separate arrangements</td>
<td>Toilet cubicles for disabled provided</td>
<td>One cubicle with seat and special steel support frame each in men and women’s sections</td>
<td></td>
<td>A toilet cubicle for disabled provided at ground floor, with seat and support bars.</td>
</tr>
<tr>
<td>4</td>
<td>Cubicle (Specs)</td>
<td>Concrete walls with ceramic tiles of about 1.20 m height as separators. No shutter/door provided.</td>
<td>Partition panels of height over 1.8 m, doors provided.</td>
<td>Partition panels of height over 1.8 m, doors provided of good quality material. High quality tiles for wall and floor.</td>
<td></td>
<td>Partition panels of height over 1.8, doors provided. High quality tiles for wall and floor. Different colors for men and women section.</td>
</tr>
<tr>
<td>5</td>
<td>Urinals (men)</td>
<td>A trough with ceramic tiles.</td>
<td>Stand-up urinaries attached to the wall</td>
<td>12 urinals in men’s section, Stand-up square bowl-type high-grade ceramic urinaries attached to the wall.</td>
<td></td>
<td>No separate urinals. Stand-up urinaries attached to the wall</td>
</tr>
<tr>
<td>6</td>
<td>Basins</td>
<td>One tap each in men and women’s areas with a ceramic trough or one tap in common area</td>
<td>Proper basins provided each in men and women’s areas – usually two basins each</td>
<td>7 washbasins each in men and women’s sections, with stone slab. Soap dispensers provided.</td>
<td></td>
<td>Some have small stainless steel basin outside in the common area of the battery. Proper basins provided each in men and women’s areas – usually two basins each. Basins for children also provided.</td>
</tr>
</tbody>
</table>
## TABLE (6): COMPARATIVE FEATURES OF PTs IN LIUZHOU

<table>
<thead>
<tr>
<th>No</th>
<th>TECHNICAL FEATURES</th>
<th>Grade II Toilets (Stand Alone and Combined with Solid Waste Transfer Stations)</th>
<th>Grade I (Proposed under LZEMP)</th>
<th>THREE STAR Toilet in Liuzhou</th>
<th>PORTABLE TOILETS</th>
<th>JINGTAO (NANNING design as Illustration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Water Supply</td>
<td>Central cistern is used to flush. Usually two tanks with flushing-on-filling – one each for men and women’s sections. Recently, water-saving concerns have prompted stoppage of this kind of automatic central flushing.</td>
<td>Manual ceramic cisterns or other water-saving facilities for each cubicle. Flushing centralized for urinaries.</td>
<td>Sensor based flushing system.</td>
<td>Water is circulated after treated by chemicals or through water reuse system</td>
<td>Sensor based flushing system.</td>
</tr>
<tr>
<td>6</td>
<td>Electricity Supply</td>
<td>Connected to streetlight power source where available. Where not available, separate line and connection has been taken.</td>
<td>Design not finalized.</td>
<td>Own power connection for unit for which power bill is paid</td>
<td>Connected to streetlight power source where available</td>
<td>Streetlight power used.</td>
</tr>
<tr>
<td>7</td>
<td>Waste disposal arrangements</td>
<td>On-site septic tank arrangements most common.</td>
<td>Design recommend PTs to be connected to sewers wherever feasible.</td>
<td>Connected to on-site septic tank of standard (50 Cum) size. Cleaning required every 45 days</td>
<td>Most not connected to sewer system (one exception)</td>
<td>On site septic tank</td>
</tr>
<tr>
<td>8</td>
<td>Other Features</td>
<td>Access to toilet Mixed. A floor's climb in case of combined toilets.</td>
<td>An access and common area usually provided in proposed designs</td>
<td>Easy access at street level, separate entrances for men and women’s sections from street.</td>
<td>Easy access at street level</td>
<td>Easy access at street level, common entrance for men and women’s sections.</td>
</tr>
<tr>
<td>No.</td>
<td>TECHNICAL FEATURES</td>
<td>Grade II Toilets (Stand Alone and Combined with Solid Waste Transfer Stations)</td>
<td>Grade I (Proposed under LZEMP)</td>
<td>THREE STAR Toilet in Liuzhou</td>
<td>PORTABLE TOILETS</td>
<td>JINGTAO (NANNING design as Illustration)</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>-----------------------------</td>
<td>------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Circulation Area, Lighting, Ventilation</td>
<td>Circulation area limited, dependant on natural ventilation for which openings provided.</td>
<td>Provided but details unclear</td>
<td>Large circulation area at entry and around and beyond basins, spacious layout for men’s urinal section. Ventilation provided. Exhaust fans also provided. Openings for light available supplemented with electrical lighting. Perfume provided.</td>
<td>Little ventilation.</td>
<td>Natural ventilation. Exhaust fans also provided. Lighting provided.</td>
</tr>
<tr>
<td>9</td>
<td>Other (Miscellaneous)</td>
<td>Toilet wall covered by ceramic tiles to about 1.0~1.5m height. Separate area/room for storing tools/for caretaker provided in some PTs.</td>
<td>Toilet wall covered by ceramic tiles more than 1.8 m height. Separate room for manager/caretaker provided.</td>
<td>High quality fittings, wall and floor tiles of high quality, basins with hotel-standard taps, and stone counters, electrical insect destroyers and hand-dryers installed in each of men and women’s sections. Separate room for manager/caretaker provided.</td>
<td></td>
<td>Liquid soap provided. High quality fittings, wall and floor tiles of high quality, basins with hotel-standard taps, and stone counters, electrical insect destroyers, and dryers installed in each of men and women’s sections. Separate room for manager/caretaker provided.</td>
</tr>
<tr>
<td>10</td>
<td>Architecture and Prominence</td>
<td>Very common square building. No character. Small signages.</td>
<td>Will be designed keeping in view the local context. Signage unclear.</td>
<td>Attractive exteriors. Signage provided but small.</td>
<td>Designed like a regular commercial building. PT is in basement. Above two floors are for commercial uses. Small signages provided.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Team Assessment, Oct-Nov 2005
Observations on Design

While the team did not have the benefit of detailed examination of technical design, based on the rapid assessment of designs and limited site visits, the following tentative observations are provided for consideration:

Progressive Improvements

The Grade I PTs proposed will mark a significant improvement over the existing Grade II PTs. Provision of higher separators and doors for cubicles, squat-type pans, stand-up urinaries, basins in each of the men’s and women’s sections, better tiling height and quality, water-saving flushing system, toilets for disabled, and improvements in approach, circulation-area and local architectural context, are significant improvements both for improved service standards as well as attractiveness of the PT to users. The design also broadly responds to user preferences – squat-stools were preferred by more than three-fourths of respondents in the Social Assessment. In terms of design features, while a little less than a third preferred features emulating Grade I standards, the proposed design is likely to upgrade the experience of the rest of the users with better features, over time.

Children-friendly Toilets

The higher number of cubicles in the proposed design responds to practical needs of women. While the provision for the elderly and disabled is also a good feature, there are no provisions for girls and boys. Experience from other countries shows that they may face difficulties in using the larger squat stools meant for adults (Many toilets in Mumbai, India, for instance, provide a separate area with troughs near the common area where adult supervision is possible; in some other places, smaller pans have also been tried out). This design feature is worthy of examination the proposed designs.

Water Supply, Ventilation and Lighting

Water supply arrangements have been altered in the proposed design to save water compared to a central flushing system in the Grade II toilets. However, individual flushing in each cubicle will need higher maintenance. During the visit of this team, some of these facilities were not functioning leading to odour and dirt. The PTs have been provided with adequate openings for lighting and ventilation, but lighting (especially for use during evening hours) will need further attention.

Management Standards

In the limited sample of sites visits conducted by the Team, the overall condition of the PTs was found to be reasonable. Many of the PTs, especially those that had caretakers and were high-use PTs, were maintained well and without any problems of breakage etc. Some, especially those that were not manned all the time, did show some instances of broken taps etc. While many of these stem from management arrangements, design of fixtures and fittings, will need to ensure that these are not prone to breakages, apart from taking account of ease of repairs/maintenance and capital costs.

Waste Disposal Arrangements

Most of the PTs in Liuzhou have septic tanks for waste disposal. The frequency of cleaning depends on the location and user-load of the PT. This poses considerable difficulty as well as costs in O&M. PTs proposed under LZEMP are planned to connect to sewers wherever possible. This was also used as one of the criteria in carrying out the feasibility of PT locations. It is recommended that special efforts are made to ensure a high proportion of connection to sewers - even if this comes at some additional capital cost since in the long-run, this will lead to cost savings as also lead to better environmental conditions.

Siting and Visibility

The siting of the PTs in planned locations, and at appropriate distance, are constrained by the availability of land. This not only imposes high costs (discussed below) but also forces the location of PTs in sites that may not be easily accessible. For instance, a few existing PTs are difficult to find, or as in the case of one that has been built behind a solid waste transfer station, remote and apparently unsafe to use (especially for women). This Team has not had the opportunity to review the proposed
sites. The proposed designs under LZEMP may be cross-checked for such siting issues – and remedies sought for problematic locations by providing access and openings from main streets, as also open facades that make the PTs visible from a distance. Signages need to be paid further attention to - these are currently small and not easily noticeable from the streets.

Portable Toilets

Portable toilets are found to be appropriate for the locations they are currently serving. Problems were reported about vandalism of this PT but this was found to be a one-off freak incident and with daytime caretakers, such concerns have been taken care of.

The dry water-saving (disposable plastic bag) type portable toilets are reported to be considered dirty and not preferred by users. The two batteries of portable toilets use a separate solid and liquid pre-treatment method based on proprietary materials. ESD reported that this technology is not working well. Similarly, the Public Square PT is working well but uses a liquid-recycling technology in which the chemicals provided are proprietary. Limited information is available with ESD on the technology used in the above portable PTs. It is recommended that in the planned procurement of portable PTs, such design, technology and proprietary issues are carefully taken into account.

Three-Star PTs

The Three-Star and Jingtao PTs provide a high grade of facilities and features, but these come at a higher capital and operation and maintenance cost. Further, the Team found that not all facilities available in these PTs are being used, and are even kept locked in some instances.

Capital Costs of PTs

The method of planning and estimation follows a pre-dominantly construction area-based estimation rather than a per-seat calculation of PT capital costs. Since many of the PTs in Liuzhou have been constructed many years ago, it was difficult to collect reliable data on costs for purposes of comparison. Further, since the PTs constructed in the recent past have been combined with Solid Waste depots, comparison becomes confounded with errors.

The LZEMP proposal for PTs has carried out a detailed costing which provides indicative break-up of capital costs by the number of seats apart from unit areas. Table (7) presents the Capital Cost for the proposed LZEMP PTs.

<table>
<thead>
<tr>
<th>No.</th>
<th>Item name</th>
<th>Engineering cost ('000 RMB)*</th>
<th>Percent to Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Civil Engineering</td>
<td>Goods</td>
</tr>
<tr>
<td>A</td>
<td>Engineering cost</td>
<td>18,328</td>
<td>32%</td>
</tr>
<tr>
<td>1</td>
<td>Construction cost of public toilets</td>
<td>15,430</td>
<td>2,683</td>
</tr>
<tr>
<td>1.1</td>
<td>The first batch</td>
<td>5,403</td>
<td>32%</td>
</tr>
<tr>
<td>1.2</td>
<td>The second batch</td>
<td>3,799</td>
<td>21%</td>
</tr>
<tr>
<td>1.3</td>
<td>The third batch</td>
<td>5,837</td>
<td>33%</td>
</tr>
<tr>
<td>1.4</td>
<td>The fourth batch</td>
<td>3,288</td>
<td>18%</td>
</tr>
<tr>
<td>B</td>
<td>Other expenses</td>
<td></td>
<td>50%</td>
</tr>
<tr>
<td>1</td>
<td>Compensation for land requisition</td>
<td>28,956</td>
<td>50%</td>
</tr>
<tr>
<td>2</td>
<td>Other design and overheads</td>
<td>3,074</td>
<td>5%</td>
</tr>
<tr>
<td>3</td>
<td>Contingencies and Capital Costs</td>
<td>7,243</td>
<td>13%</td>
</tr>
<tr>
<td>C</td>
<td>A+B</td>
<td>57,600</td>
<td>100%</td>
</tr>
<tr>
<td>D</td>
<td>Computed Unit Costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Total Construction Area (sq m)</td>
<td>4,490</td>
<td></td>
</tr>
</tbody>
</table>

Improvement and Maintenance Management of Public Toilets in Liuzhou Draft Report 37
<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>GII (Combined with Solid Waste Depot)</th>
<th>GI (Proposed under LZEMP)</th>
<th>THREE STAR TOILET</th>
<th>PORTABLE TOILETS (Proposed)</th>
<th>MOBILE TOILETS (Proposed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Period of Construction/Purchase</td>
<td>2001-2005 Constructions considered</td>
<td>To be constructed 2006 onwards</td>
<td>2003-2004</td>
<td>Proposed new 30 Portable PTs with 4 seats each.</td>
<td>Proposed two mobile PTs with 4 seats each.</td>
</tr>
<tr>
<td>B</td>
<td>CAPITAL COST PER PT (Excluding Land Acquisition Costs)</td>
<td>Includes another floor for Solid Waste Depot, and variable no of seats. Ranged from 0.33 million RMB (2001), 0.35 -0.4 million RMB (2002-2003), 0.6-0.7 m RMB (2003-2004), 0.5-0.7 m RMB (2005)</td>
<td>57.6 m for 62 PTs, average 0.46 million per PT (no of seats variable)</td>
<td>1.2 million RMB (for 25 seats in Three Star PT; and 42 seats in Grade II PT for school on floor above). Concessional rates obtained for preparation costs.</td>
<td>13.5 million RMB</td>
<td>Budgetted 0.96 million RMB (advised taking higher unit cost)</td>
</tr>
<tr>
<td>C</td>
<td>PER UNIT CAPITAL COSTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Cost per unit area (sqm)</td>
<td>Only 2005 Costs: 2,000-5,000 RMB (charging 70% of costs and 50% area to PTs)</td>
<td>6,000 - 6,500 RMB</td>
<td>2,500 RMB average; 4,000 RMB if 80% costs and 50% area charged to Three Star portion</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Table (8): Comparative Capital Costs of Public Toilets in Liuzhou (Estimation)

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>GII (Combined with Solid Waste Depot)</th>
<th>GI (Proposed under LZEMP)</th>
<th>THREE STAR TOILET</th>
<th>PORTABLE TOILETS (Proposed)</th>
<th>MOBILE TOILETS (Proposed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Cost per Seat</td>
<td>Only 2005 Costs: 23,000-44,000 RMB (charging 70% of costs and 50% area to PTs)</td>
<td>30,000 - 35,000 RMB</td>
<td>18,000 RMB average; 35,000-40,000 RMB if 80% costs and 50% area charged to Three Star portion</td>
<td>112,000 RMB</td>
<td>120,000 RMB</td>
</tr>
</tbody>
</table>


There appears a very wide variation in the costs of the existing GII toilets (all costs are for combined PTs) from 23,000 to 45,000 RMB per seat (2005 costs, USD 2,847 to USD 5,569) – this also arises due to allocation/charging of costs that may not be reliable, as also the variable number of seats. The mean is likely to be likely to be less than 30,000 RMB (USD 3,713). The unit costs of the proposed LZEMP PTs will be between 30,000 and 35,000 RMB (USD 3,713-4,332). Even after charging 80 percent of the total costs to the Three Star Toilet (built over 2003-2004), per seat costs appear only marginally higher at 35,000 to 40,000 RMB (USD 4,332 – 4,950). While this may be explained by the concessions that the Three Star PT received in terms of waiving of costs, and cost escalations in the last two years, this perhaps indicates that the incremental per seat costs of going from Grade I to Three Star Tourism Grade are about 15 to 25 percent. Of course, O&M costs of the latter are much higher. The per-seat capital costs of portable and mobile PTs, are predictably much higher than other PTs.

While the above preliminary inferences allow us to appreciate the relative differences between the PT types, this underlines the need for systematic capital cost data analysis in the future.

The design life of the PTs is taken to be 50 years. In many other infrastructure sectors too, the Government has sought to increase the design standards for longer life of assets. However, the design institute or ESD do not have the benefit of systematic data on the physical performance of assets over a period of time. This makes it difficult to carry out a life-cycle costing (and the operational O&M cost implications) of the PTs.

2.3. Institutional Arrangements for Planning and Management of PTs

The Environmental Sanitation functions in the city are managed at three broad levels:
- The LZ City Appearance Bureau of the LMG is the responsible city-level planning, financing, oversight and regulation agency
- The City Level ESD (LZ ESD) is specialized division responsible for planning, construction, monitoring and review, and guidance on management to district ESDs
- The ESDs at the District level are responsible for operations and maintenance management of the PTs

Bulk of the ESD functions and personnel and finances for PT management were devolved to District Governments in the decentralization commenced in 1997. By 2004, LZ ESD had also formally transferred the PT assets to the District ESDs. The specialized planning, financing, design and construction/procurement functions for new PTs remain vested in LZ ESD, and this is also the implementing agency for the LZEMP PTs. The division or responsibilities across the LZ and District ESDs is similar in case of solid waste management.

Roles and Responsibilities

The City Appearance Bureau is the City Government Agency under whose overall supervision, the ESD functions. The ESD Master Plan summarizes the roles and responsibilities of the LZ and District ESDs thus:
Liuzhou City Environment Sanitation Division (LZ ESD)

(1) City ESD is the functional department under City Appearance Bureau to provide for and manage the environment and sanitation of Liuzhou city. The City ESD is responsible for supervising; inspection, checking, instructing, providing service and coordination on the operation of district ESDs.

(2) Based on relevant national regulations, by laws to establish and perfect Liuzhou environment and sanitation administrative standard documents. Submit the standard documents to city government for approval and supervise the implementation. Organize routine inspections and evaluations for the city environment and sanitation management. Improve the city environment and sanitation management level.

(3) Budget for city environment and sanitation expenses. Procure and manage the relevant trucks and equipment. Take charge of all relevant facilities’ construction and upgradation.

(4) Take charge of research on environment and sanitation, and carry out staff training.

(5) Lead City Environment and Sanitation Supervision Division to exert administrative function. Assist and coordinate district ESDs’ daily management.

Responsibility of District ESDs (DESDs)

(1) District ESD is the functional department under district government to manage district environment and sanitation. City ESD guides District ESD’s operation. District ESD lead to manage district environment and sanitation work.

(2) Take charge of all Grade I, II, III PTs; and road sweeping and cleaning.

(3) Take charge of environmental and sanitation equipment and facilities’ maintenance and management.

(4) Provide guidance to the street office’s environment and sanitation work.

While the LZ and District ESDs interact closely especially in respect of O&M management of PTs (that many district ESD staff were part of LZ ESD not long ago also helps in maintaining relations), legally they are parts of two different levels of government, each with their own lines of accountability and dependence on resources and personnel, to their respective governments. In terms of asset ownership, and assignment of functions, finances and personnel too, they are accountable to their respective governments. The District Governments make annual financial allocations and approve assignment of personnel for PT management.

Therefore, working across the city and district ESDs, is an inter-governmental matter and not a direct line of control and accountability. For instance, even though LZ ESD provide technical assistance and along with the City Appearance Bureau, are able to work with District ESDs for monitoring O&M of PTs, the finances for personnel and materials for PT cleaning, will need to be allocated by the District Governments to their respective ESDs. On the other hand, planning of new PTs is in the realm of LZ ESD and finances are provided by LMG, even though the involvement of the district ESDs may be sought in planning. The relationship of LZ and District ESDs is schematically presented in Fig. (1).

Fig. (1): Division of Responsibilities across City and District Governments
Organization and Staffing

According to the Social Assessment Study, there are 2,400 staff members involved in environmental sanitation related activities in the city – including the staff at the district ESDs, as presented in Tables (9) and (10).

<table>
<thead>
<tr>
<th>Table (9): Full-time Staff Engaged in Environmental Sanitation in LZ and District ESDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>LZESD</td>
</tr>
<tr>
<td>Chengzhou District</td>
</tr>
<tr>
<td>Yufeng District</td>
</tr>
<tr>
<td>Liunan District</td>
</tr>
<tr>
<td>Liubei District</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

*Source: Social Assessment, 2004*

<table>
<thead>
<tr>
<th>Table (10): Temporary Staff Engaged in Environmental Sanitation in LZ and District ESDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit</td>
</tr>
<tr>
<td>LZESB</td>
</tr>
<tr>
<td>Chengzhou District</td>
</tr>
<tr>
<td>Yufeng District</td>
</tr>
<tr>
<td>Liunan District</td>
</tr>
<tr>
<td>Liubei District</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

*Source: Social Assessment, 2004*

At the time of this Study (Oct, 2005), there were 166 permanent staff members in LZESD led by five Directors and deputy Directors; 21 department managers, and 140 medium, junior and support staff. In addition, there are 36 temporary personnel for support services. Liunan district reported 285 full-time (of whom 106 have retired), and 623 temporary staff; and Yufeng district has 201 full-time, 129 retired and 620 temporary employees. Updated figures were not available from other districts.

Although the personnel are grouped into various departments in the LZ ESD, they fulfill a number of common functions across solid waste, PTs, and other administrative and support functions. Therefore, it is difficult to clearly identify staff positions that are specifically responsible for PTs in the city. DESDs are able to identify their frontline and immediate supervision staff assigned to O&M management of PTs, but it becomes difficult to identify clearly the management staff at the DESDs, that is committed to PT management functions, as these tend to be mixed with Solid Waste and other functions of the divisions.

The LZ ESD is organized into smaller units to carry out its administrative and technical roles in respect of Solid Waste Management, and Public Toilets and management. These units or departments include:

- Environmental Sanitation Supervision Department
- Environment Sanitation Machinery Maintenance
- Solid Waste Transportation
- Property Management Group
- Chemicals and Cleanliness Group
- Construction Department
- City Appearance Environment Sanitation Administration Department

Planning and Administrative functions are spread over
- Administrative Office
- Safety Security Department
- Facilities and Energy Department
- Human Resource Department, and
- Planning and Finance departments.

An Environment Sanitation Research Institute is also a part of the LZ ESD.

The structure and organization of DESDs is similarly organized although there are slight differences in the functions and staffing across the four districts. For example, the Liunan District ESD has six sections for Planning and Finance; Administration Office; Logistics Support; Safety and Technical Section; Business and Operations Section; and Door-to-door SWM Section. In contrast, Yufeng District ESD has 12 sections including Administrative Office; Finance Section; Pay to Service Section; Sweeping and Cleaning Section; Public Toilet Section; Transportation Section; Supervision Section; Material Section; Security Office; Labor Union; Birth Control Service Station; External Service Center; and Inspection Preparation Office.

In both the city and district ESDs, there is the lack of an identifiable team that focuses on improved provision and management of PTs at the city and district levels. This possibly leads to dilution of attention to PTs. One of the issues to consider is the carving out of clear PT planning and management divisions, so that these can become repositories of knowledge, experience and capacities in the area of PTs. This could also lead to greater professionalisation of PT planning and management.

The second issue pertains to cost of personnel at ESDs – these costs are much higher than labour available in the informal and private sector markets. This provides the basic reason for ESDs to contract out maintenance of PTs, resulting in considerable savings on labour costs.

Planning for PT Provision

A number of agencies are involved in the planning and financing of PTs, leading to the commissioning of new PTs in the city. The first step is to project the requirements of PTs in the City – this uses the City and ESD Master Plan projections. Based on these plans, and following the national norms for distance, population, and Grade desired, the ESD will work along with the City Appearance Bureau and the Planning Bureau, to identify locations for the proposed PTs. These are then presented to the Land Bureau and thereafter to the Development and Reforms Commission (DRC) of the LMG for pre-approval after which, the ESD will prepare the feasibility design and estimate and presented these back to the DRC, and to the Finance Bureau and the City Construction Committee, the key body responsible for construction related activities.

The City Government then makes the necessary budgetary provision for the construction. After this provision, the detailed design and cost estimate is prepared – as also preparations are made for land requisition that goes in for DRC review and approval (Finance Bureau and the Resettlement office being involved in key decisions e.g. requisition costs). After approvals and requisition, construction is tendered out to eligible contractors and the ESD supervises and monitors progress. The Construction Committee plays a key role in reviewing drawings, tendering, issuing permissions for construction and completion certificates, supervising construction quality and safety requirements, etc.
The City Financial Bureau releases funds regularly to the ESD on the basis of completion. After the completion, actual costs are calculated and the final estimates are audited by the City Financial bureau, usually within 6 months. The cycle of planning new PTs is presented graphically in Fig. (2).

Fig. (2): Cycle of Planning New PTs in Liuzhou

A number of different agencies are involved in the planning of PTs (as also some of them in decisions relating to demolitions of PTs):

1. Liuzhou City Appearance Administration Bureau: administration of planning, construction, regulation, imposing penalty and fines, supervision of solid waste management, road sweeping and public toilets.
2. Liuzhou Environment Sanitation Division: annual planning for Public toilet construction, organization of construction, public toilet management guidance, public toilet checking and evaluation (cleanliness, disinfections, tariff collection)
3. Liuzhou Planning Bureau: planning and approval on new public toilet locations, demolition.
4. Liuzhou Land Bureau and Resettlement Office: Issue of land-use permission, and determination of requisition costs
5. Liuzhou Development and Reform Committee: Public toilet construction approval
7. Liuzhou Construction Committee: Review drawings, tendering, issue construction permission, completion acceptance, construction quality supervision, construction safety supervision etc.

Thus, the process of planning of PTs involves multiple agencies and has adequate checks and balances to ensure that decision-making considers the multiple dimensions involved. However, the following issues emerge as significant:

- **Availability of land:** LZ ESD emphasizes that the scarcity of land is the major bottleneck in proper planning, and rational siting of PTs across the districts of the City. The limited land available with the City Government, and demands from competing uses, not only means delays in planning of PTs but also constrain rational siting following area, distance and population norms leading to inequitable distribution of PTs across the city. Apart from delays, scarce land and high costs (of requisition) makes the cost of constructing PTs expensive. National laws
govern land issues including compensation whereas the provincial and city governments have to bear the burden of costs. The Team did not have the opportunity to examine the objective status of availability of land with relevant Government bureaus but according priority to public amenities such as PTs, in the land-use plans is a must for proper planning of PTs in the city. Similarly, strict provisions need to be made (as experimented with in Guilin, see later section) to “protect” PTs from demolition and compensate for or replace them as a part of new developments, if demolition is unavoidable.

- **Inter-governmental jurisdictions:** As outlined above, after decentralization of roles and responsibilities, and transfer of assets from LZ ESD to District Governments’ ESDs (planning, financing, construction of new PTs, and monitoring still rests with LZ ESD), the relationship between the two levels is currently undergoing transformation as the capacity of DESDs improves. Again, Nanning offers another model in which while planning rests with city Urban Bureau and City ESD, construction implementation too has been devolved to Districts. In Liuzhou at present, the inter-governmental relationships are likely to introduce potential problems of mismatch of cost, revenue, functional and capacity assignments across the City and District levels. For instance, with planning vested in LZ ESD, DESDs will have little control over the assets they inherit to operate and maintain. District government budgets would also encourage cost-savings, including the hazard of cutting down on maintenance budgets leading to poor management standards (such instances have been reported although their magnitude and frequency was not clearly established). These issues will need to be addressed for proper functioning of institutions, not least for planning but more importantly for PT O&M management in a sustainable manner (as outlined in the next section).

- **Organisational and Capacity Issues:** There are preliminary indications that there is a need for re-organisation and capacity building of the city ESDs for improved performance as efficient entities delivering environmental sanitation services to the city (or managing these functions whereas they strive to change to facilitators and bring in other agencies as providers of PT services). One of the major changes in this regard would be creation of separate teams for PT planning and management (and not mix PT related functions as a part of many other general and specialized responsibilities) and sharpen their skills and capacities in looking at PTs as assets of the organization. This will need further investigations and analysis as will be opportune for the LMG to carry out, possibly assisted by the proposed Technical Assistance as a part of the LZEMP.

2.4 **Management Arrangements for PTs in Liuzhou**

Prior to 1997, all O&M management was carried out centrally by the LZ ESD. With decentralization of the City Government to four districts initiated in 1997, a portion of the LZ ESD personnel and the daily PT maintenance and management responsibilities were transferred under the jurisdiction of the respective District Governments, specifically to the ESDs of these governments. In the initial years, LZ ESD provided hand-on support to strengthen the district ESDs in carrying out their function, and this has reduced over time to LZ ESD providing technical guidance and advice; and the conduct of regular (weekly) or random joint inspections (involving City Appearance Bureau, LZ ESD and District ESD officers) of randomly selected main and other street sections and PTs in the city.

In the initial years after 1997, the district ESDs also provided reporting on O&M to the LZ ESD. For the first two years in fact, the DESDs would submit the annual proposal for O&M to the LZ ESD for review and advice to the District Governments. This practice has since been discontinued in favour of the district finance bureaus carrying out such review and approval functions. Data on O&M of PTs is also collected and used at the district level only.

The revenue generation potential of PTs (as revealed by rapid demand surveys conducted by DESDs) determines what O&M management arrangement is used for them – the loss-making toilets are maintained by the district ESDs whereas toilets earning a surplus or breaking even are usually

---

4 This is one of the reasons that this assignment was unable to collect uniform O&M data from all districts.
contracted out to individual contractors. Thus, the O&M management of PTs on a day-to-day basis is carried out through the following three methods:

(1) **DESD Staff**: DESDs assign their temporary and/or permanent workers to carry out cleaning of some PTs in the district. This essentially involves regular cleaning and since more than one PT is assigned per worker, these PTs are not manned. These PTs are typically the free-to-use PTs in the city, commonly located in or near residential and mixed areas.

(2) **Contracted Out Type I No-revenue Deposit PTs**: these are PTs that managed by individual contractors who collect tariffs from users, but do not submit any contract fees to the district ESD, as these are deemed to just about covering the operational (labour) expenses. The contractor or his/her agent is present at the premises during the hours that the PT is open.

(3) **Contracted Out Type II Revenue Deposit PTs**: these are PTs that managed by individual contractors who collect tariffs from users, and submit contract fees to the district ESD every month, on the basis of the price quoted by the contractor in an annual auction. These are for PTs that make operational profits (over and above labour costs), and the contractor or his/her agent is present at the premises during the hours that the PT is open.

In the Contracted Out Type II model, the contractor is to provide his/her own tools whereas the ESDs provides the cleaning materials for both types of contracts. In all the above cases, the DESD directly takes care of water (some limits may be prescribed) and power bills (if any); carry out major and minor repairs; as also carries out cleaning of septic tanks, etc.

A fourth management model is proposed in the Build-Operate-Transfer contract given out to Jingtao Company by the LMG, under which the responsibilities and costs of O&M will be the responsibility of the Company. These will be pay-and-use PTs and the revenues will be collected and used by the Company. Legally, the City Government (acting through LZ ESD) will own the property including the PT and will have rights to monitoring and supervision of O&M standards, but will be deemed to be leased out to the Company.

Data available from three districts shows the prevalence of the above three types of management arrangements in the districts, as presented in Table (11).

<table>
<thead>
<tr>
<th>No</th>
<th>District</th>
<th>Managed by DESD Staff (Full-time and/or Temporary): Free to Use</th>
<th>Contracted Out: Type I PT (Collect Tariff but do not submit any contract fee to DESD)</th>
<th>Contracted Out: Type II PT (Collect Tariff and submit contract fee to DESD)</th>
<th>Total PTs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Liubei</td>
<td>20</td>
<td>6</td>
<td>9</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>Liunan</td>
<td>16</td>
<td>5</td>
<td>8</td>
<td>29</td>
</tr>
<tr>
<td>3</td>
<td>Yufeng</td>
<td>18</td>
<td>8</td>
<td>15</td>
<td>41</td>
</tr>
<tr>
<td>4</td>
<td>Chengzhong</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Total for three Districts</td>
<td>54</td>
<td>19</td>
<td>32</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td>Percent to three Districts’ Total</td>
<td>51%*</td>
<td>18%</td>
<td>30%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Note: this data is partial – even after counting the total number of PTs in the fourth district, the total is 130, whereas there 149 PTs under DESDs’ management. Some toilets were reported not in use whereas information was not available on the rest. About 60 PTs are reported to under contracted-out arrangements – this implies more than 50 percent PTs are under DESDs’ own management arrangements (i.e. not contracted out).

*Source*: District ESDs, Team Analysis, Nov 2005
From the above districts, DESDs earn revenue from less than a third of the PTs, whereas savings in labour costs are possible for about half of the PTs (Type I and Type II). The DESDs have to maintain more than half of their PTs using their own staff. All maintenance and repair costs are borne by the DESDs – they even pay for the materials used in Type I contracts (labour and basic tools being of the contractor). Only in the Type II, there are beginnings of introducing enterprise from the private sector.

Revenue Estimation and Contracting Method

The following steps are followed to estimate the potential revenues, and awarding contracts to individuals:

1. District ESDs organize a survey on the number of visitors for each PT at the end of each year, usually December. The survey is conducted by the district ESD staff who will, over a week, count the number of visitors from 6:00 am to 6:00 pm. The average number of users multiplied by 0.2 RMB (per use), becomes the basis for estimating the average monthly revenue.

2. If the monthly revenue of a PT is more or less 460 RMB per month (minimum wages in Liuzhou), this PT will be classified as Type I. The Contractor of Type I PT is not expected to pay anything to the District ESD, and keep the earnings. If the revenue of the PT is clearly greater than 460 RMB per month, this PT will be classified as Type II. The contractor of Type II pays an agreed monthly contract fee to the district ESD. For PTs that show revenue potential of less than 460 RMB/month, DESD makes its own arrangements to clean and maintain them – usually deploying their own full-time or temporary staff.

3. After the survey and classification of the PTs are completed, district ESD will publish the tender notice indicating the types of the PTs and the dates and requirements for the tender. The tender deposit for Type II PT tender is 500 RMB that becomes the security deposit of the winner. Other bidders will be refunded their tender deposits.

4. On the bid opening date for each of the Type II PTs, the DESD will announce the reserve price and hold an auction. The competitors will participate in the auction and the highest bidder will be awarded the PT. Usually not more than one PT will be awarded to any bidder. The winner will submit three-months contract fee (net of the tender deposit) as security then sign the contract with the district ESD.

5. For the Type I PTs, the district ESD will invite applications, and hold interviews of candidates. They will be evaluated on the basis of their age, experience, and health etc. Then district ESD will sign the contract (same as Type II, appropriately modified) with the final selected candidates.

The contract amount depends on the location of the PT and varies widely within and across districts. In 2005, the highest bid for a PT in Liunan was 40 RMB/day and 60 RMB/day in Yufeng district. According to ESD staff, given the nature of the task, and experience requirements for the Contracted Out PTs, most of the contractors (for both types of PTs) are retired persons, relatives and friends of ESD staffers. A few farmers from nearby areas and local resident committee members have also taken these contracts – usually as incremental or supplementary income for the family since the revenues are in most cases insufficient to become the only or main source of earning. Contracts also mean that more than one person is required to ensure presence at all times of the day up to evening.

The contract signed between the Type I and II contractors is a simple one that lays out the powers, responsibilities and liabilities of the DESD and the contractor. Box (2) presents the contract being utilized in one of the districts.
Box (2): Sample PT Management Contract Contents

1 Rights and Obligations of Party A (DESD)

1.1 Based on the regulations on pay-and-use public toilet sanitation management and the contract management, Party A Contracts with Party B to operate and manage the PT and receive a security in amount of ___ RMB from Party B (shall be returned the security when the Contract is ended). The Contract shall be valid from ______ to ___________. Party B shall submit to Party A, a daily contract fee in amount of ___ RMB/day.

1.2 Check and supervise Party B to manage the PT according to the following items:
   No sputum, snot and paper, no block, no dirt and spider web; no sludge and water pool, no flyer and maggot, no urine scale and odor; ceiling clean, floor clean, door and window clean, wall and separator clean, unit and urine vouch clean, and 5 m around the PT clean.
   If the PT is found not clean according to above items, Party A will be empowered to penalize Party B 5-10 RMB/item. Party A will terminate the Contract if Party B is frequently found to violate the rule.

1.3 Check, supervise and urge Party B to prepare for the “Jinhu Cup” competition held by Liuzhou City Appearance Bureau and other environment and sanitation evaluations. If Party B is found not to positively prepare and the PT quality is bad, results in mark deduction or being criticized publicly, Party A will penalize Party B 20-50 RMB/time based on the degree of the situation. If being criticized publicly or marks deduction happens twice in succession, Party A will terminate the Contract.

1.4 Check and supervise Party B to maintain the facilities in the PT including the Regulation board, mirror etc. Party B will be responsible for the damage or missing without reason and will be penalized 50-200 RMB.

1.5 Check and supervise Party B to save water. The water consumption for the public toilet is set as ___ ton/month. If the water consumption is beyond the limit without reason, Party B will be responsible for paying the part which is beyond the limit.

1.6 Check and supervise Party B to collect the tariff which is approved by the Price Bureau. If Party B violates this clause, Party A will penalize Party B 300-500 RMB or terminate this contract, confiscate his security, and contract with another party.

1.7 Party B shall submit the contract fee on the ___ day of each month in the amount based on open bid/negotiation. Party B will bear 2%/day late fee if Party B does not submit the daily contract fee on time. If Party B delays to submit the contract fee for a month, Party B will be treated as breach of the contract. Party A will terminate the Contract, confiscate the security, and contract with other parties.

Obligations:

1.8 To create a good condition and environment for Party B and conduct a necessary training to Party B. Assist and coordinate Party B to solve the issues during the operation, and protect Party B’s legal rights and interests.

1.9 Deliver the relevant regulations and requirements from City level agencies, guide Party B to enhance the management of PT.

2 Rights and Obligations of Party B

Rights

2.1 Party B shall sign the Contract and submit the security to Party A based on the sanitation management regulations and the contract management pay-and-use PT. Party B will obtain the operation and management right of the PT starting on the first day when signs the Contract. Party B can extend the Contract when the validity period is end or quit continuing the Contract (the security can be returned).

2.2 Party B shall independently manage the PT based on the content, scope, and manner specified in the Contract and assume sole responsibility for its profits or losses. Party B is entitled to protect his legal rights specified in the Contract.

2.3 Party B is entitled to inform Party A to suck and clean the septic tank in time and repair the basic facilities in the PT.

Obligations

2.4 Strictly obey national laws, bylaws and policies, operate legally, show the permit to collect tariff, implement all relevant regulations, accept the inspections and monitors from Party A and all relevant government agencies. Submit the contract fee on schedule. Party B can not terminate the contract ahead of time.

2.5 Take care of the PT seriously based on the “Six No and Six Clean” regulation and prepare for inspections. If the PT quality is found not to meet the quality standard and is deducted marks or is criticized publicly, Party B shall accept the penalty from Party A. Or Party A can terminate the Contract in term of how serious the situation.

2.6 Seriously maintain the facilities in the PT. Party B can not damage, loss or change the use of the facilities, otherwise, Party B shall pay for it and accept Party A’s penalty.
2.7 Party B shall unconditionally obey Party A’s arrangements if the public toilet is demolished or maintained as planning. If the PT is suspended to collect tariff due to demolishment and repair, the manager of PT Section from Party A shall write a proof to Party A’s Finance Section the actual suspended days. Party B is entitled to exempt the contract fee during the suspended days.

2.8 To submit the contract fee on schedule, otherwise Party B shall accept Party A’s penalty according to the regulations.

2.9 During the contract validity period, Party B can not transfer or subcontract the public toilet to other parties. Party A is entitled to terminate the contract and confiscate the deposit if Party B violates this clause.

2.10 Save the water consumption on the premise that the PT is clean. If the water consumption is beyond the limit without reason, Party B shall pay for the overrun.

Source: DESDs, Oct-Nov 2005

The above contract contains the basic elements of a sound contract. However, awarding of each of the eligible PTs to one separate party implies the administrative burden of managing so many individual contracts. Further, it becomes difficult to build in incentives for better performance leading to increased standards of maintenance management since contracts are not for a group of PTs allowing the contractor to innovate on management arrangements. Thus, in most cases, these contracts replace high-cost DESD personnel with cheap labour from the market. Only in Type II contracts, there is a beginning of private sector participation but the potential is not realized because of one-contractor one-PT restriction. The perusal of a contract issued by another DESD however showed that it was in much simpler form and did not fully lay out all the terms and conditions thus posing contract-related risks. The contracts need to be standard across the districts – not the case at present.

Management of PTs by DESD Staff

For PTs that are not viable (less than 460 RMB/month earnings – USD 57) to let out on contract, the DESD deploys its own staff to maintain these. This typically takes the form of allocating a group of PTs to front-line staff, and devising a roster for them to carry out cleaning as specified by the management standards guidelines.

Some districts deploy their own full-time staff, say assigning one cleaner to clean two PTs. PTs would be typically cleaned twice a day once in the morning and once in the afternoon. Other districts have deployed temporary staff to carry out these functions. Usually a supervisor assigns and monitors the work of these front-line staff members. DESDs have also to maintain staff for operating the sanitation trucks for periodic cleaning of septic tanks. The rationale of utilizing temporary staff arises from the lack of full-time staff and savings in labour costs. The cost of a permanent staff member for instance may be about 1,000 to 1,500 RMB per month (USD 184-186), whereas temporary staff may be paid about 500 RMB/month (USD 62). While such labour savings are made possible by such arrangements, this comes at considerable social costs and increased work-load for the temporary staff members (See Box 3).

Box (3): A Day in the life of a Temporary PT Cleaner’s

Madam X migrated with her husband to the city from her rural farm home a few years ago, in search of employment. After working as casual labourers for a few years, they were contracted as temporary staff by one of the DESDs. She and her husband have been assigned the job of cleaning 8 PTs. The DESD has provided them with tools, and also supplies the cleaning material and disinfectants. They have to wash each PT twice a day, apply disinfectants once a day in each PT, and acid-clean each PT twice a week. Their work begins before 7 am – it takes about an hour to wash a PT and that means a short break for lunch before doing the afternoon round of cleaning. In some residential area PTs under them there is a rush three times a day and requires them to clean more – more than full eight-hours of work daily. Since this is temporary contract, they cannot afford to take off-days even on weekends - else wages will be deducted from their consolidated 600 RMB per head per month. They have been working for five years now but their future does not look any better as it is very difficult to get a full-time job nowadays….

Source: Team Interview with PT cleaning temporary staff, Oct-Nov, 2005

In most of such cases though where DESDs deploy their own staff, the PTs are periodically cleaned but are not manned – these are the free-to-use PTs, and since they are not manned nor contribute any
user charges, are found to be poorly maintained compared to PTs under Type I and II contracts, which are manned (at least from morning till evening) and maintained since users pay for using these PTs.

**Build- Own-Operate-Transfer: Alternate approach to PT Provision and Management**

In order to rapidly provide for an increased number of PTs in the city, and taking account of high land values, the LMG have entered into a contract with the Beijing-based privately owned Jingtao Company, for the latter to build and operate 20 PTs in the commercial areas of the city. In this kind of a contract, the Government provides land free to the company, and the company builds a PT from below ground level to a bit above ground. It further builds two more floors on top of the PT, and utilizes this space for commercial activities – it gets the rights to management of the complex for 50 years. The Company brings in its own capital to build the complex, and maintains and operates the PT while collecting user-charges at government-determined rates. Jingtao has used this model of building with-PT Complexes in many other cities of China, including ten complexes in Nanning in the recent past. It uses its experience and tested model to negotiate terms with the city governments. Besides, Jingtao is also a manufacturer of ceramic tiles and bathroom fittings, making it possible for it to use its own materials. According to information available with the ESD, about 700,000 RMB will be the estimated cost of investment for Jingtao for each of the 20 Complexes it is going to build in Liuzhou. Since the unit cost of each of the complexes is less than 2 million RMB, there is no need for tendering out these contracts, and an agreement with the LMG/ESD will be adequate.

Jingtao has stringent requirements for the location to build the complex in: these are usually restricted to areas with high commercial potential - commercial centres or tourism areas, and public transit locations like railway stations. The complex usually has a footprint of about 150 sqm. The PT portion will extend from 1.8 m under ground and will rise to 1.2 m above ground level. The exact number of toilet cubicles depends on the area available. Its PTs in Nanning were built to high standards (three star plus) with toilets for disabled near the entrance; a common area on descending the stairs leading to separate areas for men and women. Amenities provided include basins with stone slabs and hand-dryers, wall-attached urinaries bowls for men, cubicles with squat-type pans and high doors of good quality, wall tiling, adequate ventilation and exhaust fans, and a manager’s room.

The Company has commissioned the Huaxi Design Institute, a local Design institute to generate good-quality designs for the complexes, although the ESD has the right to approve the design for the PT portion. The ESD is responsible for obtaining, on behalf of Jingtao, all permissions, approvals and clearances for which Jingtao defrays the costs. Since PTs are considered public service, it is like that the Company will benefit from some exemptions and waivers. While the Company will be responsible for carrying out the construction, the ESD stipulates a construction period not exceeding 100 days. After the completion of the complex, the ESD will be the deemed owner of the PT but O&M management will be carried out by the Company in accordance with the City’s Environment and Sanitation Management Standards (see below). Jingtao will however have rights to use the other two floors, including renting it out. The Company will also be allowed to sell space for advertisements, without any payment to the LMG. Every 5 to 7 years, the Company is to re-do the fixtures and fittings of the PT so as to maintain the high standards of the PT. The Company is entitled to collect government-determined user charges but there is a clause that it will be paid 20,000 RMB per annum, as a management subsidy should the city government declare the use of PTs free. At the end of 50 years, rights over the complex, including management rights over the PT, will revert to the LMG. Termination clauses are NOT reported to be included – these would have pertained to consequences and safeguards pertaining to non-performance against management standards, and any other major violations.

This model of PT provision and O&M management is a new approach being tried out in Liuzhou, based on the experience of other cities. However, the reach of these facilities is likely to be limited to prime areas with considerable commercial potential. At the time of the visit of the team, construction was in progress in two sites, with a likely completion by the first quarter of 2006.
**O&M Costs and Revenues from PTs**

As described in the previous section, the management arrangements for PT management essentially are geared to saving direct labour and supervision/overhead costs of DESDs. This has been done in appreciation of the fact that labour costs form the bulk of the PT O&M costs. While a uniform system for O&M costs data collection and monitoring is not in place across districts, an attempt was made under this study to compile and analyze recent estimates regarding O&M costs in the city.

<table>
<thead>
<tr>
<th>No</th>
<th>ITEM</th>
<th>Liubei</th>
<th>Liunan</th>
<th>Yufeng</th>
<th>Chengzhong</th>
<th>All Districts</th>
<th>Percent to Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Electricity Charges</td>
<td>5,294</td>
<td>7,000</td>
<td>18,360</td>
<td>18,360</td>
<td>18,360</td>
<td>1%</td>
</tr>
<tr>
<td>2</td>
<td>Water Charges</td>
<td>25,160</td>
<td>200,000</td>
<td>276,000</td>
<td>184,686</td>
<td>685,846</td>
<td>28%</td>
</tr>
<tr>
<td>3</td>
<td>Labour Costs (Wage and welfare)</td>
<td>470,142</td>
<td>230,000</td>
<td>378,000</td>
<td>213,437</td>
<td>1,291,580</td>
<td>53%</td>
</tr>
<tr>
<td>4</td>
<td>Maintenance &amp; Repairs (Minor &amp; part of Major)</td>
<td>30,500</td>
<td>140,000</td>
<td>100,000</td>
<td>36,992</td>
<td>301,426</td>
<td>13%</td>
</tr>
<tr>
<td>5</td>
<td>Disinfectant and Cleaning Materials</td>
<td>11,640</td>
<td>19,500</td>
<td>13,000</td>
<td>52,161</td>
<td>86,301</td>
<td>4%</td>
</tr>
<tr>
<td>6</td>
<td>Septic Tank Cleaning</td>
<td></td>
<td>31,800</td>
<td></td>
<td>31,800</td>
<td>31,800</td>
<td>1%</td>
</tr>
<tr>
<td>7</td>
<td>Others (tools, overheads, etc.)</td>
<td></td>
<td>11,088</td>
<td></td>
<td>11,088</td>
<td>11,088</td>
<td>0%</td>
</tr>
<tr>
<td>A</td>
<td>Total Annual O&amp;M Cost</td>
<td>532,736</td>
<td>596,500</td>
<td>767,000</td>
<td>530,164</td>
<td>2,426,400</td>
<td>100%</td>
</tr>
<tr>
<td>B</td>
<td>O&amp;M COST PER PT</td>
<td>15,221</td>
<td>20,569</td>
<td>18,707</td>
<td>21,207</td>
<td>18,665</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>O&amp;M COST PER PT (USD*)</td>
<td>1,884</td>
<td>2,546</td>
<td>2,315</td>
<td>2,625</td>
<td>2,310</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Percent of O&amp;M Cost Recovered</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>432</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Blank cells in item 6 and 7 do not imply zero expenditure but this data may be clubbed in another category and is not available in disaggregate form. Data pertains to 130 of the 149 PTs.

*: 1 USD = 8.08 RMB; 1 RMB = 0.12 USD

Source: District ESDs, Team Analysis, Nov 2005

In the O&M costs presented in Table (12), each of the districts appear to be spending 0.5 to 0.75 million RMB per annum on O&M, taking the total O&M expenditure to 2.5 to 3 million RMB per annum (for the 130 PTs for which data is available). Overall, labour costs account for more than half the total costs. This is the expense head that is most affected by replacing full-time staff with temporary staff, and by contracting out to contractors. One district estimated a reduction of at least half its labour costs were it to go in for such arrangements instead of deploying its own full-time staff. Temporary staff cost less than full-time staff whereas contracting out results in greater savings.

Water charges are a substantial amount being paid out as tariffs to the water company, even though lowest rates are charged for PTs. This has prompted recent water-saving initiatives in PTs, like avoiding time-bound centralized flushing. Maintenance and repairs appear as 12 percent of costs but many of the repairs are paid for and managed by LZ ESD on behalf of the DESDs, and are not fully reflected in these costs. Electricity charges form a small proportion of costs since most of the PTs are supplied by streetlight connections that are free - only when streetlights are not available, does the necessity for taking a separate connection arise. The Three Star PT also has its own power connection.
Comparison across districts reveals that Liubei and Yufeng spend a considerably high proportion of
their O&M costs on labour. Water charges are also a high proportion (about a third) in most districts.
The Annual per PT O&M Cost across districts varies from 15,000 to 21,000 RMB with an average of
18,700 RMB (USD 2,314). Information about seats in PTs was available from only one district, and
this district indicated the per-seat O&M cost of 1,200 RMB (about USD 150) annually.

Information about revenue collection was available from two districts and recoveries amounted to
between 5 and 15 percent of the annual O&M costs. Revenue collection according to district data has
a slight under-statement in that it does not count the revenue collected but not submitted to ESD under
Type I contracts but this more than countervailed by the implicit labour costs saved in O&M of these
PTs. Anyhow, the revenue collection performance of districts in relation to the O&M costs incurred
remains a dismal figure.

District-wise compilation and comparisons are useful to understand the underlying cost drivers and
these depend on the situation in the districts, especially their staff availability and costs, overall O&M
management strategy, and their ability to extract the maximum returns out of contracts for PT
management. This requires better and dis-aggregated information, almost at the level of each PT to be
compiled and monitored regularly (as are the physical conditions of the PTs).

O&M Costs by Type of PT

Data from DESDs was helpful in synthesizing the cost elements for O&M management embedded in
their local and organizational contexts but a more objective picture can be put together if there were
data available on the differential costs of O&M across different types of PTs. As mentioned earlier,
proper costing of capital and O&M provides the basis for life-cycle costing of PTs which can become
a rational basis for planning and management of PTs. These systems are yet to be established in
Liuzhou, and hence the following analysis is presented as an illustration, and to highlight possible
ways of analyzing trends.

The estimates prepared for operating cost, in the LZEMP PT feasibility Report, 2004, takes unit costs
based on the Government’s Schedule of Prices, and corrects the estimates to arrive at the total annual
operating expense figures. These can be taken to be some kind of estimates (but not actual costs) of
what might it cost to maintain Grade I PTs. From one district in LZ, detailed O&M expense and
number-of-seat information was available on samples of combined and standalone Grade II PTs.
Again, there is a question-mark on the robustness and reliability of these sample cases. However, a
compilation of O&M costs does help explore dimensions of PT management.

<table>
<thead>
<tr>
<th>No.</th>
<th>ITEM</th>
<th>Grade I PT (Proposed under LZEMP)</th>
<th>Percent to Total (Grade I PT)</th>
<th>Average of Standalone Grade II PT Samples</th>
<th>Percent to total (Standalone PT)</th>
<th>Average of Combined Grade II PT Samples</th>
<th>Percent to total (Combined PT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Electricity Charges</td>
<td>13,800</td>
<td>1%</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>Water Charges</td>
<td>365,400</td>
<td>21%</td>
<td>6,553</td>
<td>35%</td>
<td>14,554</td>
<td>45%</td>
</tr>
<tr>
<td>3</td>
<td>Labour Costs (Wage and welfare)</td>
<td>669,600</td>
<td>38%</td>
<td>7,129</td>
<td>38%</td>
<td>10,340</td>
<td>32%</td>
</tr>
<tr>
<td>4</td>
<td>Maintenance &amp; Repairs (Minor &amp; part of Major)</td>
<td>216,600</td>
<td>12%</td>
<td>1,356</td>
<td>7%</td>
<td>2,285</td>
<td>7%</td>
</tr>
<tr>
<td>5</td>
<td>Disinfectant and Cleaning Materials</td>
<td>300,000</td>
<td>17%</td>
<td>1,923</td>
<td>10%</td>
<td>3,172</td>
<td>10%</td>
</tr>
<tr>
<td>6</td>
<td>Septic Tank Cleaning</td>
<td>10,500</td>
<td>6%</td>
<td>1,200</td>
<td>6%</td>
<td>1,320</td>
<td>4%</td>
</tr>
<tr>
<td>7</td>
<td>Others (tools, overheads, etc.)</td>
<td>99,900</td>
<td>6%</td>
<td>363</td>
<td>2%</td>
<td>470</td>
<td>1%</td>
</tr>
<tr>
<td>A</td>
<td>Total Annual O&amp;M Cost</td>
<td>1,765,800</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table (13): Annual O&M Costs across different PT Types – Illustration

<table>
<thead>
<tr>
<th>No.</th>
<th>ITEM</th>
<th>Grade I PT (Proposed under LZEMP)</th>
<th>Percent to Total (Grade I PT)</th>
<th>Average of Standalone Grade II PT Samples</th>
<th>Percent to total (Standalone PT)</th>
<th>Average of Combined Grade II PT Samples</th>
<th>Percent to total (Combined PT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total PTs</td>
<td>62</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>O&amp;M COST PER PT</td>
<td>28,481</td>
<td>18,525</td>
<td>100%</td>
<td>32,142</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total/Average Seats per PT</td>
<td>896</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>O&amp;M COST PER SEAT</td>
<td>1,971 (USD 244)</td>
<td>1,356 (USD 168)</td>
<td></td>
<td>1,429 (USD 177)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Break-even volume of users per seat per day @ 0.2 RMB</td>
<td>27 (USD 34)</td>
<td>19</td>
<td></td>
<td>20 (USD 25)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Samples of 10, 21 and 10 seat standalone PTs; and 18 and 28 seat combined PTs from Chengzhong District
Source: Feasibility Study 2004; Chengzhong District ESD; Team Analysis, Oct-Nov 2005

While the individual cost elements may be attributable to features specific to the PTs in the district, significant differences come to our notice when doing PT-type comparison as compared to results available in the previous section from the overall DESD cost estimates. Labour costs turn out to be a lower proportion at about a third of total O&M costs. Water charges form a significant proportion ranging from 20 to 45 percent. Materials and repairs are a slightly higher proportion than in the DESD estimates. It is hazardous to draw conclusions from this rather small sample and possible mis-classification of heads, but this analysis points to the need for the above cost analysis to be done on a more robust basis using data from a representative sample of PT-types.

The total annual per seat O&M costs for stand-alone PTs average about 1,400 RMB (USD 173). Combined PT O&M costs per seat are in a similar order of magnitude whereas the costing for LZEMP Grade I PTs are estimated about 2,000 RMB (USD 248) per seat per annum, reflecting increased expenses on materials, full recognition of repair costs, and higher overheads.

Break-even Estimation for Operational Costs

In order to fully recover the above O&M costs (or break-even in operational cost terms at the current 0.2 RMB per use rate), the calculation of the number of users per seat per day provides an appreciation of the volumes that PTs need to cater to.

The number of users per day per seat show a jump from about 20 to 27 to cover the O&M costs of the LZEMP PTs. The Feasibility Study estimates about 51 percent cost recovery or an average user traffic of 13-14 per seat.

If the city wishes to recover its operational costs fully (note that capital costs are fully subsidized), attempts will need to be made to i) bring in greater efficiency and lower O&M costs; ii) examine the link of design features and capital costs to O&M management and cost implications; and iii) market the use of PTs to maximize the usage per seat to earn revenues.

Tariffs for PT Use

About 50-60 PTs in Liuzhou are estimated to be pay and use type the rest being free. Currently, 0.2 RMB is charged per use for the pay-and-use PTs. A higher rate of 0.5 RMB per use was introduced in select portable PTs but this did not find favour with the users and this has since been reduced to 0.2 RMB. The Social Assessment had found easy acceptability of this level of tariff and claimed scope for increases too. However, quick verification during the appraisal of the LZEMP PTs showed that willingness to pay was perhaps sticky at best at 0.2 RMB for the time being with no major improvements in PTs.
The Social Assessment had firmly established that the principle for charging for services signaled scarcity of resources (like water that some households near free PTs would use in preference to their own homes since the former was free) as also introduced accountability on part of the provider/caretaker/contractor to keep a clean functional PT since they were paying for it. The Assessment had also taken account of segments, e.g. in households residential areas, and especially the officially recognized impoverished families (albeit a very small proportion of the city) who relied heavily on PTs for their needs. The 12 percent farm population living in or near peri-urban areas were also deemed targets for subsidized PT service provision (to get them to use PTs).

While this variation in socio-economic status and user preferences makes it difficult to revise PT tariffs upwards (proposed hike in Solid Waste tariffs are also under consideration at present), this also introduces the possibility of differential pricing across different areas of the city as also across different grade standards of PTs. The team’s discussion with the Liuzhou Pricing Bureau, confirmed that the costs of PT management need to determine the overall rates, and that introduction of differential pricing has no technical constraints (in terms of requiring a public hearing or any such long-drawn procedure). The key issue to examine will be the reduction in use of PTs should prices be increased from the current levels. While this exercise did not afford an opportunity to deal with this question in detail, it seems 0.2 RMB has reasonable acceptability and the effort should be to first make all PTs in the city pay-and-use at the current tariff levels. Introduction of household passes to poor needy families, especially resident in residential areas, may be considered to ensure their continued use of PTs. Differential pricing could be the next intermediate step whereby the tariff in some of the PTs in select central commercial areas is increased while a lower rate is maintained in the interior/residential areas.

**Monitoring and Review of PT O&M Management**

The district ESDs are responsible for daily operation, supervision and inspection/monitoring of all PTs in their jurisdiction including the Contracted Out PTs. Agencies at the city level also conduct inspections regularly or sometimes random spot checks:
1. Officers from the City Appearance Bureau, LZ ESD, and staff of district ESDs meet every Friday morning, and jointly choose a PT, a main street, and a side street to visit in each district.
2. The team visits the selected PTs and streets and awards evaluation marks, based on the City Sanitation Management Stands.
3. The results are also published in the local newspapers periodically, at least quarterly.
4. At the end of the year, all the results are comprehensively evaluated. These are suggested as an input to the District Governments, for them to consider in the award of bonus/increments to the ESD Staff.

The city follows the Environment and Sanitation Management Standards, formulated by the LZ ESD in August, 1997:

<table>
<thead>
<tr>
<th>Table (14): PT Classification, Sanitation Basic Maintenance Requirements and Quality Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Classification</strong></td>
</tr>
<tr>
<td>Class A (Pay and Use)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

---

It is reported that the City is considering a raise in Solid Waste Management related tariffs. Hence, three will be policy as well as other practical considerations before a PT tariff-related decision is taken. The more pressing concern for PTs though is to extend the imposition of tariffs to all PTs in the city.
Table (14): PT Classification, Sanitation Basic Maintenance Requirements and Quality Standards

<table>
<thead>
<tr>
<th>Classification</th>
<th>PT Features</th>
<th>Maintenance Requirements</th>
<th>Quality Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class B</td>
<td>1. City downtown or residential area; 2. Cement or terrazzo floor; trough with ceramic tiles.</td>
<td>separator clean, cubicle and urine trough clean, floor clean, and septic tank manhole clean</td>
<td>“Five No”: No sputum, snot and paper, no block, no dirt and spider web; no sludge and water pool, no flies and maggot. “Five Clean”: wall clean, window and door clean, cubicle and urine trough clean, floor clean, and septic tank manhole clean</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Class B: flush once and sweep twice a day, circuit to keep clean</td>
<td>“Four No”: No sputum, snot and paper, no block, no dirt and spider web, no sludge and water pool. “Four Clean”: floor clean, wall clean, cubicle and urine trough clean, septic tank manhole clean</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. Class C: flush and sweep once a day.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Disinfect regularly, no flies and maggot.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. No disorder postings and pictures. No garbage and temporary building around PT.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Keep all facilities in good condition. Repair the broken facilities in time.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Keep the septic tank covered. No overflow and seepage in the septic tank.</td>
<td></td>
</tr>
<tr>
<td>Class C</td>
<td>1. City remote area 2. Cement floor; lime mortar walls.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: LZHW1.1.008-97, LZ ESD

Standard regulations are also displayed outside each toilet, for the public:
1. All citizens are expected to keep the public toilet neat and clean.
2. People have been assigned to clean and maintain the public toilet.
3. Throwing of garbage or spitting in and around the public toilet is prohibited.
4. The land on which the public toilet is built cannot be put to any other use.
5. The public toilet must be maintained and repaired timely, and water must be saved.
6. The charge for usage is 0.2 RMB, not more not less.

The monitoring and review system followed appears to be working well, and the idea of joint weekly inspections, and evaluation serves to emphasize good standards of maintenance management to district staff and to cleaners and contractors. There is little opportunity in this system however to elicit customer/user feedback in a systematic manner – this may be considered in the future.

On the basis of selected site visits, it is difficult to clearly distinguish the quality of management across Type I and Type II contracts but these categories of PTs certainly appear in a better state of maintenance as compared with the PTs cleaned by the DESD staffers. Some DESD staff members attribute the better outcomes to the full-time attention that the contractors accord to revenue-earning PTs, and also since they are interested in keeping the PTs clean thus attracting more customers. The PTs managed by the DESD, on the other hand suffer from higher costs of personnel, as also scarce numbers that have to clean a number of PTs hence leaving most of these PTs unmanned too.

2.5. Key Issues in PT Management in LZ

On the basis of the foregoing account, the following issues arise for further consideration:

- Devolution and Involvement of Private Sector: Management of PTs in Liuzhou has been devolved to the direct day-to-day management of district ESDs, whereas the LZ ESD plays a supportive and monitoring role in management. There has been experimentation with
contracting out about PTs that are able to earn a minimum of returns from user charges (about 50-60 PTs contracted out) – and the rest of the PTs have to be managed by the DESDs. This has demonstrated the possibility of considerable savings for DESDs, especially on manpower costs.

The Type I contracts essentially replace “labour” and only in the Type II (where the contractor pays contract fees to DESD), there are beginnings of introducing enterprise from the private sector. This arrangement however results in DESDs having to manage a huge number of individual contractors, as also potential loss of economies of scale that larger contract packets could permit. Further, since DESDs are responsible for taking care of the bulk of O&M arrangements and costs, there is little innovation possible in improved management of the PTs – to manage costs on the one hand, and to increase usage of the PTs on the other. Moreover, while the basic elements of the contract are appropriate for the purpose, there is a case for standardizing these contracts across the districts.

The new BOOT contract provides another model for PT provision and management using resources and enterprise of the private sector - their reach is restricted to areas with high commercial potential. The above two models provide basis for thinking about improved management of PTs.

- **Outcomes of Management Arrangements**: While the visits of this team were only selective and form a small sample of the total, the general standard of upkeep and maintenance of the PTs was found to be satisfactory. PTs that are manned (under Type I and II contracts) show signs of better upkeep and maintenance, since customers pay for usage of these PTs, as compared to the unmanned free PTs. Portable toilets are being used in LZ in select locations in LZ. Security and caretaker concerns have been addressed now. Management of PTs comes at high costs of O&M subsidies and supervision and monitoring costs.

- **O&M Costs and Recovery**: Data is sparse and not systematically collected at present on key parameters of O&M. Analysis from available data shows that while cost of O&M management varies across locations and toilet types, the overall receipts from PT user charge pay only for a small (5 to 15 percent in two districts) of the total O&M costs. In order to increase recoveries targeting ultimately at full recovery of operational costs, greater emphasis will be required on managing O&M costs, closely linking design features to user preferences, and maximizing usage of PTs to generate revenues. There is an urgent need to institute systematic means of data collection in order to build operational O&M management models, for future improvements in the provision and management of PTs in Liuzhou.

- **Institutional and Organisational Issues**: A number of institutional, organizational and human resources issues need to be addressed to improve the PT O&M management in the city. This will include a review of the future roles of the LZESD and DESDs in PT management – a move from being providers to facilitators of PT provision is called for. This will require investigations into possible re-organisation and stream-lining of the entities into performance-oriented business-like units, and development of their capacities and systems, especially those pertaining to PT construction, O&M and contract management.

- **Customer Orientation**: Monitoring and review systems are regular and involve officers from City and District agencies. Customer feedback is an important step to strengthen the monitoring system – and more generally, make the PT management responsive to demand and preferences of users, in preference to a provision-led approach. The city has not yet carried out a systematic promotion or “marketing” of use of PTs, and generate awareness of the health benefits – this has potential to increase revenue collection too. One of the immediate steps is also raising the awareness and profile of PTs by prominent display of signage, and publicity campaigns and customer education activities, as suggested by the Social Assessment.

- **Pricing of PT**: currently, about half of the PTs are pay-and-use at the rate of 0.2 RMB per use. However, distribution of PTs across the city shows that different locations imply somewhat different functionality that PTs serve – ranging from public conveniences (“public” or general
toilets), to PTs where there is a regular group of users (more like “community” toilets with an identifiable core group of users apart from general public). This determines revenue potential on the one hand, and underlines the need for making PTs affordable for all socio-economic categories especially the poorest. First, charging of PTs needs to be extended to all PTs. Further, there is a possibility of considering differential pricing of PTs by location so that while revenue potential is maximized, affordability and quality standards are also given due consideration, especially for poor families in residential locations. A related option to explore involves issuance of monthly family passes to poor families. One of the ways of closely linking preferences to quality standards and price, is to sequence the upgradation/new construction of PTs in such a manner that high revenue areas are targeted first, hand in hand with manning PTs and improving maintenance standards in those that are interior residential areas. Systematic promotion or “marketing” of use of PTs also has potential to increase revenue collection.
3. Public Toilets in Nanning and Guilin

As a part of the current assignment, the Study Team, accompanied by an LZ ESD Team, carried out short visits to the cities of Nanning (the capital of Guangxi) and Guilin (a popular tourist destination in Guangxi). These cities have made considerable investments in PTs and experimented with different models for provision and management arrangements, and thus presented opportunities for Liuzhou to learn from their experiences. This section briefly describes the findings from these two cities, and draws out lessons for use in Liuzhou.

Guilin

Guilin is a popular domestic and international tourism destination, perhaps the most popular one in the Guangxi Zhuang Autonomous Region. Spread over 56 sq km, it has a resident population of about 0.6 million in addition to a large floating population of tourists. With the city as the core, there are 12 counties that complete the tourism circuit.

Campaign for PT Reform

In the late 1990s, the city was faced with a number of problems with respect to its PTs:
- PTs in the city were not properly distributed leading to stress in many areas
- PTs were managed poorly – tariffs ranged from free to 0.1 to 0.5 RMB but standards of maintenance were poor
- Cleanliness was a big problem, especially in the PTs in high-population throughput locations such as the Railway station and the airport
- PTs were owned by a variety of agencies (ESD, railway bureau, industries and establishments) and there was no uniformity of design and management standards

In the year 2000, there were 80 PTs under ESD’s management, another 60 managed by parks and other public establishments, and an unspecified number under the management of private establishments and institutions. At this time, led by its dynamic Mayor, the City launched a major drive to consolidate and upgrade the PTs in the city and neighbouring counties. In the Phase I of the campaign, 500 PTs (including those owned by private owners) were targeted for upgradation in the city and neighbouring 8 counties, whereas a second phase followed to cover all 12 counties too, and involving the rehabilitation of more than 320 PTs. The campaign involved getting owners of establishments, industries and commercial establishments to agree to open their PT facilities for use by the public and an agreement to this effect was signed by them with the government. The government convinced the owners of respective premises (public and private both) to fund the upgradation of their PTs. Norms for population and size of PTs were taken into consideration. The city had devised PT standards that sought to be an improvement on the national Grade I standards and Guilin had devised its own high standards befitting its stature as a tourism destination. As a rule now, all shops on the main streets, and all hotels and restaurants of three-star grade and above, have to keep their toilets open for public use. Most of the PTs are connected to flush into the sewer system (on which the city has invested considerable amount of funds). Making the PTs at the rear and/or providing access to entry from the side of the building (rather than in the front) was another innovation successfully tried out. Cubicles have been provided for disabled persons – in second floor PTs, special arrangements have been made for them at the ground level for easy access.

Types of PTs in Guilin

There are at present four types of PTs:
- PTs in Parks – these are usually high standard PTs, managed by Park personnel
- Hotels, restaurants, and departmental stores etc. who have upgraded or provided PTs in their premises, and manage these with their own resources (their other earnings covering the costs of O&M)
- PTs constructed and managed by parties – in location where the City Master Plan had identified for PTs, parties were given permission only if the developer agreed to build and
operate a PT. These were like Jingtao BOOT contracts where a party would be given land free to build up to two floors, if they agreed to build and operate a PT as part of the same complex. These are typically 50-year leases with a contract with the City Government.

- The government permitted commercial stores and shops to be build along with PTs along some roads, as an incentive for these parties to come forward and take over the management of existing PTs.

As a result, all the PTs in the city are operated and managed by the respective owners of premises or custodians, leaving the Government to do overall policy and monitoring, and occasional supervision of contracts.

**Institutional and Management Arrangements**

Unlike Liuzhou and Nanning, the ESD in Guilin is only responsible for solid waste management, and is not concerned any more with PTs. Housed in the City Government, is a permanent oversight office in the style of a Director of PTs for the city and corresponding staff in districts. The director is responsible for coordinating with other agencies in the city and district governments, e.g. City Management Bureau, Parks, Tourism, etc. and ensures that PTs in the city are managed properly. This office also manages contracts and liaises with all public and private institutions for PT provision or upgradation, and plays a key role in promotional activities. The city depended upon the financing of upgradation by the respective agencies/owners, and hence spent only limited resources in doing site identification, subsidizing limited amount of water (first 4 cum free per PT), subsidize power costs (charged at streetlight rate), and a small amount of money in advertising and promotion for PT reform (only about 100,000 RMB was spent on signboards during the campaign). The Director of PTs, carries out regular inspection and surveys, and presents the results to the public every three months. Daily supervision is the responsibility of the respective owners of the premises whereas relevant districts governments are responsible for supervision of PTs in their areas.

**Free PTs**

Along with the PT Reform Campaign the city declared its PTs free for use. This was done to provide a good facility to citizens, as also to the tourists coming into the city. It was deemed that since Parks charge entry fees, the use of PTs could be construed as a service provided, included in that fee. Other establishments were encouraged to formally agree to open their PTs for public use or incentivised with permissions to build shops and commercial centres alongside PTs, with the logic that commercial activities and customer earnings should serve to cover the maintenance costs of the amenity.

**Emerging Issues**

While the campaign provided the need impetus to improve the availability and upgrade PTs in the city in a rapid manner, after 5 years, a number of problems have also arisen including:

- Since little thought was given to planning at that time, in some cases there are anomalies like a 50-year lease for the PT/land whereas the structure built is temporary with only 2-3 years life. There are other problems arising too since the clauses to guard the city’s interest do not appear to have been fully provided leading to non-performance problems and aberrations on part of some of these parties. The Government is now seeking to sign and supplementary contract with these parties.

- After the free use of PT announcement:
  - There was a marked increase in water and power bills since many households shifted their washing activities to the free PTs (to save on their domestic water costs)
  - Damage and theft of fixtures was reported from many PTs

The City had to respond by training the staff from the managing institutions in protection of PTs, and Police also had to be brought in to catch miscreants and give them exemplary punishments so that public awareness would be raised against such activities.

- Major repairs and refurbishments are also arising in many PTs after five years since upgradation or construction. The recent hike in water tariffs has also had a marginal impact on O&M costs.
• There are some design issues with respect to differing preference of different population groups – some preferring the squat-type over the water closet type

Salient Features

Some of the key features and lessons from Guilin are:
• Reform of PT received attention at the highest level of the City Government, under the dynamic leadership of the Mayor, and an ambitious program of upgradation, construction and mobilization of PTs to come into the public domain, was taken up in a campaign mode. This achieved a significant PT stock numbering more than 800. This was backed by a significant dosage of advertising (including press inserts, programs, signages, etc.)
• The government encouraged and provided incentives to the private sector and public sector to come forward and participate by investing capital in commercial complexes as also small shops, in return for their commitment to build/take-over and maintain and manage PTs. For this, administrative and tender-related fees were waived.
• The Guilin experience highlights the importance of good planning, siting and designs. The government took great care to review these closely before according approvals.
• Instead of departmental delivery, the city tried to promote the culture of making PTs everyone’s responsibility – and under the management of premises owners.
• This has successfully changed the role of the government away from provision, to setting policies, monitoring and review whereas a number of agencies provide and maintain the PTs. Guilin also created a specialized PT monitoring function that is separate from other environmental sanitation related organization and responsibilities.
• Emerging problems with repairs and maintenance and contracts, also underline the importance of careful drafting of and management of contracts, especially BOOT contracts that bind parties into a long-term relationship for 50 years.

Nanning

Nanning is the capital city of Guangxi Zhuang Autonomous Region, with a population of about 1.5 million people. The city is divided into six districts, and has three development zones (economic development, advanced technology, and tourism). Apart from the public institutions that the capital city has, Nanning is a centre of trade, commerce and tourism activities, and has light industries too. The city has hosted a number of international events (CAPEX fair, Folk Song and Art Summit, etc.). In its efforts to be a high quality city, Nanning has been investing in its urban environmental infrastructure, including PTs.

Institutional and Management Arrangements

The City Management Bureau is responsible for overall policy and planning of PTs in the city, the city ESD being a part of the CMB working as its executive arm at the city level. In 1999, the management of PTs was decentralised to the district ESDs that are part of the district governments, and assets were transferred to them in 2001. At present, the construction/upgradation implementation and O&M management responsibilities of the City’s (ESD) PTs lies with the DESDs. DESDs deploy temporary staff to work as caretakers, and all O&M expenses are borne by the District Governments. The City Government makes available capital grants to DESDs to upgrade PTs from time to time. Other public and private institutions construct/upgrade PTs in their premises and the government provides permissions and technical guidance.

PTs in Nanning

The city has about 500 free for use PTs – a stock of PTs that are deemed adequate in terms of number, and the current challenge is refurbishment and upgradation of these PTs to high design and quality standards. About 180 PTs have been constructed by the ESD, the rest being constructed by other public and private institutions like Parks, commercial complexes, hotels and restaurants, etc. When any of these agencies wish to construct PTs, they need to make their proposals to the City Management Bureau, who approve the construction, provide finances where needed, and provide technical assistance and guidance for design and construction. Many of the PTs built by private
premises (e.g. Hotels, restaurants) were earlier not available for public use. However the City Government made special efforts to convince many of them, over the years, to open their facilities for public usage (using various national and international events to strengthen their plea), and also provide them guidance on upgradation and standards. The city invested in more than 1,000 signboards to improve the visibility of PTs. The city also subsidizes the cost of the first 8 cum of water used by each PT.

Since many of the PTs have been built two-three decades ago, most of the city’s PTs were Grade III or II - the city has taken up the massive task of upgrading them now. In 2001, the city set up a called “136” goal which means to make small changes in a year, medium changes in three year, and big changes in six years in PTs, since annual targets are set for upgradation – last year saw 60 being upgraded, and 40 new PTs were built. The City Bureau made an outlay of 4 million RMB for these upgradation activities and for constructing new PTs where required. Every year, the City Management Bureau works with the district ESDs to help develop their annual proposal for upgradation activities – this is appraised and approved for funding and implementation, by the City Management Bureau. The construction/upgradation is tendered out to construction companies, and there is strict supervision of their quality and implementation schedules. The city has used the services of Jingtao Company to build 10 PTs. The terms and conditions of construction and management of PTs remain the same as described for Liuzhou (with the major difference being that use of PTs is free in Nanning).

Like other cities, Nanning suffers from scarcity of land for PT construction, and faces similar hazards of demolition of PTs arising out of developments. Nanning’s solution has been to enforce the planning rules strictly – the developer/builder would be asked to construct a PT at the location if that is ear-marked in the Master Plan, or there was a PT earlier, else permission to build/develop would not be granted.

**Free PTs**

The City had seen the experience of a campaign-based upgradation plan for PTs in Guilin and as a part of the electoral promise to give twenty good things to citizens, declared in 2001 that the use of PTs in the city will be free. This was also to bolster its image as a green city with improved environment befitting a growing international city.

The announcement had the following immediate impacts:

- While the city has very few people without toilet facilities in their homes, many started misusing PTs to wash clothes etc. saving on their domestic water bills. This resulted in higher power and water bills for PTs.
- While revenue collection earlier eased the burden on public finances for O&M costs, now the district budgets had to fully provide for all O&M costs.
- Earlier two caretakers were assigned to look after a PT – this had to be cut to one per PT.
- Some PTs also reported stealing of fixtures, and other vandalism

The city swung into immediate action to remedy these issues: the PTs were sought to be made attractive; more caretakers were deployed; regulations were displayed on walls; and finally, monitoring and inspection was strengthened (including curbing thefts and vandalism). These measures have reportedly worked and PTs are now being operated and maintained to satisfactory standards. At present, the deployment of caretakers is dependant on the PT location – one caretaker may be assigned to less-frequented PTs whereas 3 to 4 caretakers may be assigned for high-traffic PTs, including those that are open all 24 hours.

**Salient Features**

Some of the key features and lessons from Nanning are:

---

6 A new PT typically costs about 0.4 million RMB, upgradation requiring about half that amount. Typical size varies from 60 to 100 sq m
Commitment to PTs was tied with overall city image improvement and investments in urban infrastructure. This has also been shown in their strict implementation of Master Plan provisions for designated PT locations.

Engagement with and encouragement to public and private institutions to construct, upgrade, open their facilities to public use, and observe standards for PTs built by them – city extended technical and financial assistance as required

Close attention to implementation and monitoring – district ESD staff are taken to task if their PT construction/upgradation plans are delayed; similarly, monitoring of O&M outcomes is done very strictly.

The city has a large stock of PTs per unit of population (500 PTs for 1.5 million, compared to about 250 PTs for 1.2 million people in Liuzhou). This has enabled the city to concentrate on the task of upgradation of PTs.

The announcement of free use of PTs has meant that i) the government has to provide subsidies for operational material and utility costs; and b) deploy caretaker staff for day to day cleaning and management, and manpower for supervision of proper maintenance management of PTs.

Issues and recommendations from the Two Cities

From the experience of the two cities, a number of issues emerge for Liuzhou to consider:

Both the cities have accorded high important to PTs in the city’s affairs. The Master Plans have properly provided for PT sites and these have been reviewed when not found adequate or unbalanced, and then these sites have been “protected” i.e. by enforcing rules on developers to build PTs on these sites.

Guilin took the route of a campaign to mobilize popular support for, and for involving a large variety of stakeholders to build, take over and run PTs. It also tried to devolve PT management to respective private and public establishments, and changed the role of the government away from direct provision to becoming a facilitator and a monitor.

Nanning on the other hand, showed very strong supervision and control over implementation of construction, as well as close attention on maintenance monitoring.

The experience from these cities however demonstrate the inevitable difficulties of quality PT service provision on a sustainable basis if given free. Not charging user-charges has meant an extra-ordinary demand on monitoring and supervision on part of the government in Nanning (apart from cost subsidies). A number of contract-related issues have arisen in case of Guilin. In this respect, Liuzhou is in a much better position since the accountability relationship to users is clearly signaled through the user-charge in the PTs that are pay and use. Liuzhou also has a number of challenges ahead in respect of contract management for planning and management of PTs, as emerging issues in Guilin show.

Liuzhou is currently witnessing considerable real estate and infrastructure development making planning and protection of PT sites difficult; and it also faces the challenge of filling the absolute shortage, in different types of areas (residential, mixed, and commercial). The city has not experimented with asking its commercial and other public and private establishments to open their toilets to public use (their numbers are anyway not known at present). In this context, it becomes difficult in Liuzhou to take the risk of expecting existing toilets (Publicly provided plus those in private establishments) to provide for the shortfall. Similarly, new construction/installation is necessary to take care of proper distribution of toilet facilities across the city. Therefore, while at a later stage (when basic shortage has been addressed to a great extent), Liuzhou can consider devolving PT management to commercial, public and private establishments, at present, the city government will need to take the lead in construction (on their own or through BOOT-kind of contracts being experimented with) and maintenance management for some time to come.
4. Public Sanitation delivery and PPPs: Select International Experiences

Experiences of sanitation delivery, particularly provision and maintenance of PTs internationally; and the technical aspects of involving the private sector, are important input for Liuzhou in reforming its PTs. During the mission, these were presented and discussed with representatives of LZ and DESDs. This section introduces the basic concepts of public-private partnerships, and summarizes the relevant experiences in other cities in provision and maintenance of PTs.

Context of Urban Services Provision

The growing urbanization in China poses a number of challenges to provision of quality urban infrastructure services. These are characteristics similar to many other rapidly urbanizing countries in the developing world. Some of these features are:

- High land values and competition for alternative uses of land – this poses problems of acquiring land and makes construction of PTs expensive unless land is “captive” with the city authorities.
- Considerable pressures on implementation of Master Plans – even if Master-plans make provisions, there is a scarcity of PTs since government capital budgets concentrate on other amenities first (e.g. water, roads, solid waste) and conversion of land use because of commercial pressures is also common, leading to loss of toilet structures, or sites for these.
- Differential needs of floating population in public areas, and residential areas where not all have access to Individual Household Latrines (IHHs) – some of the Asian and African cities have a large proportion of urban fully dependent on public or community toilets.
- Strategic and technical challenges of bringing in water to the city, and taking out sewerage and solid waste – since externality.
- Difficulty of pricing, financing, cost recovery and management – while there is greater consensus about charging for water, and increasingly for sewerage services too in many cities, public toilets have been considered governments’ responsibility, and to be provided free. Not only does this place burden of capital investments but also city governments are stretched to allocate budgets for operations and maintenance. Even when tariffs are imposed, basis of pricing and tariff collection, and proper management commensurate with prices, are issues that have not been resolved fully. Provision and maintenance management by governments has a number of institutional constraints.
- Social and economic factors – finally, the historical, social, economic and political characteristics of the city govern the demand and preferences of the different segments of the city’s public.

This provides the context for cities then to provide good quality public toilet facilities. Liuzhou also shows the above characteristics in varying degrees: considerable scarcity of land for public amenities and high land costs; challenges posed to master-plan implementation due to rapid commercial and infrastructure developments; demand for more and better toilets and the city’s aspiration to provide world-class civic amenities; demand on the financial resources of the city and district governments; demonstrated ability and willingness to pay for good toilet facilities; and constraints in departmental provision and operations and maintenance management.

Involvement of Private Sector

The exploration of involving the private sector in water and sanitation began in 1980s, learning from successes of private sector in the telecommunication and electricity sectors. Conventionally, water and sanitation infrastructure provision and management were governments’ responsibilities but there were constraints in terms of low efficiency and high costs, and limited management capacity in the public sector in many of the countries. This not only posed the problem of continuous demand for budgetary resources, but also it was found that the private sector was able to respond much better to customer demands and preferences than the governments.

The successful privatization of water services in England and Wales in 1989, provided the first major instance; and in the 1990s, many cities experimented with private sector initiatives – mainly led by big
Improvement and Maintenance Management of Public Toilets in Liuzhou Draft Report 63

water franchising organizations (e.g. Suez Lyonnaise and Vivendi), and the UK water groups (e.g. Thames Water). Private sector participation initiatives were tried out since the early 1990s, in South East Asia (e.g. Malaysia, The Philippines) and Latin America (e.g. Argentina and Chile). In the late 1990s, these initiatives also spread to cities in Africa and South Asia.

The first round of initiatives were primarily the public sector inviting the private sector to work in partnership in improved water and sewerage service delivery. Over the 1990s, encouraged by self-managed projects by community groups, encouraged governments to accord greater recognition to the communities and citizens groups, especially in countries where governments found it difficult to extend affordable services, and where private sector did not see a ready market. Thus came about a second round of partnerships that involved the government, community and citizens’ groups, and the private sector. Since water supply has enjoyed greater investments and attention, most of these partnerships involving private and community sector, were concerned with provision of water. Over time, these experiences were sought to be tried with sewerage systems and wastewater treatment. In the last decade, public-private partnerships also started being used for provision of public and community toilets. Over the years, the frameworks used in involving the private sector in delivering public services in various sectors, including those in water and sanitation, has also led to formalization of concepts and categories to describe the extent of private sector in such partnerships or contracts.

What is Public Private Partnership (PPP)?

PPP is a general term used to describe a wide range of partnerships, or agreements between government agencies, and private organizations and/or community organizations, to work together to provide goods and services. The parties typically share responsibilities, risks, returns or benefits, and in some cases capital investments too. Private Sector Participation is a general term that describes the extent to which the private sector has mandate, control and ownership over enterprises or public goods and service delivery sectors. Hence, PPP can be said to a type of PSP.

Types of PPP

PPPs can take different forms ranging from complete privatization of public assets (e.g. like the outright sale of water assets to private companies in the UK), to complete provision and investments by private sector (like in the USA), or intermediate forms of private sector participation through long-term concessions (e.g. France, Asia) or shorter duration contracts for management of assets. Traditionally, governments use the private sector to supply goods or services (e.g. “labour” contracts to sweep roads) but in these, the state retains a pre-eminent role and the private sector provides clearly specified goods (e.g. construction of a building) or services. Hence, while these involve private sector, PPPs are generally used to describe arrangements in which the private sector has a greater managerial or entrepreneurial role (some sort of “partnership” or continued involvement, not merely as a vendor or supplier). The main types of contract arrangements are presented in Box (4).

Box (4): Types of PSP Contracts

1. **Service Contract or Delegated Management Contract**: assets given out to a private company to manage in return for a management fee (usually short-term up to 5 years). The government retains ownership of the assets and is responsible for capital investments, as well as major repairs and refurbishments of the assets. These contracts are based on specifying performance parameters; obligations are clearly defined; and the contractor is rewarded on a base fee plus or minus bonus or deduction for performance. This type of contract needs clear rules for replacing assets, and the risks lie with the government.

2. **Profit participation/Affermage**: is similar to delegation although instead of a management fee, the contractor is rewarded by taking a share in the revenues or profits. This is similar to a profit partnership, in which risks are shared by the government and the contractor.

3. **Concessions**: are a common form of PSP in many of the larger cities. This is a long-term contract usually related to the life of the assets. The asset ownership remains with the government, whereas the
risks and rewards are borne by the concession contractor. Typically, replacing or refurbishing the assets is the responsibility of the contractor. Clear rules are required about transfer of assets at the end of the contract period. (Latin America and Asia

4. **BoT/BOOT (Build-Own-Operate-Transfer):** New investments in the assets are done by the private operator. The operator is also responsible for maintaining, running, re-investing in the asset. At the end of the contract period, the terms may be reviewed and the contract renewed or the PTs returned to the government. The Liuzhou contract with the Jingtao company is a kind of BOOT (although the ownership of PTs in this case is with the Government).

5. **Full privatisation:** this is rare in water & sanitation sector, and has been tried out in England and Wales. This comes with public concerns about service obligations and improvements, and a whole set of regulatory issues.

6. **Other Community Based and Cooperative Models:** Instead of a private company, investing in facilities and/or managing them, part or all of this can be done by co-operatives, NGO, or Community Groups. Such examples abound in Asia, Africa and Latin America.

Source: Audet, 2000; WEDC,

Corporatization Route

Especially when experience does not exist in the private sector to provide services in specific sectors (as was the case in many developing countries in the water and sanitation sector a couple of decades ago), many governments seek to emulate the good features of private sector, by creating autonomous entities carved out of their water and public health departments. This involves giving them a separate legal entity, governing and ownership structure, a corporate identity and financial and operational autonomy. The Chinese State owned Companies are familiar examples of this type of reforms.

These bodies can help in bringing in professionalisation, increased investments, and help develop and deepen the sector including preparing the private sector and community organizations in participating in water and sanitation provision. In the 1970s and 1980s, this was a preferred form of strengthening water and sanitation provision in many developing countries – but as later experiences showed, unless these were structured and managed well, they could also become imbued with the problems of inefficiencies and lack of incentives that characterized government departments earlier.

Box (5): Corporatization Route

Establishment of an enterprise in an explicit corporate framework under the relevant company law, which imitates the discipline, culture and practices of private sector organizations. Corporatisation is based on the following principles:

♦ Clear Management Objectives, including clear policies and direction
♦ Managerial Authority and Autonomy
♦ Performance Monitoring
♦ Performance Incentives & Sanctions
♦ Robust Regulation

The essentials of a successful corporatised entity are that it should be able to create economic value that is measurable - and produce goods/services that have customers who pay. It should either operate in a competitive environment as private sector agencies do, or have a strong regulator if it is a monopoly service (e.g. electricity, water). Finally, the regulation functions need to be clearly separated out from the policy and service provision functions.

What corporatization will not do by itself?
♦ Substitute for good management, or good policies
To summarize, the water and sanitation sector has experimented with different set of institutional and organizational arrangements. One of the significant developments in the sector over the last two decades, has been the creative involvement of the private sector and community groups, in improved provision and maintenance management of water and sanitation systems, earlier the responsibilities of national, provincial or local governments. Initially the experiments were dominated by the partnerships between governments and private sector and governments only, whereas later, greater role of community groups was recognized and PPPs involved all three parties in different degrees. Some governments tried the corporatization route to improve service provision and prepare the private sector and community/citizen’s groups to participate in water and sanitation provision. While water supply has witnessed the most experimentation with PPP models, experiences in respect of sewerage and wastewater management have become available in the recent past. The last decade has also made available successful experiences with provision and maintenance management of community toilets (i.e. with a clearly identifiable core set of users) and public toilets (i.e. for use by the general public). The next presents a review of some of the major experiences that are relevant to Liuzhou’s context.

Experiences of Urban Water and Sanitation Service Delivery

There are a number of experiences available in delivery of urban water and sanitation services from developing countries. These have ranged from provision of water supply by a set of state and non-state providers; experiments with low-cost appropriate technologies and management of sewerage systems to connect poor or un-served households; part-financing, construction supervision and management of community water and toilet facilities by communities; to management of public toilets by the private sector – i.e., a whole range of initiatives involving the governments, private sector and community in different ways.

The dismal state of public toilets in the cities of developing countries had not received attention and these were considered as facilities that government must provide free of cost to its citizens. The results were that many cities did not have proper toilets frustrating citizens, and even when these facilities were there, their condition was poor and they were not fit for use. Governments would not allocate adequate funds for their maintenance and personnel of municipalities had little incentives to keep these clean. A significant development took place in the early 1970s. An organization called Sulabh in India, started experimenting with pay-and-use public toilets and was immensely successful.

The Sulabh Story

The Sulabh approach was rooted in a social movement liberate scavengers (workers cleaning night soil in rural and urban areas of India) from their profession, and started with technological experiments to make the design of on-site latrines simple (“Sulabh” means simple in Hindi) – this was two-pit pour-flush toilet. While this model of toilets was tried out in many rural and urban areas of the country, Sulabh came up with the idea of constructing and operating community toilet complexes with bathing, laundry and urinal facilities (popularly known as Sulabh Shauchalaya Complex) with attendants service round the clock (this would employ liberated scavengers for manage, clean and maintain). This was initiated on the pay-and-use basis in Patna, in early 1974. With the success in Patna, a number of other cities in India (and a few from other countries) became interested in this new approach – governments hitherto would not believe that people will be willing to pay for using good public toilets. This model caught on and is very popular across many cities.
“Sulabh is operating and maintaining more than 5,500 community complexes in 1075 towns across the country. One such complex is in Bhutan. These complexes have electricity and 24-hours water supply. The complexes have separate enclosures for men and women. The users are charged nominal sum for using toilets and bath facilities. Some of the Sulabh complexes are also provided with bath with shower facility, cloak-rooms, telephone and primary healthcare. These complexes have been widely welcomed both by the people and the authorities due to their cleanliness and good management. Pay-and-use system ensures self-sustainability without any burden on public exchequer or local bodies. The complexes have also improved the living environment considerably.”
Source: http://www.sulabhtoiletmuseum.org/

The Sulabh model was replicated in many cities, and soon became the common public toilet serving the needs of general public, tourists, and even households without toilets in their homes. Many municipalities preferred the Sulabh toilets to their own public toilets, and even invited in many cases to operate such toilet complexes for them.

However, since these toilets were pay-and-use, and located in high population throughput areas (such as railway stations, bus stations, and other market areas), much of the urban poor, living in shanties and slum settlements, found it difficult to use these toilets. Many cities in India then began experimenting with models for providing and maintaining community toilets in poor or congested neighbourhoods where individual household toilets were impossible to build. Such experiments in Pune and Thiruchirapally in India were successful in demonstrating that involvement and ownership of user communities held the key to solving many of the problems that toilets provided by municipalities were prone to.

In Pune, a partnership between the municipal government, NGOs and community-based organisations has built more than 400 community toilet blocks. The main features of the Pune community toilet programme were: high importance and personal attention accorded by the municipality officers, including substantial municipal funding for slum sanitation; involvement of NGOs in the construction and maintenance; and introduction of user charges. This demonstrated the effectiveness of the changed role of the government to becoming a facilitator and closely involving NGOs and CBOs in planning, implementation, and operations and maintenance of these toilets.

Box (6): The Pune Community Toilets

This programme brought about a reconfiguration of the relationship between the city government, NGOs and communities. The city government recognized the capacity of community organisations to develop their own solutions, supported by local NGOs. The city authorities changed their role from being a toilet provider to setting standards, funding the capital cost of construction and providing water and electricity. This programme was also unusual for India in its transparency and accountability. There was constant communication between senior government officials and community leaders. Weekly meetings brought all stakeholders together to review progress and identify problems that needed to be addressed. All aspects of costing and of finance were publicly available.

Source: SPARC, 2003

Mumbai, the commercial capital of India, presented another rich set of experiences in delivering both community and public toilets over the last decade and a half.

THE MUMBAI SANITATION STORY: INDIA

Spread over 438 sq km, Mumbai is the commercial capital of India, and houses more than 1.3 million people, 54 percent of whom (6.3 million) live in the slums - the largest proportion and absolute number of slum dwellers in the world. Mumbai has very high land rates and a number of commercial, public and tourist areas with large floating population. The municipality owns lands that it makes available for construction of toilets. Mumbai has two types of toilets: Public Toilets and Community Toilets. Both types of toilets have been planned and implemented using Public-Private partnering, and
these are operated and maintained again with private and community groups responsible for operations, and the government (municipality) responsible for planning, regulation, capital investments (for community toilets only).

**Free Toilets before 1985:** The Municipality used to build free toilets mainly in commercial areas, for use by floating population, and it also started building toilets in or near slum areas where large populations resided. These toilets were built free, but were difficult to maintain by municipality cleaners, and often had to be rebuilt again and again – leading to loss of public resources and also inconvenience to public.

**a) Public Toilets**

**Management Lease:** In the late 1980s when the Sulabh Toilet Movement (pay and use toilets) had shown promise in other cities, Mumbai invited Sulabh to run public toilets (PTs) – the construction of these toilets was done by the Municipality, and Sulabh were given 30-year lease to operate and maintain these toilets, and collect revenue. Under this arrangement, Sulabh was responsible for all upkeep and O&M of the toilet blocks, and also responsible for managing repairs, the costs of operation, and for collecting the pay-and-use revenues – the municipality was responsible for making water supply available (free) and for clearing away the wastes generated (through the sewerage system). Sulabh were not to pay any fee to the Municipality as the operation was deemed to be one that could just about break-even. They were also allowed to fix their own tariff although this was agreed with the Municipality. As experience showed, these PTs were highly profitable – Sulabh were able to generate considerable surpluses because of their experience elsewhere, sound management and incentives to generate revenues – none of which were available within the Municipality.

**Build Operate Maintain Lease:** Seeing the commercial potential of running Public Toilets, the municipality stopped investing its own funds in building Public Toilets by end-1990s, and instead invited non-governmental and private organizations to come forward and build toilets (or standard specifications) at their own cost, while the municipality would provide the land for such public toilets, approve the building structure and design, and regulate the use of structures (advertisements were allowed, but no alternative use). This received tremendous response from private, social service and non-governmental organizations and currently there are more than 1,400 PTs operated and maintained by them. These PTs are typically located in and around commercial areas and/or areas with high floating-population throughput, and depend on pay-and-use revenues. The new guidelines provide for performance security deposit of Indian Rupees (Rs.) 5,000 (USD 112 or RMB 900; USD 1 ~ Rs. 45); approval of design and plans by MCBM; penalties for delayed construction; responsibility of ensuring cleanliness in the vicinity of the facility; maximum prices to be charged; advertising rights (no alternative use allowed); and regular third-party monitoring.

This approach incidentally was to encourage such organizations to build toilets in slums – one toilet for slums or “non-commercial potential areas” for one in commercial areas. There was little response to the former while organizations built toilets in commercial areas.

**b) Community Toilets (CTs)**

These are toilets in or near slum areas that are also used by floating population. There a large number of older Community Toilets too that are free for use but these are difficult to maintain since there is no ownership. The Government has brought out a new policy that makes it compulsory for all CTs to be managed by community groups.

**Community Toilets under World Bank Project**

WB assisted Mumbai to construct 330 CT blocks (5,000 seats). On the basis of generic design standards provided, tenders were let out for consortia of Construction organizations that teamed up with NGOs (who were to mobilize communities). Communities (households) pay Indian Rs. 500 (USD 11 or 90 RMB) to become members of a residents’ group – this group is registered and after construction, manages O&M. They manage the CTs by themselves, most commonly by hiring
caretakers. Thus, the World Bank project demonstrated the effectiveness of a partnership between the Municipality, the private construction contractors and NGOs in getting communities mobilized to form groups to implement community toilets.

Community Toilets in Mumbai

Operations and Maintenance of CTs also becomes remunerative: Tariffs in CTs are two types: a monthly family pass (unlimited use by family members) at the rate of Rs. 25 (4.5 RMB or 0.55 USD) per month for regular users; and Rs. 2 per use (0.04 USD or 0.36 RMB) on a pay-and-use basis. Urinal for men are free, washing/bathing is priced at Rs. 3 (USD 0.067 or 0.54 RMB) per use). A new class of “Caretaker Contractors” has come about who offer to manage and run toilets for community groups either free (i.e. they make money from pay-and-use) or even offer to pay an agreed amount to the community group in return for rights to run these toilets. Like the PTs, running of even many of these CTs, especially near crowded and semi-commercial areas, has become a profitable enterprise.

The lessons that Mumbai offers are varied:

How to elicit demand for good quality toilets: the Municipality had initially under-estimated the latent demand for toilets. Toilets were built on standard designs but without any regard for consumer preferences, and these were provided free and were free for use – the municipality found these difficult to maintain, repair and keep operational. This also led to people using such poor toilets only when left without any option. When their preferences were taken into account, toilet usage was priced and good quality toilets were built and run properly, people were willing to pay – and use these facilities more and more. The public toilets run by Sulabh (and later other agencies) provided clean toilets with running water, these soon turned out to be profitable ventures. In case of Community toilets too, improved design standards (separate toilets with good door and fittings) and services (water and power) attracted more people to use the facilities on a payment basis.

Bringing in a private organization, who was looking to generate surpluses, helped in responding to the latent demand for public toilet services – by providing good design standards and services to users.

Partnerships for Implementing Community Toilets: In case of the Public Toilets, the Municipality initially chose to construct and maintain toilets on its own. Then, it sought the participation of private agencies in management, and then in building, operating and running. This kind of sharing of resources (municipality provides land, organization brings in capital), risks (recovery of capital by private organization from revenues, misuse of land given free), returns (toilet use and advertising revenues for organization, cheap provision of good service to citizens for municipality), and responsibilities (implementation and O&M by organization, contracting and regulation by municipality) has worked to the mutual benefit of the organizations and the Municipality, while customers are enjoying good quality services.

In the Community Toilets case, in a departure from tradition (when the Municipality used to build toilets), the World Bank assisted project for building community toilets, used a novel approach involving four parties:  
- Municipality providing land and capital to build toilets following certain processes (that were demand-responsive) and providing supervision
- A joint-venture of private construction company and non-governmental organizations to work together on technical and social mobilization aspects and delivering the construction of quality toilets
- Forming community based organizations right from the planning stage, so that they take over the responsibility of operations and maintenance

Even the community toilets receive much higher number of users than free toilets did, and some of these have become “profitable” in operational terms, so much so that professional caretaker contractors are coming forward to bid for running them for a fee (that in this case they offer to pay to the community group!).
Incentives and Contracting: a number of innovations were tried out so that the partnerships between the municipality, private sector, NGOs and communities/users delivered quality toilets, and secured ownership and stake in operations and maintenance. It was a process of learning: first, the municipality and private sector learnt how public toilets could become profitable enterprises; the second stage was when private sector was convinced to even bring in capital finance since the running of PTs was so profitable. In the third stage, the WB project demonstrated the success of multiple-party partnerships in planning and implementation of community toilets. Fourth, early involvement and agreement from community groups led to proper and sustained O&M of community toilets. Finally, even some of the community toilets are becoming profitable enterprises and have attracted individual caretakers as also professional caretaker groups to operate and manage community toilets on behalf of the community.

Additional lessons were that packaging of profitable with non-profitable toilets may be risky unless the contract is carefully constructed (in Mumbai, private operators just concentrated on profitable toilets and ignored the non-profitable areas since there were no contractual incentives). Social service organizations were expected to work separately from private construction contractors in the initial stages of community toilet program, but this did not work – later, a single contract was devised so that both the parties worked together to plan and deliver the toilets. This also made their ability to elicit participation from community members better. Not only were the technical and legal details in the contracts important, but also it was equally important to learn what incentives drove whom, and how the contracting process and legal instrument, could enable these groups to behave in a desirable way over time (rather than merely restricting their actions). (In contrast, the city of Delhi is currently struggling with a number of contract-related difficulties.)

The Nairobi PTs

Experience with PTs in Nairobi (Kenya, Africa) suggests the potential for bringing in multiple actors in managing PTs. The city has at present has four non-governmental groups managing the public toilets of the city. Here too, the municipality sees its role as shifting from direct service provision to policy-making and supervision. It current efforts are focused on assessments of options for upgrading PTs (including their financing) and their maintenance management. The case of Nairobi PTs also demonstrates a clear segmentation according to their location and nature: for the central business district, and other market and residential areas.

Box (7) Public Toilets Management in Nairobi

- 138 PTs owned by Nairobi City Council (NCC) – built since 1960-80s, poorly maintained estimated 3,500 USD required for repair and upgradation
- City Council 2 departments were responsible – later one was made responsible. Still performance not good, budgets were low
- Business Associations, Market Committees, Street Boys, Residents Committees currently managing PTs: mix of good and poor practices

Main issues considered in PT management:
- Changing the role of NCC in direct management to one of policy formulation and oversight.
- Retaining ownership by NCC (asset holding).
- Causing minimum disruption to the existing NCC structure.
- Meeting costs of the initial repairs and rehabilitation.
- Meeting costs of subsequent operation and maintenance, including utilities bills for water and electricity.
- Ensuring payment of salaries and wages.
- Ensuring competitive practices in allocating management responsibilities and avoiding cartel control.

Options Considered:
- Private sector management contracts of PTs refurbished by NCC.
- Private company wholly owned by NCC.
- Concession contracts (build, finance, and operate).
Two types of concession contracts have been chosen: one for private agencies in the central Business District, and another a community-based contract for markets and residential areas.
Source: Water and Sanitation Program, 2004

The Singapore OK (SOK) Way

Singapore is considered the model for the cities in rest of the world. While it started with government-led provision and reforms of PTs; in the past decade it has shifted its focus to eliciting participation of its private sector and citizens (3P - People, Private and Public), to provide, upgrade and maintain its high quality standards of PTs.

Singapore has successfully experimented with leveraging citizens’ participation in making the city green and clean. The government had paid attention to toilets back in 1959 when the country gained self-government, but it was not until 1987 that Singapore was able to end the night soil bucket system. While in the earlier years, providing public toilets was assumed to the government responsibility, the city took the opportunity in the 1970s construction boom, and made it mandatory to provide sufficient toilet facilities within their premises, whether it was an office or a commercial complex. The number of such toilets increased so much that the city was able to demolish its standalone public toilet blocks.

The city used a number of successive measures to force the owners of premises to upgrade their toilets, to maintain according to high standards, and provide basic facilities like soap and toilet paper, etc. While forcing developers and owners to build and maintain toilets was one strand of the strategy, public outreach and education was the other important stratagem. The “To keep The Toilets Clean” promotional and educational campaign was launched in 1983; and senior leaders goaded the nation to observe high standards (1996 Prime Minister’s speech). The managers of private premises considered it a competitive measure to have good toilets, to attract more and more customers.

In 2002, the government stepped in to launch a massive upgradation programme (Toilet Upgrading Programme or TUP) for the numerous coffee shops in the city, in which the government funded half of the upgrading costs (or a maximum of 5,000 Singapore Dollars). This has resulted in more than 700 toilets being upgraded till end-2004. The SARS outbreak in 2003, witnessed the launch of the “Singapore OK” (SOK) campaign to promote good hygiene and public practices across all walks of life, and this also renewed attention to proper maintenance and management of public toilets –95 percent (more than 27,600 public toilets) were given SOK labels. The government has issued detailed instructions on maintenance standards, including frequency of cleaning, type of materials to be used, and skills for maintenance.

To succeed in achieving a high standard of environmental hygiene in public places, the collective efforts and commitment of the 3P (People, Private and Public) sectors are crucial. This is why the National Environment Agency (NEA) has initiated the ‘Singapore’s OK’ campaign to rally the support of all Singaporeans and business establishments.
Source: NEA, Singapore, 2004

However, the public outreach and education programmes were not without basis in evidence. Since 1996, the government has been carrying out annual surveys, including visual assessments and interviews with users and cleaners – this leads to assigning a score to the toilet and their categorization into five categories from excellent to poor. At present, a number of non-governmental organizations have also come forward to work towards better and cleaner toilets.

Conclusion

Global experiences in sanitation provision and management have provided a number of innovations and lessons that Liuzhou can benefit from. These include:
• Potential benefits from a demand and customer-oriented approach;
• Ability and willingness of users to pay for good quality and well-maintained facilities, and hence
tariffs as a mechanism for improving management; leading to
the goal of full recovery of operational and maintenance costs.

• Successes have also shown that governments need to work in partnership with private sector and user communities to make the provision and O&M of sanitation facilities sustainable in terms of management arrangements, and in terms of operational costs and revenues.

• Another set of experiences to learn from are the mechanisms of providing incentives to the private sector and community groups to participate in provision and O&M, and instituting these in policies and contractual instruments.
5. Options for Improvements in PT Provision and Management in Liuzhou

Liuzhou currently plans investments in PTs centrally, and the Operations and Maintenance (O&M) management responsibilities are handed over to the District ESDs, who in turn either deploy their own permanent or temporary staff, or give these out on contract to individuals to manage. There are about 150 PTs under this kind of management by DESDs. BOOT contracts such as has been initiated with the Jingtao Company recently (20 proposed toilets), offer an additional avenue to bringing in investments - finances are brought in by Jingtao in return for their use of land, i.e. rights to use an additional two floors for commercial purposes for 50 years. Jingtao is to operate and manage PTs on a pay-and-use basis charging tariffs fixed by the Government. The Railway Bureau and Steel Plant run a few smaller bodies e.g. Market committees, have constructed and maintain another 100 PTs. There are indications of high demand for PTs in the city, but the current number, distribution, and management arrangements are yet to meet this demand satisfactorily. International experience shows that a number of approaches are available for consideration in Liuzhou. This section outlines the options for improved provision and management using Public Private Participation approaches for improved provision and management.

Why Public Private Partnership (PPP)?

The reasons for considering the introduction of PPPs in Liuzhou PTs are:
- **High demands** placed by urban growth, including for public amenities especially Public Toilets –demand for a higher number and better distribution of PTs, and Liuzhou's aspiration to become a world-class city and hence demand to upgrade all PTs to at least Grade I, and increasing the number of Tourist Grade Public Toilets too
- **Limited financial resources** available with the local municipal government, to make investments in Public Toilets on its own, and limitations of finances to subsidise the O&M management of PTs in the city.
- **Institutional constraints** on the department, in terms of capacities, personnel, skills and incentives, to sustainably manage PTs. Hence, the city needs to search for models that offer greater scope for increased efficiency.
- **Ability and willingness to use and pay** for good quality standard, and well-maintained Public Toilets on part of city residents, as well as visitors and tourists. PPPs are a good way to responding to demand and customer preferences.

Hence, the strategic objective of considering options of PPP, will be to strengthening of the planning, financing and management of PTs in the City with a view to:
- Increasing the number and distribution of PTs rapidly in the city to suit its growing requirements
- Upgrading the quality of all PTs to at least Grade I standards, and constructing/upgrading new Public Toilets of Tourist Grade
- Improving the financial and managerial sustainability of O&M of PTs
- Possibly influencing toilets under the premises and management of other agencies to construct and make available their toilets for public use, and emulate high quality standards
- Improving the health, well-being and environmental sanitary standards of Liuzhou by taking the above steps, and by a number of promotional activities to increase the use of PTs, and raise awareness of the health benefits of improved sanitation in the city.

**PPP Options: Issues to consider**

The following important points may be noted while considering PPP:
- **Generic Models**: The options below are generic and will need further investigations and considerable refinement before they become available as clear choices. Hence, these may be treated as simplified models of what the detailed arrangements might look like;
b) Dynamic Frame: While management contracts are good way to make entry into PPP and learn from experience, they may be an interim stage to a stage where a greater role is envisaged for the private sector. An example of this is the BOOT being experimented with Jingtao Company. Hence, the models presented may be considered in a dynamic frame where one stage leads to the other. Some cities have also tried going straight to a fuller private sector participation stage like a BOOT, without going into a Management Contract phase. Yet others first begin by carving out corporate entities (companies or statutory boards) from existing departments to achieve performance improvements, and then experiment with later stages of bringing in private or community participation.

c) Stages: The typical cycles in developing a PPP are:

i) Developing a Strategy—analyzing the current situation, identifying future needs including investments, identifying and agreeing future roles and responsibilities; agreeing objectives of PPP, developing operational models, etc. (we are at this stage in Liuzhou);

ii) Selection of frame of involving other public and private agencies: contracting and regulation and the private service providers or operators;

iii) Implementation of the selected plan: operation of contracts and regulation and monitoring; and

iv) Closing/termination of contract and learning lessons, and beginning a new cycle.

PPP Options

The following generic options are available for consideration for provision/management of PTs in Liuzhou:

1. Corporatisation of ESD’s PT Functions (with or without SWM functions) into a State Owned Environmental Sanitation Company

One route to professionalizing the planning and management of PTs will be to corporatise the ESD functions into a state-owned enterprise. While this is not a pure PPP, this may provide the route to immediate performance improvements in planning and management of PTs in the city. This is also a possible route to development of the market for PT provision and management services, and eliciting greater private sector participation in PT provision and management. (Chonqing is experimenting with a similar model of a company for Environmental Sanitation functions, and it is recommended that its experience be reviewed).

This option will involve consideration of whether Solid Waste Management functions are to be bundled with PT provision and management as the Company’s business areas. Options will also include the extent to which ESD staff at the city level and those at districts are combined into the company – one option is to change LZ ESD into a Environmental Sanitation Management Company, while continuing DESDs as management agents for PTs, especially the unviable ones. While this may not offer profit-making avenues from operations, performance based contracts between the company and the city government, are possible making its functioning transparent and accountable. The management-company nature can be bolstered by according it preferential development rights over land on which PTs can be sited along with other revenue-generating facilities. They could also be given rights for commercial development of all or a portion of existing PTs that become a part of its assets. It will be able to raise finances and enjoy operational autonomy over planning, human resources, and management of its assets. In this way, the company could become a PT (and solid waste management) development and management company that works to develop new projects, as also plans for systematic management of PTs using the private sector, and using commercial activities to subsidise the O&M of PTs.

The advantages of this kind of option are:

- Immediate performance improvements are possible by re-organising the ESD of part thereof, to take on specialized functions in a professional manner
- Possible to introduce best-practice organizational management systems and capacities, and operational autonomy not bound by departmental systems and regulations
The company can concentrate on proper management of land assets over which it is given control; developing and implementing new projects for viable PT provision; developing the private sector for O&M management, and managing contracts for provision (e.g. BOOT) and O&M (via individuals and small enterprises) till such time that the private sector is ready for offering management services for PTs (and solid waste management); and carry out community mobilization, especially to hand over non-viable PTs.

The disadvantages are:

- Low revenue surpluses will imply continued dependence upon budgetary resources of city government for time to come; also investment in setting up a company may not be justifiable since benefits may not be foreseeable at present. Hence, necessary to examine bundling in with solid waste management (with the risk of neglect of PTs as highlighted above in Option 3)
- Difficulty in finding lands and assigning management rights to the new Company
- Corporatisation may not necessarily lead to efficiency improvements: the company may take time to develop competencies in business processes, asset and contract management
- This option may not be preferred by the District Governments, who might perceive this against decentralized governance, and encroachment of their roles and responsibilities. If LZ ESD only is corporatised as a management company leaving DESDs to continue with O&M, it will take time before the stock of existing and new PTs in Liuzhou, become managed well and in a sustainable manner
- Company may not have competencies in mobilizing communities leading to uncertainties regarding management of unviable PTs, and necessity for continued subsidized O&M by DESDs

This option also signifies an interim arrangement that leads to other forms of PPP. Experience in some other countries shows that while corporatization brings immediate benefits and efficiency improvements, it could become an obstacle to further movements for improved delivery of services. However, Liuzhou has in the past, demonstrated its considerable capacity and commitment to carry out institutional changes, i.e. transforming departments into SOEs, and then into private sector organisations. The city has reduced the proportion of SOEs to total enterprises from 80 percent earlier to 30 percent now. Hence, reforms of ESD and bringing in private participation will not pose a problem if this interim route is adopted.

2. Contracting out management to Individuals, Informal Sector and Small Enterprises

This option signifies the strengthening of current management and institutional arrangements within City and District ESDs (where individuals are being contracted to look after PTs), leveraging greater investments, and a greater degree of participation of private and community agents (this will be an additional step). This Option will involve the following steps:

a) **Strengthening the ESD at the City and District Levels**, including their capacities for planning, contracting, and supervision of daily O&M management.

b) Contracting out the management of all the PTs in the city to **private informal sector individuals, and small enterprises**. At present, a large number of individual contracts are able to save on labour costs and only a few pay contract fees. This step will involve opening up bidding to small enterprises so that they can be attracted by the benefits of earning pay-and-use revenues and operate and maintain a group of PTs (not just one PT), and the city can benefit from their management innovations in reducing costs and improving revenues.

c) To **increase the commercial attractiveness** of these contracts, PT premises may be allowed for putting up advertisements, and running small kiosks, shops, etc.

d) **Mobilizing community groups** such as residents’ committees, youth groups, other clubs, and social service organizations to come forward to manage/supervise PTs in their areas. This could possibly take care of PTs in residential areas and other non-profit locations – while the government can continue to subsidise utility and material costs, they would hire the caretakers, and supervise the proper maintenance management of the PTs.

The advantages of this kind of option are:
• Extending the PT management contracts to small enterprises who will be better placed to manage a group PTs than individual contractors managing one PT each
• Type I and Type II PTs can be combined into contract packets thus reducing the number of contracts to tender and manage.
• Allowing commercial activities will attract small enterprises, especially in some of the locations with commercial potential.
• Improved revenues can be expected as compared to current collections.

The disadvantages are:
• Little or no small enterprises in Liuzhou with experience in PT management, and may not attract service providers.
• Size of contracts will still remain small necessitating a large number of contracts to be tendered and managed by DESDs.
• Little evidence of existence of community and voluntary groups in Liuzhou.
• Provision of commercial incentives (advertisements, shops, kiosks) will still require regulations and monitoring to ensure that PTs are properly managed (since commercial activities may divert the attention of the contractors) – little difference from current scenario.

3. Centralized PT Management at the City Level with Private Sector Agencies as Delegated Management Contractors

This option will involve:

a) Delegated Management Contracts to Private Companies (formal organizations, not individuals) to manage PTs in the city. Depending on the size of the estimated revenue flows, this could be one or more contracts for different parts of the city.
b) The contract amount will need to be determined on the basis of estimation of costs of management, and revenue from PTs (including losses). The contract management fee will have to compensate the contractor for net losses incurred. Performance clauses will need to be included so that management standards improve and costs reduce over a period of time.
c) In order to make contracts large and attractive, the contracts will need to be let out and managed centrally by the City level ESD, (and the district level ESDs, can fully concentrate on Solid Waste Management, and possibly only look after the non-profitable PTs in their area).
d) The key functions of the ESD will be financing (through budgetary sources, BOOT and other mechanisms), planning and implementation of new PTs, monitoring and review of PT O&M standards (especially regular monitoring the PTs that do not generate adequate revenues), and monitoring the performance of the operator.
e) For PTs in interior areas, some sort of output-based subsidies could be provided to the operator/s, or these could be cross-subsidised by parceling these with profitable PTs in contract packets. Or these could continue to be looked after by DESDs.

The advantages of this kind of option are:
• Possible to bring in professional capacity to manage PTs – even if these contracts are for profitable PTs only, government will be able to recover greater revenues and apply these to cross-subsidise the costs of maintenance of unprofitable PTs (that can continue to be done by DESDs by employing temporary caretakers).
• ESD can concentrate on policy-making, implementation of new projects for PT provision, contract management, and regulation – and reduce its role in direct management except in case of unprofitable PTs.

The disadvantages are:
• Little or no enterprises in Liuzhou with experience in PT management - it will take time for the market for management services to develop – after demonstration that PTs are a good commercial opportunity.
• The current O&M costs (about 2.5-3.5 million per annum) and revenues (0.3-0.4 million per annum) do not present an attractive financial picture of the business. This will then necessitate the government to pay out the difference by way of management fees to compensate for losses. This will be difficult to administer and operators will not have incentives to improve.
performance (save on O&M, enhance revenue collection, etc.) and may even neglect proper upkeep of assets to cut down O&M costs.

- It will be difficult to contract out non-profitable PTs, and even if they are parcelled into contracts along with profitable PTs, as these locations will suffer from lack of attention. Further, output-based subsidies (especially for non-profitable PTs) will be difficult to formulate and may introduce perverse incentives on part of operators.

4. Centralized PT Management at the City Level with Private Sector Participation, combined with participation in the Solid Waste Management in the city

This option is a variation of Option 2 above. Since PT management may not be an attractive business proposition for private agencies of reasonable size and sufficient with business expertise, bundling in (some portions or all) of the solid waste management business, may make the proposition attractive to capable private organizations (this needs proper examination especially in terms of the business asset base and revenue flows). This will have advantages and disadvantages similar to the option above: on the positive side, bundling in solid waste management may improve the commercial attractiveness of the business. On the other hand, PTs may not receive sufficient attention if bundled in with solid waste management, and may be treated as a burden by operators leading to deterioration of their condition.

5. Multiple Provision and Management Arrangements with Public, Private Sector Participation and Community Roles

This option is a bit like the present arrangements except that clear segmentation of PTs is involved in this – with clear delineation of roles and responsibilities for different set of PTs. This option will involve the private and community sector in a number of ways depending on the location and viability of the PTs. Public institutions can also be brought in participate in supervision of PT management.

- **BOOT Contracts like Jingtiao** – this route could be continued for commercial and public areas/areas with high population throughput, and hence high revenue potential. A certain share of the PT stock in the city could be targeted for this route – and land identified for the same. Management will contractually become part of the responsibility of the operator.

- An alternative here is to offer some of current PTs in need for refurbishment/upgradation in locations with moderate commercial potential, for upgraded reconstruction by private parties in a BOOT-like contract. This will not involve land requisition (already there) while upgrading the PT to good Grade I standards and assuring maintenance by the operator.

- To increase the supply of PTs, private institutions like Hotels and Street-side larger establishments could be provided incentives to build/upgrade PTs and open them for public use. The city government could provide some incentives for them to do this (e.g. technical advice and cash construction/upgradation support subsidy) and support this by making appropriate regulations. (This will result in saving land costs primarily but increase the stock of PTs).

- Like railway bureau, Steel industry, and market committees currently run PTs in the city, other public and private institutions could be requested to adopt and run select PTs near their offices/facilities.

- **Management Contracts for Profitable PTs to individuals, small and medium businesses:** this is like Option 1 and Option 2.

- **Promotion of individuals and community groups,** especially in residential areas, and empowering them to manage their PTs through a process of handover to the local group, e.g. the existing residential committees (groups that are the frontline part of the sub-district governments).

- **ESD/Government’s role will be planning,** investments, and monitoring and review of PTs, and managing the multiple contracts.

The advantages of this kind of option are:

- **Provision and O&M management arrangements,** can be tailored to suit the type of PT on the basis of its location and commercial potential – government-private sector partnering for
commercially viable locations, and government-public sector-community partnering for non-viable locations.

- ESD can concentrate on policy-making, implementation of new projects for PT provision, contract management, community mobilization for taking over non-viable PTs and regulation – and again, reduce its role in direct management except in case of unprofitable PTs till such time that community groups are ready to take these over.

The disadvantages are:

- Lack of experience in PT management may not attract private sector in management, but skew their interest and incentives to take advantage of land/property being offered under the BOOT-type terms where profits are higher.
- Public and private institutions may not want to adopt PTs, or build new, or upgrade existing ones and open them to public use – coercion and incentives may not work.
- Development/mobilization of community groups may not be feasible in a short time-frame leading to continued management of PTs by DESDs, and continuation of organizational apparatus to operate and maintain these PTs.

To summarize, three generic options are available: professionalized management of PTs by corporatisation, and two for private sector participation for PT management in LZ. One is the route of contracting out of small businesses and informal sector (including individuals); and the second is delegated management contract to one or more private companies to operate and maintain PTs in LZ in return for revenues and a contract fee. At later stages and with greater learning from BOOT with Jingtao Company, options for greater participation of private sector can be explored including a greater share of investments and management roles for them.

Common across the above options are the issues of easy/cheap mobilization of land for PTs; greater involvement of communities and private and public agencies to participate in increased PT provision and greater roles for them in O&M; the need to introduce measures to improve the operational viability of PTs (managing costs and increasing revenues by marketing the use of PTs); and the benefits of clearly separating out PT planning and management support functions for a specialized team as opposed to mixing such responsibilities with other general and specialized responsibilities in the ESDs or their successor organisations.

A large number of elements (e.g. Solid waste management, easier availability of land, etc.) that could be a part of the options, make comparison across options difficult. However, the differing emphasis on some of the key aspects of improved PT provision and management is provided as an illustration below in Table (15), to aid in decision-making. (Additional parameters may be added to this comparative Table).

<table>
<thead>
<tr>
<th>TABLE (15): ILLUSTRATIVE COMPARATIVE MATRIX FOR CHOICE OF PPP OPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative emphasis on aspect of PT provision and Management</td>
</tr>
<tr>
<td>1 Likelihood of achieving rapid coverage of PTs in the city</td>
</tr>
<tr>
<td>2 Likelihood of reduction in financial investments/costs of public sector</td>
</tr>
<tr>
<td>3 Likely improvement in efficiency of PT management</td>
</tr>
<tr>
<td>4 Likely costs to users (relative across options)</td>
</tr>
</tbody>
</table>
TABLE (15): ILLUSTRATIVE COMPARATIVE MATRIX FOR CHOICE OF PPP OPTION

<table>
<thead>
<tr>
<th>Relative emphasis on aspect of PT provision and Management</th>
<th>Corporatization</th>
<th>Contract to individuals and small businesses</th>
<th>Centralized PT Delegated Management Contract</th>
<th>Centralized PT Delegated Management Contract (with Solid Waste Management)</th>
<th>Multiple Arrangements according to segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Creating market for services/attracting private sector to PT provision and management</td>
<td>High</td>
<td>Poor</td>
<td>[Necessary Condition]</td>
<td>[Necessary Condition]</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

Source: Team Analysis, Oct-Nov 2005

On the basis of above preliminary assessment, it is clear that while the Centralized Delegated Management option (with or without SWM) may come at a possibly higher costs to users (this is possible for LMG to subsidize), it scores high on management efficiency. However, these options require developing the private sector to come forward for providing management services. At present, little experience exists in the private sector for offering such services, thus necessitating an interim phase to develop this capacity.

Contracting out to individuals (current scenario) and small businesses provides the benefits of incremental and hence, low-risk improvements but is not likely to lead to sustained efficiency gains in management standards. This option is however appropriate if the LMG choose strengthening district governments and devolving construction and management functions to them (like in Nanning).

The multiple management arrangements option is attractive for quick saturation of the demand for PTs, but is likely to require considerable government action and resources for some time, and in the long-run will become difficult to sustain.

The corporatization option provides an interim way forward – this allows for the development of private sector operators leading to greater efficiencies and better quality of PT management, as also provides the time needed for mobilizing communities to take over management of PTs in select locations. This is of course assuming that the state owned enterprise will be an interim stage before moving on to the next logical step of getting the private sector to operate PTs, while the enterprise becomes an asset management company. Over time, as PT provision becomes adequate, further options of devolving PT management to premises owners can be explored. There is a need to consider the bundling of PTs and SWMs together since the combined business will possibly provide the critical minimum throughput for viability – which PTs alone may not be able to match. The above issues are recommended for further consideration by the LMG.
6. Recommendations and Next Steps

As Liuzhou prepares to implement its ambitious program of construction of new PTs (including acquisition of portable and mobile PTs) under the LZEMP, and experiments with BOOT type contracts, the following long-term recommendations and immediate next steps deserve attention:

**Long-term Recommendations**

1. **Commit and “Protect: more Land for Public Toilets in Liuzhou**: more options need to be examined for mobilization of land. The LMG is in a difficult situation since national regulations govern the requisition of land whereas it has to find the land and pay for the requisition costs. However, this makes the capital cost of PTs prohibitively expensive. The options to be explored include: a) updating of the Master Plan (which is somewhat dated) with locations for PTs clearly identified; b) strict enforcement to “protect” PT sites by making it a compulsory condition for any developer to build PTs where such sites are ear-marked; c) making provisions for compensatory PT construction prior to demolition of any existing PT; d) making regulations that allow for putting up portable PTs on public lands (without attracting land requisition compensation); e) asking public and private institutions in the city to donating their lands for PT construction; and f) not charging the costs of requisition to capital costs of PT – since PTs are civic amenities, these costs need to be absorbed by the City government and not charged to PTs. The LMG makes available land for PTs under the BOOT contract in return for capital investments and O&M commitment, but the reach of these PTs is likely to be limited to areas with commercial potential.

2. **Identify and monitor Capital and O&M costs**: A proper system of data collection and analysis needs to be instituted for capital costs and monitoring O&M costs. This needs to be done for each administrative unit, and also for different types of PTs. Such cost monitoring and analysis are essential for developing business models for the future improvements. Monitoring of costs and performance of PTs over time will lead to proper life-cycle cost estimation that link capital and operational costs. The current method of costing is done on an area-basis – this needs to change to calculations per seat. Further analysis of break-even calculations help in focusing the areas for efficient cost management, as well as point to the need for close attention to marketing of PTs so that per seat utilization is increased as much as possible.

3. **Recover O&M Costs**: Liuzhou is fortunate in not declaring its PTs free (although many are free to use) since global and local experiences show that while proper maintenance of free PTs is possible albeit at the cost of operational subsidies from the government, and strong supervision and monitoring; user charges provides greater incentive for quality provision responding to user needs. Besides, the city must strive for full recovery of operational costs of PT management since subsidizing operational costs introduces perverse incentives for cost inefficiencies. Even if subsidies need to be continued in certain areas and for some segments, the overall O&M costs must be recovered at the city level. It may be noted that it is not the amount of subsidies that is a matter of consideration. Perhaps more important is the consideration of delivery of the subsidy – experience elsewhere has shown that institutional inefficiencies creep in quickly if the service providers operations are subsidized. In this context, options such as differential pricing and introduction of family passes (for poor households) may be considered.

4. **Put Customer at the Centre**: While the inspection and monitoring systems are functioning well (including periodic public disclosure), of particular importance is the institution of customer feedback. This will involve a huge transformation in the ESDs provision or supply-based approaches, to make PT provision and management responsive to demand and preferences of users. The methodology used in estimation of demand (for siting PTs, and determining number of seats in the PT) at present takes into account a number of factors, diluting the primacy of demand – this needs improvement. The city has not yet carried out a systematic promotion or “marketing” of use of PTs, and generate awareness of the health benefits – this has potential to increase revenue collection too. Improvements of signage are another area needing attention. It is recommended that the above promotional activities are planned and launched in the near future.
Improved demand estimation methodologies will also assist in correct siting and design of PTs.

5. Learn from Others: While international experiences were presented under this assignment and LZ ESD personnel have the benefit of information from experiences of other cities in China, it is recommended that city and district government officers, private sector representatives and community representatives are exposed to first-hand experience of cities in other countries (especially pertaining to ideas about how PT management is a viable business, methods of eliciting community and private sector participation, apart from contracting methods and approaches to land and asset management). Since other cities (especially in Asia) will gain from an understanding of the construction standards and implementation management systems followed in Liuzhou (and other Chinese cities), it is recommended that learning exchanges be set up with select other cities to learn from each other (not just a one-off visit) over a period of time.

6. Adopt a time-bound pilot and scale-up strategy: The LMG and ESD have indicated their preference for testing the new institutional and management approaches under the LZEMP, rather than risk city-wide changes from the start. While such an approach is useful in learning lessons and mobilizing stakeholders’ support, it also poses risks of different paradigms operating in the same city. It is recommended that while the LZEMP may be the testing ground, a time-frame may be established for scaling up. Further, under the LZEMP, the proposed technical assistance for the solid waste and PT management may be used by the LMG to extract emerging lessons and scale to city-wide level.

Next Steps

1. Review and Decide upon Institutional Arrangements within LMG for PT provision and management arrangements: The LMG are currently considering options for institutional reforms for the environmental sanitation functions in the city. Two scenarios are worthy of consideration at present:

a) Deepening decentralization and enhancing the capacities of DESDs – this will involve correcting the mismatch of functions, resources, capacities and responsibilities across the city and district level ESDs, and entrusting DESDs with increased planning, customer feedback, and community/private sector mobilization activities (like tried out in Nanning). If this approach is taken, districts ESDs will need to be considerably strengthened – and the role of planning and provision of PTs will also need to devolve to DESDs. This option will also imply a smaller LZ ESD core team supervising PTs, the bulk of the activities being at the DESDs.

b) Corporatization of environmental sanitation functions in the city: some of the options and considerations pertaining to corporatization have been discussed in Section 4. If this option is considered (either as a transitional institution, or as an arrangement for some time to come), it is recommended that the experience of Chongqing is reviewed (where the Chongqing Environment & Sanitation (Group) Co. Ltd, was established in December 2002 under the Company Act).

A related consideration in taking this route is consideration of solid waste management together with PTs to improve the business fundamentals of the proposed entity.

Even in the current organizational structure of ESDs, the lack of an identifiable team that focuses on improved provision and management of PTs possibly leads to little or diluted attention. Creating dedicated units (in ESDs or their successor organizations) with teams of people with their full attention on to PTs, will go a long way in professionalizing the approach to PT planning and management support, including development of skills, knowledge and experience in this area.

2. Review and Standardize Contracts: There is need to review the performance of the contracts to individuals by District ESDs. At present, the contracts to individuals serve to replace high-cost labour with cheaper caretaker services from the market and only in a limited number of cases, do they provide incentives for better management (since most of the costs are defrayed by the DESDs). At the very least and immediately, standardization of contracts across all districts may be considered. Emerging from Nanning and Guilin underline the importance of attention to the details of contracts, especially for BOOT operations, to ensure good incentives and performance.
3. **Train Staff in Contract, Asset and Project Management:** LZ and District ESD Staff will benefit from training, especially on contract and asset management, and project management, as well as from institutionalization of improved business processes for planning, budgeting, human resources, O&M cost management, etc. The LMG are proposing training for ESD staff on organizational management improvements. It is recommended that this be advanced, and the above aspects are included. Apart from training, organizational systems and capacities need enhancement and this may be considered too (possibly supported too by the proposed TAs on solid waste management and PTs under LZEMP). Capacity building must be targeted at DESDs to improve their functional skills and systems – possibly with a view to taking over construction planning and management functions too (see institutional reforms section below).

4. **Use Technical Assistance to achieve above objectives:** the proposed TA for PTs and SWM, need to be utilized to maximise the benefits for LMG/ESD in making quantum improvements to environmental sanitation systems in the city. However, the procurement methods are different for these TAs; and the periods of TA delivery are also different (While the expected completion of PT TA is Dec, 2006, the one for SWM is expected to complete in Dec, 2007). The SWM TA proposes considerable work on i) options for organisational transformation of the ESDs; ii) training and capacity building; and iii) assistance on technical parameters and operational systems for solid waste management. It is recommended that the solid waste TA is modified to cover the organisational transformation and capacity building dimensions for PTs too. It needs to be ensured however that attention to PTs is not diluted and appropriate changes need to be reflected in the scope of services. In addition, the TA for PTs, may focus on specific aspects of PT management (as outlined above), including land mobilization, capital and O&M cost information systems, cost recovery, customer orientation and marketing, and assistance in development of private and community participation.

The contents of the proposed TAs will however become more focused once the LMG decide on the broad route that is preferred. If corporatisation is preferred, establishment of the new institution will be the main focus of the TA (and may be required in its preparatory stages) whereas if the other options are chosen, TA contents will need to be accordingly modified.

**Recommended Technical Assistance Activities (for Improved PT Provision and Management) under LZEMP:**

The following activities are recommended should the Corporatization Option is chosen:

- Devise the organizational structure and staffing for the PT Planning (including Asset Management and Business Development), and Maintenance Management (including information systems, and monitoring and review) divisions of the Environmental Sanitation Management Company (ESCO).
- Develop and implement the business processes and operational systems for planning, implementation, contracting, monitoring for the PT divisions in the ESCO, including best practice systems for cost information and management (At least one round of capital and O&M cost analysis to be done for all type of PTs in the city, and system set up for regular updation)
- Develop and deliver the core training modules for ESCO PT staff, to build their skills and capacities in areas including but not restricted to planning; contract, asset and project management; and private sector participation in PT provision and management
- The ESCO PT division to organize consultations with private sector in Liuzhou, and BOOT/management service providers from other cities (e.g. Guilin, Nanning, and other cities in China) in PTs (or related infrastructure services sectors like water, sewerage, solid waste, roads, electricity etc.) to assess and develop conditions for their participation in construction and/or management of PTs in Liuzhou
- ESCO PT division to identify and organize consultations with community groups in Liuzhou (e.g. residents groups, women’s groups, youth groups, shopkeepers’ associations, etc.) to develop their interest in participating in taking over the supervision and monitoring of PTs in their areas
• ESCO PT division to develop and institutionalize customer preference and feedback systems, as a part of its monitoring functions, and as an input to pricing (including differential pricing), design and siting of PTs
• ESCO PT division to carry out a demand-estimation for PT services in Liuzhou, and develop this model for later updation (some surveys may be required to be conducted for this activity)
• ESCO PT division to prepare model contracts for BOOT/BOT and delegated management services
• ESCO PT division to formulate its business strategy in terms of use of assets and rights/privileges in leveraging resources and revenues using the best mix of opportunities for service delivery and capitalization/investment of non-PT receipts (say from commercial revenues) (Review of Chongqing ESCO experience, and those from other countries, will be necessary)
• ESCO PT division to develop options and implementing the strategy for inviting and handing over management of PTs to businesses and communities, under contract from the ESCO.
• ESCO PT division to work with the ESD/Urban Bureau, Finance and Pricing Bureaus, to devise the best performance and output-based subsidy contract between the ESCO (PT part at least) and LMG, so that government subsidies are rational, transparent and provide incentives for improved performance for PTs in the city.
• ESCO PT to coordinate with the work being done under the SWM TA contract, and ensure PT provision and management receives a clear mandate and importance in the restructuring process/creation of the ESCO.
Select References


