

URBAN *Innovations*

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Proposed Water Supply and Sewerage Project for
Sangli-Miraj-Kupwad Municipal Corporation**

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Urban Management Programme for Asia & the Pacific

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**Municipal Initiative in Maharashtra –
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by

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This paper presents an approach that demonstrates the implementation of reforms in the key area of water supply and sewerage by undertaking municipal initiatives with private sector participation on a commercial basis. It is based on the initiatives taken by the Sangli-Miraj-Kupwad Municipal corporation (SMK-MC) in the State of Maharashtra. The paper briefly summarizes the proposed approach that introduces efficiency improvement reforms envisaged in the Government resolutions by employing an experienced private sector operator for operation and maintenance (O&M) in Phase I, which would subsequently lay the foundation for attracting private sector investment in the next phase for system rehabilitation and augmentation on a long term basis. The focus is to ensure that the initial grant given by the government results in the creation of a self-sustainable system.

1. Water and Sewerage Sector Background in Maharashtra

As per the census of 1991, Maharashtra has 290 municipal towns/cities. The Government of Maharashtra (GoM) prepared a White Paper on Drinking Water Supply Program in 1995 that revealed that only 22 percent of cities provide water meeting the per capita supply norms prescribed by the Department of Water Supply and Sanitation (DWSS), GoM and the rest provide water below norms. These norms vary from 70 to 150 litres per capita per day depending on the population of cities. In a more recent study conducted by Mumbai Metropolitan Regional Development Authority (MMRDA), of the 78 municipal authorities in the Maharashtra, only 18 municipalities supply water meeting or exceeding the norm of 175 litres per capita per day (lpcd). As far as sewerage is concerned, only 28 out of 78 cities have underground sewerage system. The coverage of the sewage collection system in all these cities varies from less than 10 percent to about 50 percent.

The water and sanitation sector, in general, experiences high levels of unaccounted for water, high energy costs, high level of employees, low customer satisfaction and low cost recovery. The performance of urban water and sanitation sector has been a cause of concern for some time in Maharashtra. With the increasing urbanization and need for creation of competitive and efficient cities in the post liberalization period, it is imperative that the water and sanitation sector be given top priority in the urban sector.

2. Sukthankar Committee

The GoM established a Committee in January 2000 to prepare a roadmap for improved provision of water and sewerage in rural and urban areas under the chairmanship of former Chief-Secretary, Mr. D.M. Sukthankar. IL&FS was a permanent invitee of the Committee.

The terms of reference for this Committee broadly included:

- in-depth study of the current system of operation and maintenance of rural and urban water supply schemes;
- suggestions for improved ground water resource management;
- suggestions for improved performance of existing assets;
- institutional and tariff restructuring;
- suggestions for private sector participation (PSP); and
- suggestions for creating a competitive environment for water and sewerage services.

Based on an action agenda developed at the Pune Workshop and the interim findings of the Committee, the GoM has passed a government resolution no. Napapu/1000/CR-419/PAPU-22 of 27th September 2000 that has introduced a reform process for system performance improvement and has restructured the capital grants program for urban water supply. The program aims at achieving efficiency improvements through activities like water audit, water leakage detection program, water leakage reduction program including reduction of unaccounted for water and energy audit leading to energy conservation. It also encourages Urban Local Bodies (ULBs) to undertake a time bound action plan with private sector participation for promoting investment and efficiency in water supply and sewerage sector.

The government resolution divides the annual state grants for urban water supply into two parts:

- 70% of the grants for original capital works; and
- remaining 30% of the grants to be used as “Initiative Incentive Grants” for water audit, energy audit and measures to reduce leakages by adopting specific methods.

The 30% component envisages providing funds for technical assistance on a cost sharing basis for reforming ULBs, for achieving efficiency improvements and undertaking project development for private sector participation. The grants are also expected to support rehabilitation measures involving procurement of hardware during actual implementation of efficiency improvements program. In the past, capital financing did not have any linkage with performance. However, the releases, henceforth, from this grant funding are expected to be subject to a time-bound implementation of efficiency improvements.

3. Sangli-Miraj-Kupwad Municipal Corporation Initiative

In the advocacy workshop held at Pune on 5th-6th February, 2000, Sangli-Miraj-Kupwad Municipal Corporation (SMK-MC) offered to undertake a demonstration Water Supply and Sewerage Project with private sector participation. IL&FS, in consultation with the DWSS-GoM, has examined the feasibility of developing the Water Supply and Sewerage Project for SMK-MC with private sector participation and on a commercial format

GoM, Sukthankar Committee and IL&FS have held a number of advocacy meetings with the technical and administrative staff and political representatives of SMK-MC since February 2000. This has led to the General Body of the SMK-MC pass a resolution in their meeting on 20th November, 2000:

- to privatize the water and sewerage system (referred hereafter as Systems) in a phase-wise manner;
- to approach the GoM for accessing the Initiative Incentive Grants for undertaking the efficiency improvement program with private sector participation
- to retain IL&FS as a Strategic Advisor in this entire process; and
- to establish a Special Purpose Company (SPC) promoted initially by SMK-MC and IL&FS to develop, operate and maintain the existing Systems and subsequently implement the rehabilitation and augmentation Project through appropriate contracts and structures.

This paper briefly summarizes the proposed approach that introduces the efficiency improvement reforms envisaged in the government resolution through actual system operations and maintenance (O&M) contract in the first phase by employing an experienced private operator. This is considered essential to develop the foundation for attracting private sector investment in the next phase for system rehabilitation and augmentation to meet the requirements of the next 30 years. A brief outline of the existing water supply and sewerage system is presented in Annexure 1.

The two key steps envisaged in this process are:

- combining O&M Management Contract implementation in Phase-I with the Project development studies necessary for a BOT type concession contract envisaged in Phase-II; and
- developing an implementation structure that addresses operation of the water supply and sewerage system in its totality to mitigate the perspective of risks associated with not operating a complete system.

4. Proposed Implementation Strategy

4.1 Formation of a Special Purpose Company

In keeping with the General Body resolution, SMK-MC and IL&FS will jointly promote a Special Purpose Company (SPC). All water supply and sewerage obligations and responsibilities of SMK-MC will be undertaken by the SPC through by an Authorisation Agreement between SMK-MC and the SPC.

4.2 Phase-I

Rationale for a Management Contract for Phase-I

Given the inherent constraint of lack of institutional capacity in SMK-MC to undertake efficiency improvements and considering the lessons learnt from some of the earlier initiatives in India such as Hyderabad, Mumbai, Chennai, Pune etc., it is proposed to involve experienced private sector organizations to achieve the objectives of the reforms program through a management contract. The management contractor is proposed to be selected competitively and made responsible through an appropriate scheme of incentive

based performance fees and penalties for achievement of the efficiency improvements outlined in the government resolution.

Implementation

Phase-I is proposed to be implemented so as to meet the reform-oriented approach advocated by GoM. It will not involve any major investment except essential rehabilitation to improve the existing performance. The main objectives are as follows:

- to undertake efficiency improvement activities for the existing Systems (covering arresting physical losses, improving billing and collection efficiency, increasing energy efficiency in operations, and reducing consumables) through an O&M Management Contract with private sector participation over a period of 3 years and in the process a create data base on condition of the existing assets and its mapping;
- to train the municipal staff (proposed to be assigned to work under the Management Contractor) in efficient O&M practices;
- to improve customer satisfaction; and
- to identify the new investment requirements for Systems rehabilitation and augmentation in a phased manner over next 30 years through actual hands-on experience of Systems O&M.

The option of the management contractor funding the rehabilitation requirements is also under active consideration. Essentially, the duration of the contract will have to be suitably enhanced to enable the contractor to recover the investments

Benefits of the Efficiency Improvement Program in Phase-I

It is essential that the “Initiative Incentive Grants” support being provided by the government results in creation of a self-sustainable system. It is envisaged that the benefits would include:

- improved performance efficiency resulting in a good practices and a system in place for increased revenue collection and optimal O&M expense;
- effective management of billing and collection (e.g. through computerization);
- training to the Municipal Staff for modern operation and maintenance facilities; and
- happy consumers - improved quality of water, quick response to the complaints, etc.

Outputs of the Efficiency Improvement Program in Phase-I

It is expected that achievement of the benefits in Phase-I would require a time period up to 3 years. The following outputs are expected:

- institutional demonstration of professional Operation and Maintenance of Systems
- complete technical information on existing assets including Mapping and Existing Performance Levels
- condition assessment of the existing assets including water losses, energy losses

- investment requirements to improve existing System performance;
- investment plan for long term system rehabilitation needs and capacity augmentation proposed to be undertaken in Phase-II through phased investments in next 30 years such that the investment burden met the growing population and match with the increased revenue.

4.2 Phase-II

The first component of the Phase-II will be implemented on a self-sustainable basis through a renegotiated Management/Concession Agreement with greater risk transfer to the private sector. This will ensure that the gains of Phase-I efficiency improvements are sustained.

In this period, on the basis of the Systems Master Plan and Data Bases developed in Phase I, the augmentation Project blueprint will also be developed separately for implementation through arrangements like BOT, Lease, Concession etc. The typical Project Development Cycle will comprising the following:

- development of the Project through project structuring and documentation;
- identification of the legal, contractual and administrative framework and structures to facilitate implementation of the Project on a commercial basis;
- procurement and arranging of finances with private sector participation; and
- procurement and selection of an operator for implementing the Project in the second component of Phase-II.

In the second component of Phase-II, such arrangements for the implementation of the Project with a demand-driven approach will be put in place. The financing, construction and operation and maintenance of the Systems will be carried out on a commercial basis by private sector participation through public private partnership. This phase would also address and mitigate issues arising out of user willingness to pay, socio-political and environmental concerns through appropriate risk management mechanisms.

5. Concluding Remarks:

Since SMK-MC would be the first Corporation to access the Initiative Incentive Grants, it is expected to provide an approach that demonstrates the implementation of the reforms proposed by the government in the water and sanitation sector. The learning experience of this effort can be more readily adopted in other corporations in Maharashtra (and India). This includes clarity and detailing of the process activities, definition of achievable performance parameters and preparation of bidding documentation for contractual purposes. Introducing processes and undertaking activities that raise investor confidence are essential to achieve effective private sector participation. Such an approach is expected to facilitate professional management of the services.

Annexure 1

Existing System Information

A.1 Profile of Project Area

Sangli is a district place located at 50 km off NH-4 (Mumbai-Bangalore) and is well connected by road and train. Miraj and Kupwad are the small towns located within 10-km distance from Sangli. Sangli Miraj Kupwad Municipal Corporation (SMK-MC) was formed by GoM after merger of these 3 Municipal Councils, on February 09, 1998. The total area of the SMK-Municipal limit is 110 sq.km with the total road length of 220 km. The present population of SMK-MC is estimated approximately 0.45 Million, including slum population of about 31,000.



A.2 Existing Water Supply

- (a) The existing water supply Systems for Sangli and Miraj were built by MJP and handed over to respective Municipal Councils at that time for operation and maintenance. The last scheme executed for and handed over the Municipal Councils were in early 1980's and thereafter no major schemes have been executed for these towns
- (b) Maharashtra Industrial Development Corporation (MIDC) supplies about 1.2 Mld water to Kupwad area, which is not adequate and the area is mainly dependent on ground water. SMK-MC also supplies about 2 Mld water at domestic rate to surrounding 5 villages. The Corporation had discontinued water supply to additional

6 villages for the non-payments from these Councils. There are about Rs. 17 Million dues yet to be recovered from various Village Panchayats .

- River Krishna, which passes through the city, is a perennial source of water and at present about 60 Mld water is supplied through 210 km long distribution system and the details are summarized in following box:

- | | |
|--|---|
| <ul style="list-style-type: none"> ➤ ➤ | <ul style="list-style-type: none"> ➤ Distribution Network: 210 km • Area of distribution coverage: 90% • Population coverage 3.5 lakhs (out of 4.5 lakh) • Connections (% of supply) <ul style="list-style-type: none"> ➤ Domestic : 33345 (87.5%) ➤ Commercial : 689 (6%) ➤ Industrial : 1426 (6.5%) • Supply hours: Morning and evening, average 2 hours |
|--|---|

The water supply is metered, however more than 70% meters are non-functional. The current water tariffs are reasonably high compared with other Municipal Corporations in Maharashtra as per details provided in following box:

- | | |
|---|---|
| <ul style="list-style-type: none"> • | <ul style="list-style-type: none"> Tariffs (Rs./kL) <ul style="list-style-type: none"> ➤ Domestic : 4.50 ➤ Trust and govt. offices: 8.00 ➤ Commercial : 10.00 ➤ Industrial : 20.00 ➤ Stand posts : Free supply • Domestic Connection Charge: Rs. 100 (for 15 mm) • 70% meters are non-functional |
|---|---|

A.3 Existing Sewerage System

For Sangli the first sewerage system was commissioned in 1977 and for Miraj in 1969. The sewerage system for Sangli commissioned was designed for a population of only 100,000 for the year 1985. The sewerage system for Miraj was commissioned in 1969 for a population of 85,000. There is no sewerage system existing in Kupwad. Out of 68 wards of SMK-MC about 51 wards have been covered by the sewerage system. However some of these wards have been partially covered. Night soil septic tanks exist in the area, which is not covered by the sewerage system whereas the sullage is discharged either in open or in open drains along the roadside.

The quality of water is a significant concern for the population of SMK. The main cause for poor quality is inadequate sewage collection, treatment and disposal system. The

sewage is treated in the oxidation ponds where the level of treatment achieved is not known. The effluent from the oxidation ponds is used for irrigation however due to rapid urbanization, the lands available for irrigation have been reduced considerably and the partially treated sewage is let out in the river.

Existing Sewerage System Details for SMK-MC

- Collection network Coverage 94 km (40% of road length)
- Population coverage 2.20 lakhs (55%)
- Geographic area coverage – 57%
- Sewage Collection 22 Mld (40% of water supply)
- Disposal through Oxidation Ponds

SMK-MC charge a nominal sewerage tax at 5% of ratable value of the property. The connection charges are just Rs. 10. It is proposed to increase connection charges as follows:

- Residential : Rs. 50
- Apartments : Rs. 50 per flat
- Commercial : Rs. 100
- Restaurants/hotels : Rs. 300
- Function halls : Rs. 500

A.4 Financial Status of SMK-MC

SMK-MC's has an annual budget of approximately Rs. 600 Million as summarized in the following tables:

Statement of Income (Rs.)			
	1998-99 (Actual)	1998-99 (Budget)	1999-2000 (Budget)
Revenue Income	310,151,000	486,280,000	490,361,000
Capital Income	0	700,000	0
Debts & Suspense	84,126,000	128,099,000	108,093,000
Total Income	394,277,000	615,079,000	598,454,000
Statement of Expenditure (Rs.)			
	1998-99 (Actual)	1998-99 (Budget)	1999-2000 (Budget)
Revenue Expenditure	260,760,000	339,874,000	360,365,000
Capital Expenditure	62,739,000	133,892,000	115,791,000
Debts & Suspense	73,783,000	128,099,000	108,093,000
Total Expenditure	397,282,000	601,865,000	584,249,000

Summary of SMK-MC Accounts (Rs.)			
	1998-99 (Actual)	1998-99 (Budget)	1999-2000 (Budget)
Surplus/Deficit	-3,005,000	13,214,000	14,205,000
Revenue			
Surplus/Deficit	49,391,000	146,406,000	129,996,000
* Budget A	75,922,000	146,406,000	144,261,000
* Budget C	-26,531,000	0	-14,265,000
Capital Expenditure			
Surplus/Deficit	-62,739,000	-133,192,000	-115,791,000
Debts & Suspense			
Surplus/Deficit	10,343,000	0	0

The revenues from water and sewerage operations are not adequate to meet O&M expenses as can be seen from the following boxes and the Corporation uses other sources of revenue (mainly octroi) to meet the shortfall.

Water Supply System Financial Performance		
INCOME (Rs. Lakhs)	1998-99	1999-2000
➤ Revenue Income (water charge)	484.92	
699.96		
➤ Water benefit tax	21.72	43.20
➤ Connection Charge	5.86	8.28
➤ Other	14.04	22.68
➤ Total	526.44	
841.92		
EXPENDITURE (Rs. Lakhs)	1998-99	1999-2000
➤ Establishment	130	176
➤ Electricity	303	381
➤ Chemicals	25.53	31
➤ Maintenance	15.41	18.50
➤ Other	212.06	193.50
➤ Total	686	800
Collection performance	80%	86%

Sewerage System Financial Performance

INCOME (Rs. Lakhs)	1998-99	1999-2000
➤ Benefit tax	37.02	44.45
➤ Connection Charge	0.00	0.00
➤ Other	2.59	4.35
➤ Total	39.61	48.80
EXPENDITURE (Rs. Lakhs)	1998-99	1999-2000
➤ Establishment	57.63	65.26
➤ Electricity	33.72	34.26
➤ Chemicals	0.00	0.00
➤ Maintenance	48.14	8.84
➤ Total	139.49	
108.36		

A.5 New Investments till 2001

The Corporation has not been able to make new investment in water supply and sewerage infrastructure due to scarcity of funds. The nominal investments made by the water and sewerage department of the Corporation during last 2 years, mainly for extension of water distribution and sewage collection system, as per details furnished below:

Investments made in Rs. Lakhs	<u>1999</u>	<u>2000</u>
<u>Water Supply</u>		
Extension of Distribution system	20	24
Repairs & Replacement	5.94	3.24
<u>Sewerage Dept</u>		
Extension of Collection system		11.85
TOTAL	25.94	39.09

A.6 Existing Staff Strength

The Corporation have employed about 450 staff for operation, maintenance and management of the existing water supply and sewerage system, which is approximately

20% of the total staff strength of the Corporation. The details are furnished in the following box:

	<u>1999</u>	<u>2000</u>
Staff at Corporation	2360	2360
<u>Water Supply Dept</u>		
Class II	4	3
Class III	139	137
Class IV	146	145
Labors	26	26
<u>Total</u>	<u>315</u>	<u>311</u>
<u>Sewerage Dept</u>		
Class II		5
Class III		30
Class IV		88
Labors		12
<u>Total</u>		<u>135</u>

Annexure 2

Proposed Implementation Structure

