


SPMLIFE

House Journal, October - December 2008



Solutions for a greener future !



MESSAGE FROM VICE CHAIRMAN

Greetings! Here's presenting you the 4th edition of the **SPMLIFE**. This issue focuses on the environmental scenario of India and our positive contribution towards this sector. I hope you agree that environmental pollution is one of the serious problems faced by the people in the country. Rapid population growth, industrialization and urbanization are adversely affecting the environment.

India is the world's sixth largest and second fastest growing producer of greenhouse gases. Delhi, Mumbai and Chennai are three of the world's ten most populated cities. Two-thirds of city dwellers lack sewerage, one-third lack potable water. India grows equivalent of another New York City every year in its urban population. In 15 years from now, more than half of Indians will be urban dwellers; 1/3 will be slum dwellers and squatters.

The lack of services such as water supply, sanitation, drainage of storm water, treatment and disposal of waste water, management of solid and hazardous wastes, supply of safe food, water and housing are all unable to keep pace with urban growth. All these in turn would lead to an increase in the pollution levels. Also the unplanned location of industries in urban and sub-urban areas followed by traffic congestion, poor housing plan, poor drainage and garbage accumulation causes serious pollution problems. However, all these factors together not only lead to deteriorating environmental conditions but also have adverse effects on the health of people.

Subhash Projects and Marketing Limited (SPML) plays a positive role in reducing these problems to a large extent. We formed a company named SPML Urban Enviro Ltd. to provide Solid Waste Management Solutions, Waste Water Management Solutions and Sewer Rehabilitation Solutions among other environment related solutions. The waste management in cities like New Delhi and Madurai and also the waste management for airports at Delhi and Hyderabad are some of our signature initiative.

Keeping up with the pace of fast technology we have tied up with PEAT International Inc. to create resources from waste by using plasma technology. While processing the waste, "syngas" is generated, this can be used to drive a turbine which generates electric power. With the help of this technology we can reduce the solid waste into 2% of the actual size collected. Thereafter the problem of waste management can be done away with and we can have a cleaner and healthier surrounding.

We at SPML are firmly following our vision to "Build a world class infrastructure with passion and innovation to keep human life comfortable".

A handwritten signature in black ink, appearing to read 'Subhash Sethi', with a long horizontal line extending to the right.

Subhash Sethi
Vice Chairman

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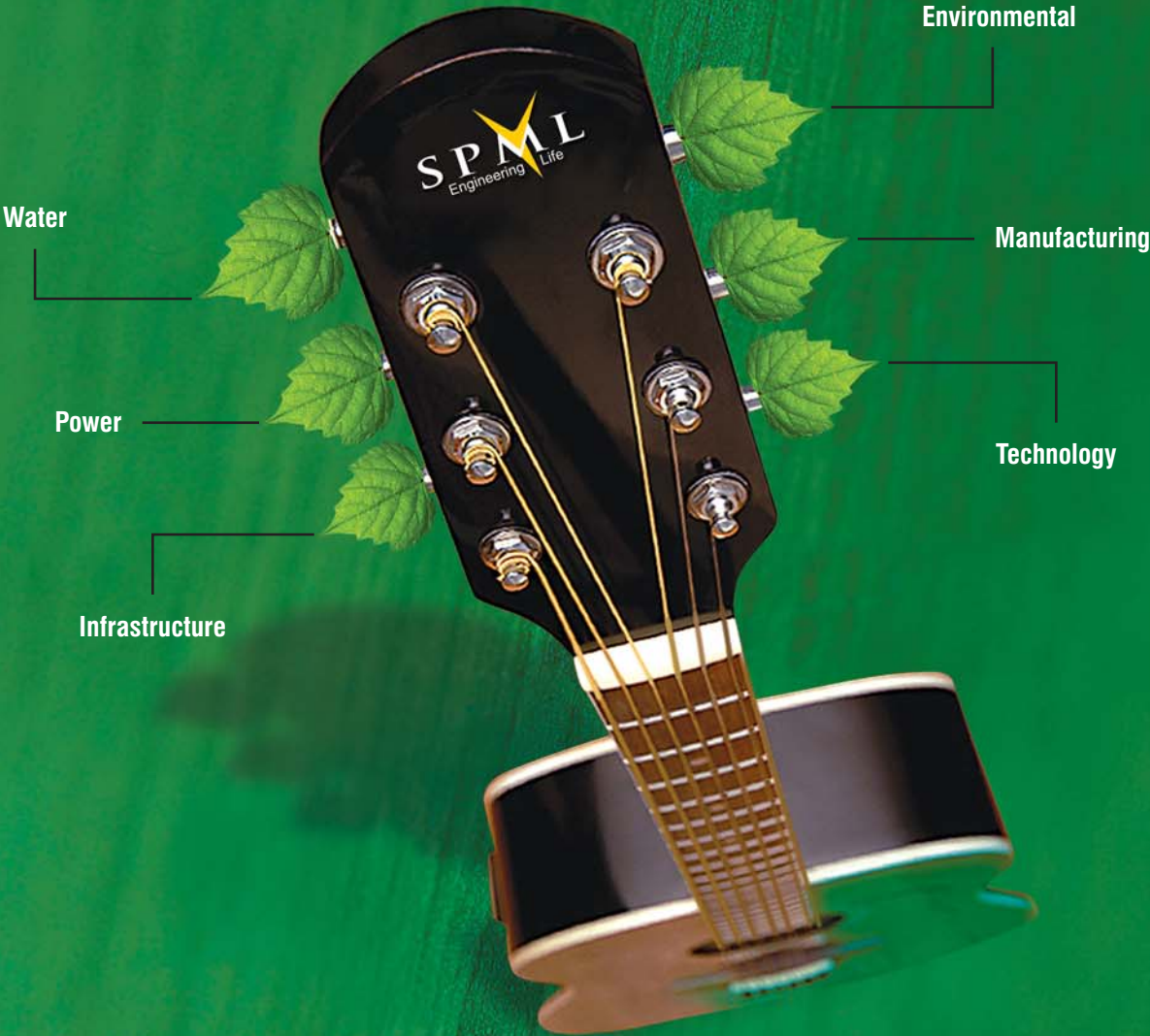
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. . . with nature !

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Environmental Pollution in India

An Overview





The increasing economic development and a rapidly growing population that has taken the country from 300 million people in 1947 to over one billion people today is putting a strain on the environment, infrastructure, and the country's natural resources. Industrial pollution, soil erosion, deforestation, rapid industrialization, urbanization, and land degradation are all worsening problems. The cost of environmental damage in India is 4% of the country's GDP.

Ministry of Environment and Forests (MoEF) recognizes the need to strike a balance between development and protecting the environment. The government heightened the Ministry's powers with the passage of the 1986 Environment Protection Act. India is the first country in the world to pass an amendment to its constitution ostensibly protecting the environment.

The present scenario

India is the world's sixth largest and second fastest growing producer of greenhouse gases. Delhi, Mumbai and Chennai are three of the world's ten most populated cities. Vehicle emissions are responsible for 70% of the country's air pollution. Two-thirds of city dwellers lack sewerage, one-third lack potable water. India grows equivalent of another New York City every year in its urban population.

Clean drinking water facility through taps is available to only 35 percent of urban households and 18 percent of rural households in India. 84,000 deaths were directly attributable to outdoor air pollution in Indian cities (WHO, 1996). Indoor air pollution accounted for 496,000 deaths in villages and 93,000 deaths in cities (WHO, 1997).

Bangalore holds the title of being the asthma capital of the country. Studies estimate that 10% of Bangalore's population and over 50% of its children suffer from air pollution-related ailments. The air pollution in Mumbai

is so high that Mumbai authorities have purchased 42,000 litres of perfume to spray on the city's enormous waste dumps at Deonar and Mulund landfill sites. Concern with New Delhi's air quality got so bad that the Supreme Court recently placed a limit on the number of new car registrations in the capital.

The effects of air pollution are obvious: rice crop yields in southern India are falling as brown clouds block out more and more sunlight. And the brilliant white of the famous Taj Mahal is slowly fading to a sickly yellow.

The problem areas

Lack of services like water supply, sanitation, drainage of storm water, treatment and disposal of waste water, management of solid and hazardous wastes, supply of water and housing are all unable to keep pace with urban growth. Also the unplanned location of industries followed by traffic congestion, poor housing, poor drainage and garbage accumulation causes serious pollution problems. Hence it has been the main areas of concern for demographers, ecologists, planners and policy makers over the recent past.

River pollution from untreated sewage

80% of urban waste in India ends up in the country's rivers. Only 55 percent of the 15 million Delhi residents are connected to the city's sewage system. The remainder flush their bath water, waste water and just about everything else down pipes and into drains, most of them empty into the Yamuna. According to the Centre for Science and Environment, between 75% to 80% of the river's pollution is the result of raw sewage. Combined with industrial runoff, the garbage thrown into the river is over 3 billion liters of waste per day. Nearly 20 billion rupees, or almost US \$500 million, has been spent on clean up efforts. The frothy brew is so glaring that it can be viewed on Google Earth.





RIVER POLLUTION

80% of urban waste in India ends up in the country's rivers. 3 billion liters of waste are pumped into Delhi's river Yamuna everyday.

Much of the river pollution problem in India comes from untreated sewage. Samples taken recently from the Ganges River near Varanasi show that levels of fecal coliform, a dangerous bacterium that comes from untreated sewage, were some 3,000 percent higher than what is considered safe for bathing.

Municipal Solid Waste

India's urban population slated to increase from the current 330 million to about 600 million by 2030, the challenge of managing municipal solid waste (MSW) in an environmentally and economically sustainable manner is bound to assume gigantic proportions. The country has over 5,000 cities and towns, which generate about 40

million tonnes of MSW per year today. Going by estimates of The Energy Research Institute (TERI), this could well touch 260 million tonnes per year by 2047.

Municipal solid waste management is more of an administrative and institutional mechanism failure problem rather than a technological one. Until now, MSW management has been considered to be almost the sole responsibility of urban governments, without the participation of citizens and other stakeholders. The Centre and the Supreme Court, however, have urged that this issue be addressed with multiple stakeholder participation. Cities in India spend approximately 20% of the city budget on solid waste services.

**CETP, OKHLA**

Combined Effluent Treatment Plant at Okhla, Delhi is one of the many Environmental Engineering projects executed by SPML, across the country.

Environment and health hazards

The WHO estimates that 24 per cent of global disease burden and 23 per cent of all deaths can be attributed to environmental factors. The burden is more on the developing than the developed countries. In developing countries, an estimated 42 per cent of acute lower respiratory infections are caused by environmental factors.

Some suggestions to reduce pollution

Reduce tax on incomes and institute a tax on pollution was a suggestion environmental crusader Al Gore had for India to tackle the issue of global warming effectively. "Reduce tax on employees and employers and put a tax on pollution. The more carbon dioxide one emits the more he pays in taxes," said Gore in an interactive session at the India Today Conclave. Replying to a question Gore also suggested subsidising clean energy generation instead of carbon fuels like kerosene.

The SPML Advantage

- ▶ Adapting to increasing water scarcity
- ▶ Improving energy efficiency and ensuring adequate energy supplies
- ▶ Adapting to climate change which could impact India more than other countries
- ▶ Coping with accelerating urbanization through strengthened urban governance
- ▶ Protecting India's fragile environment in the face of the rising pressures created by economic success
- ▶ Making India a driving force in technical innovation



Managing Waste | The Ensuring Future

It is estimated that Delhi generates approximately 8000 Tonnes Per Day (TPD) of municipal waste. The existing landfill sites are choked beyond their limits and the availability of fresh land is an expensive dream. The mountains of waste have become like volcanoes, ready to explode anytime and tons of lava adding everyday.

What to do ?

Traditionally, waste collection & disposal has been the responsibility of Municipal Corporation of Delhi. Pushed by the tenets of the law, epidemics and diseases, deteriorating cleanliness, the Municipal Corporation of Delhi (MCD) is looking for planned solutions to combat

the waste threat. Also realising that it alone would not be able to salvage a situation gone out of hands, it invited private sector to participate in this clean up act. The first component of the solid waste management system which went in for privatization was collection & transportation of solid waste. After a rigorous tendering process, three private companies were selected and appointed for collection, segregation, transportation and disposal of municipal solid waste in six zones.

SPML, a leading urban infrastructure development company won the contract for the three most prestigious zones - City, Central and South. This exemplary work

has brought a paradigm shift in the solid waste management scenario.

To implement the segregation, collection & transportation of Municipal Solid Waste (MSW), a Special Purpose Vehicle (SPV) company in the name of Delhi Waste Management (DWM) Ltd. was formed in 2005.

Privatization and advent of DWM

The collection system of MSW has undergone a drastic change since the intervention of the private sector. Earlier the waste from the waste storage depots were collected in open trucks which led to problems such as waste spillage, generation of disgusting odor and spread of diseases. The waste workers operated in most unhygienic conditions. The waste in Waste Storage Depots (WSD) used to rot for several days.

Now, compactor loaders are being used for the transportation of the waste which has reduced the volume of the waste to be transported to almost half. Mechanical loading and unloading instead of manual one has been able to reduce spillage, ensure hygienic environment around the WSDs and also reduce the environmental and health risks. Segregation has improved by introduction of separate bins for biodegradable (green) and non-biodegradable waste (blue).

DWM's scope of work :

- ▶ Lifting the garbage from secondary storage points at least once in twenty four hours.
- ▶ Creating mass awareness among the general public on the issues related to solid waste and its management.
- ▶ To introduce sophisticated technology for tracking of the vehicles and complaint redressal.

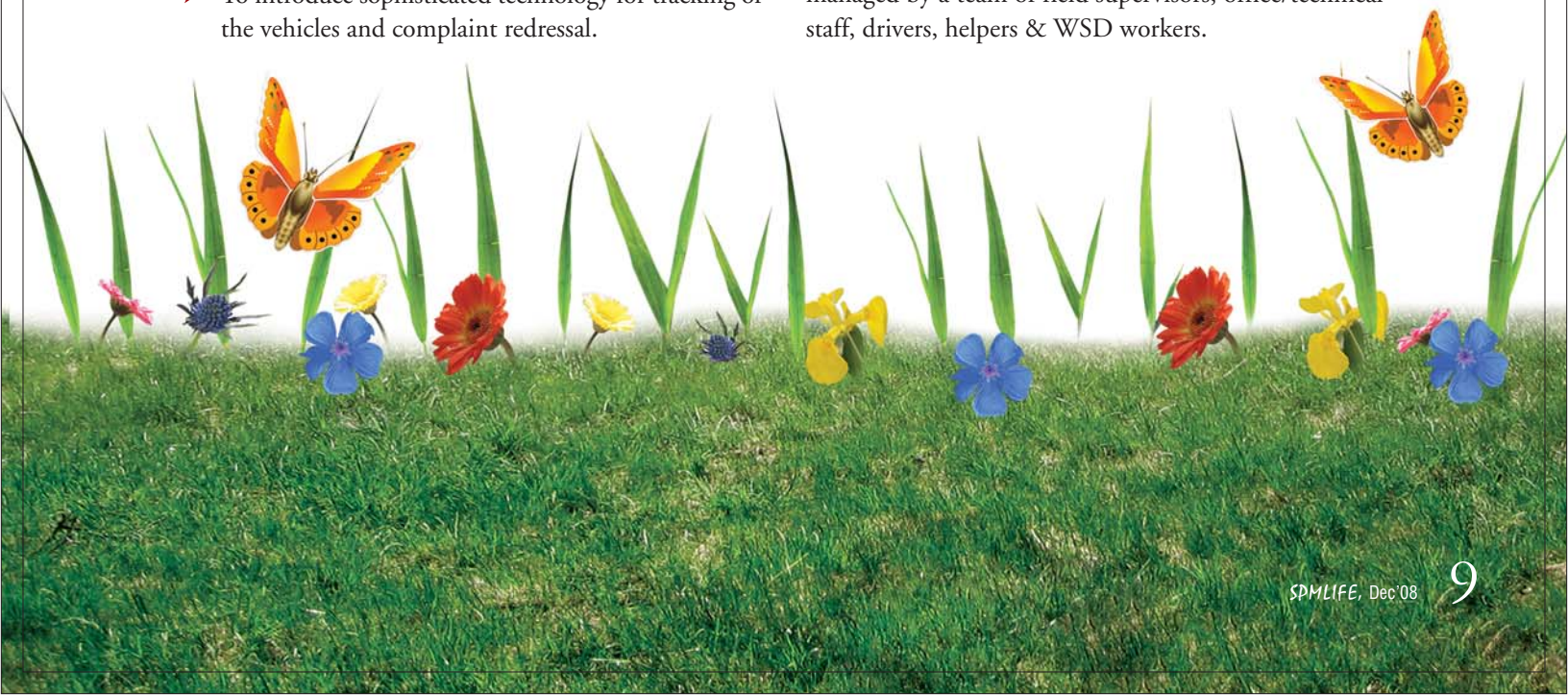
DWM is handling around 1200 tons per day of MSW covering the 3 zones in an area of 370 Sq. KM. It manages 778 WSDs and owns and operates around 80 hydraulic vehicles including compactors, dumper placers and hook loaders.

DWM has integrated world class technology into its operation to ensure on-the-minute information for prompt service and redressal. DWM has deployed state of the art IT tools for effective monitoring of waste transportation. The project is backed by a robust Enterprise Resource Planning (ERP) system for up to date information on all project components.

DWM operations

DWM's work begins at the WSDs. The waste is segregated, collected and transported to the landfill sites at Okhla and Ghazipur. The waste is segregated at the WSDs by the waste workers and the rest is taken away by the vehicles. Waste from the generators such as households, institutions etc. is brought either to the Waste Storage Depots (WSD) or the Street Corner Bins (SCB) according to their convenience. The responsibility of conveying the waste from the point of generation to the WSDs or the SCBs lies in the hands of the generators. The waste segregated at the WSDs is taken to the central workshop situated at Jawaharlal Nehru Stadium at Lodhi Colony workshop where the waste is further segregated into different streams and is taken in bulk for recycling. A centralized segregation facility has also been proposed.

The task of collection, segregation & transportation is managed by a team of field supervisors, office/technical staff, drivers, helpers & WSD workers.



The various functions performed by the team are :

- ▶ Visiting WSD & familiarizing with the assigned area.
- ▶ Keeping a track of daily waste collection.
- ▶ Optimizing the number of WSD workers and maximizing their productivity by assigning them with adequate responsibilities.
- ▶ Maintaining vehicle's time and route plan.
- ▶ Ensuring that the waste workers are well acquainted in all respect and WSD are thoroughly disinfected.
- ▶ Ensuring that the staffs are punctual and are following adequate safety and hygiene norms.
- ▶ Keeping liaisons with local residents, Residential Welfare Associations (RWA's), Councilors, MCD officials and to work with them.

DWM has a state of art workshop for the maintenance of the vehicles. It has employed ex-servicemen as management staff for efficient management of the company.

The movements of the vehicles are tracked by a state of the art command and control system. Command and control communication devices comprise of wireless tracko sets on vehicles and cellular phones for operations and management staff. Moreover, the on road movement of the vehicles is tracked by a special Global Positioning System (GPS) enabled technique. 100% waste collection and disposal is ensured within 24 hours and is achieved in 2 shifts of 12 hours each.

Street Corner Bins (SCB)

DWM has placed SCBs for waste collection in the residential colonies, commercial establishments and other



Golden Rules

**Reduce your consumption
Reuse what you can
Recycle what you can't
Recognize the Kabari**

institutions. Waste from the households, offices etc. is brought and dropped into these SCBs. There are separate bins for wet and dry waste. The bins have been placed strategically after consultation with the local residents.

Waste Storage Depots (WSD) :

The waste storage depots have been reconstructed, repaired and maintained. Each waste storage depot is looked after by 2-3 people. The waste is not thrown on the floor of the WSD as was the practice earlier but is stored in the bins. There are separate bins for wet and dry waste. All the waste is collected daily from the WSDs and nothing is being left. Proper hygiene and cleanliness is also maintained.

Training of rag pickers

Regular training & medical check up camps are scheduled to ensure improvement in their conditions and spreading awareness about solid waste management to them.

SAHYOG - A pilot project of DWM for spreading awareness

- ▶ Integrating waste pickers into the system to make the door to door collection system.
- ▶ To assist residents and households to facilitate this process.
- ▶ Supporting the waste pickers to earn their livelihood in a safe manner.

Management through technology - ERP

DWM introduced revolution in "Waste Management" by adopting means of "Management through technology", the state-of-art ERP. It is a proven fact that data base decisions are real decisions for success of management in any project which is the main advantage of ERP.



Clean and Green Airports | In Focus



All over the world, airports face huge environmental concerns. And with ever increasing passenger footfalls, airports are facing large scale discharges of solid waste and regulated substances.

Delhi International Airport

SPML Urban Enviro Limited (SUEL), a SPML group company is providing waste management services to both International and Domestic terminal on 24 x 7 basis. We provide workforce for clearing debris from the site and transport and dispose it at the land fill sites. We are also responsible for collection, transportation and disposal of solid waste from airport premises.

SUEL has engaged 4 ultra modern vehicles (Compactor) installed with GPS system connected to our control centre for 24 hours monitoring and prompt service. With 85 officials and collectors we keep both the terminals hygienically clean by lifting more than 15 tonnes of solid waste everyday.

Hyderabad International Airport

Hyderabad International Airport also known as Rajiv Gandhi International Airport is being developed by the

GMR Group and so it is also called GMR Hyderabad International Airport (GHIAL).

This airport caters 200 flights with over 35,000 passengers on daily basis. To make it more passenger friendly, SUEL has been selected to provide the same services to GHIAL as well. It's second successive project of the same nature awarded to us.

The scope of work involves supplying the workforce for clearing construction debris from passenger terminal building and car park area of the airport during its trial operations. We are also responsible for collecting solid waste from the airport and transport and dispose it at designated areas.

SUEL is providing 24x7 services to GHIAL by deputing more than 20 experienced officials and waste collectors with 2 modern compactor vehicles to collect, transport and dispose more than 7 tonnes of waste per day.

Waste handling at the airports need very careful and professional approach and has to meet all statutory compliance issued by the Director General of Civil Aviation and State Pollution Control Board under MSW Rule 2000.

For a Greener Madurai | Green Revolution

SPML was selected by the Madurai Municipal Corporation after competitive bidding for the development of Integrated Municipal Solid Waste Processing & Disposal Facility and its operations for a term of 20 years.

SPML will develop and maintain the integrated facility capable of handling approximately 350 tons per day and expand the system to accommodate an anticipated increase in quantity of solid waste approximately 1000 Tons per day by the term end. SPML will build, own, operate and maintain all new associated infrastructures, representing about 60 crores in capital cost. SPML will also undertake responsibility for processing the municipal solid waste into Compost and the disposal of inert into the engineered landfill. Through this partnership, we will ensure all municipal waste generated in Madurai is disposed off in a scientific and environment friendly manner.

Special Purpose Vehicle - MMWPCPL

To implement this Integrated Solid Waste Management Project, an SPV is formed in the name of Madurai Municipal Waste Processing Company Private Limited (MMWPCPL). The SPV will run as an independent wholly owned subsidiary of SPML Urban Enviro Ltd. which is a 100% subsidiary of SPML.

The SPML advantage

SPML will be making a substantial investment in the capital infrastructure costs associated with the Madurai project. This private investment will not only release the city from the burden of raising capital, it will allow higher quality infrastructure in a prompt and economic fashion. In fact, at Madurai, we are adding infrastructure which is almost four times faster than a conventional public sector program. The ability to put such systems in place at this rate, and in advance of development, in

turn expands and accelerates development opportunities in the community, thereby increasing values and efficiencies for all stakeholders.

Project highlights

- ▶ Conversion of open dumping yard, to secure engineered landfill i.e. Design, Engineering & Construction of engineered secured landfill for the existing dumped waste and a new separate facility for future waste.
- ▶ Design, Engineering & Construction of Compost Plant comprising of state of the art equipments for sorting, processing, waste turners, sieving and packing of the final product- Compost.
- ▶ First Integrated Solid Waste Management Project in the history of SPML under public - private partnership.
- ▶ Environmental issues with waste management are addressed more quickly and efficiently.
- ▶ Provision to change the processing technology for better project viability.
- ▶ Project is entitled for Carbon Credits under UN framework convention on climate change (UNFCCC).





Waste Water | Signature Projects Treatment Plants

The objective of sewage treatment is to produce a waste stream (or treated effluent) and a solid waste or sludge suitable for discharge or reuse back into the environment.

The sewage treatment involves three stages, namely, primary, secondary and tertiary treatment. First, the solids are separated from the wastewater stream. Then dissolved biological matter is progressively converted into a solid mass by using indigenous, water-borne microorganisms. Finally, the biological solids are neutralized then disposed of or re-used, and the treated water is disinfected chemically. The final effluent can be discharged into a stream, river, bay, lagoon or wetland, or it can be used for the irrigation

of a golf course, green way or park. If it is sufficiently clean, it can also be used for groundwater recharge.

The advantage of Treatment

Remove solids : Everything from rags and plastics to sand and smaller particles found in wastewater.

Reduce organic matter and pollutants : Helpful bacteria and other micro organisms consume organic matter in wastewater and are then separated from the water.

Restore oxygen : The treatment process ensures that the water put back into our rivers or lakes has enough oxygen to support life.

signature projects

- ▶ **STP OKHLA, Delhi**
Client : Delhi Jal Board (DJB), Delhi
Project Value : Rs. 1669 Lacs
- ▶ **STP YELAHANKA, Bangalore**
Client : Bangalore Water Supply & Sewerage Board (BWSSB), Karnataka
Project Value : Rs. 1261 Lacs.
- ▶ **STP NASIK, Maharashtra**
Client : Nasik Municipal Corporation (NMC), Maharashtra
Project Value : Rs. 3881.80 Lacs
- ▶ **STP VASNA, Ahmedabad**
Client : Ahmedabad Urban Development Authority (AUDA), Gujarat
Project Value : Rs. 8741.60 Lacs

The SPML advantage

SPML has adequate experience in providing turnkey solutions for Sewage Treatment Plants. The scope of our work involves Design & Engineering, Construction and Commissioning of Sewage Treatment Plant (STP). The STP is designed based on suspended growth conventional activated sludge process. The BOD removal is from 200 ppm in the raw sewage to the level of less than 5 ppm and Turbidity to 2-5 ppm in the treated water.

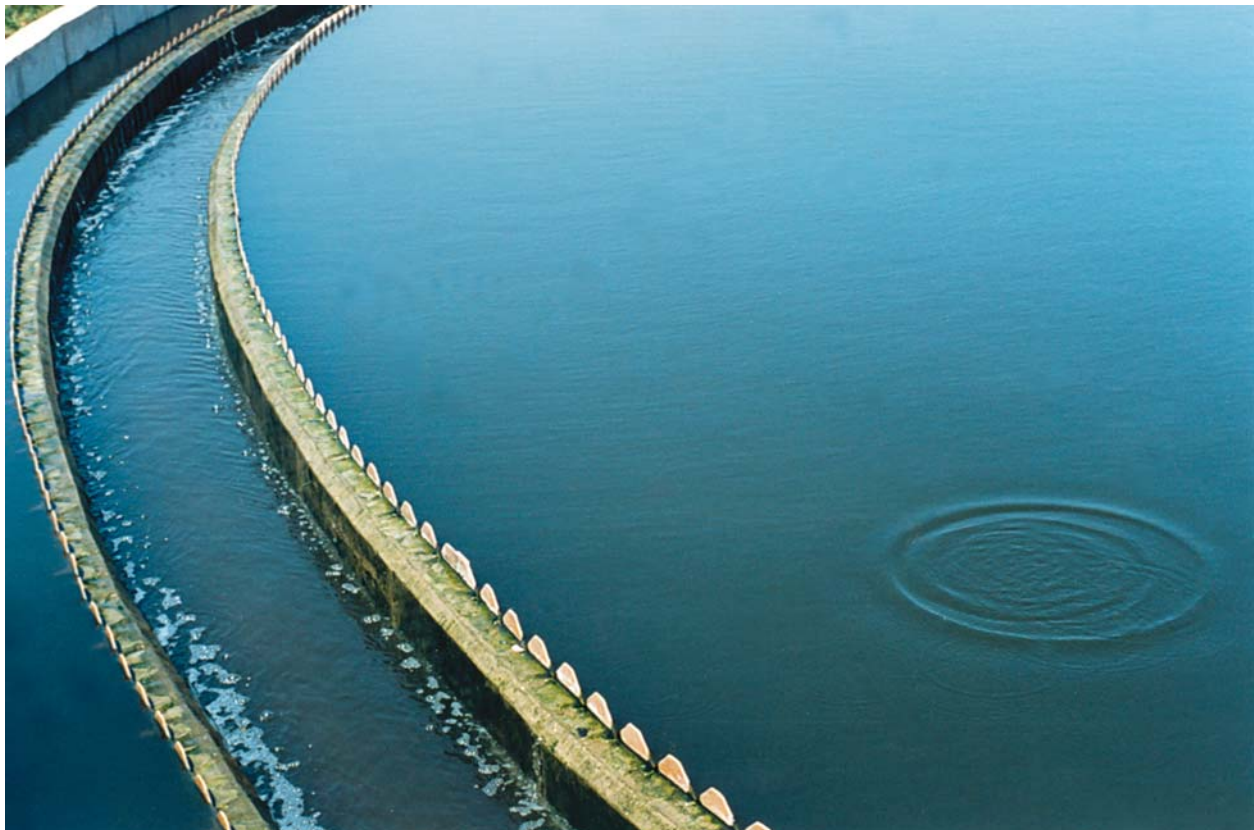
Some of the prestigious STP projects accomplished by SPML are :

STP OKHLA, Delhi

Project : Construction of 72.74 MLD capacity of Sewage Treatment

Client : Delhi Jal Board

Scope of Project : Scope of the project involved Design & Engineering, Construction and Commissioning of 72.74 MLD Sewage Treatment Plant (STP). The STP is designed based on suspended growth conventional activated sludge process.





STP YELAHANKA, Bangalore

Project : Construction of 10 MLD capacity Tertiary Sewage Treatment Plant at Yelahanka with French Government funding.

Client : Bangalore Water Supply & Sewerage Board (BWSSB), Karnataka

Scope of Project : Scope of the project includes Design & Engineering, Construction and Commissioning of 10 MLD Sewage Treatment Plant having three stage treatment systems namely Primary, Secondary and Tertiary. Primary treatment is consisting of mechanical screening of raw sewage for separation of floating particles followed by grease and grit separation. Secondary treatment system consists of primary clarifier followed by activated sludge plant based on extended aeration principle and primarily aimed at removing dissolved BOD & COD. Tertiary treatment scheme is meant to remove remaining organic load through chlorination followed by filtration through rapid gravity sand filter. Sand filter proposed in this project is of unique type and based on the proprietary design of OTV which is capable to withstand a surface loading rate of 16-18 m³/m²/hr. The said filter will be equipped with three-phase filter back wash system.

STP NASIK, Maharashtra

Project : Construction of 70 MLD Sewage Treatment Plant and Sewage Pumping Station at Nasik, Maharashtra

Client : Nasik Municipal Corporation, Nasik, Maharashtra

Scope of Project : Design, Construction, Supply, Erection,

Testing, Commissioning, Start-up & Performance run followed by 60 months Operation & Maintenance on turnkey basis in Nasik City under JNNURM scheme, for 70 MLD Sewage Treatment Plant and Sewage Pumping Station at Agar Takali, Nasik.

Project status : Under construction.

STP VASNA, Ahmedabad

Project : Construction of 240 MLD capacity Sewage Treatment Plant at Vasna, Ahmedabad, Gujarat

Client : Ahmedabad Urban Development Authority (AUDA)

Scope of Project : The job involves Engineering, Procuring, Constructing and Commissioning (EPC), under JNNURM Scheme of

- Sewage Treatment Plant of 240 MLD capacity at Vasna Site for West AUDA area along with all related Mechanical & Electrical equipment, Instrumentation including misc. work etc.
- Complete O & M of the entire proposed sewage treatment facilities at site for 3 years.

Project status : Under construction.

Water today happens to be one of the most precious commodity. And in this scenario, the scope of waste water treatment is immense. As a responsible social corporate citizen, we at SPML are trying our best to do our little bit.

Rehabilitation of Sewer | Insituform Technology

A pioneer in Cured-in-Place Pipe (CIPP) technology, Insituform® has installed over 15,000 miles of the product worldwide. The Insituform® process can be used to rehabilitate sanitary sewers, storm sewers and force mains. Insituform® is a jointless, seamless, pipe-within-a-pipe with the capability to rehabilitate pipes ranging in diameter from 6 to 96 inches and to negotiate bends. Insituform® CIPP addresses your top concerns :

- ▶ **Infiltration reduction**
- ▶ **Structural integrity**
- ▶ **Increased flow capacity**
- ▶ **Affordability**
- ▶ **Installation flexibility**

Recently SPML & Insituform Technologies have combined forces for operations in India and started a new venture, **Insituform Pipeline Rehabilitation Private Limited**.

The company is already functional and has started working in New Delhi. Delhi Jal Board (DJB) has some 6,000 KM of sewer, including more than 150 KM of trunks of which more than 91 KM is badly deteriorated, silted up and malfunctioning. The current rehabilitation program will deal with 48 KM of sewer pipes. The JV has contracted work for 14 KM of sewer pipes in West Delhi.

The West Delhi Sewer is in the Keshopur Drainage Zone. It's a 66" circular masonry pipe of the length of sewer of 23,100 ft. Based on the condition assessment carried out by DJB the sewer has grade 3-5 defects with missing bricks and cement mortar. In addition, there is increase in roughness due to defects like displaced bricks, the sewer has lost its self cleaning ability and is prone to heavy

siltation. CIPP lining is proposed for rehabilitation improved capacity which will enable the sewer to serve an additional population of about 104,000 persons.

The Jail Road Trunk Sewer, built in 1980's and 6790 meter long, is in Keshopur Drainage Zone. The sewer is in condition grade 1 to 5 with defects such as open and displaced joints, corrosion of inner surface and infiltration. There is increase in roughness due to defects such as displaced joints, corroded surfaces and slime built up, and as a result the sewer has lost its self cleaning ability to transport the silt away. CIPP liner will rehabilitate the pipe which will enable the sewer to serve an additional population of about 26,000 persons.

Insituform uses proprietary technology and will bring state-of-the-art Cured-in-Place Liners to the Indian market. Not only are the recent inventions of Insituform more energy conservative but environment friendly, faster, causing lesser disruption to the public and results in a consistently better quality of product.

India represents a growth market for CIPP business. Cities like Mumbai and Hyderabad are extremely promising, and authorities have dedicated budget for rehabilitation program. CIPP business in India promises to be a growth engine for both the companies in future.



Before



After

Waste to Resource

Plasma Technology

In addition to Municipal Solid Waste (MSW), the other major problem facing the world is the handling of industrial, medical and e-waste.

SPML Urban Enviro Limited evaluated the various technologies to treat these waste streams and has entered into a joint venture with PEAT International Inc., USA for setting up waste processing facilities in India for such type of hazardous wastes. The JV with PEAT provides SPML Urban Enviro access to the 'state of the art' Plasma technology which is one of the latest waste management technologies in the world.

The Plasma technology involves heating the waste to a very high temperature in an oxygen starved, controlled atmosphere. This results in the waste undergoing predictable physical and chemical changes.

This high temperature, over 1000 Celsius (1800 F), prevents the formation of complex organic molecules and breaks down organic into a gas. The organic elements of the waste combine with moisture and oxygen inherent in the waste feedstock to produce a synthesis gas (syngas) comprised principally of carbon monoxide and hydrogen. The formation of dioxins or furans is impossible inside the plasma reactor due to the unique process features, including high uniform temperatures and lack of excess oxygen within the system.

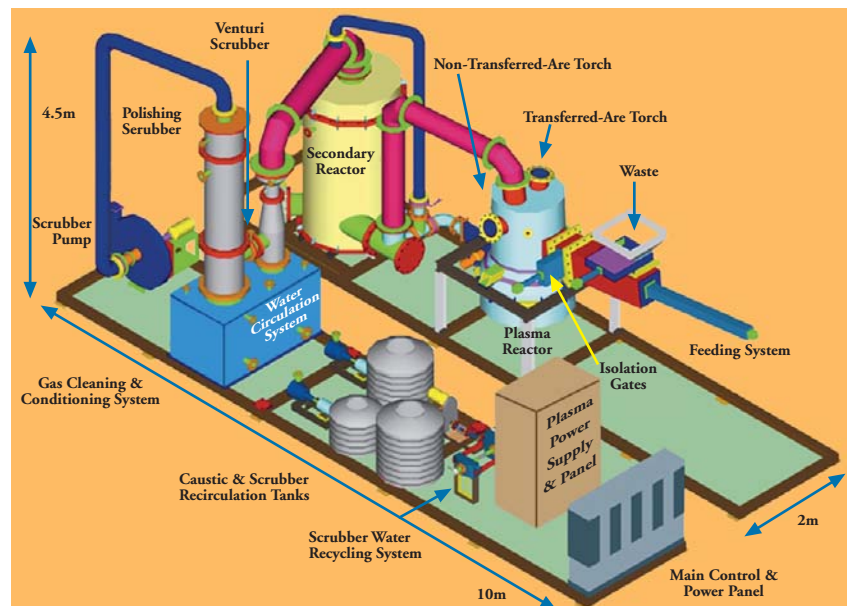
The resulting gas, at a temperature of approximately 1100 Celsius (2000 F) is then fed through a gas cleaning and conditioning system, where the gases are rapidly cooled to ensure that there is no potential for the

generation or re-association of any undesired complex molecules or formation of new compound such as dioxins or furans. The gas is then cleaned to remove any entrained particulate matter and / or acid gases.

This syngas can then be used to drive a turbine which generates electric power. Any inorganic constituents in the waste are melted (vitrified) by the non transferred arc torch in the graphite-lined plasma reactor bottom into an environmentally safe, leach resistant, vitrified matrix. The removal of vitrified matrix presents no hazards of any kind to personnel, requires no special tools and does not disrupt the operating process.

The vitrified matrix can be used in a variety of applications including road bed, fill construction, blast media and concrete aggregate.

This joint venture is setting up a 30 TPD chemical / pharmaceutical waste plant at Ankleshwar Gujarat. The discussions are also on to set up similar plants in different parts of the country.



Subhash Sethi

Vice-Chairman, Subhash Projects and Marketing Limited

A strong passion for work, a focus on innovation, an emphasis on commitment, and an ability to align with the team, these are the qualities for which Subhash Sethi, vice-chairman, Subhash Projects and Marketing Limited (SPML), is known. Like his idol, the late Dhirubhai Ambani, Sethi too believes that success comes through choice, not by chance. "Therefore whatever I do, I give it my best," he says.

After completing his education 1981, he started his career by entering the family business of manufacturing pumping machinery and the construction of pumping stations in Guwahati. Later he was part of the company team responsible for expansion into water, environmental management, power and infrastructure development.

"While many people may not approve of family-run businesses, in my case, my brothers' support is my strength. I see greater stability and growth prospects with the family's involvement. Management decisions are based on sound business strategies and family members are inducted only after professional training," he describes his experience at SPML.

Sethi believes that, apart from technical upgradation, a key resource in today's world is people. He says it is a leader's job to be present where the going is tough. He has certainly had his share of such moments. In the early days when SPML was a new player, he had the crucial but difficult project of setting up the highest single-stage pumping stations at a height of 880 metres in Lunglei, Mizoram.

"The rocky terrain and freezing temperatures made it a very difficult project to execute. Our engineers were feeling demotivated. So I spent two months at the site staying with the workers and brainstorming to come up with innovative solutions to combat technical difficulties. We wanted to deliver quality standards and within the timeline. Both happened and that showed SPML's spirit of success," he says.

Sethi observes that the industry is moving towards consolidation and greater foreign participation. Moreover, there is an increased use of private financing of infrastructure projects. Many construction companies are coming up in collaboration with the government. Such alliances for major projects result in sharing of the risks and rewards by the owner



Indian Infrastructure (Kolkata) 11.06.08

and the developer. "These changes will determine the construction industry in the future. A major focus will be on the mechanisation of the construction jobs with the aid of the best equipment used globally," he says.

When he is at home, away from work and its many worries, Sethi's stressbuster is a good comedy show on TV, such as the Great Indian Laughter Challenge. ▶

Reliance Mutual Fund ups stake in Subhash Projects to 5.27%

Mumbai: Reliance Mutual Fund's stake in Subhash Projects and Marketing rose to 5.27 per cent from 4.72 per cent after the fund house bought 200,000 shares of the company on Tuesday, the fund house informed National Stock Exchange on Thursday. India's largest fund house now holds 1,932,896 shares of the company. The deal was done through Reliance Diversified Power Sector Fund. *NWI*

Business Standard (Kolkata) 21.06.08



Subhash Projects & Marketing vice-chairman Subhash Sethi and director Deepak Sethi at a press conference in the city on Tuesday. FE photo

SPML to enter urban transport infrastructure

Corporate Bureau Kolkata, Jul 1

Subhash Projects & Marketing Ltd, one of India's leading infrastructure companies, plans to enter the urban transport infrastructure sector in a big way over the next few years, although its immediate focus will be on water management solutions.

A company statement quoted Subhash Sethi, vice-chairman, as saying: "SPML is in a high growth phase with the

opening up of newer opportunities in infrastructure... SPML aims to become a complete infrastructure solutions provider in the next few years."

On Tuesday, SPML reported a net profit of Rs 58.21 crore for the year to March 31, 2008, an increase of 33.44% on the figure for the previous year. Profit before tax was up 53.3% to Rs 77.22 crore.

Sales increased by over 44% to Rs 1167 crore, from Rs 808 crore the preceding year. The board has recommend-

ed a dividend of 60%.

The company said it will expand its portfolio to construction of airports, metro rail and freight corridors. SPML has also pre-qualified in various order bids for urban transport projects including the Metro Rail in Kolkata and bus terminals in Bangalore and Orissa and car parking in Chandigarh.

SPML is also bidding for dedicated freight corridors in Bihar and Uttar Pradesh and is set to foray into airport construction.

Financial Express (Kolkata) 02.07.08

Sewer rehabilitation is a booming market

VENUGOPAL PILLAI.....

THOUGH sewer rehabilitation is generally considered as a low priority area in India due to difficulties in site conditions, things are gradually changing for the better. In an exclusive interaction with Project Monitor, Rishabh Sethi, Director, Subhash Projects & Marketing Ltd, said that urban local bodies have taken up large-scale sewer rehabilitation programmes that will result in a substantial expansion of the industry size. ▶ Subhash Projects & Marketing Ltd.



Rishabh Sethi, Director, Subhash Projects & Marketing Ltd.

Project Monitor (National) 13.11.08



Insituform technology at work.

also," Sethi said. Over the next five years, the business opportunity size of the sewer rehabilitation industry would be around Rs 9,000 crore, he averred.

To tap the potential, SPML tied up last year with US-based Insituform Inc to form a new joint venture Insituform Pipeline Rehabilitation Pvt. Ltd (IPRPL) in which the local partner will have 49.5 per cent stake. Explaining the rationale, Sethi said that the new company would benefit from the execution and marketing abilities of SPML and the technical expertise and patented cured in-place (CIPP) technology of Insituform.

The JV has won two orders worth Rs 235 crore from Delhi Jal Board including a Rs 140-crore order for rehabilitation of the West Delhi and Jail Road sewers that is scheduled for completion by early 2010. In Delhi itself, another Rs 95-crore order to revamp a sewer system currently serving 1.4 crore persons is

scheduled to go on stream by 2009-end, with a completion period of two years. "We expect new orders of Rs 300 crore next year and that will continue to grow in the following years," Sethi said. Discussing potential business opportunities, he explained that discussions were on with local urban bodies in Mumbai, Bangalore and Hyderabad.

"IPRPL hopes to achieve 25-30 per cent of the potential market of Rs 9,000 crore over the next five years," Sethi disclosed. The key would be to execute projects speedily with minimum disruption to public life. The technology available also permits a smooth diversification into rehabilitation of oil and gas and water pipelines, he noted.

What is CIPP?

Cured in-place pipe (CIPP) technology is a jointless, seamless and trenchless technology used to rehabilitate sewers and pipelines with a synthetic fibre liner. The process enables repairs to pipes without digging trenches and disrupting communities. Currently 60 per cent of the world's pipelines are rehabilitated through this technology. In fact, by using this technology, more than 37,000 km of underground pipe infrastructure has been reconstructed in 40 countries spanning five continents.

Top Down

Source to tap

Under-managed water utilities and sewerage lines are money-spinners for Subhash Projects

It's the company that constructed the world's highest single-stage pumping station at Latur, Maharashtra at a height of 800 meters. Subhash Projects and Marketing Limited (SPML) is a prime developer of urban infrastructure with a presence in roads, ports, power facilities, sewerage and solid waste management. Its stronghold, however, has always been water management, having executed over 200 projects. Along with construction of sewage and effluent treatment plants, the company has executed water supply projects in Rajasthan, Kerala, Karnataka and Delhi on a turnkey basis and competes with mighty players like L&T, IITCL and Nagarajana Construction.

Story going forward

"Our core competence is water management and we would like to sustain it," says managing director, Subhash Sethi. Right from water management solutions covering pumping stations and distribution systems to water treatment plants, the company does it all. About 45 per cent of the company's revenues come from water manage-

ment projects. The projects being executed are early examples of successful public-private partnership in water management.

The projects being executed in Latur and Bhiwandi by SPML are creating awareness about the value the private sector adds to water utility management. The Latur Water Supply Project (LWSP), which has a concession period of 10 years, is jointly owned by SPML, Hydro Comp and United Phosphorous with 33 per cent stake. The consortium will make a down payment of Rs 28.4 crore to acquire existing assets and additional payment of Rs 5.5 crore during the period. The concession period has begun from August 2008 and is expected to generate an IRR of 18.3 per cent.

The scope of the work includes operation, maintenance and repairs of LNSP including metering, billing and collection for water charges from Maharashtra Jeevan Prasthikaran Division 2, Latur. The contract is expected to generate gross revenues of Rs 190 crore.

SPML has also bagged the water supply project from the Bhiwandi Nizampur City Municipal Corporation for a



Subhash Sethi, managing director, Subhash Projects

period of 30 years with the project value being Rs 342 crore. The project is jointly owned by SPML (60 per cent), Hydro Comp (10 per cent) and Bhiwandi Municipal (30 per cent). This project is almost 10 times larger than the Latur project involving capital spend of Rs 300 crore and supports five lakh connections. The target IRR for this project is around 16 per cent and the concession period is also extendable.

With five examples to market its case, Sethi says, the company is aggressively pushing for partnerships with state utilities. "It will be a win-win as this would help the municipalities meet infrastructural gaps and make them commercially viable too."

The next growth driver for SPML could be water utility solutions and sewer rehabilitation. Water utilities management comprises of taking over the operation, maintenance and repairs of water supply schemes, with all pumping stations, electrical installations, purification facilities, water reservoirs, connecting pipelines and distribution system. Usually, managing utilities involves maintenance of a

minimum average water supply level with due pressure and required quality, increasing coverage of piped water, achieving cent per cent metering, bill collection, new connections, regularizing illegal connections, integrated management information systems and tariff rationalisation.

To fortify its presence in water utility solutions, the company has tied up with Cyprus-based Hydro Comp. The foreign company has billing system software and methodologies which enable large scale revenue management of more than a million connections.

Sewer rehabilitation is another area the company is trying to build muscle in. Over the next five years, the segment promises to be a Rs 9,000 crore opportunity. SPML has thus tied up with Insiteform Inc, the global leaders in sewerage rehabilitation. At present, more than 50 per cent of the world's pipelines are rehabilitated through Insiteform patented cured in place pipe-line (CIPP) trenchless technology. The mode of execution here is jointless, pipe-within-a-pipe and is done without much disturbance to existing city in-

franchise. The company has introduced this technology in India for the New Delhi Municipal Corporation in a project that involves mending 166 meters of 48 inch sanitary sewer pipeline in the ever busy Chandni Chowk area. Additionally, it is refurbishing the trunk sewerage system in West Delhi for the Delhi Jal Board. It's an order worth Rs 130 crore and is to be completed within two years.

The hurdles ahead

Although the road ahead for SPML, seems promising given the dire need for a systemic overhaul, the pace could slow down if water utilities choose to remain inert. "Till recently, water management projects have been the domain of government led and funded agencies and they have hardly involved the private sector to ensure public infrastructure needs are fully met. But what works in favour of SPML is its strong relationship with state utilities like the Public Health Engineer-

STEADY GROWTH

Sales and profit are expected to remain stable in the next couple of years

Rs cr	FY08	FY09	FY10E
Sales	162.11	162.65	206.62
Change (%)	44.00	3.40	33.37
EBITDA	95.13	120.55	239.45
Change (%)	43.00	62.23	40.40
Net profit	36.21	65.49	118.40
Change (%)	31.00	81.71	34.84
EPS	16.87	22.30	36.80

See Story

ing Department of Rajasthan, The West Bengal Power Development Corporation Ltd, Gujarat Water Supply & Sewerage Board, and the Irrigation Department of Andhra Pradesh, developed by virtue of timely execution of over 75 water projects for them.

While Sethi sees consistent growth in the water domain for at least five years, there is increased focus on power and infrastructure as a de-risking strategy. In fact, SPML is expanding its portfolio to construction of airports, metro rail and freight corridors. It has pre-qualified in various bids for urban transport projects including metro rail in Kolkata, bus terminals in Bangalore and Orissa and car parking in Chandigarh. Besides, it is also bidding for dedicated freight corridors in Bihar and Uttar Pradesh. "Our foray into ports has given us the confidence to foray into airport construction and we have received pre-qualifications for airport terminal projects at Indore and Raipur," says Sethi. "These new ventures are a part of our vision to become a complete infrastructure solutions provider."

By 2013, the company expects to generate revenues of Rs 5,000 crore with a net profit of Rs 300 crore. While the company does look at a minimum 10 per cent net margin when bidding for projects, aggressive competitors and rising input costs could put pressure on the bottom line. In FY08, the water segment contributed 45 per cent of revenues and for FY09, the company wants to move it to 50 per cent on a projected turnover of Rs 1,800 crore. The current order-book for water management projects stands at Rs 1,500 crore. The company is confident of achieving 10 per cent operating margins in FY09 & FY10 from its water business. At its current price of Rs 120, the stock discounts its estimated FY09 EPS of 22.30 under 6 times. □

The company's Latur Muzam project a single-stage pumping station at a height of 800 meters



Outlook Profit | 3 October 2008

Outlook Profit (National) 20.09.08

SUBHASH PROJECTS ENTERS ROAD INFRASTRUCTURE

Foundation stone laid for Jaora-Nayangaon highway

PM NEWS BUREAU

The foundation stone for the Jaora-Nayangaon state highway project in Madhya Pradesh was laid on June 19, at the hands of Chief Minister Shivraj Singh Chauhan. The Rs 847-crore project involves four laning of the

128-km stretch on SH-31, aiming to decongest the busy road and spur economic activity in the region. A special purpose vehicle, Jaora Nayangaon Toll Road Company Pvt. Ltd., is implementing the project on BOOT basis under a 25-year concession period from state nodal agency Mad-



A state highway in Madhya Pradesh. Photo: MPRDC Ltd

hya Pradesh Road Development Corporation Ltd.

The SPV is a four-way joint venture between Subhash Projects & Marketing Ltd, SREI Infrastructure Finance Ltd, PNC Infratech Ltd and Viva Infrastructure Pvt Ltd. The state highway project also marks the entry of SPML in road infrastructure. "The recent restructuring of our company has given a new focus to our infrastructure business", Sushil Sethi, Managing Director, SPML, noted in a company statement.

The project is on the verge of attaining financial closure, Ashish Jain, Dy. Director, PNC Infratech Ltd told Projectmonitor. "The entire land has been handed over", he added.

Meanwhile, a project official from MPRDC said that a JV between Zaidun Leong Sdn Bhd of Malaysia and Artefact Engineers had been appointed as supervision and quality control consultants. The project will involve a negative grant (payable by the concessionaire to MPRDC) of Rs 15.39 crore for the first year, increasing by 5 per cent annually for another 21 years.

"Negative grant is payable once toll collections start. Out of the 25-year period, three years would be consumed for financial closure and construction giving an operational life of 22 years. After this, the toll road will be handed over to MPRDC," he observed. □

UP demands action on state roads

PROJECTSWIRE

THE Uttar Pradesh government has asked the Centre to expedite its proposal to construct a 477-km all-weather road along the Indo-Nepal border, including 90 minor bridges and 29 major bridges, in the state. The state government had submitted the proposal for approval in March this year. The project is estimated to cost Rs 900 crore. The ministry of home affairs

has agreed to hold a preliminary meeting with the Uttar Pradesh and Bihar governments in this regard. The ministry has, however, asked the UP government to first confirm the availability of land for the road project and funding from the ministry of road transport and highways.

The UP government has also asked MoRTH to expedite work on pending NH way projects and upgrade existing highways in the state.

Project Monitor (National) 02.07.08



SPML wins award

SUBHASH Projects & Marketing Ltd was awarded the Annual Enertia Awards 08 for 'Excellence in Project Management in Hydro Power Sector' for development and efficient operation of the eco-friendly 20-mw Kabini Hydro Power Project, the second largest private sector mini hydel scheme in Karnataka. (Right) Anil Sethi, Chairman, SPML, is seen receiving the award from Nimish Patel, Whole Time Director, Patel Engineering Ltd, at the function held in Mumbai on November 25.

Project Monitor (National) 29.12.08

New Contracts



Pokaran-Falsund-Balotra-Siwana (PFBS) Lift Project

Smt. Vasundhara Raje Sindhia, Chief Minister of Rajasthan, inaugurated the Project at Pokaran, Rajasthan. The project is aimed to provide sustainable source of potable water supply for 580 villages (177 in Jaisalmer and 403 in Barmer) along with 3 towns namely Pokaran, Balotra and Siwana.

Scope of project :

Engineering, Procurement & Construction, Survey, Geotechnical Investigation & Design Work, MS pipeline, raw water reservoir, and raw water pumping station, water treatment plant, clear water reservoir, grid sub station and allied civil works.

Client : PHED, Rajasthan

Contract Value : Rs. 318 Crores



Hydrocomp Project

Project :

24 X 7 Continuous Water Supply, under JNNURM Scheme, in Madurai, Tamil Nadu

Scope of project :

Implementation of 24 X 7 Continuous Water Supply. SPML is appointed as the Operator Consultant for the project. The scope of work includes investment planning, rehabilitation planning, operation and maintenance with total project supervision.

Project under PPP mode.

Location - Pilot Area – (Ward No. 6, 7 & 8), Madurai.

Client : Madurai Municipal Corporation, Tamil Nadu

Contract Value : Rs. 13.5 Crores



Rehabilitation of Sewer System

Project :

An SPML-Insituform Joint Venture company, Insituform Pipeline Rehabilitation Private Limited has got second successive contract from Delhi Jal Board (DJB) to rehabilitate a 13,435 meters of sewer system.

Scope of project :

Rehabilitate a 13,435 meters of sewer system (8.35 miles) of medium and large-diameter sewer lines with Insituform's flagship product, CIPP (cured in place pipe) and other trenchless and non-trenchless work.

Client : Delhi Jal Board (DJB), Delhi

Contract Value : Rs. 95.80 Crores





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