" Installations of Centralized Bio Medical Waste Treatment Facility on boot Basis"

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Assessment Report on Bio Medical Waste Treatment Plant, Surat

Organization
Surat Municipal Corporation, Gujarat
Address:
Surat Municipal Corporation,
Mahanagar Seva Sadan,
Muglisara, Surat 395 001,
Gujarat, India

Project:
Bio Medical Waste Treatment Plant on BOOT Base.

About the Project:
Even before getting awarded the Best Performing City of India Jawaharlal Nehru National Urban Renewal Mission (JNNURM) on Dec. 3, 2009, Surat Municipal Corporation has been performing as one of the best as far as taking care of the basic amenities of its citizens. This report takes a look at the performance of Bio Medical Waste Removal and Treatment Project since its being operational on January 1, 2003. This particular project is unique in Gujarat as well as the first one to be implemented in the state on the guidelines of Bio Medical Waste (M & H) Rules 1998. The facility is commissioned on BOOT base and contract has been extended to En-Vision for fourteen more years. Interviews of the operator of the plant showed the sheer dedication to fulfill all the requirements amended in the rules. Doctors are content with the service they're receiving and SMC officials couldn't be more satisfied as the bio medical wastes is hardly being seen in any of the public waste containers. The project deserves the international award it has received from Dubai Municipality for Best Practices to improve the living environment for installation of Centralized Bio Medical Waste Treatment Facility.
Surat: A Brief Profile

Surat city has emerged as the nerve centre of economic activities in Gujarat. It is popularly known as 'silk city' as well as 'diamond city'. It is a hub of industrial activities both small and large. Besides small and medium industries of textile and diamond polishing, large industries like KRIBHCO, NTPC, Reliance Petrochemicals, ONGC, ESSAR, Larson and Toubro, Shell etc. have also added to the prosperity of the city. Das (1997) noted that with a changing industrial landscape and growth in its economic activities, the city of Surat not only attracted a substantial amount of capital, but also a large proportion of migrant population from within Gujarat, as well as all part of the nation. In last few years, the city limit has extended three times; eight nagarpalikas and 27 villages merged with Surat city in December 2006.  

The city is divided into seven zones and 38 wards. There are 72 ward offices under seven administrative zones to devolve responsibilities for all civic functions like health, sanitation, drinking water, and Solid Waste Management (SWM) etc.

Surat has one of the oldest municipal governments in the country which was established in 1852. In 1964, due to increase in population, the Surat Municipality became Surat Municipal Corporation (SMC). It is governed by the Bombay Provincial Municipal Act 1949 which has been amended from time to time. The governance of the city has however changed significantly after the outbreak of the 1994 “plague”. The Health Department has undertaken numbers of measures.

It launched 'public health mapping' programme for strengthening the health infrastructure and revival of work ethics among health workers. Under this programme, a massive campaign was launched to clean sewage lines and septic tanks. Sweeping streets and garbage collection on a regular basis became the hallmark of the civic body i.e. Surat Municipal Corporation. It was mandatory to clean streets twice daily. Group cleaning- ‘safai’ including brushing and scrapping was done in the afternoon. Private players were also encouraged to provide their vehicles for cleaning tons of garbage. In fact, the city which was known as the ‘dirtiest city’ is now acclaimed as the second cleanest city of the country (by INTACH) 2. This drastic change was brought about by the SMC especially under the skillful supervision of Municipal Commissioner S. R. Rao and during his ‘safai abhiyan’ programme citizens played a key role.

1 http://www.Wikimediafoundation.org Inc
2 After the plague a three member environmentalist group of Indian National Trust for Art and Culture Heritage (INTACH) a premier organization working for preserving Indian Cultural heritage visited, as a part of their clean India.
The meaning of the word “Surat” relates to the beautiful appearance. Surat was once Khubsurat, meaning “very pretty”. Then in 1994 suddenly it caught national headlines for being the dirtiest, filthiest city with rodents running in open to spread the diseases. The sudden outbreak was mainly due to the negligence for cleanliness and ignorance towards good hygiene amongst this fast developing industrial city. But in a strange way, this “shock” proved a blessing in disguise. Local government and residents woke up to the need of the hour and made it again to the national headlines for getting awards after awards proving themselves for belonging to the best performing city in many fields of development in India.

Besides throwing off the household waste into the open, the careless disposal of biomedical waste from the small and big clinics, laboratories and hospitals may result in hazardous conditions for humans as well as animals. If the dead animals are not properly buried, outbreak of fatal diseases lingers on people. The situation in 1994 was so critical that Surat Municipal Corporation had to take some firm and stern actions. SMC officials left no stone unturned. Stiff fines were imposed as soon as violations or violators were caught.

Dr. Hemant Desai, Deputy Commissioner of Health, SMC elaborated on the scenario of those days when then Commissioner Mr. S.R. Rao became a household name in the state for his zeal to make Surat, “Khubsurat”
again. Rao acted very firmly to organize the solid waste management department for the city. Many plans and actions were thought about. Regular meetings were held. Communication links were established. Constant monitoring on the part of the city officials became mandatory.

Dr. Desai has been with the city health department since 1995 and also gave due credit to the “political stability” and support of public for the success. Within 6-8 months of the outbreak, the city got restructured. Zones and wards were created. Demolition activities for the overall healthy environment of the city were taken up. Drainage lines were either cleaned up or new ones set up. The focus on public health was the primary concern, so the need for solid waste management along with treatment of biomedical waste became very important. Rather than cleaning up after the dumping, a proper, effective and efficient way to collect and treat the biomedical waste was discussed with the associations of doctors, hospital officials and laboratory operators. It became very apparent that in case of Biomedical waste management a Common Bio Medical Waste Treatment Facility (CBMWTF) is perhaps the only feasible solution for environment protection and effective legal compliance.

Bio Medical Waste means any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biological and including human anatomical waste, animal waste such as animal tissues, organs body parts, carcasses etc.

Bio Medical Waste (Management & Handling) Rules 1998, stipulates that occupier of every organization generating biomedical waste (as defined in the Rules) must manage his biomedical waste as prescribed in the Rules so as not to cause any harm to the environment.

**BMW treatment system on BOOT basis**

Below is the description of various categories of BMW and details pertaining to how to color code a particular type of container carrying BMW. The details have been taken from Notification of the Ministry of Environment & Forests, S.O.630(E).
CATEGORIES OF BIO-MEDICAL WASTE

Category No. 1  Human Anatomical Waste  
(human tissues, organs, body parts)

Category No. 2  Animal Waste  
(animal tissues, organs, body parts carcasses, bleeding parts, fluid, blood and experimental 
animals used in research, waste generated by veterinary hospitals colleges, discharge from 
hospitals, animal houses)

Category No 3  Microbiology & Biotechnology Waste  
(wastes from laboratory cultures, stocks or specimens of 
micro-organisms live or attenuated vaccines, human and animal cell culture used in research 
and infectious agents from research and industrial laboratories, wastes from production of 
biologicals, toxins, dishes and devices used for transfer of cultures)

Category No 4  Waste sharps  
(needles, syringes, scalpels, blades, glass, etc. that may cause puncture and cuts. This includes 
both used and unused sharps)

Category No 5  Discarded Medicines and Cytotoxic drugs  
(wastes comprising of outdated, contaminated and discarded medicines) landfills

Category No 6  Solid Waste  
(Items contaminated with blood, and body fluids including cotton, dressings, soiled plaster 
casts, lines, beddings, other material contaminated with blood)

Category No 7  Solid Waste  
(Wastes generated from disposable items other than the waste sharps such as tubing’s, 
catheters, intravenous sets etc).

Category No 8  Liquid Waste  
(waste generated from laboratory and washing, cleaning, house-keeping and disinfecting 
activities)

Category No 9  Incineration Ash  
(ash from incineration of any bio-medical waste)

Category No.10 Chemical Waste  
(chemicals used in production of biologicals, chemicals used in disinfection, as insecticides, etc.)
# COLOR CODING AND TYPE OF CONTAINER
## FOR DISPOSAL OF BIO-MEDICAL WASTES

<table>
<thead>
<tr>
<th>Color Coding</th>
<th>Type of Container - I Waste Category</th>
<th>Treatment options as per Schedule I</th>
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<tbody>
<tr>
<td>Yellow</td>
<td>Plastic bag Cat. 1, Cat. 2, and Cat. 3, Cat. 6.</td>
<td>Incineration/deep burial</td>
</tr>
<tr>
<td>Red</td>
<td>Disinfected container/plastic bag Cat. 3, Cat. 6, Cat. 7.</td>
<td>Autoclaving/Microwaving/ Chemical Treatment</td>
</tr>
<tr>
<td>Blue/White translucent</td>
<td>Plastic bag/puncture proof Cat. 4, Cat. 7. Container</td>
<td>Autoclaving/Microwaving/ Chemical Treatment and destruction/shredding</td>
</tr>
<tr>
<td>Black</td>
<td>Plastic bag Cat. 5 and Cat. 9 and Cat. 10. (solid)</td>
<td>Disposal in secured landfill</td>
</tr>
</tbody>
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**Notes:**
1. Color coding of waste categories with multiple treatment options as defined in Schedule I shall be selected depending on treatment option chosen, which shall be as specified in Schedule I.
2. Waste collection bags for waste types needing incineration shall not be made of chlorinated plastics.
3. Categories 8 and 10 (liquid) do not require containers/bags.
4. Category 3 if disinfected locally need not be put in containers/bags.
HANDLE WITH CARE

UNDER THESE RULES-

- Bio Medical Waste (BMW) shall not be mixed with other wastes.
- BMW shall be segregated into container/bags at the point of generation accounting to their respective categories.
- BMW shall not be stored for more than 48 hours.
- Every occupier is required to set up a requisite bio medical waste treatment facilities like incinerator, autoclave, microwave system for the treatment of waste or ensure requisite treatment of waste at a common waste treatment facility.
- Every occupier shall make an application to the prescribed authority (Gujarat Pollution Control Board) for grant of authorization.
- Every occupier shall maintain records related to generation, collection, reception, storage, transportation, treatment and disposal of bio medical waste.

Note: Label shall be non-washable and prominently visible.

It may not be possible for small nursing homes, dispensaries, clinical laboratories and other small organizations or individual medical professionals to carry out treatment and disposal of biomedical waste generated as per the methods prescribed in the Rules on their own. Neither it is economical for even bigger hospitals to have their own treatment facilities. A CBMWTF is an ideal and perhaps only solution to all such problems.

Surat Municipal Corporation (SMC) responded promptly to the call of the Rules-98 and set up a CBMWTF for hospitals and nursing homes managed by SMC as well as all the biomedical waste generators within the corporation’s limits. The prestigious contract of setting up a CBMWTF in Surat on “Build Own Operate and Transfer” (BOOT) base was awarded to Envision Enviro Engineers Pvt. Ltd. Usually BOOT projects are assigned for fifteen years, so that an investor/operator can recover his investment.

But having no experience of such kind of work, SMC allotted seven years contract to En-Vision “to wait and watch” at how it’s being performed. On the other side, quotation of rates for collection and treatment of bio medical waste was given by En-Vision according to 1.5 MT/day which was met only during the sixth year of operation as memberships grew. The facility was set up and commissioned by the agency before the deadline in December 2002. This facility provides a great example of synergic combination of efforts put forward by a municipal corporation, medical professionals, law enforcers and operators of the facility.
The Need for CBMWTF

Surat is the city with a population of more than 40 lacs and the area of 325Sq. Km. located on Mumbai-Ahmedabad rail corridor. During earlier days, when the impact of biomedical waste was not much recognized as infectious waste, disposal as waste or deep burial method was under practice for the purpose of disposal. The main drawback with the system was likely reuse of medical materials without proper sterilization.

As early as 1986, on realization of the impact of infectious diseases, Government of Gujarat framed one umbrella act covering various activities that have detrimental effect on surrounding environment. The present Bio-medical waste (Management & Handling) rules, 1998 with latest amendments giving clear cut guidelines about various categories of Bio-medical waste along with appropriate treatment for their safe disposal were given due importance while framing umbrella act. With the implementation of these rules now the hygiene of Public in general is at least risk.

Concept of common waste treatment facility has been applied in the field of wastewater treatment for a number of years. Efficacy of Common Effluent Treatment Plants (CETP) is yet to be established beyond doubt in effective mitigation of pollution particularly in the case of wastewater from diversified industrial units. But, in case of Biomedical waste management a Centralized Bio Medical Waste Treatment Facility (CBMWTF) is perhaps the only feasible solution for environment protection and effective legal compliance.

Surat Municipal Corporation (SMC) responded promptly to the call of the Rules-'98 and set up a CBMWTF for hospitals and nursing homes managed by SMC as well as all the biomedical waste generators within the corporation's limits.

To arrive at a solution, a meeting of steering committee headed by Municipal Commissioner was arranged where at representatives of big hospitals and clinics along with leader of various associations like General practitioner Association, Indian Medical Association remained present. In the meeting it was decided unanimously to establish common Bio-medical waste treatment facility on BOOT base.

That was the time when not more than three of such treatment plants were operating in India which required a skillful management of such an operation. For SMC, there was only one bid that could successfully meet the conditions. So, the contract of setting up a CBMWTF in Surat on Build Own Operate and Transfer (BOOT) base was awarded to Envision Enviro Engineers Pvt. Ltd.

The Facility was set up and commissioned by the agency before the deadline in December 2002. This facility provides a good example of synergic combination of efforts put forward by a municipal corporation, medical professionals, law enforcers and operators of the facility.

Dr. Yogesh Desai was a president of Surat Medical Consultants Association when the decision was taken to nominate an agency. He talked about the general tendency of humans to hesitate to accept change suddenly. But, over the years, doctors have realized that installation of CBMWF has raised the safety factor for the staff as well.

Following statistical details were considered to nominate an agency to operate on BOOT base.
Statistical details about BOOT contract as of 2002

| Population | 30 lacs | General Dispensaries | 1154 |
| Hospitals  | 356     | Pathological Labs    | 156  |
| Beds       | 5780    | Collection Centers   | 27   |

The installation of plant:

As all the specifications of equipments and plant were laid down in tender documents as per requirement of Biomedical waste (M & H) rules, we were able to establish one of the best common biomedical waste treatment facilities. The facility became operational on 1st January 2003 i.e. even before the guidelines for common biomedical waste treatment facility were published by Central pollution control board. Lot of features required for a common biomedical waste treatment facility was adopted from our facility.
Service delivery

As a result of this facility, management of biomedical waste became quite easier for all the healthcare units of Surat and thus it helped in improving the quality of living in the city. SMC being important stake holder in the facility was able to implement the compliance of Biomedical Waste (M&H) rules in better way. Another important feature of this project is that practically whole of the South Gujarat is being served by this facility. Cost of treatment and disposal for a kilogram of biomedical waste would have been exorbitant, if such a facility were developed in each of these towns. Due to this facility biomedical waste generators in towns around Surat are also able to avail service of this facility and avoid inconvenience of deep burial method at a moderately higher cost than Surat.

Description of system

SMC took proper measures before selecting an agency to run the Bio Medical treatment facility. Schedule of charges to be collected from private healthcare units as well as SMC run healthcare units were decided during the tendering process only. Specifications of the equipments and plant were also laid down during the tendering process as per requirement of biomedical waste (M & H) rules. SMC facilitated by providing waste collection centers at SMC run healthcare units which are termed as Urban Health centers. This is a unique feature of the waste collection system and it helped in keeping the treatment and disposal charges at lowest level. SMC also assisted in the project by providing 2400 Square Meter land to the agency for establishment of CBMWTF as per the requirement of Biomedical (M & H) rules. SMC allowed the agency to collect the bio medical waste from surrounding towns to meet capacity utilization of the plant and to achieve economy in operation. In return, corporation benefited by receiving a small part of charges collected from private healthcare units as administrative charges.

En-Vision was nominated to operate the treatment facility under the BOOT contract. Before the contract was awarded to any agency/entrepreneur following approach was decided upon to meet with all the rules:

- An entrepreneur who intends to develop a common biomedical waste treatment facility will purchase a land on his own.
- He will obtain all necessary permissions from state pollution control board (Regulatory authority).
- He will develop complete facility as per the requirements of Biomedical Waste (M & H) Rules and in adherence to the CPCB guidelines for common biomedical waste treatment facility.
- He will decide the schedule of rates on his own or at the most in consultation with local medical association.
- He will frame the policy of his operation to his convenience for running the facility.

Some of the salient features of this system can be described as under-

- Total investment to set up the facility is made by EN-VISION.
- Land (2400 sq. Mt.) is provided at Bhatar Disposal site by SMC at token annual rent.
- Facility is being operated in strict adherence to Bio Medical Waste (Management & Handling) Rules and amendments made thereafter.
- Transportation of Bio Medical Waste from 27 designated health centers up to facility is to be carried out by EN-VISION.
- Bio Medical Waste generators to deposit their waste at 27 urban health centers.
- Liability of waste from receipt of waste rests with EN-VISION.
Collection and Transportation of waste as per Bio Medical Waste (Management & Handling) Rules.

• Total cost of operation of facility to be borne by EN-VISION.
• Treated Bio Medical Waste shall be disposed at Sanitary Landfill site of SMC.
• EN-VISION may accept and bring waste from generators outside Surat Municipal Limits for treatment and disposal.
Mr. Nihar Doctor, the operator of the En-Vision Bio Medical Treatment Plant shared some interesting details regarding how he ventured into this unique business. An environmental & structural engineer by profession, he designed the building and structure of the plant himself and stressed on having all indigenous technology at the plant. Without any role model to follow, Mr. Nihar had to come up with some innovative ideas of his own. During a visit to Israel, he had an opportunity to have a close look at some of the best equipments for such a treatment plant.

Being an engineer, Mr. Nihar incorporated some of the ideas and designed the machines for the plant. When the prevailing rate for collection and treatment of Bio Medical waste was running at Rs. 25 - 27/per kg, En-Vision made itself available for only Rs.10/kg. Mr. Doctor's emotional attachment towards his city could be cited responsible for this as there's absolutely no compromise with the provision of services.

Mr. Nihar, who conducts trainings at national levels, to operate such plants said that some of his suggestions were taken into consideration while framing some of the revised guidelines by the Ministry of Environment & Forests. One of his suggestions to have the treatment plant on minimum of one acre plot has been incorporated and his renovated plant will be having an allotment of that much land area by SMC so that a plant can
have some area for forestation. At present En-Vision operates daily with treating of all 1700-1800kg waste which it receives from the medical centers from Surat and other areas from South Gujarat. Since, the agency is dealing with the treatment of Bio Medical waste; Gujarat State Pollution Control Board is keeping vigilance on such facilities. Regular checking by the board makes it necessary for the plants to comply with the law. Floors and corners are designed in such a way that there are remote chances for any sort of bacteria to grow. Vaccinations are monitored on the employees who come in close contact with the waste bags. After the completion of daily work, a shower facility is provided for employees. A 100 ft tall chimney has been installed above the incinerator to monitor the exhaust of the dioxin and furan gases.

As the time passed by, more and more medical facilities joined with En-Vision to dispose and treat their bio medical waste. The number of members grew from 300 in 2003 to 3000 in 2009. It's mandatory for all medical practitioners to submit an annual report to the state government authority (Pollution Control Board) giving details about category-wise quantity of waste treated, mode of treatment etc. Fines are imposed on those who don't comply with the law.

**Details about the plant**
Collection of waste – 1100kg/day
Collection & transportation of BMW from 27 centers
Rate charge for BMW – Rs.10/kg
Capacity of the plant – 2000kg/day

**Details about the machines**
Incinerator - 1 Unit with capacity of 100kg/hr.
Autoclave - 1 Unit with capacity of 125kg/hr.
Shredder - 1 Unit with capacity of 200kg/hr.

**Details about the En-Vision**
Staff Members – 8
Plant operators – 10
Pick-up Vehicles – 13
Drivers/helpers – 22
Challenges / Obstacles:

Soon after the installation of plant, due to the negligence of paramedical staff the storage of Bio-medical Waste was not done according to the category of waste as mentioned in BMW (M&H) rule 1998. As per BMW (M&H) rule there are ten different categories of BMW which can be broadly classified keeping in view treatment technology as 1) Incineration of waste 2) Autoclaving of waste.

Lack of sorting the BMW at the source, the waste which is required to be incinerated if its stored in red color bag will be autoclaved and in the same fashion if BMW fit for autoclaving is stored in yellow bag will be incinerated and this may cause malfunctioning of incinerator. To overcome this problem Surat Municipal Corporation and the agency are handling meetings with paramedical staff either individually or in groups to bring awareness about the importance of understanding the categories of BMW.

Even with the minimum charges per kg (Rs.10/per kg) of Bio Medical waste, there are incidents of selling or reusing of medical waste as it uses the best quality of raw materials, such as plastic bottles and sacks, cotton, syringes etc. A tendency to make even little money on part of greedy people is an obstacle and hazardous to environment which disables authorities to have a perfect system of waste management.

Budgetary Implications and Sustainability

Every project related to health and hygiene is checked for its sustainability with respect to financial implications and the improvement of overall environment. Here environmental impact as compared to financial implications is more important. As this project was conceived on lines of BOOT base, SMC didn’t have to worry much about the financial aspect, except to care whether the agency will sustain after the expiration of contract. The concession period was kept as seven years keeping in mind the recovery of investment by the agency and to function as economically viable.

1. Approximate total cost for such treatment plant
This venture is joint venture executed on BOOT base on behalf of Surat Municipal Corporation and except for giving land to the agency on token rent no financial help is provided to BOOT agency. As claimed by the operator he has invested about 90 lacs for procurement of machineries and their installation.

2. Financial partners involved
The project is operating on the BOOT base and the agency engaged for operation and maintenance of plant is Envision Enviro Engineers Pvt. Ltd. which is running the plant from 1st January 2003. The work was awarded for concession period of seven years which has been already extended further for period of 14 years after expiry of first concession period on 31/12/2009.
Mr. Sharad Mehta Deputy Commissioner of Finance, SMC elaborated on the success of this project and made a special mention of SMC getting Rs.2.5 share from each kg of BMW that En-Vision collects and treats. This was negotiated before the plant was commissioned.

3. Source of Finance for the sustainability

To make the plant's operation and maintenance economically viable every occupier of the facility generating BMW is supposed to make the payment to the agency for the quantity of BMW being treated.

The agency was awarded the contract for bidding the lowest rate (Rs. 7.5 /per kg) which was revised by SMC at Rs.10/per kg, keeping in mind the financial viability of the agency to operate successfully. The difference of Rs.2.5 has been credited to the SMC by the agency from the beginning as agency has been assured of minimum of 200 kgs. per day of BMW irrespective of the actual quantity of BMW generated by SMC run hospitals / maternity homes, laboratories and urban health care centers. If SMC had not assured of that minimum quantity of BMW, agency could've faced tough times to keep operating.

Contributory Factors for Success

- Common treatment facility
- Payment on weight basis
- Set up of the "state of the art" treatment plant in the city
- Plant operates in accordance with all the rules
- Timely collection of the bio medical waste
- Long term (extended for 14 years) contract period through BOOT
- Participation by the majority of the medical facilities
- Close monitoring of system by SMC officials

Dr. Persis Mewawala, Dr. Jayashree Choksi and Dr. Dinesh Patel of Kadiwala and Bunki Maternity Home & Urban Health Centre, Surat were full of praise for having such a centralized BMW facility in the city. The collection vehicle arrives to pick up the segregated BMW from the hospital, on time at 3:00pm daily, weighs the bags and logs the details on card. The CBMWF has made it easier for such government facilities to collect the waste rather than treat it on their own with deep burial method.
Replication of the project

- As an ISO 14001-2004 certified facility, it is a better scheme to benefit corporation as it solves the problem of disposal and treatment of all of its hospital waste. Also, SMC has an additional source of income from this facility on KG basis for the waste received from all private generators.

- Unique scheme for all Medical professionals as it solves the problem of disposal and treatment of Bio Medical waste at reasonable rates as the total capital cost and operational cost of facility is to be borne by the agency.

- With spare capacity available to accept Biomedical waste and being the only Municipal Corporation in South Gujarat, SMC has offered the services of biomedical waste treatment to most of South Gujarat region. Thus taking up responsibility of compliance to biomedical waste (Management & Handling) Rules 1998 for whole of South Gujarat.

- This facility can serve as a role model as SMC is First Corporation in Gujarat to set up a Bio-Medical Waste treatment facility.

The quantity of BMW generated on daily basis is required to be studied along with types of clinics before implementation of this kind of project. The recovery of the investment in given concession period depends mainly on the quantity of waste otherwise it may not be possible for operator to operate and maintain the plant.

This Plant has been operating since 1/1/2003 and representatives from various urban local bodies and city officials have visited Surat to see the system and replicated the same in their region.

Even the agency that is operating the plant for Surat city has introduced this concept in many cities like Udaipur and Ranchi.

Representatives are allowed to study the system with in depth site visits and the help is provided in documenting the project.
Recognition of the project

This project on BOOT base has been recognized as the best practice and is being discussed in all the nationwide seminars / workshops / forums related to BMW management with all its features. This project was recognized by Dubai Municipality and it was selected for Dubai international award in the year 2006.

SMC's BMW project as a model

Representatives from various urban local bodies and city officials from the state and outside of the state have visited Surat to observe the operation of system and check out whether it can be replicated in their region. The smooth operation of the system since 2003 has become an attractive feature for replication. SMC officials as well as En-Vision employees are always willing to provide necessary information and help to study the system with field visits.
Conclusion

The main drawback with implementing the system is the likely reuse of medical materials without proper sterilization. There is always a serious outbreak of transmissible diseases if biomedical waste is not disposed of properly. Even after the imposition of the law incidents do occur which throw light at how dangerous it could be to reuse the medical/surgical materials. The improper use of medical waste was cited responsible for the epidemic level of spread of Hepatitis infection in Modasa, North Gujarat as recently as 2009. Besides, if the rates of a centralized facility are not reasonable enough, many small clinics may look for ways to save some money.

But it may not be an exaggeration to describe the operation of the Bio Medical Waste Treatment Plant in Surat as almost perfect. The vision of SMC was realized in perfect tune with the team of En-Vision. Not only for SMC but for other small, medium and big medical practices of South Gujarat, En-Vision has spread its network. Regular collection from rural areas has made the law a common practice to benefit all the citizens.

According to Dr. Anil Desai of SEWA- Rural, Jhagadia mentioned in his response regarding the changing scenario of Bio-medical waste disposal, “previously awareness was missing among medical professionals working in the rural areas. Now, many small hospitals in villages are aware of the supreme court directive. However they have to rely on the BMW collection centres operating in the urban areas. Setting up an independent facility is a very costly affair.”

Dr. Uday Gajiwala from the same hospital opined about the success of this BMW collection system, “It’s very economical for medical practitioners in remote areas. Subsidies are also given to non-profit organizations.” Right now, there are three visits made by En-Vision to Jhagadia but under the legal requirements, BMW can’t be stored for more than 48 hours and that’s the reason, Dr. Gajiwala would welcome to have the fourth visit in a week. `121

It won’t be further from the truth to say that a perfect coordination of local administration and a private agency could yield wonderful results if both have public interests at their heart to fulfill the commitment.