The management of this waste stream requires a number of upgrades as outlined in the Auroville Solid Waste Management Strategy. Appendix A presents an overview of the composition of a typical hospital waste stream. Active management is the key to improving current practices at the Auroville Health Centre. Staff training in waste segregation will be an important component once the Health Centres infrastructure has been improved. Exnora has offered to conduct training at the Centre in conjunction with Eco-Service who will provide instruction on how to use the incinerator and recycling facilities.

Appendix B gives an overview of detailed planning of the upgrades to waste management systems and infrastructure at the Health Centre as a part of a general program of improvement.

Appendix C is a copy of a summary from the Bio-medical (Management and Handling) Rules. This summary was produced by the Mumbai Medwaste Action Group.

Appendix D is an overview of SGS Laboratories, the company who will be undertaking the testing of the incinerator to ensure it complies with the above legislation.
APPENDIX A – Hospital Waste Flow Chart

General hospital waste represents 80 – 85% of overall waste stream. Includes paper, plastic packaging, steel cans, and food waste similar to domestic household waste. Source separation is required however no special treatment is needed.
Infectious waste represents about 10 to 15% of all hospital waste.
APPENDIX B – Detailed Planning for Health Centre Upgrades

Suggested Program for Upgrading Practices at the Auroville Health Centre.

The purpose of this paper is to provide a general plan for improved management, handling, storage, recycling and disposal of solid wastes at the Auroville Health Centre. As mentioned in the Auroville Solid Waste Management Strategy there are a number of actions which should be implemented. These are repeated in the table below:

<table>
<thead>
<tr>
<th>Medical Waste Management</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>One person on Health Centre staff to be made responsible / accountable for the efficient and safe operation of the incinerator, ensuring all safety and environmental standards are complied with.</td>
<td>Short Term</td>
</tr>
<tr>
<td>Staff require retraining in source separation to reduce the amount of material being burnt. The Mumbai Mediwaste Action Group and Exnora have developed in-house training modules for this purpose.</td>
<td>Short Term</td>
</tr>
<tr>
<td>Training needs to be complemented with a review of waste segregation infrastructure. A new waste storage and recycling area should be constructed. Colour coded bins and clear signage (using symbols and words) would also greatly assist in reducing unnecessary burning of waste.</td>
<td>Short Term</td>
</tr>
<tr>
<td>All PVC plastic medical waste should be sterilised in the Centre’s autoclave. Once cleaned and sterilised, the plastic should be ground using a small shredder and recycled.</td>
<td>Medium Term</td>
</tr>
<tr>
<td>The Health Centre autoclave requires replacement in the medium term, as it is reaching the end of its useful life.</td>
<td>Medium Term</td>
</tr>
<tr>
<td>Develop relationship with waste managers at JIPMER hospital in order to share information and explore opportunities for utilising JIPMER facilities.</td>
<td>Medium Term</td>
</tr>
</tbody>
</table>

Responsible Person at the Health Centre

Dr Assumpta has selected Arumugam, who is now in charge of operation and supervision of the recycling area. He should be included in all discussions and plans pertaining to improved waste management practices at the Health Centre.

Retraining of Hospital Centre Staff

A comprehensive training workshop needs to be delivered to the staff, supervisors and managers of the Auroville Health Centre. This should only be delivered when all the infrastructure improvements have been made, including modifications to the incinerator.
It is suggested that a planning team comprising representatives of the Health Centre, Eco-Service and Exnora meet to design and plan the delivery of the training module. It is suggested that this be carried out in August when Manfred returns from vacation. Exnora have experience in training hospital staff in the art of source separation. It is advised that Chitra Shah of Pondicherry Exnora should be given details of how many staff require training and the possible time frame for planning and delivery. She can be contacted through Gillian through AV Clean and Beautiful.

**Construction of New Recycling and Waste Storage Enclosure.**

A small twin compartment shed also needs to be built to house barrels of separated waste such as glass, paper, plastic, ash, and infectious waste. This will be a small roofed structure which is secured by a strong mesh gate and kept locked at all times. A firm quote of Rs 26,250 has been provided by a local builder (Balaiya) to carry out this work as per the drawing attached. Electricity and water would need to be supplied to the recycling area as well, however this would not be expensive as both are close by.

Some thought will need to be given to the internal layout of the facility – the existing layout as drawn are initial thoughts only.

The main criteria is that the contents of the enclosure are secure, protected from the elements, and the facility is user friendly, well laid out with clear signage provided. Before any training is conducted, this enclosure should be fully operational so that staff are quite clear about what exists and how to use it. If possible this should be constructed by August.

**Management of PVC Plastic**

PVC syringes, tubing and IV bags should not be burnt in the incinerator under any circumstances. Once these PVC items have been sterilised they can be shredded and collected for recycling. The Health Centre should investigate means to have PVC waste autoclaved as opposed to incinerated. A small shredder will need to be located and installed to shred PVC plastics to prevent reuse. It is recommended that the spare autoclave in the Health Centre be utilised for the sterilisation of PVC plastics.

**Replacement of Health Centre Autoclave**

The Health Centre does not autoclave infectious wastes prior to disposal. If the spare autoclave is housed in the recycling enclosure all infectious and PVC waste can be simply autoclaved prior to recycling or disposal.

**Use of JIPMER Facilities**

An approach should be made by Eco-Service to the appropriate managers of the medical waste disposal facility at JIPMER. This would be done to explore the possibilities of disposing of PVC waste using their autoclave and shredding equipment. In the event that the Health Centre’s incinerator could not be made to
comply with the Bio-medical (Management and Handling) Rules, JIPMER may provide an alternative disposal option.

**Incinerator Testing**
SGS testing laboratories in Chennai are ready to carry out the testing of the Health Centre’s incinerator. It is proposed that these tests now be carried out some time in August when Manfred returns from vacation and the necessary improvements have been made to the incinerator. Manfred has now taken over the task of co-ordinating SGS to undertake the tests.

**Meeting with Health Centre Executives**
A meeting should be held between Eco Service – (Task Force) and the executives of the Health Centre in the near future. Eco-Service needs to ensure that Assumpta and Albert are aware of all details of the program.
Auroville Health Centre
Concept Design for Recycling Area

Plan View

Recycling Enclosure

Battery Store

Incinerator

Autoclave shredder Hand basin Needle Cutter Glass

Plastic Metal Paper Ash Autoclaved-disinfected waste

Side Elevation
SUMMARY OF THE BIO-MEDICAL WASTE (MANAGEMENT AND HANDLING) RULES 1998
MINISTRY OF ENVIRONMENT AND FORESTS

APPLICATION
These rules apply to all persons who generate, collect, receive, store, transport, treat, dispose or handle bio-medical waste in any form.

DUTY OF OCCUPIER
It shall be the duty of every occupier of an institution generating bio-medical waste which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank by whatever name called to take all steps to ensure that such waste is handled without any adverse effect to human health and the environment.

TREATMENT AND DISPOSAL
Bio-medical waste shall be treated and disposed of in accordance with Schedule I (Bio Medical Rules, Pg. 6) and in compliance with the standards prescribed in Schedule V (Bio Medical Rules, Pg. 11).

Every occupier, where required, shall set up in accordance with the time-schedule in Schedule VI (Bio Medical Rules, Pg. 15), requisite bio-medical waste treatment facilities like incinerator, autoclave, microwave system for the treatment of waste or, requisite treatment of waste at a common waste treatment facility, or any other waste treatment facility.

SEGREGATION, PACKAGING, TRANSPORTATION AND STORAGE
Bio-medical waste shall not be mixed with other wastes.
No untreated bio-medical waste shall be kept stored beyond a period of 48 hours.
“Bio-medical waste means any waste which is generated during the diagnosis, treatment or immunisation of human beings or animals or in research activities pertaining thereto or in the production or testing of biologicals and including categories mentioned in Schedule I” (Bio Medical Rules, Pg. 2 & 6).

PRESCRIBED AUTHORITY
The Government of every State and Union Territory shall establish a prescribed authority with such members as may be specified for granting authorisation and implementing these rules.

AUTHORISATION
Every occupier of an institution generating, collecting, receiving, storing, transporting, treating, disposing and/or handling bio-medical waste in any other manner, except such occupier of clinics, dispensaries, pathological laboratories, blood banks providing treatment/service to less than 1000 (one thousand) patients per month, shall make an application in Form I (Bio Medical Rules 16) to the prescribed authority for grant of authorisation.

The prescribed authority shall make such enquiry as it deems fit and if it is satisfied that the applicant possesses the necessary capacity to handle bio-medical waste in accordance with these rules grant or
renew an authorisation. An authorisation shall be granted for a period of three years, including an initial trial period of one year from the date of issue. A provisional authorisation to enable the occupier/operator to demonstrate the capacity of the facility.

ADVISORY COMMITTEE
The Government of every state or Union Territory shall constitute an advisory committee which will include experts in the field of medical and health, animal husbandry and veterinary sciences, environmental management, municipal administration and any other related department or organisation including non-governmental organisations. The state pollution control Board/ Pollution Control Committee shall be represented.

ANNUAL REPORT
Every occupier shall submit an annual report by 31 January every year, to include information about the categories and quantities of bio-medical wastes handled during the preceding year.

Every authorised person shall maintain records related to generation, collection, reception, storage, transportation, treatment, disposal and/or any form of handling of bio-medical waste in accordance with these rules. All records shall be subject to inspection and verification at any time.

ACCIDENT REPORTING
When any accident occurs at any institution or facility or any other site where biomedical waste is handled or during transportation of such waste, the authorised person shall report the accident.

HIGHLIGHTS SCHEDULE FOR WASTE TREATMENT FACILITIES LIKE INCINERATOR/AUTOCLAVE/MICROWAVE SYSTEM

<table>
<thead>
<tr>
<th>(a) Hospitals and nursing homes and towns with population of 30 lakhs and above.</th>
<th>By 31st December 1999 or earlier.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(b) Hospitals and nursing homes and towns with population below 30 lakhs.</td>
<td></td>
</tr>
<tr>
<td>• With 500 beds and above</td>
<td>By 31st December 1999 or earlier.</td>
</tr>
<tr>
<td>• With 200 beds and above but less than 500</td>
<td>By 31st December 2000 or earlier.</td>
</tr>
<tr>
<td>• With 50 beds and above but less than 200 beds.</td>
<td>By 31st December 2001 or earlier</td>
</tr>
<tr>
<td>• With less than 50 beds.</td>
<td>By 31st December 2002 or earlier</td>
</tr>
<tr>
<td>(c) All other institutions generating bio-medical waste not included in a) and b) above</td>
<td>By 31st December 2002 or earlier</td>
</tr>
</tbody>
</table>

STANDARDS FOR INCINERATORS
A. Operating Standards:
1. Combustion Efficiency at least 99.99%
2. Primary Chamber Temperature 800 ± 50°C
3. Secondary Chamber Gas residence time at least one second at 1050 ± 50°C; with minimum 3% Oxygen in the stack gas

*Medical Waste Fact-Sheet, September 1998,
Mumbai Medwaste Action Group*
B. Emission Standards:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Concentration mg/lNm³ at (12% CO₂ Correction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Particulate matter</td>
<td>150</td>
</tr>
<tr>
<td>2. Nitrogen Oxides</td>
<td>450</td>
</tr>
<tr>
<td>3. HCl</td>
<td>50</td>
</tr>
<tr>
<td>4. Minimum Stack Height (in metres)</td>
<td>30 * fan assisted BURNER</td>
</tr>
<tr>
<td>5. Volatile organic compounds in ash shall not be more than 0.01%</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

a) Suitably designed Pollution control devices should be installed retro fitted with the incinerator to achieve the above emission limits if necessary.
b) All waste to be incinerated shall not be chemically treated with any chlorinated disinfectants. Chlorinated plastics shall not be incinerated.
c) Toxic metals shall be limited within the regulatory quantities as defined under the Hazardous Waste (Management and Handling) Rules, 1989.
d) Only Law sulphur fuel like LDO, LSHS, Diesel shall be used as fuel in the incinerator.

**STANDARDS FOR AUTOCLAVING**

The autoclave should be dedicated for the purpose of disinfecting and treating biomedical waste.

I) When operating a gravity flow autoclave, medical waste shall be subjected to:
   i) a temperature of not less than 121°C and pressure of 15 pounds per square inch (psi) for an autoclave residence time of not less than 60 minutes; or
   ii) a temperature of not less than 135°C and a pressure of 31 psi for an autoclave residence time of not less than 45 minutes; or
   iii) a temperature of not less than 149°C and a pressure of 52 psi for an autoclave residence time of not less than 30 minutes.

II) When operating a vacuum autoclave, medical waste shall be subjected to a minimum of one pre vacuum pulse to purge the autoclave of all air.

The waste shall be subjected to the following:
   i) a temperature of not less than 121°C and a pressure of 15 psi for an autoclave residence time of not less than 45 minutes; or
   ii) a temperature of not less than 135°C and a pressure of 31 psi for an autoclave residence time of not less than 30 minutes.

III) Medical waste shall not be considered properly treated unless the time, temperature and pressure indicators indicate that the required time, temperature and pressure were reached during the autoclave process. If, for any reasons, time temperature or pressure indicator indicates that the required temperature, pressure or residence time was not reached, the entire load of medical waste must be autoclaved again until the proper temperature, pressure and residence time were achieved.

IV) Recording Of Operational Parameters

Each autoclave shall have graphic or computer recording devices, which will automatically, and continuously monitor and record dates, time of day, load identification number and operating parameters throughout the entire length of the autoclave cycle.

Medical Waste Fact Sheet, September 1996,
Mumbai Medwaste Action Group
V) Validation Test

*Spore testing*: The autoclave should completely and consistently kill the approved biological indicator at the maximum design capacity of each autoclave unit. Biological indicator for autoclave shall be *Bacillus Stearothermophilus* spores using vials or spore strips, with at least $1 \times 10^7$ spores per millilitre. Under no circumstances will an autoclave have minimum operating parameters less than a residence time of 30 minutes, regardless of temperature and pressure; a temperature less than 121 °C or a pressure less than 15 psi.

VI) Routine Test

A chemical indicators strip/tape that changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste package at different location to ensure that the inner content of the package has been adequately autoclaved.

**STANDARDS FOR LIQUID WASTES**

Effluent generated from the hospitals should conform to the following limits.

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>PERMISSIBLE LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6.5-9.0</td>
</tr>
<tr>
<td>Suspended solids</td>
<td>100 mg/l</td>
</tr>
<tr>
<td>Oil and grease</td>
<td>10 mg/l</td>
</tr>
<tr>
<td>BOD</td>
<td>30 mg/l</td>
</tr>
<tr>
<td>COD</td>
<td>250 mg/l</td>
</tr>
<tr>
<td>Bio-assay test</td>
<td>90% survival of fish after 96 hours in 100% effluent</td>
</tr>
</tbody>
</table>

These limits are applicable to those hospitals, which are either connected with sewers without terminal sewage treatment plant or not connected to public sewers. For discharge into public sewers with terminal facilities, the general standards as notified under Environment (Protection) Act, 1986 shall be applicable.

**STANDARDS FOR MICROWAVING**

A) Not to be used for cytotoxic, hazardous or radioactive wastes, contaminated animal carcasses, body parts and large metal items.

B) Comply with efficacy test routine tests and a performance guarantee may be provided by a supplier before operation of a unit.

C) Approved biological indicator at the maximum designed capacity of each microwave unit. Biological indicator - vials or spore strips of *Bacillus Subtilis* spores (at least $1 \times 10^9$ spores per millilitre)

**STANDARDS FOR DEEP BURIAL**

1. A pit or trench should be dug about 2 metres deep. It should be half filled with waste, then covered with lime within 50 cm of the surface, before filling the rest of the pit with soil
2. It must be ensured that animals do not have any access to burial sites. Covers of galvanised iron/wire meshes may be used.
3. On each occasion, when wastes are added to the pit, a layer of 10 cm of soil shall be added to cover the wastes.

*Medical Waste Fact- Sheet. September 1998, Mumbai Medwaste Action Group*
4. Burial must be performed under close and dedicated supervision.
5. The deep burial site should be relatively impermeable and no shallow well should be close to the site.
6. The pits should be distant from habitation, and sited so as to ensure that no contamination occurs of any surface water or ground water. The area should not be prone to flooding or erosion.
7. The location of the deep burial site will be authorised by the prescribed authority.
8. The institution shall maintain a record of all pits for deep burial.

Edited: Deepika D’Souza

SOME OBSERVATIONS REGARDING THE RULES
“The rules for the first time allow for three technologies, which were not there in the 1995 draft. Also they define standards for them, a result of the sustained medical waste campaign. They disallow the burning of PVC another first, probably internationally. Also hospitals will be only be required to carry out a three colour segregation - comparatively easy to do, as different from the 5 to 7 separations.

There is a provision for deep burial for rural hospitals, thus giving over 22,000 primary health centres a way out of investing in expensive technologies or incinerators. Centralised and shared facilities are also allowed. A staggered implementation schedule will also help in giving time for alternative technologies to establish themselves.

I feel that these rules are a big move from the earlier ones, and are possible to implement. The grey areas are the lack of a specified prescribed authority and the mechanisms through which centralised or shared facilities will be established; for example who will invest, who will initiate, and whether this needs fiscal subsidies, besides establishing a transport mechanism.

Also enough space and time has to be given to alternative technologies in order that they become competitive. Some of these issues will be addressed by the guidelines committee set up in the MOEF. The rules give the possibility of alternate approaches, but these have to be advocated.”

Comments By Ravi Agarwal,
Member Of Guideline Committee For Drafting The Bio-Medical Waste Rules

MEDWASTE ON THE INTERNET
- More information on environmentally responsible health care get your health care facility on to the Health Care Without Harm-South listserve. E-mail: MMAG.
- Laboratory Safety: www.biosterile.com
- Communities Against Toxics: http://www.gn.apc.org/cats/
<table>
<thead>
<tr>
<th>Waste Category</th>
<th>Contents</th>
<th>Treatment &amp; Disposal Options</th>
<th>Colour Code</th>
<th>Type of Container</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Human Anatomical Waste</td>
<td>Human tissues, organs, body parts</td>
<td>Incineration / deep burial ¹</td>
<td>Yellow</td>
<td>Plastic bag</td>
</tr>
<tr>
<td>2. Animal Waste</td>
<td>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</td>
<td>Incineration / deep burial ¹</td>
<td>Yellow</td>
<td>Plastic bag</td>
</tr>
<tr>
<td>3. Microbiology and Bio-technology Waste¹</td>
<td>Laboratory cultures, stocks, specimens of micro organisms live or attenuated vaccines, human and animal cell culture used in research and industrial laboratories, wastes from production of biologicals, toxins, dishes and devices used for transfer of cultures</td>
<td>Local autoclaving / micro-waving / Incineration</td>
<td>Yellow / Red</td>
<td>Plastic bag / disinfecting container</td>
</tr>
<tr>
<td>4. Waste Sharps</td>
<td>Needles syringes, scalpels, blades, glass, etc that may cause puncture and cuts. This includes both used and unused sharps.</td>
<td>Disinfection / chemical treatment¹  / autoclaving / micro-waving and mutilation / shredding¹</td>
<td>Blue/White translucent</td>
<td>Plastic bag / puncture proof container</td>
</tr>
<tr>
<td>5. Discarded Medicines and cytotoxic drugs</td>
<td>Waste comprising of outdated, contaminated and discarded medicines</td>
<td>Incineration / destruction and disposal in secured Landfills</td>
<td>Black</td>
<td>Plastic bag</td>
</tr>
<tr>
<td>6. Soiled Waste</td>
<td>Items contaminated with blood, and body fluids including cotton, dressings, soiled plaster casts, linens, bedding, other material contaminated with blood</td>
<td>Incineration / autoclaving / micro-waving</td>
<td>Yellow/Red</td>
<td>Disinfected container / plastic bag</td>
</tr>
<tr>
<td>7. Solid Waste</td>
<td>Waste generated from disposable items other than the waste sharps such as tubing, catheters, intravenous sets etc.</td>
<td>Disinfection by chemical treatment¹ autoclaving / micro-waving and mutilation / shredding</td>
<td>Red/Blue</td>
<td>Disinfected container / Plastic bag</td>
</tr>
<tr>
<td>8. Liquid Waste</td>
<td>Waste generated from laboratory and washing, cleaning, housekeeping and disinfecting activities.</td>
<td>Disinfection by chemical treatment¹ and discharge into drains</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>10. Chemical Waste</td>
<td>Chemicals used in production of biologicals, chemicals used in disinfection, as insecticides, etc.</td>
<td>Chemical treatment and discharge into drains for liquids and secured landfill for solids</td>
<td>Black</td>
<td>Plastic bag</td>
</tr>
</tbody>
</table>

[¹] = There will be no chemical pre-treatment before incineration. Chlorinated plastics shall not be incinerated. [²] = Deep Burial shall be an option available only in towns with population less than 5 lakhs and in rural areas. [³] = Using at least 1% hypochloric solution or any other equivalent chemical reagent. It must be ensured that Chemical treatment ensures disinfection. [⁴] = Must be such so as to prevent unauthorised reuse. [⁵] = Liquid wastes do not require containers/bags. [⁶] = If disinfected locally need not be put into containers/bags

Medical Waste Fact Sheet, September 1998, Mumbai Medical Waste Action Group
APPENDIX D – SGS Laboratories

The Environmental Services Division provides assistance in the areas of information generation by monitoring of environmental parameters and management planning linked to specific economic or developmental activity by carrying out Environmental Audits or Environmental Impact Statements (EIS), Environmental Impact Assessment (EIA) Studies. SGS has also taken a lead in the training and certification of Environmental Management Systems (EMS). These services have a backup of over 100 expert environmental laboratories and consultancy services of SGS, the world over.

ENVIRONMENTAL SERVICES DIVISION OBJECTIVES:
The Environmental Services Division’s mandate is to render services in the area of prevention of environmental degradation by means of environmental impact assessment, risk assessment and safety audits, improvement & remediation through monitoring, diagnosis and control. Technological advice for preparing balance sheets of economic activities and environmental impacts.

ENVIRONMENTAL SERVICES:
• Field Services
• Laboratory Services
• Consultancy Services

FIELD SERVICES:
Site Selection and Suitability Studies for setting up Industries for sustainable development

Ambient Air Quality Monitoring for all pollutants, Noise Level Monitoring and Meteorological Parameters Monitoring as per international norms or customer specified standard methods.

Stack Emission Monitoring for all pollutants and assessment of efficiency of control systems as per international standards or customer specified standard methods.

Water, Wastewater and Soil Sample Collection as per statistical design including spatial and temporal frequencies and assessment of efficiency of the Effluent Treatment Plant and analyzing critical parameters on field.

Flora and Fauna assessment through sectoral studies to assess the existing status or to assess the damage due to any developmental activity, landuse surveys including Geographic Information Systems (GIS).

LABORATORY SERVICES:
Analysis of field collected samples using standard procedures and instruments for various environmental parameters for air, water, wastewater, soil, hazardous wastes and plant samples.

Development of new methods and quality assurance of results obtained.

Analysis of a simplest parameter like pH to complex parameters like pesticides and polynuclear aromatic hydrocarbon.

CONSULTANCY SERVICES:
Environmental Impact Assessment of developmental projects including site selection, sustainability of resources, economical and ecological viability, carrying capacity of environment; in essence sustainable development.

Environmental Audits to help industry recycle and reuse resources and plan for low polluting technologies

Risk Assessment of Hazardous Chemical Storage in order to device viable onsite and offsite emergency strategies.

Environmental Management Strategies to mitigate any adverse impacts arising out of developmental activity. Effluent treatment plant design after thorough review of processes, reaction mass balances and treatability studies of effluent.

Post Project Monitoring network design and Consultancy Services for setting up Environmental Laboratories.

Environmental Management Systems, training, implementation and certification as per BS 7750 and ISO 14000 standards.

Identification and evaluation of hazardous waste disposal sites.

BENEFITS TO THE CUSTOMERS:
Reliable observational methods for generation of base line data on land, water and air pollution as per national and international standards.

Reliable analytical methods as per national and international standards.

Professional and Scientific expertise for analysis and integration of data information for generating immediate action plans and futuristic projections for monitoring and control.

Ecological and Economic optimization of sites for developmental activities.

Expert advice for compliance in the environmental laws and obtaining necessary clearances.

Technological advice for ensuring sustainability of life and productivity of developmental structures/activities.

Earn the reputation of being an environmentally friendly company.

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Waste Management Research – Bio-Medical Waste Management