Executive Summary

The Government of Tamil Nadu has proposed to implement a Health Systems Development Project (HSDP) with the World Bank assistance. The main objective of the HSDP is to improve the health outcomes of the people of Tamil Nadu with special reference to poor especially in remote and inaccessible areas. The project objectives are in keeping with the Millennium Development Goals. The HSDP envisages a substantial improvement in health infrastructure at the secondary level institutions. Several interventions have been planned for reducing infant, child and maternal mortality and morbidity. The project would also develop effective models to combat non communicable diseases like diabetes, hypertension, cardio vascular diseases, cancer etc. HSDP also plans to bring a comprehensive Health Management Information System in addition to capacity building of the health functionaries. The project would attempt to bring a fruitful Public Private Partnership in health sector.

As a part of HSDP, a comprehensive Health Care Waste management system is being brought in place. The Plan has analysed the present scenario of bio medical waste management right from tertiary institutions to the PHCs. The Bio Medical waste management in private sector has also been analysed. The bio medical waste generated by the health institutions both in public and private sector needs to be regulated under the Bio-Medical Waste (Management and Handling) (Second Amendment) Rules 2000, Ministry of Environment and Forest , Govt. of India Notification New Delhi.

Under the health care waste management plan the Govt. of Tamil Nadu proposes to set up Common Treatment Facilities for bigger cities and stand alone treatment options for smaller hospitals. As per the bio medical waste handling rules a proper system of segregation, colour coding, transportation and end disposal has been proposed. The plan proposes to dispose off bio medical waste by autoclaving only and no incinerators or burning of the waste has been proposed. The plan would be implemented with the active participation of NGOs, private health care providers and Indian Medical Association (IMA). A major component of the plan is professional training of all the stake holders to ensure the understanding of proper disposal of bio medical waste, safety of the health personnel and people. A sustainable model has been proposed for the health institutions including a stringent system of monitoring and supervision right from the state level upto to the hospitals. The plan aims to generate a massive awareness in the community about the need for the safe disposal of bio medical waste.

1. Tamil Nadu Scenario

Tamil Nadu has a well laid out health infrastructure both in the urban as well as in rural areas. The health infrastructure in public sector in Tamil Nadu is given below:

1. Medical Colleges : 11
2. Medical College attached hospitals : 38
3. District Headquarters hospitals : 25
4. Sub district hospitals : 245
5. Primary Health Centres (PHCs) : 1413
6. Health Sub Centres (HSCs) : 8682
7. Other hospitals

In addition to above, Tamil Nadu also has a number of maternity homes, dispensaries and health posts run by the 102 municipalities and 6 municipal corporations.

a) Medical College Hospitals:

Tamil Nadu has 11 Medical Colleges and 38 hospitals are attached to these institutions in government sector. The bed strength of each one of these hospitals is given in Appendix C

The Nature of biomedical waste generated by these hospitals is as follows:

- Human tissue, Organs, body parts and placenta etc from OT, Pathological waste, Animal waste, Soiled Waste and Microbiology and Biotechnology Waste.
- Cotton, gauze dressings, POP's soiled with blood, pus and other human discharges.
- All types of plastic i.e. plastic syringes, I.V. lines, I.V. bottles, bags.
- Discarded medicines and Cytotoxic drugs, and solid chemical waste.
- Soiled linen of patients from isolation wards, intensive care units, acute wards, OT and labour rooms.
- Left over food in patients and visitors plates, stationary, fruits waste, unsoiled dressings, gauze and cotton.
- Needles, blades and Vials.
- Broken glass, bottles, tubes, Vials, Petri dishes.
- Microbiological and other pathological waste
- Liquid waste from wards, Department and autopsy room.
- Silver nitrate from Radiology department.
- Mercury waste: Broken thermometers and sphygmomanometer
- Blood bank waste: Discarded expired infected blood or its products.
- Waste stationary from offices
- Intact glass bottles, Vials, petri dishes.

b) District Headquarters Hospitals :

The district headquarters hospitals in Tamil Nadu have bed strength ranging from 150 to 600. The total bed strength of these hospitals is 8231. The waste generated per bed per day is approximately 1 to 1.5 kgs. These hospitals generate approximately 8000 kgs to 12000 kgs of biomedical waste per day. The break up of the bed strength of these hospitals is is given in Appendix C

The nature of biomedical waste generated by these hospitals is similar to the medical college hospitals.

c) Sub District Hospitals:

There are 245 sub district hospitals under the government. The bed strength of these hospitals ranges from 6 to 224. The total bed strength is 12343. At the rate of 1 to 1.5 Kgs (average) of waste generated per bed per day, these hospitals generate a total of 12,000 to 18,000 kgs per day. The nature of biomedical waste generated is almost the same as that of district headquarters hospitals.

d) Primary Health Centres :

Government of Tamil Nadu has 1413 PHCs spread all over the state. The bed strength in the PHCs ranges from 2 to 30 depending upon the status of the PHCs, i.e the block PHCs and upgraded PHCs have higher bed strength. The total bed strength in PHCs is 8976. The PHCs are generating about 8000 kgs of biomedical waste per day. The nature of biomedical waste generated is as follows.

- Placenta, waste from OT , Soiled Waste and Microbiology waste
- Cotton, gauze dressings soiled with blood, pus and other human discharges.
- All types of plastic i.e. plastic syringes, I.V. lines, I.V. bottles, bags.
- Discarded medicines and solid chemical waste.
- Soiled linen of patients wards, OT and labour rooms.
- Left over food in patients and visitors plates, stationary, fruits waste, unsoiled dressings, gauze and cotton.
- Needles, blades, broken glass, bottles, tubes and Vials.
- Liquid waste from wards
- Silver nitrate – X-ray department.

- Mercury waste: Broken thermometers and sphygmomanometer

e) Other Hospitals :

Government of Tamil Nadu also runs TB hospitals/sanatoria, ESI hospitals, dispensaries and Women and Children hospitals. The total bed strength of these institutions is 2,532. The nature of biomedical waste generated in these hospitals is similar to that of district hospitals. The quantum of waste generated is in the range of 2,500 kgs to 4,000 kgs per day.

Hospitals in the Private Sector

In Tamil Nadu the number of beds in private sector is roughly 25,000 to 30,000. The total waste generated in these hospitals is approximately 25,000 kgs to 45,000 kgs per day. The nature of health institutions in private sector varies widely. The private sector institutions are generally nursing homes, clinics, dispensaries etc. Private sector has also established a large number of laboratories and blood banks. In urban areas specially in municipal corporation, private sector has also established huge corporate hospitals. The nature of waste generated in these institutions is according to the type of the institutions. The data about various types of institutions is currently not available. Other than few corporate hospitals most of the private sector hospitals, dispensaries and clinics do not have proper health care waste management system.

Training

The government health staff as well as the private sector staff have not yet been sensitized and trained in the professional management of the biomedical waste. Tamil Nadu Pollution Control Board (TNPCB) has established an Environmental Training Institute (ETI) to impart training to industries, local bodies, NGOs and others on environmental health.

Threats due to poor waste management

The status of poor waste management currently practiced in the state poses a huge risk towards the health of the general people, patients, and professionals, directly and indirectly through environmental degradation. Communicable diseases like gastro-enteritis, hepatitis - A and B, respiratory infections and skin diseases are associated with hospital waste either directly as a result of waste sharp injuries or through other transmission channels. The hosts of micro organisms responsible for infection are entero-cocci, non-haemolytic streptococci, anaerobic cocci, clostridium tetani, klebsiella, HIV and HBV.

The potential risk to health care workers comes from the handling of infected sharps; 60 percent of them sustain an injury from sharps knowingly or unknowingly during various procedures. The practice of re-sheathing the needle after use is the major factor for needle stick injuries. Through poor waste management practices, all health care workers (nurses, doctors, lab technicians), service personnel, rag pickers and the general public are at risk of contracting infections while handling, storage, and treatment. Incinerators operating at sub-optimal conditions are an added environmental and health hazard.

2. Biomedical Waste Management

Current scenario

Of the total hospital waste generated, approximately 10% is hazardous, 85% is general (non risk) waste while a small percentage (5%) is labeled as highly hazardous. Currently, all the hospital biomedical waste is being disposed along with municipal solid waste. The untreated liquid waste from the health institutions is let into drainage.

3. Biomedical Waste Management Legislation in Tamil Nadu

Tamil Nadu Pollution Control Board (TNPCB) is the controlling authority for monitoring and supervision of biomedical waste. TNPCB enforces the biomedical waste (management and handling) (second amendment) Rules 2000.

The GOI rules and GOTN guidelines formulated under the GOI rules can be seen in the Annexure - D

As part of this process the board has so far inventorised 317 government hospitals and 1835 private hospitals. TNPCB has issued directions to the government and private hospitals to take time bound action for identifying sites and setting up common facilities for management of biomedical waste.

Current Status of Enforcement:

Regarding the current biomedical waste management plans TNPCB has identified 10 common facilities for the private sector heath care units in the state in the following places

i) Identification of Common Facilities :

1. Thenmelpakkam – Kancheepuram district
2. Chennakuppam – Kancheepuram district
3. Orattukuppai – Coimbatore district
4. Sengipatti – Thanjavur district
5. Kandipedu – Vellore district
6. T.Pudaiyur – Villupuram district
7. Karandaneri – Tirunelveli district
8. Kumarapalayam – Namakkal district
9. Coonoor – Nilgiris district
10. Keelakottai – Ramanathapuram district.

ii) Projects under Implementation:

Out of the above mentioned 10 sites two projects are under implementation at Thenmelpakkam and Chennakuppam in Kancheepuram district

iii) Issue of Authorization:

TNPCB has issued authorization for the operation of the following facilities

1. Sengipatti – Thanjavur district
2. Kandipedu – Vellore district
3. Orattukuppai – Coimbatore district

The Proposed Action Plan

The proposed hospital waste management plan is consistent with the Bio-Medical Waste (Management and Handling) (Second Amendment) Rules, 2000, Ministry of Environment and Forests, Government of India Notification, New Delhi.

The Department of Health and Family Welfare, Government of Tamil Nadu would work out a plan of action for the safe disposal of the hospital waste in accordance with the guidelines of the Government of India and the Tamil Nadu pollution control board. Government has decided to work out a plan for setting up a common facility for the bigger towns for collection, treatment and safe disposal of the Hospital waste. The autoclaving and deep burial method would be followed. For smaller towns the hospitals would have their own autoclaves and would follow the same methodology. For bigger towns District Collectors would provide land for deep burial and for the smaller facilities efforts would be taken to provide deep burial sites somewhere nearby.

No incineration is proposed for the management and disposal of the hospital waste.

Hospital Waste disposal is a multifaceted activity in which different stages as given below are highly interdependent both technically as well as organizationally. The key strategies will be as follows:

1. Generation / Minimisation
2. Waste Segregation
3. Collection
4. Transportation within the hospital
5. Storage
6. Measurement and Monitoring
7. End treatment
8. Disposal

A detailed table giving the type of waste, location, colour coding, in situ treatment, transportation, end treatment and disposal is given below:

S. No.	Category	Type of Waste	Location	Segre-gation	Insitu . Treatment	Transpor-tation	Storage	End Treatment		Final Disposal	
								Where Common treatment facility is available)	Common treatment facility is not available	Where Common treatment facility is available	Common treatment facility is not available
1	Yellow bag	Human tissue, body parts and placenta	OT, Labour room, Wards	To be collected in yellow plastic bags kept in yellow buckets	-	Sent by waste collection covered Rickshaw/ vehicle immediately	Collection site	Autoclaving and deep burial	Deep burial inside the hospital	deep burial	N.A
2	Red bag	Cotton, gauze dressing, POP's soiled with blood, pus and other human discharges. unsoiled dressing, gauze and cotton	All wards, OT, Labour rooms, Lab, ICU, Acute wards, Isolation wards	Red bucket lined with red plastic liners stored in red drums with plastic liners	-	Transported by waste collection covered Rickshaw/ vehicle directly	Collection site	Autoclave at common treatment facility	Auto clave and deep burial	Secure landfill at common facility	N.A

S. No.	Category	Type of Waste	Location	Segre-gation	Insitu . Treatment	Transpor-tation	Storage	End Treatment		Final Disposal	
								Where Common treatment facility is available)	Common treatment facility is not available	Where Common treatment facility is available	Common treatment facility is not available
	Red bag	All types of plastics i.e. plastic syringes, I.V. lines, I.V. bottles, bags	All wards and departments	Red buckets stored in Red drum lined with Red plastic liner	5% Hypo chlorite solution for 30 minutes	Transported by waste collection Rickshaw directly	Collection site	Auto clave and shredding	Auto clave and shredding	secure landfill	secure land fill
	Red bag	Discarded medicines and Cytotoxic drugs and heavy chemicals	Stores	Red bucket lined with Red plastic liners, stored in Red drums with plastic liners	-	Sent by waste collection covered Rickshaw/ vehicle	Stored within the hospitals	No treatment is required	No treatment required	Secured landfill	Secured landfill
3.	White Waste	Soiled linen of patients	OT, Labour room, ICU, Isolation ward, Acute wards	White drum with 1% Hypo chlorite solution	Vehicle 1% Hypochlorite solution for 30 minutes	Laundry vehicle	Laundry	Washed in laundry	Washed in laundry	Reused after wash	Reused after wash

S. No.	Category	Type of Waste	Location	Segre-gation	Insitu . Treatment	Transpor-tation	Storage	End Treatment		Final Disposal	
								Where Common treatment facility is available)	Common treatment facility is not available	Where Common treatment facility is available	Common treatment facility is not available
4.	Green Waste	Left over food in patients plates, stationary, fruit waste,	All wards and departments	Green bucket lined with green plastic liners, stored in green drums with plastic liners	-	Transported by waste collection covered Rickshaw/ vehicle directly	Collection site	Autoclave with red waste at common treatment facility	Auto clave with red waste	Municipal landfill	Municipal landfill
5	Plastic container for Sharps	Needles, blades and Vials Broken glass, bottles, tubes, Vials, petri dishes	All wards departments All wards departments	Pearl pet with hypo chlorite, mutilation by needle destroyer then put in yellow bag Pearl pet with hypo chlorite solution 1%	1% hypochlorite for 30 minutes	Transported with Rickshaw directly	Hospital storage site	Auto clave and shredding	Auto clave and shredding	sold to vendor for recycling	Sold to vendor for recycling

S. No.	Category	Type of Waste	Location	Segre-gation	Insitu . Treatment	Transpor-tation	Storage	End Treatment		Final Disposal	
								Where Common treatment facility is available)	Common treatment facility is not available	Where Common treatment facility is available	Common treatment facility is not available
6	Discarded Medicines in 30 and 50 bedded hospitals	Toxic drugs and expired drugs	Kept at medical stores after collection from department	Kept in secured box in medical stores, then put in yellow bags	-	-	Stored within the hospitals	No treatment required	No treatment required	Secured land filling	Secured land fill
7	Microbiology deptt., Pathology specimen (Blood /Urine)	Microbiology and other pathological waste	Labs	Red bucket	5% Hypochlorite solution for 30 minutes	-	-	Autoclave of recyclable articles (see serial no.16)	Autoclave of recyclable articles (see serial no.16)	Liquid discarded in drainage	Liquid discarded in drainage
8	Liquid Waste from Autopsy/ wards	Liquid waste from wards, Department and autopsy room	All wards/ Autopsy rooms	-	5% Hypo chlorite for 30 minutes Treatment in ETP	-	-	-	-	Liquid discarded in drainage after treatment and disinfection	Liquid discarded in drainage after treatment and disinfection
9	Nuclear waste	-	-	As per BARC Provision	-	-	-	-	-	-	-
10	Silver Nitrate	Silver nitrate from X-Ray deptt.	X-Ray deptt.	Plastic containers	-	-	X-Ray deptt	-	-	SLF after recovery of silver	SLF after recovery of silver

S. No.	Category	Type of Waste	Location	Segre-gation	Insitu . Treatment	Transpor-tation	Storage	End Treatment		Final Disposal	
								Where Common treatment facility is available)	Common treatment facility is not available	Where Common treatment facility is available	Common treatment facility is not available
1	Mercury	Broken thermometers and sphygmomanometer	All wards/ Departments	Glass bottle with water	-	-	At medical stores	-	-	Encapsulation	Encapsulation
12	Heavy Chemicals Small quantities in 30 and 50 bedded hospitals	Chemicals used in production of biological, used in disinfection or as insecticides	All wards and departments	To be collected in yellow plastic bags kept in yellow buckets	-	Sent by waste collection covered Rickshaw/ vehicle immediately	Collection site	Auto clave / common treatment facility	Auto clave	SLF	SLF
13	Heavy Chemicals large quantities	Chemicals used in production of biologicals, used in disinfection or as insecticides	Hospital Stores	Kept in secured box in stores	-	-	-			SLF	SLF

S. No.	Category	Type of Waste	Location	Segre-gation	Insitu . Treatment	Transpor-tation	Storage	End Treatment		Final Disposal	
								Where Common treatment facility is available)	Common treatment facility is not available	Where Common treatment facility is available	Common treatment facility is not available
14	Heavy Chemicals containers / Aero Containers	Heavy chemicals containers/ aero containers	OT, Surgery Deptt, other Deptt.	Kerb collection point	5% Hypo Chlorite for 30 minutes	-	Collection site	Mutilated in shredder	Mutilated in shredder	Sold to Vendor	Sold to Vendor
15	Blood Bank Waste	Discarded expired infected blood or its products.	Blood bank	Red bucket with 5%hypo chlorite solution	Red bucket with 5%hypo chlorite solution for 30 minutes	-	Blood bank	Autoclaved at common treatment facility	Disinfection And liquid discarded in main drainage	Secured land fill	Disinfection with deep burial
16	Waste stationary from office	Waste stationary from office	Office	In Office in Cartons	-	-	-	-	-	For recycling	For recycling
17	Intact glass tubes, petri dishes, empty glass holders	Intact glass tubes, petri dishes, empty glass bottles	Lab.	In cartons, in wards/ Deptt.	5% Hypo chlorite for 30 minutes	Waste collection by Trolley	-	Autoclaved	Autoclaved	Recycled in hospital	Recycled in hospital

Water Supply and Sanitation System

The authorities (Hospital Superintendent) will ensure that drinking water at those facilities which have open wells and bore wells is potable. The chlorination of water in storage tanks will be ensured by the municipalities and the hospital will check the presence of chlorine from the water supplied in the wards and departments and a report submitted to municipality every month or as and when required. Checking of residual chlorine at the delivery line or the OHT shall be automated.

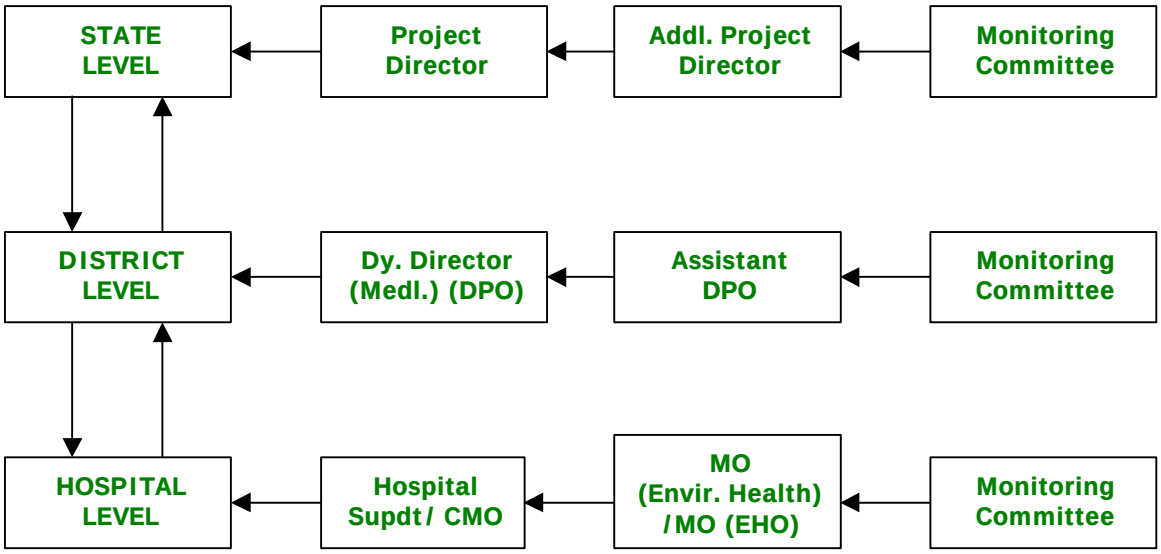
The hospital management will ensure a meticulously planned sanitation system as this is of primary importance to avoid infections. Good occupational health and safety measures include:

- proper training
- personal protective clothing and equipment
- effective occupational health programmes including immunisation (against hepatitis B) and post exposure prophylaxis along with medical surveillance
- conveniently placed hand washing facilities**.**

Construction Waste Disposal

Under the State Health System Development Project a lot of construction work and civil work is being advised. Therefore there will be a good amount of construction waste.The contractor will be made responsible for picking up and disposing of the civil works waste. The contractor will also be responsible for the proper disposal of the liquid waste generated during the construction activity . The contractor will remove this waste and sell the re-saleable waste to the vendor. It will be the duty of the contractor to ensure that the liquid waste generated during the construction work has proper drainage system, so that no stagnation of water takes place.

Organisation Framework



State Project Monitoring Committee		District Project Monitoring Committee		Hospital Monitoring Committee
1. Secretary (Health)	Chairperson	1. District Collector	Chairperson	1. Hospital Superintendent / Chief Medical Officer
2. Project Director, HSDP	Member Secretary	2. Dean of Medical College Hospital (wherever applicable)	Member Secretary	2. Medical Officer (Environmental Health Officer (EHO))
3. Director of Medical Services	Member	3. Deputy Director (Medical Services)	Member	3. Head Nurse to be designated as infection control officer (ICO)
4. Director of Medical Education	Member	4. Deputy Director (Health Services)	Member	4. Asst. Engineer (PWD – Buildings)
5. Director of Public Health	Member	5. District Environment Engineer	Member	
6. Tamil Nadu Pollution Control Board, Representative	Member	6. IMA Representative	Member	
7. Commissioner of Municipal Administration	Member	7. NGO Representative	Member	
8. IMA President	Member	8. Commissioner, Municipality	Member	
9. NGO representative	Member			

As suggested above the environmental health care programme would be implemented at three level. At the state level the Secretary, Health would Chair a committee which would be responsible for the monitoring and supervision of biomedical waste at the state level. The composition of the committee would be as given above. Similarly at the district level Deputy Director of Medical Services who would be also be District Project Officer would be responsible for the implementation of health care waste management programme at the district level. He would be assisted by a committee suggested as above. Each govt. hospital would constitute a committee for proper management of biomedical waste. Depending upon the number of beds available the Hospital Supdt. / CMO / MO would be designated as the environmental health officer. There would be a committee to assist him / her in the proper implementation and supervision. Duties and responsibilities of various functionaries are given in Appendix- A

The prescribed authority for enforcement of the provisions of the Bio-Medical Waste (Management and Handling) (Second Amendments) Rules, 2000, will be the State Pollution Control Board. The health care facilities generating, collecting, receiving, storing, transporting, treating, disposing, and/or handling bio-medical waste in any other manner will seek authorization from the prescribed authority. The application for the grant of authorization will be made through an application in Form I (Given in Gazette of India) to the prescribed authority (Appendix – D).

Maintenance of Records

According to the Bio-Medical Waste (Management and Handling) (Second Amendments) Rules, 2000, every authorised person, i.e., hospital superintendent/principal medical officer will maintain records related to the generation, collection, reception, storage, transportation, treatment, disposal and/or any form of handling of bio-medical waste in accordance with this rules and any guidelines issued. All records will be subject to inspection and verification by the prescribed authority at any time.

Accident Reporting

According to the Bio-Medical Waste (Management and Handling) (Second Amendments) Rules, 2000, when any accident occurs at any institution or facility or any other site where bio-medical waste is handled or during transportation of such waste, the authorized person, i.e., hospital superintendent/ principal medical officer will report the accident in Form III as prescribed in the Gazette of India notification to the prescribed authority forthwith. Action will immediately be taken to treat the emergencies, if any, quarantine of the person who have come in contact with the infectious waste, and if there is any spillage then action will be taken to contain it as required.

The Implementation Strategy:

a) Decentralised decision making and PPP networking

The health care waste management would be a major area for public private partnership ,unless the district level authorities are involved in the plan with a sense of ownership and belonging, the programme would not yield desired results. In order to ensure better implementation a lot of flexibility is to be provided so that the district programme managers could implement the programme suiting the local requirements. The programme is proposed to be implemented with the active participation of Indian Medical Association (IMA) , district level government authorities, local bodies and private health care providers. It is proposed that for each district, the district collector would provide the necessary guidance and support as well as would be responsible for bringing an effective coordination between various players. Each district committee would provide a common platform for both government and private health institutions for proper implementation of biomedical waste management rules.

The committee would purchase one or two vehicles depending upon the number of beds available in both public and private sector institutions, as well as the size of the district. These vehicles are to be utilised for collecting the biomedical waste from the health institutions. The committee would also

provide a common treatment facility i.e. land, equipment and necessary infrastructure for safe disposal of biomedical waste as per the rules. These common facilities will be utilized both by the private and the government health institutions. The cost of vehicles as well as the cost of establishing the common treatment facility would be shared in the ratio of 75% and 25% by the government and IMA / NGO respectively. The district committee would select the appropriate agency i.e IMA/NGO for the project. A comprehensive training would be provided to the selected agency for running the programme professionally. A memorandum of understanding would be signed between the parties.

The operating and maintenance cost of the biomedical waste management facility including lifting, transportation and final disposal would be borne by IMA/NGO. They in turn would be allowed an agreed rate per bed from private institutions. In case of government institutions, a fixed amount of handling charges would be paid to IMA / NGO for which a budget provision has already been made.

The district level committee would meet once a month and sort out any operational issues. This arrangement would ensure active participation of all the players and would help to evolve an effective public private partnership. This model is a self-sustaining model as there is too little dependence on government financing and support. It would ensure the running of waste management facility without any disruption even after the project period is over.

B) Involvement of NGOs

The NGOs will be given training for hospital waste management to enable them to spread awareness about the risks involved in the disposal of hospital waste among the patients, people, rag pickers etc. and also to impart knowledge about the precautionary measures against the risks associated. It is also proposed to utilise the services of NGOs in highlighting community's role in biomedical waste management. The health officers from the municipalities and corporation (108) will be given training about the planning, monitoring and implementation of the hospital waste management by the NGOs.

The NGOs would play a crucial role in providing training to the health care providers about the proper system of biomedical waste. Several aspects of training like classification of biomedical waste, colour coding, treatment of hazardous and non hazardous waste etc. would be included in the training programme by the NGOs. NGOs have also been included as members at the state and district level committees to advice and assist the government in the health care waste management plan. The NGOs would be encouraged to work as watchdogs and whistle blowers in the entire health care waste management activity.

C) Capacity building for Health Care Waste Management

Training and sensitization of various functionaries in the health care systems as well as outside the health care systems is vital for the successful implementation of hospital waste management plan in the State. The training will focus on simple principles of waste management; employee's responsibility; employer's role in waste management programme; and standard operative procedures for waste management. Regular programmes will be conducted for training of all hospital personnel including the senior medical officers.

Implementation Schedule

Activities	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Establishment						
Formation of State level, District level and Hospital level monitoring committees		****				
Stating of HWMP						
Application to Prescribed Authority as per Form 1 for sanction		****				
Identifying Training Institution						
Preparing training contents and modules for State, District level officials, Medical Officers, Nursing Staff and others		****				
Conducting Training						
HWM Training for State Officials		****				
HWM Training for Chief MO/Joint Director Of Health Services & Others		****				
TOT for HWM		****				
HWM Training for Medical Officers		****	****			
HWM Training for Nursing and Para-medical staff		****	****	****	****	
HWM Training for Laboratory Technician and Blood bank Technician		****	****	****	****	
HWM Training for NGOs		****	****	****	****	
HWM Training for Municipal Corporation Health Officers		****				
Training for Wardboys/Class IV workers of House keeping, Laundry and Mortuary, sanitary workers		****	****	****	****	
Procurement and Distribution of HWM Material						
Procurement of HWM Material		****	****	****	****	
Distribution of HWM Material at the facility level		****	****	****	****	
Civil Works for HWM at the Facility Level						
Constructing storage facility/ deep burial auto clave/fencing and other related works (wherever applicable)		****	****	****		
Assessment						
Conducting an assessment on HWM practices by providers in hospitals by an Independent Agency		****		****		****

Training Plan

The Project Management Unit will identify the training institute for conducting various training programmes for strengthening hospital waste management in the state. The training of **trainers (TOT) will be** organised by identified training institute. At least two medical officers from each district will be selected for training of trainers. These medical officers will act as key trainers for the other training at the facility level in the district.

Staff education programmes will include

a) information on, and justification for, all aspects of hospital waste policy;

b) information on the role and responsibilities of each hospital staff members in implementing the policy; and

c) technical instructions, relevant for the target group, on the application of waste management practices.

The state level officials will be given training in the policy framework, planning and legal aspects. The state level officials will also be trained in implementing and monitoring the hospital waste management at the state level. The district level officials will be trained in implementing the hospital waste management at the district level. The medical officers at the facility level will be trained in planning, implementing and monitoring the hospital waste management plan at the facility level.

The training for nursing, para-medical staff, laboratory technicians will be conducted at the district hospitals. The training for nursing, para-medical and laboratory technicians will be conducted by trainers who have been imparted Training of Trainers for hospital waste management at higher level institutions. For the ward boys and the class IV employees the training will be conducted at the hospital site.

Training Plan

The following categories of personnel will be trained with the following training load and training days:

Personnel Category	Load	Training Days	Batches	Location	Subject	Implemen-tation Plan
Training of Trainers	56	1	2	IPH Poonamallee	Human Resource Management, Planning, Legal aspects, Technology assessment, Infection control,	Year 1
Director/Addl. Director/Joint Director (State Headquarters)	6	1	1	IPH Poonamallee	Human Resource Management, Planning, Legal aspects, Technology assessment, Infection control,	Year 1
JDHS / DD(Medl) & DD (Health)	98	1	2	IPH Poonamallee	Human Resource Management, Planning, Legal aspects, Technology assessment, Infection control, Monitoring	Year 1
Chief Medical Officer of all Hospitals	270	1	14	IPH Poonamallee and H&FW Trg Centres, HMDI	Human Resource Management, Planning, Legal aspects, Technology assessment, Infection control, Monitoring, Waste to energy recycling, Disposal	Year 1
Doctors - DME, DMS and DPH	9000	1	7	IPH Poonamallee and H&FW Trg Centres, HMDI	Human Resource Management, Planning, Legal aspects, Technology assessment, Infection control, Monitoring, Waste to energy recycling, Disposal	Year 1 & 2
Staff Nurse/ ANM	9740	1	19	Regional Clinical Trg Centres and District Hospitals	Sharp Management, Hospital infection, Protection of waste handlers, Collection, Transportation, Disposal	Year 1 to 4

Personnel Category	Load	Training Days	Batches	Location	Subject	Implemen-tation Plan
Laboratory Technician and Blood bank Technician	1500	6	19	Regional Clinical Trg. Centres and District Hospitals	Sharp Management, Hospital infection, Protection of waste handlers, Collection, Transportation, Disposal	Year 1 to 4
Ward boys/Class IV workers of House keeping, Laundry and Mortuary, Sanitary workers	532	2	23	District Hospitals	Deep burial, Hospital infection and protection of health workers auto claving	Year 1 to 4
Municipal Corporation Health Officer	110	6	1	IPH Poonamallee and H&FW Trg Centres, HMDI	Planning and Monitoring, Hospital infection and protection of waste handlers	Year 1
NGO representative	64	3	2	IPH Poonamallee and H&FW Trg Centres, HMDI	Rationale of hospital waste management, Hospital infection & Risk involved to waste handlers and community.	Year 1 to 4

Implementation Schedule – for Monitoring

Table 3 below depicts implementation schedule for monitoring and evaluation during the project.

Table 3 : Implementation schedule for Monitoring and Evaluation.

Activities	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Monitoring and Evaluation						
Monitoring of activities by State Level Committee		****	****	****	****	****
Monitoring of activities by District Monitoring Committees		****	****	****	****	****
Monitoring of training activities		****	****	****	****	****
Mid-term evaluation by consultant				****		
Final evaluation by consultant						****

Cost Estimates : Rs.27.97 crores (Details in Appendix - B)

Appendix A (Component IV sub-component 8)

Duties and Responsibilities

The responsibilities of various functionaries are given below:

Project Director

- The Project Director will be the head of the Hospital Waste Management System in the state.
- The Project Director will be responsible for making the policies and laying down guidelines for the Hospital Waste Management System in the state and provide budgetary support.
- The Project Director will be responsible for monitoring the system at the state level and would take corrective actions if required.

Additional Project Director

- Additional Project Director will be assisting the Project Director
- He will be directly responsible for planning, implementation, co-ordination and monitoring of waste management activities under the guidance of the Project Director
- He will be responsible for co-ordination with the other departments
- He will develop the monitoring plan and reporting system

Deputy Director (Medical)

- The Deputy Director (Medical) will be responsible for the Waste Management System in the district.
- The Deputy Director (Medical) will be responsible for making the policies and laying down guidelines for the Hospital Waste Management System in the district and provide funds.
- The Deputy Director (Medical) will be responsible for monitoring the system at the district level and would take corrective actions if required.

Chief Medical Officers /Superintendents

- The CMO/Superintendent will form a waste management team.
- Designate the Medical Officer (Environmental Health) from within the hospital.
- Allocate financial resources and manpower.
- Ensure that monitoring procedures are carried out.
- Ensure adequate training of key staff members

Waste Management Team (in small health care facilities):

- Medical Superintendent
- Medical Officer (Environmental Health)
- Nursing Superintendent/Asst. Nursing Superintendent

Responsibilities of Waste Management Committee /Team

Duties and responsibilities of members of the Waste Management Committee / Team should be clearly defined to avoid any overlapping. The task could be divided as:

Head of the Facility

- Apply for authorization
- Formation of Waste Management Committee
- Responsible for implementation of all Govt. policies
- Responsible for segregation, treatment, collection, transport and storage of waste within the hospital and its final disposal.
- Provide manpower and resources
- Will appoint Medical Officer (Environmental Health) to supervise the functioning
- To liase with the departmental heads for coordination and implementation of activities

Medical Officer (Environmental Health)

- Directly report to the Head of the facility
- Ensure the availability and continuous supply of waste disposal bags and chemical disinfectants.
- Ensure the availability of resources e.g. Needle Syringes destroyers, waste collection containers etc., at appropriate sites
- Ensure implementation at various levels
- To look into storage and transport of waste
- To maintain statistics
- To liase with Infection Control Officer
- To liase with Departmental Heads and Nursing Superintendent
- Surprise checks

Infection Control Officer

- To advice and liase with Medical Officer (Environmental Health) on control of infection.
- To monitor standards of Waste Management
- To identify the training needs of all categories of staff.
- To organise training programmes of all categories of staff.

Nursing Superintendent

- Responsible for continuous monitoring of Waste Management System through out the hospital.
- Shall liase with departmental heads, Medical Officer (Environmental Health) and Infection Control Officer.

Role of Doctors and Paramedical Staff in Waste management

Doctors

- Always wear aprons properly buttoned while examining patients
- Stick to the golden rules of good hand washing
- Do not dispose dressing in patients bins
- Ask for colour coded bags
- Ensure all plastics and gloves are cut and put in bleach
- Ensure all used needles and syringes are destroyed using Needle and syringe cutters.
- Ensure compliance during Ward visits
- Encourage patients and attendants to help follow segregation practices.

Nurses

- **Identify the problem**
- Focus on segregation
  - Sharps
  - Plastics
  - General waste
  - Infected Waste
- Ensure all gloves and plastic are cut and put in bleach
- Ensure the use of needle and syringe cutters
- Avoid injury from sharps
- Take care of spills
- Ensure
  - Worker education
  - Personal protection
- Education of patients
- Reporting of accidents

Sanitary Workers

- To understand the risk and importance of segregation that it is in their own interest
- Use of protective coats e.g. gloves, aprons, masks etc
- Do not walk bare foot while handling waste
- Do wet mopping
- Wash hands properly after handling waste
- Wash hands before eating and drinking
- Do not eat or drink near wastage dump.

APPENDIX – B

Table A15: Training Cost for Hospital Waste Management Training (Sensitization workshop cost)

Personnel Category	Training Areas/Subject	Total Trg. Load	Year 1	Year 2	Year 3	Year 4	Year 5	No of days (each course)	Place of training	Trainees per Batch	No of batches	No of resource person per batch	No of resource person for all batches	Resource Persn fee	TA	DA	Course material	Food
Doctors	Hospital Waste Management	8000	4000	4000				1	At their instit-tutions	900	9	60	540	108000	0	0	400000	800000
Nurses	Hospital Waste Management	8000	4000	4000				1	At their institu-tions	900	9	60	540	108000	0	0	400000	800000
Pharmacists Lab. Technicians & Radio graphers	Hospital Waste Management	4500	2250	2250				1	At their institu-tions	900	5	60	300	60000	0	0	225000	450000
MNA /FNA / Hospital Workers	Hospital Waste Management	9000	4500	4500				1	At their institu-tions	900	10	60	600	120000	0	0	450000	900000
Sanitary Workers	Hospital Waste Management	6000	3000	3000				1	At their institu-tions	900	7	60	420	84000	0	0	300000	600000
														480000	0	0	1775000	3550000

Total	5805000
Institution overhead charges	870750
Contingencies	580500
Consultant fee	
Office expenidture	
Total	7256250
Grand	14251750

Appendix - B

Project Cost by Categories of Expenditure

(Rs. Crores)

Component IV : Building Capacity for oversight and management of Health System

Sub Component 8 Health Care Waste Management System

Base Cost

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Investment Costs							
Civil Works			1.65	0.75			2.40
Hospital Equipment			6.05	2.00			8.05
Equipment (Office & Other)							0.00
Furniture (Office & Hospital)							0.00
Vehicles			1.80	1.80			3.60
Medicines							0.00
Hospital Supplies			1.12	2.08	1.92	1.92	7.04
MIS/IEC Materials							0.00
Consultant Services		0.07		0.07		0.07	0.21
Professional Services							0.00
Workshops		0.03	0.33	0.33	0.33	0.33	1.33
Studies & Evaluation							0.00
IEC Services		0.15	0.15	0.15	0.15	0.15	0.75
Training			0.43	0.57	0.43		1.43
Fellowships							0.00
Contractual Services							0.00
Total Investment Costs	**0.00**	**0.25**	**11.52**	**7.75**	**2.82**	**2.47**	**24.80**
Recurrent Costs							
Salaries of Additional Staff							0.00
Office Operational Exp							0.00
Hiring of Vehicles							0.00
Vehicle Maintenance							0.00
Hiring of Common Waste Facility			0.17	0.51	0.34	0.34	1.36
Building Maintenance							0.00
Building Repairs							0.00
Equipment Maintenance				0.61	0.61	0.61	1.82
Furniture Maintenance							0.00
Total Recurrent Costs	**0.00**	**0.00**	**0.17**	**1.11**	**0.94**	**0.94**	**3.17**
Total BASELINE COSTS	**0.00**	**0.25**	**11.69**	**8.86**	**3.77**	**3.41**	**27.97**
Physical Contingencies							
Price Contingencies							
Total PROJECT COSTS							

WORKING SHEET FOR THE BUDGET

Activities	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Establishment						
Formation of State level, District level and Hospital level monitoring committees		****				
Starting HWMP						
Application to Prescribed Authority as per Form 1 for sanction		****	****	****	****	****
Medical College - 3000 per month						
396000			0.0396	0.0396	0.0396	0.0396
Medical College Hospitals - 5000 per month						
2280000			0.228	0.228	0.228	0.228
500 bedded district hospitals 1000 per month						
156000			0.0156	0.0156	0.0156	0.0156
300 bedded district hospitals 750 per month						
108000			0.0108	0.0108	0.0108	0.0108
200 bedded sub district hospitals 500per month						
108000			0.0108	0.0108	0.0108	0.0108
100 bedded sub district hospitals 2 50per month						
129000			0.0129	0.0129	0.0129	0.0129
30 & 50 bedded sub district hospitals 100 per month						
220800			0.02208	0.02208	0.02208	0.02208
			0.33978	0.33978	0.33978	0.33978
			0.16989			
Identifying Training Institution						
Indicated in Component IV Sub component 5						
Preparing training contents and modules for State, District level officials, Medical Officers, Nursing Staff and others		****				
Indicated in Component IV Sub component 5						

Activities	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Conducting Training						
HWM Training for State Officials		****				
HWM Training for Chief MO/Joint Director Of Health Services		****				
TOT for HWM		****				
HWM Training for Medical Officers		****	****			
HWM Training for Nursing and Para-medical staff		****	****	****	****	
HWM Training for Laboratory Technician and Blood bank Technician		****	****	****	****	
HWM Training for NGOs		****	****	****	****	
HWM Training for Municipal Corporation Health Officers		****				
Training for Wardboys/Class IV workers of House keeping, Laundry and Mortuary, sanitary workers		****	****	****	****	
Indicated in Component IV Sub component 5						
Procurement and Distribution of HWM Material						
Procurement of HWM Material		****	****	****	****	
Distribution of HWM Material at the facility level			****	****	****	
Rs 10000 per hospital (trolleys etc)						
3200000			0.16	0.16		
Recurring cost						
Gloves ,mask aprons and bags - Rs 5000 per month per hospital						
19200000			0.96	1.92	1.92	1.92
Civil Works for HWM at the Facility Level						
Constructing storage facility/ deep burial fencing and other related works (wherever applicable)		****	****	****		
Rs 5lakhs each for construction & Rs 5 lakhs for land filling for 9 districts where medical collges are located except chennai						
9000000			0.9			
Rs 5lakhs each for construction & Rs 2.5 lakhs for land filling for 20 districts where medical collges are not located						
15000000			0.75	0.75		

Activities	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Equipments						
Rs 45 lakhs for each district where medical collges are located except chennai						
40500000			4.05			
Rs 20 lakhs for each district where medical collges are not located						
40000000			2	2		
Equipments Maintanence						
10 % of the base cost				0.605	0.605	0.605
Vehicles Rs 8 lakhs per vehicle for 45 vehicles						
36000000			1.8	1.8		
Maintenance (to be maintained by IMA or NGO)						
Workshops						
1 workshop per year from 2 year onwards for each district including chennai			0.3	0.3	0.3	0.3
1 state level workshop for every year- Rs 2.5 lakhs per workshop		0.025	0.025	0.025	0.025	0.025
IEC						
Rs 50000 per dist incl Chennai per year						
1500000		0.15	0.15	0.15	0.15	0.15
Assessment						
Conducting an assessment on HWM practices by providers in hospitals by an Independent Agency		****		****		****
Rs 700000 per assessment						
700000		0.07		0.07		0.07

Activities	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Monitoring and Evaluation						
Monitoring of activities by QSI Cell under PMU		****	****	****	****	****
Monitoring of activities by District HWM Committees		****	****	****	****	****
Monitoring of training activities		****	****	****	****	****
Monitoring of NGO activities by JDHS		****	****	****	****	****
Monitoring of awareness activities by JDHS		****	****	****	****	****
Mid-term evaluation by consultant				****		
Final evaluation by consultant						****

Appendix C

List of Medical Colleges

Sl. No	Name of the Institution	Total
1	Government General Hospital, Chennai	2029
2	Government Stanley Hospital, Chennai	1281
3	Government Chengalpattu Medical College Hospital, Chengalpattu.	630
4	Government Thanjavur Medical College Hospital, Thanjavur	678
5	Government Rajaji Medical College Hospital, Madurai	2218
6	Tirunelveli Medical College Hospital, Tirunelveli	1091
7	Coimbatore Medical College Hospital, Coimbatore	1020
8	Government Mohan Kumaramangalam Medical College Hospital, Salem	711
9	Annal Gandhi Memorial Government Hospital, Tiruchirappalli	621
10	Thoothukudi Govt. Medical College Hospital, Thoothukudi	612
11	Government Kanyakumari Medical College Hospital, Kanyakumari	402
	TOTAL	

LIST OF MEDICAL COLLEGE ATTACHED HOSPITALS

Sl. No	Name of the Institution	Total
1	Government General Hospital, Chennai	2029
2	Government Pheripheral Hospital, Periyar Nagar	100
3	Government Stanley Hospital, Chennai	1281
4	Government Pheripheral Hospital,Tondiarpet, Chennai	100
5	Government Kilpauk Medical College Hospital, Chennai	515
6	Government Pheripheral Hospital, Anna Nagar, Chennai	100
7	Government Royapettah Hospital, Chennai	712
8	Government Hospital, Saidapet, Chennai	32
9	Government Peripheral Hospital, KK Nagar, Chennai	100
10	Regional Institute of Ophthalmology and Govt. Ophthalmic Hospital, Chennai	478
11	Government Kasthurba Gandhi Hospital for Women and Children, Chennai	695
12	Institute of Obstetrics and Gynaecology and Government Hospital for Women and children, Chennai	752
13	Institute of Child Health and Hospital for Children, Chennai	537
14	Government R.S.R.M. Hospital-in-lying Hospital, Chennai	510
15	Institute of Mental Health, Chennai-10	1800
16	Government Thiruvotteeswar Hospital for Thoracic Medicine, Otteri, Chennai-12	222
17	Government Institute of Rehabilitation Medicine, KK Nagar, Chennai-83	60
18	Government Hospital for Thoracic Medicine, Tambaram, Chennai-47	776
19	Government Chengalpattu Medical College Hospital, Chengapattu.	630
20	Government Raja Mirasdar Hospital, Thanjavur	640
21	Government Thanjavur Medical College Hospital, Thanjavur	678
22	Government Rajaji Hospital, Madurai	2218
23	Government Hospital, balarangapuram	40
24	Government Hospital for Thoracic Medicine, Thoppur	207
25	Government Hospital for Infectious diseases, Thoppur	52
26	Government Cholera Collection Centre, Thoppur	28
27	Tirunelveli Medical College Hospital, Tirunelveli	1091

Sl. No	Name of the Institution	Total
28	Frieda Monnier Government Hospital, Kalakad	30
29	Coimbatore Medical College Hospital, Coimbatore	1020
30	Government Aringar Anna Memorial Cancer Hospital, Karapettai, Kancheepuram	270
31	Government Mohan Kumaramangalam Medical College Hospital, Salem	711
32	Annal Gandhi Memorial Government Hospital, Tiruchirappalli	621
33	Government Rajaji T.B. Hospital, Tiruchirapalli	100
34	Thoothukudi Govt. Medical College Hospital, Thoothukudi	612
35	Government Vellore Medical College Hospital, Vellore	541
36	Government T.B. Hospital, Adukamparai	148
37	Government Kanyakumari Medical College Hospital, Kanyakumari	402
38	Government Hospital for Thoracic Medicine, Asaripallam	400
	TOTAL	**21238**

List of Dist HQ Hospitals

SL no	Name of Health Facility	Location	Bed Strength
1	Pudukottai Dist Headquarters Hospital	Pudukottai	553
2	Dharmapuri Dist Headquarters Hospital	Dharmapuri	428
3	Ramanathapuram Dist Headquarters Hospital	Ramanathapuram	510
4	Kancheepuram Dist Headquarters Hospital	Kancheepuram	409
5	Cuddalore Dist Headquarters Hopsital	Cuddalore	488
6	Nagapattinam Dist Headquarters Hospital	Nagapattinam	445
7	Kumbakonam Dist Headquarters Hospital	Thanjavur	354
8	Nilgris Dist Headquarters Hospital	Udhagamandalam	421
9	Dindigul Dist Headquarters Hospital	Dindigul	377
10	Namakkal Dist Headquarters Hospital	Namakkal	235
11	Coimbatore Dist Headquarters Hospital	Tiruppur	433
12	Erode Dist Headquarters Hospital	Erode	608
13	Thiruvallur Dist Headquarters Hospital	Thiruvallur	200
14	Perambalur Dist Headquarter Hospital	Perambalur	170
15	Tiruvannamalai Dist Headquarters Hospital	Tiruvannamalai	294
16	Theni Dist Headquarters Hospital	Periyakulam	250
17	Sivaganga Dist headquarters Hospital	Sivagangai	226
18	Thoothukudi Dist Headquarters Hospital	Kovilpatti	128
19	Thiruvarur Dist Headquarters Hospital	Thiruvarur	185
20	Tirunelveli Dist Headquarters Hospital	Tenkasi	220
21	Virudhunagar Dist Headquarters Hospital	Virudhunagar	272
22	Madurai Dist Headquarters Hospital	Usilampatti	135
23	Villupuram Dist Headquarters Hospital	Villupuram	238
24	Salem Dist Headquarters Hospital	Mettur	200
25	Karur Dist Headquarters Hospital	Karur	259

LIST OF SUB DISTRICT HOSPITALS

S. No.	Name of Health Facility	Bed Strength
1. Pudukottai District		
1	Aranthangi Govt Hospital	140
2	Illuppur Govt Hospital	31
3	Manalmelgudi Govt Hospital	43
4	Alangudi Govt Hospital	48
5	Thirumayam Govt hospital	34
6	Avudaiyarkoil Govt Hospital	32
7	Gandarvakottai Govt Hospital	32
8	Keeranur Govt Hospital	56
9	Subramaniapuram Govt Hospital	24
10	Valayapatti Govt Hospital	42
11	Annavasal Govt Hospital	30
2. Dharmapuri District		
12	Krishnagiri GOvt Hospital	193
13	Hosur Govt Hospital	110
14	Harur Govt Hospital	41
15	Denkanikottai Govt Hospital	62
16	Palacode Govt Hospital	32
17	Utthangarai Govt Hospital	38
18	Pappireddipatti Govt Hospital	6
19	Pennagaram Govt Hospital	38
20	Mathur Govt Hospital	30
21	Pochampalli Govt Hopital	0
3. Perambalur District		
22	Ariyalur Govt Hopistal	90
23	Jeyamkondam Govt Hospital	98
24	Krishnapuram Govt Hospital	6
25	Veppur Govt Hospital	6
26	Sendurai Govt Hospital	6
27	Udayarpalayam Govt Hospital	32
4. Ramanathapuram District		
28	Paramakudi Govt Hospital	148
29	Mudukulathur Govt Hospital	62
30	Rameswaram Govt Hospital	62
31	Thiruvadanai Govt Hospital	38
32	Kamuthi Govt Hospital	50
33	Kadaladi Govt Hospital	6
34	Keelakarai Govt Hospital	50
35	Mandapam Camp Govt Hospital	20
36	Panaikulam Govt Hospital	12

S. No.	Name of Health Facility	Bed Strength
5. Tiruvannamalai District		
37	Cheyyar Govt Hospital	102
38	Arani Govt Hospital	103
39	Vandavashi Govt Hospital	54
40	Chengam Govt Hospital	56
41	Polur Govt Hospital	78
42	Thanipadi Govt Hospital	18
6. Theni District		
43	Andipatti Govt Hospital	32
44	Bodinayakanur Govt Hospital	50
45	Uthamapalayam Govt Hospital	48
46	Chinnamanur Govt Hospital	38
47	Cumbum Govt Hospital	74
7. Kanyakumari District		
55	Kuzhithurai Govt Hospital	54
56	Boothapandy Govt Hospital	41
57	Kanyakumari Govt Hospital	51
58	Senanvillai Govt Hospital	0
59	Karingal Govt Hospital	0
60	Colachel Govt Hospital	38
61	Kulasekaram Govt Hospital	36
62	Arumanai Govt Hospital	23
8. Sivaganga District		
63	Devakottai Govt Hospital	62
64	Karaikudi Govt Hospital	86
65	Thirupathur Govt Hospital	44
66	Manamadurai Govt Hospital	34
67	Ilaynkudi Govt Hospital	38
68	Kanadukathan Govt Hospital	52
69	Singampunari Govt Hospital	32
70	Kandanur Govt Hospital	18
71	Sivaganga Women and Child Hospital	16
72	Paganeri Women and Child Hospital	10
73	Pallatathur Women and Child Hospital	8
74	Kothamangalam Women and Child Hospital	8

S. No.	Name of Health Facility	Bed Strength
9. Thoothukudi District		
75	Tiruchendur Govt Hospital	70
76	Vilathikulam Govt Hospital	56
77	Srivaikundam Govt Hospital	56
78	Sathankulam Govt Hospital	32
79	Ettayapuram Govt Hospital	36
80	Ottapidaram Govt Hospital	32
81	Kayalpattinam Govt Hospital	73
82	Kalangudiyirrupu Govt Hospital	12
10. Kancheepuram District		
83	Tambaram Govt Hospital	152
84	Madurantagam Govt Hospital	102
85	Sriperumbudur Govt Hospital	48
86	Cheyyur Govt Hospital	42
87	Uhtiramerur Govt Hospital	38
88	Thirukazhukundram Govt Hospital	6
89	Mamallapuram Govt Hospital	6
11. Cuddalore District		
90	Chidambaram Govt Hospital	131
91	Virudhachalam Govt Hospital	114
92	Panruti Govt Hospital	35
93	Tittagudi Govt Hospital	44
94	Kattumannar Koil Govt Hospital	32
95	Parangipettai Govt Hospital	52
96	Kurichipadi Govt Hospital	12
12. Thiruvallur District		
97	Tiruttani Govt Hospital	42
98	Ponneri Govt Hospital	40
99	Uthukottai Govt Hospital	34
100	Gummidipoondi Govt Hospital	32
101	Pallipattu Govt Hospital	32
102	Poonamallee Govt Hospital	14
103	Avadi Govt Hospital	6
104	Madhavaram Govt Hospital	8
105	Poddaturpet Govt Hospital	6
106	Pazhaverkadu Govt Hospital	8

S. No.	Name of Health Facility	Bed Strength
13. Nagapattinam District		
107	Mayiladuthurai Govt Hospital	224
108	Sirkazhi Govt Hospital	74
109	Vaitheeswaran Koil Govt Hospital	24
110	Porayaru Govt Hospital	54
111	Vedaranyam Govt Hospital	52
112	Karuppambalam Govt Hospital	14
113	Thirukkuvalai Govt Hospital	20
114	Kuthalam Govt Hospital	12
115	Kilvelur Govt Hospital	20
116	Nagoor Govt Hospital	24
14. Thanjavur District		
117	Pattukkottai Govt Hospital	178
118	Peravurani Govt Hospital	58
119	Orathanadu Govt Hospital	44
120	Papanasam Govt Hospital	32
121	Thiruvidaimaruthur Govt Hospital	36
122	Thiruvaiyaru Govt Hospital	32
123	Adiramapattinam Govt Hospital	16
124	THirukattupalli Govt Hospital	26
125	Aduthurai Govt Hospital	13
126	Thirupanandal Govt Hospital	20
127	Nachiyarkoil Govt Hospital	16
128	Ayyampet Govt Hospital	6
15. Thiruvarur District		
129	Mannargudi Govt Hospital	138
130	THiruthuraipoondi Govt Hospital	114
131	Nannilam Govt Hospital	46
132	Needamangalam Govt Hospital	32
133	Kodavasal Govt Hospital	32
134	Valangaiman Govt Hospital	32
135	Koothanallur Govt Hospital	12

S. No.	Name of Health Facility	Bed Strength
16. Tirunelveli District		
136	Sankarankoil Govt Hospital	150
137	Ambasamudram Govt Hospital	64
138	Nanguneri Govt Hospital	52
139	Shencottai Govt Hospital	46
140	Radhapuram Govt Hospital	32
141	Sivagiri Govt Hospital	32
142	Kadayanallur Govt Hospital	78
143	Melapalayam Govt Hospital	30
144	Cheranmahadevi Govt Hospital	26
145	Ayikudi Govt Hospital	12
146	Puliyankudi Govt Hospital	36
147	Valliyoor Govt Hospital	0
17. Virudhunagar District		
148	Aruppukottai Govt Hospital	180
149	Rajapalayam Govt Hospital	164
150	Srivilliputhur Govt Hospital	114
151	Sathur Govt Hospital	84
152	Sivakasi Govt Hospital	62
153	Thiruchuli Govt Hospital	32
154	Kariapatti Govt Hospital	6
155	Watrap Govt Hospital	92
18. Madurai District		
156	Thirumangalam Govt Hospital	145
157	Melur Govt Hospital	98
158	T.Vadipatti Govt Hospital	32
159	Sholavandan Govt Hospital	20
160	Peraiyur Govt Hospital	6
19. Villupuram District		
161	Ginjee Govt Hospital	70
162	Kallakurichi Govt Hospital	108
163	Sankarapuram Govt Hospital	32
164	Tindivanam Govt Hospital	136
165	Thirukoilur Govt Hospital	62
166	Ulundurpet Govt Hospital	92
167	Vanur Govt Hospital	32
168	Marakkanam Govt Hospital	6
169	Valavanur Govt Hospital	16

S. No.	Name of Health Facility	Bed Strength
20. Salem District		
170	Attur Govt Hospital	118
171	Omalur Govt Hospital	42
172	Sankari Govt Hospital	58
173	Yercaud Govt Hospital	25
174	Edapadi Govt Hospital	50
175	Gangavalli Govt Hospital	6
176	Jalakadapuram Govt Hospital	20
177	Vembadithalam Govt Hospital	12
21. Vellore District		
178	Walajapet Govt Hospital	84
179	Arakonnam Govt Hospital	162
180	Gudiyatham Govt Hospital	130
181	Vaniyambadi Govt Hospital	112
182	Thirupathur Govt Hospital	198
183	Kalavai Govt Hospital	22
184	Sholingur Govt Hospital	72
185	Peranampet Govt Hospital	30
186	Ambur Govt Hospital	90
22. Trichy District		
187	Lalgudi Govt Hospital	88
188	Manapparai Govt Hospital	66
189	Musiri Govt Hospital	56
190	Thuraiyur Govt Hospital	50
191	Mannachnallur Govt Hospital	6
192	Thottiam Govt Hospital	6
193	Omandur Govt Hospital	30
194	Thuvarankurichi Govt Hospital	6
23. The Nilgiris		
195	Coonoor Govt Hospital	130
196	Kothagiri Govt Hospital	86
197	Gudalur Govt Hospital	118
198	Pandalur Govt Hospital	40
199	Manjoor Govt Hospital	0

S. No.	Name of Health Facility	Bed Strength
24. Dindigul District		
200	Palani Govt Hospital	163
201	Kodaikanal Govt Hospital	52
202	Nilakottai Govt Hospital	44
203	Natham Govt Hospital	54
204	Vedasendur Govt Hospital	56
205	Oddanchathram Govt Hospital	10
206	Ayakudi Govt Hospital	20
207	Batlagundu Govt Hospital	30
208	Pannaikadu Govt Hospital	42
209	Thandikudi Govt Hospital	20
210	Pattiveeranpatti Govt Hospital	16
25. Namakkal District		
211	Thiruchencode Govt Hospital	124
212	Rasipuram Govt Hospital	94
213	Velur Govt Hospital	32
214	Sendamangalam Govt Hospital	64
215	Konarapalayam Govt Hospital	58
216	Pallipalayam Govt Hospital	32
217	Vennandur Govt Hospital	20
26. Karur District		
218	Kulithalai Govt Hospital	66
219	Krishnarayapuram Govt Hospital	6
220	Aravakurichi Govt Hospital	6
221	Pallapatti Govt Hospital	32
222	Velayuthampalayam Govt Hospital	44
27. Coimbatore District		
223	Udumalpet Govt Hospital	166
224	Pollachi Govt Hospital	144
225	Mettupalayam Govt Hospital	116
226	Palladam Govt Hospital	91
227	Valparai Govt Hospital	38
228	Avinashi Govt Hospital	42
229	Kottur Govt Hospital	50
230	Vettaikaranpudur Govt Hospital	14
231	Jallipatti Govt Hospital	12
232	Thondamuthur Govt Hospital	35
233	Sulur Govt Hospital	6
234	Annur Govt Hospital	30
235	Periyanaickenpalayam Govt Hospital	10

S. No.	Name of Health Facility	Bed Strength
28. Erode District		
236	Gobichettipalayam Govt Hospital	117
237	Dharapuram Govt Hospital	98
238	Bhavani Govt Hospital	78
239	Satyamangalam Govt Hospital	76
240	Kangeyam Govt Hospital	54
241	Perundurai Govt Hospital	6
242	Kodumudi Govt Hospital	26
243	Anthiyur Govt Hospital	46
244	Kavanthapadi Govt Hospital	30