Report

National Workshop

On

"Issues and Challenges in Managing Biomedical Waste in India"

22nd November, 2011

Hall, Casuarina, India Habitat Center, Lodi Road,

New Delhi

Organised by

TOXICS LINK

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WHO, India

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Summary Report of the National Workshop on "Issues and Challenges in managing Bio Medical waste in India."

The aim of this national level workshop was to address the issues and challenges in managing bio medical waste in India at a national level forum. The views and perceptions of various stake holders had to be taken into account before drafting recommendations for the bio medical management and handling rules proposed by the government. The workshop was attended by members from the Central Pollution Control Board (CPCB), Delhi Pollution Control Committee (DPCC),Punjab Pollution Control Board, Gujarat Pollution Control Board, Ministry Of Health and Family Welfare, Trained Nurses Association Of India(TNAI), Doctors and hospital administrators from prestigious hospitals in Delhi like Appollo, Fortis,Sri Ganga Rams', Rajiv Gandhi Cancer Institute etc and various others from across the country , NGO's from various states, students and other concerned individuals. The total number of participants for the workshop was around 75. The details of the participants and discussions can be obtained from the detailed report of Summary of the National Workshop on 'Issues and Challenges in managing this workshop which is attached with this summary report. The media reports of the event is attached with this document.

The issues and challenges faced by various stake holders were discussed in great detail and solutions for the same were tried to be worked out. It was agreed that all the details and recommendations arrived at from the discussions would be sent to the Ministry of Health and Family Welfare and the Central Pollution Control Board who can incorporate these into the proposed amendment in the law.

The major recommendations included:

- The Rules allow incineration at facilies with over 500 beds, this might again lead to the proliferation of incinerators in the country. Over the years the country has realized that this machine needs the rule should specify in which scenario an incinerator can be established and mention the exceptions so that the ambiguity in this regard is taken care of.

- The Rules read "Plastics to be sold to a n authorized plastic recycler", CPCB officials were of the opinion that plastic recycling does not require authorizations for operations. But the CPCB website has a list of "Approved Recyclers" . Thus this confusion needs to be cleared, because the hospitals would need a list of such vendors soon after the new Rules come into force.

- Category No. 6, initially had an option of Incineration/Autoclaving. This made it easier for hospitals to dispose of bulky beddings after proper disinfection. Incinerating these bulk materials would cause a lot of environmental damage. The ambiguity over the disposal and treatment of linen and bedding should be addressed.

- Deep burial as a method of disposal was given in the list of options in the previous rule but it has been taken off and has only merited with a footnote in the present rule. If the CPCB has no issues with deep burial as a method of disposal of waste, then it should be a part of the options along with other methods. This would avoid confusion regarding this point and it is crucial since deep burial as a method is extensively used in hilly as well as rural areas where there is limited access to other facilities.

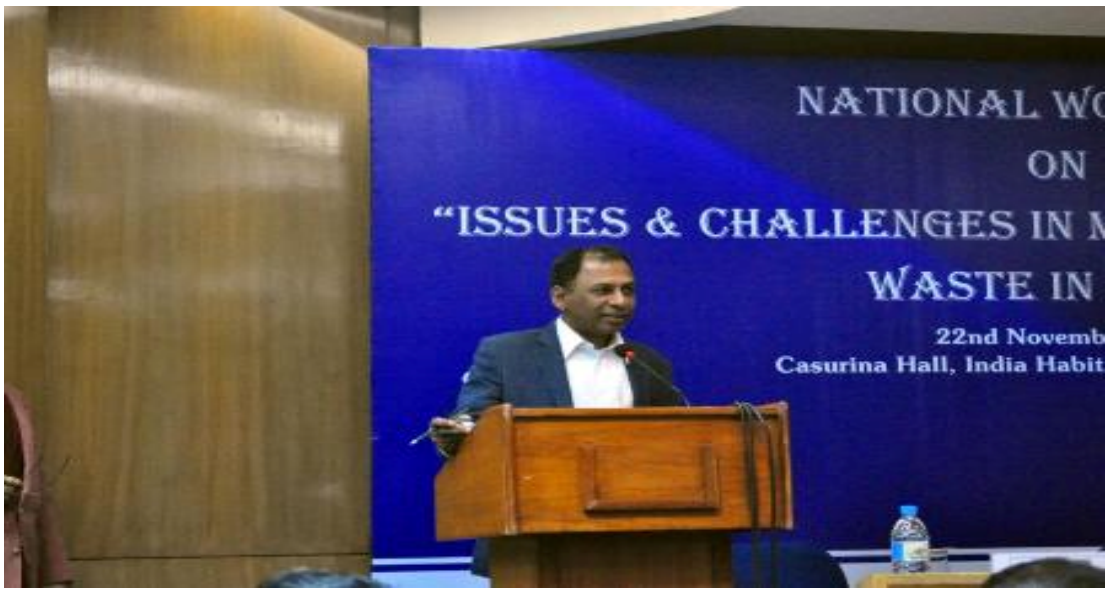
- The need for a document which cut across various acts and laws regarding the hospital. The hospitals, at present, have to follow and adhere to multitudes of laws and acts which is creating a lot of confusions and delays. The introduction of a single set document meant for hospitals will make the implementation and monitoring easier and less complicated.

- Single point option for treatment of Bio Medical waste has created more difficulties rather than making it easier for the hospitals, Taking into consideration the inadequacies and different kinds of treatment facilities available. It will be unfair and would defy logic if a a single option system is emphasized upon.

- Chemical disinfection as a method of waste treatment is not proved to be foolproof and hence having it as the only method of treatment is undesirable. Autoclaving should be made mandatory and chemical disinfection may or may not be used as per the facilities available.

Inaugural Session:

The inaugural session started with the welcome address given by **Mr. Ravi Agarwal** (Director, Toxics Link). In his address, he welcomed everyone to the workshop and stated the importance of conducting such a workshop. He asserted the need to deliberate upon the issues and challenges in the management of bio medical waste in India and appealed for productive and practical recommendations for various related issues by means of discussion.



Mr. Keshav Chandra (Chairperson, Delhi Pollution Control Committee; Secretary Department of Health) gave the inaugural address of the workshop. He said that Bio Medical Waste management rules were late in inception in India as was the case with all environmental related laws and legislations. The Bio Medical waste management rule was rather ambiguous and confusing in the initial stages. He identified the issues in three areas-

1. **Segregation of Waste:** There is always an ambiguity about the segregation of waste and the introduction of four different colored bags for different wastes is not helping because there is no system of using different colored waste bins in hospitals.

2. **Emission Norms:** There is no mechanism to find out the temperature at which incineration takes place. Waste is being fed into the incinerator as soon as it starts in order to save on the expenses. This leads to the emission of poisonous gases resulting in contamination of air. There is no effective mechanism to monitor this. There should be some mechanism through which the lid of the incinerator be opened only after reaching the optimum temperature for incineration thereby reducing the effect of poisonous emissions.

3. **Viability of facilities:** Although the ratio of waste produced to the facilities for disposal is positive in Delhi, the geographic locations of these facilities are diminishing its effectiveness.

   Because of the heavy traffic in Delhi, a lot of time is consumed in transporting this hazardous waste to waste treatment plants and this is not a good practice. In order to tackle this issue, we need to have four different waste treatment facilities in four different zones of Delhi so that the accessibility improves. He also lamented the fact that 'not in my backyard' syndrome is not helping the issue and it needs to be dealt with considering the lack of space in Delhi.

He also stated that there are a few improvements in the proposed Bio Medical rules but it is lacking in specificity in a few areas especially when it comes to the part of segregation of waste.

Mr. Satish Sinha (Associate Director, Toxics Link) gave the vote of thanks. He said that working in this area has been a tremendous learning experience and expressed satisfaction over the fact that the rule is looking for improvements. He said that it is an alarming trend that 50% of the bio medical waste is being handled along with general municipal waste. This trend is on a high in the smaller towns where setting up a common treatment facility is not economically viable. He also stressed the growing need to incorporate technology to aid and monitor the betterment of existing systems of waste management.

He identified a few major areas that need to be stressed in the proposed set of bio medical waste management rules-

- Better transparency in the system.
- Need to improve compliance rates.

Mr.Sinha also expressed his appreciation and gratitude towards Mr.Keshav Chandra for taking time out of his busy schedule and attending this workshop on a rather short notice.

Session I:

The agenda of the session was to identify, discuss and recommend solutions to plug gaps in implementing Bio Medical Waste Management in India. The session was chaired by Mr. Birinderjeet Singh, Chief Engineer, Punjab Pollution Control Board. A set of 3 presentations pertaining to the topic were made three experts from the field which was followed by an open discussion on the issue.

The first presentation was on the status of authorization and challenges faced to improve compliance by **Mr. Vinod Babu**, heading the Hazardous Waste Management Division, Central Pollution Control Board.

He started off by saying that it is in the mandate of CPCB to monitor and oversee the status of compliance of BMW management in the country. He pointed out that incineration is becoming more of a problem by itself rather than being a solution.The mushrooming of incinerators is the root cause of this situation and feasible solution to this would be to have more Common treatment Facilities. Reduction in the expenses incurred and controls in the emission of poisonous and harmful gases are the chief incentives for going for CTF's.

In his presentation, he brought out various issues faced by the CPCB while dealing with the situation-

- Lack of manpower to efficiently plug gaps at the management level
- Lack of awareness about the rules and resulting flaws in its implementation.
- Lack of good inventories to assess compliance levels of various stake holders.

He called for better planning and implementation of bio medical waste management rules in the country. He further made a presentation on the present status of bio medical waste management in India aided with figures and data provided by various State Pollution Control Board's in the Country. After the presentation of the data, he said that the lack of good inventories to assess compliance levels has led to incorrect figures and that it would be futile to arrive at conclusions from these data. The discrepancies and lack of reliable data is leading to unreliable and unrealistic data. He said that it is essential to work with SPCB's for better inventories.

Some of the common deficiencies observed at various points were-

- Facilities not being upgraded asd per the CPCB guidelines.
- Lack of ability to adhere to compliance levels.
- Poor record keeping.
- Improper segregation of waste at HCF's
- Lack of training to operators and workers.
- Defaulting/non-paying HCF's

He also did a comparison of the new waste treatment options available which included plasma pyrolysis, Shredding and chemical disinfection etc.

In the discussion which followed Mr. Birinderjit wondered about the rate of development that we have achieved in the last 14 years and the number of show cause notices issued to hospitals. The need to register all the medical practitioners was stressed by him and how it would improve the standards of operation of facilities.

Recommendations-

- Inventorisation of all bio medical waste.
- Better awareness among stake holders.
- Development of CTF's and disposal facilities for the states of North-Eastern states of India.

The next presentation was made by **Dr. Ragini Kumari,** Sr Programme Officer, Toxics Link on the "Journey towards improving compliance: Experience of NGO "(Photo-documentation) .In her presentation Dr.Ragini stressed on the issues in rural and hilly areas and the lack of feasibility of business models of CTF's to operate there. She called for better co-ordination between the department of Health and Environment. She presented before the audience difficulties faced by various stakeholders while dealing with the issue of Bio Medical Waste Management.

Difficulties from the point of view of-

1. Authorities-
    - Unreliable data from hospitals.
    - Difficulties in penalizing hospitals
    - Lack of awareness

2. Hospitals-
    - Inability to attain timely authorizations.
    - Lack of CTF's.
    - Overcharging by CTF's
    - The burden of responsibility not being shifted even after payments to the CTF's.
    - Introduction of new products with disposal issues
    - Lack of redressal mechanisms.

3. CTF's

    - Non-availability of land to set up plants.
    - The need for subsidies
    - Need for more fiscals incentives from the government.

The third and last presentation of session I was made by **Mr.N.M.Tabhani** from the Gujarat Pollution Control Board. It was on the "strategies planned for bio medical waste management in the state."Mr.Tabhani stressed on the following as the main confounds faced in the implementation of plans-

- Improper segregation of waste at the source and lack of proper in house treatment.
- Lack of awareness among the hospital staff.
- Mixing of bio medical waste with municipal solid waste.
- Non availability of treatment plans in remote areas.
- Lack of maintenance of records

Mr.Tabhani further revealed the steps taken by GPCB to tackle erroneous and non committal hospitals

and treatment plants which included-

- Letters for improvement
- Issuance of show cause notices

Mr.Tabhani further stated that GPCB had made extensive use of technology in the management of waste in the State and it is paying off really well. Most of the administrative work can be carried out electronically. There are facilities for electronic registration for approval of facilities. One can also process the status of these applications online. The formation of a Task Force Committee for enforcing the initiatives has also helped in the efficient management of the system. The placement of 2 regular employees of GPCB in the state health department has also been helping in better co-ordination of activities and effective implementation.

Recommendations:

- The benefits of using hydroclaves as a method of treating waste was discussed and it was agreed that it will be included in the list of approved methods of waste management of CPCB.
- Better inventories for assessment of facilities and integration of technology in the management of the systems.
- To address the lack of co-ordination between State Health Departments and State Pollution Control Departments.
- To address the lack of penal provisions of the SPCB's thereby increasing their credibility and efficacy.
- To address and recommend appropriate amendments in the EPA rules.

Session II: Open Discussion on the Draft BMW Rules 2011:

The moderators for this session were Mr.Vinod Babu , CPCB and Mr . Ravi Agarwal, Toxics Link.

Discussion: The discrepancies in the implementation of rules related to bio medical waste management was in various states was taken up and it was agreed that there should be a unified way of looking at the treatment of bio medical waste across the country so that it is more effective and more easier in terms of monitoring and evaluation. The ambiguity between various rules and the intersection of various rules related to environment were found to be confusing and negatively contributing to the affectivity of those rules. There should be clarity within and between acts.

There should be clauses in the proposed set of rules to ensure the technical capacity of the personnel running the CTF's Both the operator and the staff should be adequately qualified to run the facility and there should be mechanisms to ensure this.

There should be some standard course which should be made compulsory for the operators of such plants.

The issue of business interests versus environmental concerns was up for debate. It is not fair to ask the operators to shut down the facilities out of the blue citing environmental concerns. It is unethical to ask the businessmen who have invested in these plants because of lack of foresight and planning from the part of the authorities. But the bigger question of sacrificing environmental concerns for business interests gained more momentum.

The lack of clarity with regard to setting up an incineration facility was taken up. It was agreed that only one Common Treatment Plant should be allowed in the sphere of 150 km. The isuue of giving plastic recyclers (in the rules) was discussed.

The practice of listing plastic recyclers in the CPCB website when they are not authorized by the CPCB to recycle plastics was questioned in the forum and it was decided that this clause be made clearer. The CPCB representative said that plastic recycling is a small sector and is not authorized by the board. But Mr.Sinha pointed out that there were many recyclers listed on the CPCB website.

The question of accountability to oversee the smooth functioning of the bio medical waste management rules was raised. It was argued that the district collector should be the one responsible for it because his mandate spreads over various sections of governance and thus will be better equipped to deal with the multitude of problems arising in the implementation of the rules. Mr.Ravi Aggarwal and Ms.Shyamala Krishna were of the opinion that the District Collector with administrative powers would be a better choice if implementation was to be improved. But a few argued that the District health Officer should be the one in charge since he will be better acquainted with the issue and will have more time to spare as compared to a district collector.

Another point of contention was that in many categories, multiple options have been cut short to a single option. Deep burial and autoclaving, two easily available and practiced options have been removed without any substantial logic or justification.

It was strongly put forward that the drafting of rules and regulations should be on the basis of strong empirical evidence and not on the basis of guess work. The choice of one technology over the other should be on the basis of experiences and not on assumptions.

Recommendations:

- Introduction of a training course for the operators of The CTF's.
- To work towards reducing the ambiguity between various acts and rules.
- To better emphasize the duties of the occupier and operator of CTF's.
- To make the district collector the appealing authority for the implementation of the rules and it's monitoring.
- Chemical Disinfection is not foolproof and therefore it shall not be allowed at CTF's and labs.

Session III: Plugging Gaps in managing medical waste :

This session was chaired by Mr.Satish Sinha,Toxics Link, and included 4 presentations.The first presentation was made by **Mr. Tapas Saha, *SembRamky,*** on the "bottlenecks in establishing a Centralized treatment facility."

He touched upon the history and achievements of SembRamky in the field of bio medical waste management and the facilities available at various branches across the country. He also traced the evolution of BMW legislation in India.

The thrust area in his presentation was about the difficulties faced by operators in establishing new treatment facilities in the country, which included-

- The lack of availability of land for establishing a plant. He appealed for land being made available Free of Cost for setting up new plants in areas that are not economically lucrative.
- He appealed for subsidies in the service charges to further support the functioning of these plants.
- Faster processing and finalization of tenders.
- The need to arrange training workshops at district, state and national level on bio medical waste management practices.
- Need for common collection points for collecting waste in hospitals.
- Lack of segregation training.

The second presentation of this session was made by **Dr Anita Arora (**Principal Consultant and Head, Lab Sciences, Infection Control and Quality, Fortis Escorts Heart Institute). It was on the experiences of a tertiary healthcare in managing waste. Fortis has a rigorous infection control system in place. They have a 10-15 pages policy document on waste management for their employees which is circulated among all and posters explaining the same have been put up at various places in the hospital. They make clear distinction between general waste, bio medical waste and kitchen waste and impart training to both medical and non medical staff at regular intervals to reinforce the case. They use needle destroyers instead of needle cutters since it reduces the chances of infections from needle pricks while handling it. They put bio hazard symbol on bags containing bio medical waste and tie up the bag when it is ¾ Th full. There is a common garbage room to from where the garbage dealer collects it. The person handling this waste will be vaccinated against possible infections and adequate hygiene measures are in place to take care of possible infections.

They also have a Effluent Treatment Plant which deals with all the liquid waste of the hospital and it confirms with all the necessary requirements made mandatory by the pollution control board.

The third presentation of this session was made by **Mr.Asim Chatterjee**, ***ECO Safe,*** on managing liquid waste in health care. He stressed upon the liquid waste management in health care and ways and means to deal with the hospital waste effectively.He started off by mentioning the importance of water in human life and the factors that pollute water. He said that human activities have a major role to play in polluting water.

Educating people about the hazards of water pollution and the pre treatment of polluted water are the keys to deal with this issue. When one is dealing with hospital liquid waste, it is important to educate hospital staff about the importance of water treatment and the harm in letting affected water freely into the eco system. He said that provisions should be made available to set up an ETP plant in the hospital and the placement of the plant should ideally be at the end of the final discharge point. Care should be taken to make sure that no solid waste reaches the equalization tank of the plant. He went on to explain in detail the set up of the ETP plant they promote and the results and performance of the already established plants.

The fourth and final presentation of this session was made by **Dr. Priyank Tyagi,** Dy. Manager - Strategy & Operations,MD's Office, Indraprastha, Apollo Hospital. He presented up on the "Impact of Bio-medical waste management on tertiary care private hospitals: An economic perspective."

Dr.Tyagi presented a detailed and compact picture of the economic aspects of waste management at tertiary care hospitals. The bio medical waste management revenue consists of 8% of the total medical waste management revenue. He said that this is expected to grow between 20-25 % in the coming 5-10 years. He explained and compared the waste management pattern of private and public hospitals and suggested that a lot of improvements can be made in the way public hospitals manage their waste .

A cost comparison between public and private hospitals was made. He stressed the urgent need to standardalise infrastructural requirement for effective waste management. It is important that small HCF's be encouraged to register with CTF's. He also talked about the crucial role of information Technology has to play in managing hospital waste management. He called for greater transparency by by means of CTF audits and reports being available online.

Session IV: Open Discussion on emerging issues:

The panelists consisted of Mr.O.P.Gupta,Director, Shanti Mukund Hospital; Dr. S. Veera, Sir Ganga Ram Hospital; Dr. Amitabh Sandilium,MS, Rajiv Gandhi Cancer Hospital and Ms.Sulekha Sama, School of Nursing, DDU hospital.

The dialogue was started byMr.O.P.Guota who explained the set up of his hospital. He said that they are facing problems in installing An Effluent Treatment Plant (ETP) owing to lack of space available. He opined that hospitals which have been in existence before the BMW

rules came in to being should be treated differently as opposed to new hospitals which had the option of setting up things according to the norms. He said that the application of 'fear psychosis' is not helping the issue and instead authorities should care to visit these hospitals and suggest ways and means to improve the situation. He also called for a more flexible approach in implementing the rules and regulations.

Ms.Sulekha Sama said that the BMW rules and regulations are not being taken seriously enough in many hospitals and the situation needs urgent consideration. She gave instances of neglect from the part of nurses and other medical and non medical staff in this regard. She said that adopting a flexible approach will not help the issue and it needs to be reinforced.

Dr.Amitabh Sandilium started off his dialogue by giving a brief and compact background of cytotoxic drugs and how dangerous they are, if not handled properly. He opined that cytotoxic drugs should be treated separately right from the time it leaves the pharmacy to the point of disposal. There should be double layered incinerators for the treatment of these drugs. He called for all the cancer facilities to get together, pool in resources and work towards the efficient management of these drugs over and above the call of duty. He warned that if not treated carefully these drugs can cause cancer and cited instances of abortions to help realize the seriousness of the issue. He gave a detailed account of how these drugs are dealt with in his facility.

Dr.S.Vira said that they are very concerned about the current practices that affect the environment and said that they are environmentally sensitive with the way they handle their bio medical waste. He asked for opinions and ways of disposing of soiled linens in their respective hospitals.

Discussion:

In the discussion Dr.Amitabh talked about the multiple regulations and guidelines that govern the handling of cytotxic drugs and the need for a unified and specific set of guidelines catering only to cytotoxic drugs. He said that there are gaps in the understanding and implementation of rules and regulations with regard to cytotoxic drugs and stressed the need for a national policy on the same. The idea of forming a core committee of experts to efficiently deal with the tenants of cytotoxic drugs was discussed.

Recommendations for the CPCB and Ministry of Health and Family welfare:

- The Rules allow incineration at facilies with over 500 beds, this might again lead to the proliferation of incinerators in the country. Over the years the country has realized that this machine needs the rule should specify in which scenario an incinerator can be established and mention the exceptions so that the ambiguity in this regard is taken care of.
- The Rules read “Plastics to be sold to a n authorized plastic recycler”, CPCB officials were of the opinion that plastic recycling does not require authorizations for operations. But the CPCB website has a list of “Approved Recyclers” . Thus this confusion needs to be cleared, because the hospitals would need a list of such vendors soon after the new Rules come into force.
- Category No. 6, initially had an option of Incineration/Autoclaving. This made it easier for hospitals to dispose of bulky beddings after proper disinfection. Incinerating these bulk materials would cause a lot of environmental damage. The ambiguity over the disposal and treatment of linen and bedding should be addressed.
- Deep burial as a method of disposal was given in the list of options in the previous rule but it has been taken off and has only merited with a footnote in the present rule. If the

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- The need for a document which cut across various acts and laws regarding the hospital. The hospitals, at present, have to follow and adhere to multitudes of laws and acts which is creating a lot of confusions and delays. The introduction of a single set document meant for hospitals will make the implementation and monitoring easier and less complicated.
- Single point option for treatment of Bio Medical waste has created more difficulties rather than making it easier for the hospitals, Taking into consideration the inadequacies and different kinds of treatment facilities available. It will be unfair and would defy logic if a a single option system is emphasized upon.
- Chemical disinfection as a method of waste treatment is not proved to be foolproof and hence having it as the only method of treatment is undesirable. Autoclaving should be made mandatory and chemical disinfection may or may not be used as per the facilities available.

General Recommendations:

- Better transparency in the system and the need for increased infusion of technology in to the working of the system.
- Need to monitor and improve compliance rates.
- To address the lack of manpower to efficiently plug gaps at the management level.
- To address the lack of awareness among stakeholders this accounts to flaws in implementation of the laws.
- Need for good inventories to access compliance levels of various stake holders.
- The need for up gradation of facilities of waste treatment as per CPCB guidelines.
- To address improper segregation of waste at source.

- To work towards better record keeping.
- Improving segregation of waste at HCF's
- Training courses for operators and workers of treatment plants.
- Development of CTF's and disposal facilities for the states of North-eastern India.
- The benefits of using hydroclaves as a method of treating waste was discussed and it was agreed that it will be included in the list of approved methods of waste management of CPCB.
- Better inventories for assessment of facilities and integration of technology in the management of the systems.
- To address the lack of co-ordination between state health department and state pollution control department.
- To address the lack of penal provisions of the SPCB's thereby increasing their credibility and efficacy.
- To address and recommend appropriate amendments in the EPA rules.
- Introduction of a training course for the operators of the CTF's
- To work towards reducing the ambiguity between acts and rules
- To better emphasize the duties of the occupier and operator af CTF's.
- To make the district collector the appealing authority for the implementation of the rules and it's monitoring.
- Formation of a core committee comprising of experts to deliberate upon and bring out a guideline on the safe usage and disposal of cytotoxic drgs.
- A centralized and uniform system for blood bag disposal.