

**Infection Control and Waste Management Plan  
for  
National AIDS Control Support Project (NACSP)  
2012-17**

**National AIDS Control Organization,  
Ministry of Health & Family Welfare  
Government of India  
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## ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
APD	Additional Project Director
ART	Anti-Retroviral Treatment
BMW	Bio Medical Waste
CBWTF	Common Biomedical Waste Treatment Facility
CD4	Cluster of Differentiation 4
DAPCU	District AIDS Prevention and Control Unit
DTC	District Tuberculosis Centre
DHS	Director of Health Services
DHO	District Health Officer
DIC	Drop in Centre
EA	Environmental Assessment
FRU	First Referral Unit
HCE	Health Care Establishment
HCW	Health-Care Worker
HFV	Health and Family Welfare
HRG	High Risk Group
HIV	Human Immune Deficiency Virus
IC-WM	Infection control and Waste Management
IC	Infection Control
ICTC	Integrated Counseling and Testing Centre
IDU	Intravenous Drug User
JD	Joint Director
MIS	Management Information System
OI	Opportunistic Infections
NACO	National AIDS Control Organization
NACP	National AIDS Control Program
NGO	Non-Governmental Organization
NRL	National Reference Laboratory
NRHM	National Rural Health Mission
PCB	Pollution Control Board
PCC	Pollution Control Committee
PEP	Post Exposure Prophylaxis
PIP	Project Implementation Plan
PLHA	People Living with HIV /AIDS
PPE	Personal Protective Equipment
PPP	Public Private Partnership
PPTCT	Prevention of Parent to Child Transmission
RCH	Reproductive and Child Health Care
RNTCP	Revised National Tuberculosis Control Program
SACS	State AIDS Control Society
SPCB	State Pollution Control Board
SRL	State Reference Laboratory (HIV)
STD	Sexually Transmitted Diseases (synonymous with STI)
STI	Sexually Transmitted Infections
TI	Targeted Interventions
TTI	Transfusion Transmitted Infections
TOR	Terms of Reference
UP	Universal Precautions
UT	Union Territory
ICTC	Integrated Counseling and Testing Centre

WM

Waste Management

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## **Executive Summary**

After the first case of HIV was detected in India in 1986, Government of India initiated AIDS control activities as early as 1987 and evolved the National AIDS Control Programme (NACP). NACP Phase I was launched in 1992, followed by Phase II in 1999 and Phase III in 2006. Due to extensive coverage and intense efforts, prevalence of HIV infection among adults has decreased from 0.41% in 2000 to 0.31% in 2009, which is remarkable. Presently, NACP IV is being launched with the vision that, by 2020, the number of HIV infected people in India, will gradually come to low levels and HIV could become a chronic manageable illness in India. According to the draft strategy paper for NACP IV, the program plans to bring about significant reduction in new HIV infections.

The proposed World Bank support to NACO through National AIDS Control Support Project (NACSP) for the fourth phase (2012-17) has been classified as Category “B” as per the World Bank’s Operational Policy (OP 4.01) on Environmental Assessment, as there is likelihood of spread of infections if infection control and bio medical waste are not managed effectively.

Efforts towards Infection Control and Waste Management have already been introduced under NACP Phase III, which has a component of Infection Control and Waste Management (IC-WM). A wide range of activities have been undertaken during NACP III in this direction. To name a few: development of guidelines on ICWM, training manuals, training of various categories of medical and other technical professionals, special focus and guidelines on needles disposal and management for IDU interventions, ensuring adequate supplies for Personal Protective Equipment and inclusion of IC activities through TI monitoring reports.

NACP phase IV is scheduled to start from April 2012 and the preparatory process for the strategic plan and related activities are underway. To review the work already accomplished and revise the existing ICWM plan for NACP IV an environmental assessment was planned. A team of two consultants was assigned the task of assessing ICWM activities, reviewing documents and updating the effectiveness of implementation, identifying emerging needs and providing recommendations for implementation under NACP Phase IV. Subsequently, the Environment Management Plan is developed by NACO for the components (targeted interventions) supported under NACSP. The environmental management activities for other components of the national programme not supported by the project will be planned, monitored and reviewed internally by NACO.

The overall context for healthcare waste management in India is provided by the Government of India in the Ministry of Environment and Forest Bio Medical Waste (Management and Handling) Rules, 1998, which are being modified and the Draft rules 2011 has already gone through public inspection. These draft rules are more descriptive and have removed some of the ambiguities present in the earlier rules.

On the basis of the Biomedical Waste (Management and Handling) Draft Rules, 2011 and NACP Phase III guidelines, an environmental assessment and situation analysis was done by the consultants by (i) Performing a desk review of all available documents and reports; and (ii). on-site visits of 24 facilities from two states, one each from northern and southern region, representative of a high –prevalent state and one with emerging high-risk (IDU) group. At all the facilities visited, stakeholder consultations, documents review and observation of practices in compliance to BMW Rules and ICWM guidelines were undertaken and (iii) Consultations with officials of NACO.

During the desk review, the available manuals from NACO, SACS reports, Joint Inspection Review report, monitoring reports from TI areas, Annual reports on NACP, WHO manual on Bio safety, Biomedical Waste (Management and Handling) Rules, 1998 (amended 2003) and Draft Rules 2011, and other connected reports and documents are reviewed by the team. Site Visits to 24 healthcare facilities across two states of Andhra Pradesh and New Delhi were done, and the current systems of IC and WM and practices were observed. At each of the facilities visited stakeholder consultation with various key personnel in the States and within the facilities were undertaken.

The revised plan for IC-WM under NACP Phase IV includes, among others, the following key recommendations:

**Technical recommendations:**

- a) Compliance to Biomedical Draft Rules (management and Disposal) 2011, Govt. of India in TI projects;
- b) Scaling up of activities in TI areas where there is greater likelihood of infection to spread and
- c) Adherence to universal precautions in TI facilities.

**Certain administrative recommendations were also made to strengthen the management and monitoring of infection control activities at national, state and district levels.**

The IC-WM Plan details the various steps for waste management in TI settings as required under Government of India's Bio-medical Waste (Management and Handling) draft Rules, 2011 including waste segregation, treatment and disposal. The Plan also highlights the capacity building efforts required for strengthening the waste management in targeted interventions. An Action Plan for IC-WM activities under the project and proposed time-frame for implementation is also provided, which can be executed and monitored at state level.

## 1. Program Description

In 1992, the Government of India launched the first National AIDS Control Programme (NACP I) followed by NACP II in 1999. Based on the lessons from NACP I and II, the government designed and implemented NACP-III (2007-2012) with the objective to “**halt and reverse the HIV epidemic in India**”. NACP has been successful in achieving a steady decline in overall HIV prevalence. India has witnessed nearly 50% decrease in new HIV infections over the last ten years.

NACP has been exemplified by community involvement and ownership in developing appropriate strategies and in reaching out to high-risk and vulnerable populations. The programme has greatly benefited from the critical role of civil society and networks of People Living with HIV/AIDS (PLHIV) in community mobilization, increasing access to services, addressing stigma and discrimination and developing appropriate societal response. NACP-IV will build on the motivation of these stakeholders at the community level - non-government organizations (NGOs), social activists, service providers and consumers - to actively engage with the complex issues of HIV. It will focus on reducing stigma and discrimination at health care settings, work places and at educational institutions.

### Goal and Objectives of NACP-IV

Having initiated the process of reversal in several high-prevalence areas the next phase of NACP will focus on accelerating the reversal process and ensure integration of the programme response with continued emphasis on prevention. Though the national level epidemic is showing reversal, it is evident from the data triangulation and recent surveillance data that many districts in India, which were previously of low prevalence, are showing increasing levels of infection. It would be critical to provide a greater focus on prevention services in these areas and reduce new infections.

Based on this analysis, the goal and objectives of the NACP-IV may be stated as follows:

***The goal of NACP IV is to accelerate reversal of the HIV/AIDS epidemic with an integrated response.***

**Objective 1:** Reduce new infections by 50% (2007 Baseline of NACP III).

**Objective 2:** Provide comprehensive care and support to all persons living the HIV/AIDS and treatment services for all those who require it.

The following strategies will be implemented to achieve the goals and objectives as mentioned above.

- Strategy 1: Intensifying and consolidating **prevention** services with a focus on (a) high-risk groups and vulnerable population and (b) general population.
- Strategy 2: **Expanding IEC services** for (a) general population and (b) high-risk groups with a focus on behavior change and demand generation.
- Strategy 3: Increasing access and promoting **comprehensive care, support and treatment**
- Strategy 4: **Building capacities** at national, state, district and facility levels
- Strategy 5: Strengthening **Strategic Information Management Systems**

## **Key Priorities for NACP-IV**

NACP-III and previous phases have ensured that programme interventions are focused on HRG members and vulnerable sections of the population. The excellent results from the Targeted Intervention approach demonstrate this to be a successful strategy.

The primary goal of NACP-IV is to accelerate the process of reversal and further strengthen the epidemic response in India through a cautious and well-defined integration process over the next 5 years.

The Guiding principles for NACP-IV will be:

- Continued emphasis on the Three Ones (i.e. One Agreed Action Framework, One National HIV/AIDS Coordinating Authority and One Agreed National Monitoring and Evaluation System [M&E])
- Equity
- Gender
- Respect for the rights of the PLHIV
- Civil society representation and participation
- Improved public-private partnerships.
- Evidence-based and results-oriented programme implementation.

In addition, NACP-IV will reinforce the focus on the following five cross-cutting themes:

- Quality
- Innovation
- Integration
- Leveraging Partnerships
- Reducing Stigma and Discrimination

## **Prioritization of states and districts**

Recent trends indicate that many of the states with emerging epidemics and higher vulnerabilities are those with relatively poor health infrastructure and weak implementation capacities, governance and ownership of the programme. The next phase of NACP will specifically focus on these areas and will reach out to the high-risk, vulnerable and hard-to-reach groups by ensuring effective delivery of HIV services in these states.

The categorization of districts in the country during NACP-III into A, B, C and D was helpful in understanding the prevalence and risk across the country and also in allocating resources effectively. Under NACP-IV, the districts will be re-categorized based on the epidemic profile and vulnerability, and programmatic efforts will be intensified in those areas accordingly.

## **Emerging Sub-epidemics**

The epidemic pattern and dynamics of HIV transmission are changing over time. NACP-III could successfully contain the sub-epidemic among FSWs that were characterized adequately. However, newer forms of sex work that make FSWs less accessible for interventions are an important area of concern during NACP-IV. Sub-among MSMs, Transgender and IDUs have been identified in a greater number of pockets across the country and hence, these groups continue to demand the highest priority in the next 5 years. Migration is increasingly identified as an important factor driving the epidemic in several north-Indian districts. Dynamics of HIV transmission in migration-driven settings and the unique challenges they pose to access to prevention services will be another important focus area under NACP-IV. Finally, in the mature epidemic states, long-standing prevention interventions could result in successful declines among FSWs and their clients. However, spousal transmission in the general population has emerged as an important source of new infections in these states, warranting a special focus.

## **Key Priorities**

NACP-IV seeks to consolidate the gains of NACP-III and learn from the lessons of the previous phases of programme implementation. It aspires to further strengthen and decentralize the programme management capacities to state and district levels in particular. NACP-IV will remain a prevention-oriented plan with adequate coverage of HIV care in the context of the concentrated epidemic situation in India. NACP-IV will - to the extent possible - integrate with other national programmes and align with the overall Twelfth Five-Year Plan goals of inclusive growth and development. The key priorities under NACP-IV are:

- Preventing new infections by sustaining the reach of current interventions and effectively addressing emerging epidemics.
- Preventing Parent-to-child transmission.
- Focusing on IEC strategies for behavior change in HRG, awareness among general population and demand-generation for HIV services.
- Providing comprehensive care, support and treatment to eligible PLHIV.
- Reducing stigma and discrimination through Greater involvement of PLHIV (GIPA).
- Ensuring effective use of strategic information at all levels of programme.
- Building capacities of NGO and civil society partners especially in states of emerging epidemics.
- Integrating HIV services with the health system in a phased manner.
- Mainstreaming HIV/AIDS activities with all key central- and state-level Ministries/departments and leveraging resources of the respective departments.
- Leveraging social protection and insurance mechanisms.

The package of services will be customized to suit the requirements of different states and districts. The NACP-IV proposed package of services shifts from the concept of uniform district-based services to service packages further differentiated on the basis of maturity of epidemic, need of integration, comprehensiveness of package of services and difficulty factor of the region.

## 2. Current Legal, Administrative and Operational Framework For Biomedical Waste Management In India

**2.1.Policy Framework:** The launch of NACP II was preceded and followed by a number of policy declarations and initiatives. While these were not directly related to IC-WM nevertheless, these developments provided a supportive policy context for HIV/AIDS prevention and control activities. NACP derives from these policy measures and aims to fulfill the expectation generated by the commitments given by the Government of India to Indian citizens and the international community.

The important policies and declarations include:

- India is a signatory to the Declaration of the Paris AIDS Summit in 1994 that provides for greater involvement of HIV-positive people and the UNGASS Declaration of Commitment on HIV/AIDS in 2001
- The parameters of health sector development were laid out in *The National Population Policy in 2000* followed by *the 10th Plan document and the National Health Policy 2002*.
- *The National AIDS Prevention and Control Policy, 2002 (India)* gave shape to the vision of the country of AIDS prevention and control. Subsequently in 2004 the policy for Anti-Retroviral Treatment (ART) was formulated.
- *The National Blood Policy* was announced in 2003. The policy was followed by an action plan for blood safety.
- *The National Youth Policy (2003)* which laid emphasis on health of adolescents and the youth
- The **Parliamentary Forum** on HIV/AIDS was launched on 11th May 2002, followed by a declaration in its first National Convention in 2003. Many states have also launched Legislators' Forum to strengthen the state level response.
- During 2005, the Govt. of India launched a **National Rural Health Mission** and the RCH phase-II envisaging active participation of PRIs and civil society groups and a convergence of HIV/AIDS and RCH.
- Culminating this process was the decision made by the Prime Minister to head the **National Council on AIDS in 2005**.

### 2.2.Policy and Regulatory Mechanism:

- **The Environment Protection Act (EPA) 1986:** The EPA is an umbrella legislation designed to provide a framework for environment protection of all activities.
- **The Bio-medical Waste Management & Handling Rules, 1998:** It was implemented in India in 1998, through notification by Ministry of Environment & Forest for safe handling, segregation, storage, transportation, treatment and disposal of bio-medical waste generated from health care establishments. These rules were amended in the years 2000 and 2003. The State Pollution Control Boards have been notified as the prescribed authority for implementing the provisions of these rules in their respective states/UTs. The Central Pollution Control Board advises the government and lays down procedures and standards for prevention of environmental pollution across the country.
- **National Guidelines on Hospital Waste Management, 2002:** It was issued by the Ministry of Health & Family Welfare, Govt. of India. These guidelines include safety measures, waste management, training and related administrative functions in hospitals and its environment.
- **Bio Medical Waste (Management and Handling) Draft rules, 2011:** The Ministry of Environment & Forests has already gazetted and initiated the public notification process of its draft Bio-Medical Waste (Management and Handling) Rules, 2011. These rules have described

the duties and responsibilities of occupier and operator in detail, besides the procedures for certification, authorization, monitoring etc. The changes made in the 2011 Rules which are relevant to this report are as follows;

- It has been stipulated that every occupier of the healthcare facility shall set up therequired biomedical waste treatment equipment's prior to commencement of its operation or make necessary arrangements through an authorized common bio medical waste treatment facility.
- In the earlier rules, occupiers of an institution, which provided service to less than 1000 patients per month, need not take authorization from the prescribed authority.
- Under the new rules, every occupier, irrespective of the number of patients served or the quantum of bio medical waste generated is required to obtain authorization.
- Under existing rules, there was an overlap with regard to color coding and segregation of waste. Now, the color codes have been clearly specified to avoid confusion and overlapping (Table-1).
- The number of categories of waste has been reduced from ten to eight. Color coding for non-infectious waste has also been prescribed.
- Duties and responsibilities of the occupier including occupational safety and training requirements have been delineated in detail.
- Similarly, duties and responsibilities of the operator of the waste treatment facility are also provided in detail.
- Use of chlorinated plastic bags for segregation of waste by the occupier and incineration of the same by the operator is prohibited under the revised rules.

A table of comparison giving details of classification of categories of waste as provided in the above Rules, 1998 and 2011 is appended as Annexure I.

<b>Table.1. Revised Color coding and types of containers for disposal of bio-medical wastes as per Biomedical Waste (Management and Handing) Draft Rules 2011</b>			
<b>Color coding</b>	<b>Type of container to be used</b>	<b>Waste category Number</b>	<b>Treatment options as per schedule I</b>
Yellow	Non-chlorinated plastic bags	Category 1,2,5,6	Incineration
Red	Non-chlorinated plastic bags/puncture proof container for sharps	Category 3,4,7(4-Waste sharps)(In the earlier rules, soiled wastes are for Red color)	Autoclaving/ Microwaving/ Chemical treatment /shredding
Blue	Non-chlorinated plastic bags container	Category 8( chemical wastes)	Autoclaving/ Microwaving/ Chemical treatment /shredding
Black	Non-chlorinated plastic bags	Municipal waste	Disposal in Municipal dump sites

### **3. The current practice of ICWM**

#### **3.1. Background for ICWM under NACP:**

PricewaterhouseCoopers was engaged to develop a comprehensive Infection Control and Waste Management (IC-WM) Plan for NACP-III, which was built on existing documentation, to ensure efficient and sustainable management of potentially harmful waste generated from healthcare facilities which cater to the prevention, care and treatment of HIV/AIDS.

In keeping with this objective, visits to 33 healthcare facilities across five states catering to prevention, care and treatment of HIV/AIDS were undertaken. During these visits, systems of IC and WM were observed as well their conformance to the Biomedical Waste (Management and Handling) Rules, 1998 (amended 2003). At each of the facilities visited, stakeholder consultation with various key personnel within the facility as well as those outside but associated with IC-WM practices was undertaken. It was discerned from the assessment during the site visits and the stakeholder consultations, that the level of awareness related to IC-WM varied from nil to high, depending upon the state and facility visited. Further, training on these IC- WM issues was found to be restricted to a few personnel with wider dissemination of relevant knowledge. Adherence to statutory requirement and good practices was not particularly evident at most of the facilities surveyed. It was evident that the then prevailing IC-WM practices posed a high risk of infection to healthcare workers, patients and their relatives and biomedical waste handlers. The visits also revealed an opportunity for strengthening the IC WM practices.

Based on the findings of the site visits, the stakeholders consulted and scan of existing national and international frameworks, an ICWM Plan was developed that included technical guidance on waste management, training plan, institutional framework, monitoring and evaluation plan, time schedule and cost estimates for implementation. NACP III had addressed Infection Control and waste management, as an integral component of all activities relating to testing, treatment, prevention and patient care.

In NACP-III, the key activity areas where IC-WM plan had been recommended were:

- IDU and other High risk behavior management
- Blood banking & Blood storage at First Referral Units
- Testing for HIV/AIDS, STIs, CD4, OIs
- Care & Treatment of patients at various clinics, ART Centre's and hospitals
- Promoting Prevention of Parent to Child Transmission (PPTCT) units

In view of the fact that the above mentioned areas generate harmful healthcare waste and can lead to fresh infections if not managed properly, the program was classified as Category "B" as per the World Bank's Operational Policy (OP 4.01) on Environmental Assessment (EA), which means that the project had the potential to adversely affect humans and the environment.

#### **3.2. Components of IC-WM practices in relation to NACP**

**Waste Segregation and On-site Storage:** This Component includes segregation at source; availability of designated segregation points, as close as possible to the generation points; good quality and adequately sized containers, use of non-chlorinated plastic bags; needle cutters and safety boxes; strict adherence to

color-coding provided in the Bio Medical Rules and compliance to the above to be ensured by programme implementers of NACP III.

**Collection and Transportation of Biomedical Wastes:** This section encompasses transport of waste to a central location; specially designated waste routes to avoid patient care areas within the facility; Special timing for transportation of biomedical waste to the central point; use of dedicated wheeled-containers, trolleys or carts to transport the waste to the collection/treatment site and training and provision of barriers for waste handlers

**Treatment and Disposal of Biomedical Wastes:** It delineates, disinfection of used blood bags, syringes and other infectious plastic and liquid wastes in 1% Sodium hypochlorite solution; proper handling and disinfection of infected linen and maintenance of a log book for quantity of waste generated by type, name of waste handler, time of emptying waste container, time of cleaning the containers and pouring disinfectant.

**Sharps Management:** This section prescribes use of barrier protection; segregation and storage in puncture-proof containers at the point of generation; mutilation of sharps before treatment and disposal; disinfection and appropriate disposal of mutilated sharps; final disposal in a secured landfill or sharp pits and mandatory immunization against Hepatitis B for all the health care workers.

**Blood safety in Laboratory:** Besides the appropriate guidelines in the above sections, it specifically stipulates proper disinfection and disposal of infected blood and use of proper double-walled transport containers

**Infection Control:** The four key areas of infection control recommended are:

- Immunization against nosocomial infections
- Availability and use of barrier protection
- Timely management of PEP, and
- Creating awareness about Infection Control at all levels

**Capacity Building and Awareness:** NACP-III has recommended that training should focus on universal precautions, principles of waste management, identification of roles and responsibilities for implementation, monitoring and reporting, provision of IEC material on universal precautions and their dissemination across the States and UTs. It was also recommended that most of the training programmes would be carried out at the State level and be coordinated by the SACS, with technical and financial support from the national level/NACO.

**Institutional Framework:** It was recommended under NACP-III that:

- A JD or APD and one Nodal officer should be identified and given the overall responsibility for IC-WM planning and implementation.
- Whilst the JD/APD shall provide supervision, the Nodal Officer will be responsible for monitoring, reporting and follow-up activities at all facilities being operated by SACS.

**Reporting, Monitoring and Evaluation:** The Monitoring & Evaluation of the implementation of ICWM has been stipulated with a mix of internal and external approaches. The internal reporting and evaluation was recommended to be integrated with overall NACP-III reporting mechanism using an IT-based Management Information System (MIS) and external monitoring in the form of ICWM implementation audits. Reporting frequency at National, State, and facility levels were also recommended along with performance indicators for incorporation in CMIS.

**Scope of IC-WM activities in relation to National AIDS Control Support Project (NACSP) 2012-17**

As part of the support for the targeted interventions programme, the project (NACSP) support will also extend to the IC-WM activities in relation to the targeted interventions. Accordingly, the IC-WM activities to be implemented under the project include: collection of used needles and syringes by IDU TIs; waste segregation, sharps management and on-site storage in IDU TIs; treatment and disposal of used needles and syringes by IDU TIs; capacity building of IDU TI staff on waste management; reporting, monitoring and evaluation of the implementation of ICWM at IDU TIs by SACS. Evaluation of IC-WM activities of IDU TIs will be undertaken as part of the independent end-term contract evaluation of targeted intervention projects.

#### 4. Stakeholder Consultation

**Stakeholder consultation during the preparation of NACP IV:** An elaborate and extensive process to develop the strategy and implementation plan for the next phase of the programme (NACP IV) has been initiated early last year, as was done for previous programmes. NACP has explored various approaches towards this. NACP IV will continue to provide care, support and treatment to all eligible population along with focused prevention services for the high-risk groups and vulnerable, marginalized and hard-to-reach populations.

The 12th Five Year Plan is scheduled to begin on the 1st April 2012 and the next phase of the NACP formulation is also in synchronization with the 12<sup>th</sup> Five Year Plan timeline. Hence, the process has been initiated with a sense of urgency and expediency to ensure that the NACP IV preparation process also feeds into the national 12th plan planning processes.

The NACP IV planning has adopted the inclusive, participatory and widely consultative approach similar to that of NACP III and is also further building on the globally acclaimed and successful planning efforts of NACP III. The process will essentially involve a wide range of consultations with a large number of partners including government departments, development partners, non-governmental organizations, civil society, representatives of people living with HIV, positive networks and experts in various subjects. NACP IV development will use specific mechanisms and follow a structured process. Several working groups have been formed and some of them have participant affiliations.

The working groups are listed below (details of working groups are provided in Table 20.1):

- a. Programme Implementation and Organizational Restructuring
- b. Finance Management / Innovative Financing
- c. Procurement
- d. Laboratory Services
- e. Sexually Transmitted Infections (STI)/ Reproductive Tract Infections (RTI)
- f. Condom Programming
- g. Communication Advocacy and Community Mobilization
- h. Greater Involvement of People Living with HIV/AIDS (GIPA), Stigma, Discrimination and Ethical issues
- i. Mainstreaming and Partnerships
- j. Blood Safety
- k. Integrated Counseling and Testing Centers (ICTC)/ Prevention of Parent to Child transmission (PPTCT)
- l. Care, Support and Treatment
- m. Strategic Information Management (SIMS)
  - i. Surveillance
  - ii. Research and Knowledge Management
  - iii. Monitoring and Evaluation
- n. Gender, Youth and Adolescence
- o. Targeted Interventions (TI)

During the process of conducting the environment assessment study and development of EMP, the team has met different stakeholders at state and national level. The consultants held meetings and discussions with officers of State AIDS control Societies including the PD/JD, Hospital Superintendent/Administrator, teaching faculty in-charge of Hospital Infection Control Committees, Medical Officers of ART Centre's /PPTCTs, Counselors of /ART Centre/PPTCT/IDU /STI clinic, Junior

doctors, Medical officers, NGOs, Staff Nurses, BMW workers and peer educators. In addition, discussions were held with officials at NACO to understand ICWM implementation and to receive the documents/reports connected with ICWM implementation during NACP-III.

**PART – II**

**Infection Control and Waste Management  
Action Plan for NACSP (2012-2017)**

## **5. Infection Control and Waste Management Action Plan – NACSP (2012-2017)**

After the first case of HIV was detected in India in 1986, Government of India initiated AIDS control activities as early as 1987 and evolved the National AIDS Control Programme (NACP). NACP Phase I was launched in 1992, followed by Phase II in 1999 and Phase III in 2006. Due to extensive coverage and intense efforts, prevalence of HIV infection among adult population has decreased from 0.41% in 2000 to 0.31% in 2009. The Fourth phase of the National AIDS Control Programme (NACP IV) is being launched with the vision that, by 2020, the PLHIV in India, will gradually come down to low levels. According to the draft strategy paper for NACP IV, the program plans to bring about significant reduction in new HIV infections primarily through targeted interventions among high risk groups.

### **5.1. Project Description**

The objective of the Project is to increase and maintain safe behaviors through access and utilization of prevention services among high risk groups and other vulnerable population groups, in order to contribute to the national goal of accelerating reversal of the HIV epidemic. This will be achieved by reaching and maintaining 65 – 85% safe behavior condom use and safe injecting practices among high risk population groups including female sex workers (FSWs), men who have sex with men (MSM) and injecting drug users (IDUs). This will require a focus on targeted prevention interventions among these groups coupled with strong behavior change communications for creating awareness on risk and vulnerability, methods of prevention, availability and location of services and for increasing safe behavior and demand for services as well as reduce stigma. This will be supported by strengthening the institutional capacity to ensure program sustainability beyond 2017.

The Project will be informed by a set of tenets that include the “Three Ones” principle (one national program plan, one national AIDS coordinating authority (NACO) and one national monitoring and evaluation framework); respect for legal, ethical and human rights of PLWHA and most at risk populations; creation of an enabling environment; and civil society participation in planning and implementation of NACSP. The project will also build on the lessons learned from NACP III, i.e., evidence based priorities and data driven responses, and will continue to support innovations and generation of new knowledge, especially to strengthen program performance at all levels.

The Project will focus on HIV prevention. The national program will be working towards integration and convergence of other services such as treatment of sexually transmitted infections, blood safety, facility-based testing and treatment services and prevention of parent to child transmission (PPTCT) along with the National Rural Health Mission and other health services and programs. It will also be important to engage other key stakeholders in mainstreaming of the response, including the private sector and key government departments; and to continue to engage civil society, vulnerable communities at highest risk and PLWHA networks. The project intends to leverage the financial and technical resources of other development partners to achieve the program objectives.

The Project will support three components of the national AIDS control program. The Government and IDA will pool resources for first component that will support scaling up of targeted prevention interventions. The Project will finance the institutional strengthening and behavior change communications component. Provision of care and treatment to PLWHA and strategic information management system (SIMS) including disease surveillance will be supported by the national program.

## Project Components

The Project will mainly support the scale up of prevention interventions under NACP IV, with a focus on the high impact targeted prevention interventions for population groups at high risk, and related behavior change communications. The project will also support NACO to further strengthen project management, especially as it moves through a transitional phase with integration and convergence of different program elements. The project has the following three components that include activities at the national, state, and district levels:

**Component 1: Scaling Up Targeted Prevention Interventions** (total estimated cost - \$420 million). This component responds to the nature of the HIV epidemic in India, which is characterized by concentrated epidemics among high risk groups, and builds on a successful national program, with the aim of reaching out to the hard to reach population groups who have not yet been reached by the program. The scaling up and strengthening of prevention interventions for high risk groups is therefore the primary focus of this component. In addition, this component will support bridge population groups such as migrants and truckers and include activities that support behavior change communication, primarily focusing on demand generation and stigma reduction. This component would include the following two sub-components:

**(a) Scaling up coverage of Targeted Interventions among HRG** (total estimated cost – US\$342 million): The project aims to reduce new HIV infections by expanding reach and coverage of quality targeted prevention interventions among HRGs over the next five years. This will be implemented through a large number of successfully proven TIs working with communities of FSWs, MSM, including TG/Hijra, and IDUs, through the contracting of NGOs and CBOs. This subcomponent includes the following activities:

- ✂ Site validation, size estimation and micro planning of targeted interventions for HRGs;
- ✂ BCC interventions targeted to HRG in order to increase safe practices, testing and counseling, and adherence to treatment, and demand for other services and products – this will include a variety of interventions such as face to face education of sex workers individuals in negotiation skills, and training on use of condoms for personal protection;
- ✂ Promotion and provision of condoms to HRG to promote their use in every sexual encounter;
- ✂ Provision of STI services including counseling at service provision centers to increase compliance of patients with treatment regimens, risk reduction counseling, and a focus on partner referral;
- ✂ Interventions to strengthen community response to HIV and capacity building in order to empower HRG and ensure ownership to implement the program in their communities, which will also promote sustainability of the program;
- ✂ Support the strengthening of the linkages between HIV related care, support and treatment and other services so that HRG can access them without stigma or discrimination;
- ✂ Creation of an enabling environment to facilitate dialogue with relevant stakeholders such as the police, community leaders, local public functionaries and introduce changes in the social, structural, and policy environment to motivate the community to practice safer behaviors;
- ✂ Scaling up harm reduction, including needle and syringe exchange for IDUs and increasing Opioid Substitution Therapy (OST) provision from 79 existing centers to 350 across the country and increasing the number of patients on OST from about 5000 to 36,000 over 5 years; and
- ✂ The financing of operating costs for the State Training Resource Centers and participant training costs over a period of 5 years.

**(b) *Scaling up of interventions among other vulnerable populations*** (total estimated cost – US\$78 million): Vulnerable population groups include regular clients/partners of sex workers, regular sex partners/spouses of IDUs, bridge populations (migrants and long distance truckers) moving between high and low prevalence areas and engaging in unsafe practices. The activities under this subcomponent will be guided by the information from the mapping of peer networks in order to influence the choices of the vulnerable populations and improve their access to prevention services. Interventions for migrants will include activities at source, at transit points, at destination and at workplace as well as targeted female migrant worker interventions. Interventions for truckers will be carried out at transit points and at work places. This subcomponent would include the following activities for these two vulnerable groups:

- ⓧ Risk categorization and size estimation of migrant population groups at destination points;
- ⓧ Strengthening interventions across the corridors of migration with increased involvement of frontline workers in high out migration districts which include source and transit points;
- ⓧ Creation of “peer support groups” and “safe spaces” for migrants at destination;
- ⓧ Expansion of truckers’ interventions to include TSL and other potential areas;
- ⓧ BCC through peer led interventions of either individuals or groups to create awareness of their vulnerability and increase demand for products and services;
- ⓧ Promotion and provisioning of condoms through different channels including social marketing;
- ⓧ Development of linkages with local institutions, both public and NGO owned, for testing, counseling and STI treatment services, which will be an important area of public-private partnerships within the program; and
- ⓧ Strengthening networks of vulnerable populations with enhanced linkages to service centers and risk reduction interventions.

**Component 2: Behavior Change Communications** (total estimated cost –US\$20 million)

This component will include the following activities: (i) communication programs (media campaigns, creative development campaigns and short films) for risk reduction and safe behavior including advocacy, social mobilization and BCC to integrate PLWHA and HRG into society and to encourage normative changes aimed at reducing stigma and discrimination in society at large, and in health facilities specifically, as well as to increase demand and effective utilization of testing and counseling services; (ii) financing of a research and evaluation agency to assess the cost-effectiveness and program impact of behavior change communications activities; and (iii) establish and evaluate a helpline at the national level to further increase access to information and services. This component will include:

- ⓧ Media Campaigns and their monitoring
- ⓧ Evaluation and Research
- ⓧ Helpline

**Component 3: Institutional Strengthening** (total estimated cost –US\$15 million)

This component will support NACO’s steering, coordination and managerial roles in managing the prevention component of the program, during the transformational phase of NACP IV. This component will support innovations to enhance performance management including fiduciary management, such as the use of the computerized financial management system, at national and state levels. The support for

institutional capacity will also help strengthening supply chain management with increased staffing, including training on supply chain management, in support of the TIs. This component will also finance the staff and operating costs of 11 Technical Support Units' (TSU)<sup>1</sup> over a period of 3-4 years to ensure the oversight of the quality of TIs through monitoring and supportive supervision, and assist states in effective use of available information in support of evidence-based planning and performance monitoring and program roll out. Subsequently, as the capacity is built, the functions of the TSUs will be assumed by the Government. This sub-component will also support the services of a procurement agent for the purposes of procuring OST during project implementation. Finally, this sub-component will finance the dissemination of best practices and innovations from the project at the national and state levels through annual conferences. This component will also finance the necessary project audits (external, internal and the audits of NGOs). These audits established under NACP III will continue under NACSP to ensure effective compliance with all fiduciary requirements, as part of NACO's core fiduciary and managerial functions. The specific activities under the component are:

- ✘ Strengthening of internal and external quality control systems;
- ✘ Providing high quality, operational training in areas critical to the scaling up of the program, such as support to establishment of TIs;
- ✘ Providing technical support to the TIs through TSU by supporting TSU where needed;
- ✘ Dissemination of best practices and innovations from the project;
- ✘ Financial management system through up gradation of CPFMS, and support different audits under the project (internal, external and NGO level); and

Procurement agent for the purpose of OST and support the staff for effective supply chain management.

## **5.2. Project Institutional and Implementation Arrangements**

The implementation structures and institutional arrangements of NACSP will remain the same as under NACP III, with the program being managed by NACO in the Department for AIDS Control, at the central level, the State AIDS Control Societies (SACS) at state level, and the District AIDS Prevention Control Units (DAPCUs) at the district level.

The *National AIDS Control Organization (NACO)* leads the National AIDS Control Program in India. Since 2008, NACO also known as Department for AIDS Control is a department in the Ministry of Health and Family Welfare (MOHFW), headed by the Director General for NACO (Secretary of the Department of AIDS Control). NACO is responsible for the preparation, implementation and monitoring of the National Strategic Plan for HIV/AIDS and is accountable to the National Council of AIDS (NCA) chaired by the Prime Minister of India and the National AIDS Control Board (NACB), chaired by the Minister, MOHFW. Within NACO, each program unit (i.e., finance, procurement, targeted interventions, basic services, treatment, IEC, Strategic Information Systems, including surveillance and research) is led by a head of the division. The “three ones” principles governs the national AIDS response in India: one national coordinating body (NACO), one national program and strategic plan, and one common monitoring and evaluation framework which all partners adhere to. These principles ensure harmonization among development partners, and have contributed to the effectiveness of the national response to HIV

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<sup>1</sup>Delhi, Orissa, Punjab, West Bengal, Andhra Pradesh, Karnataka, Chhattisgarh, Jharkhand, Madhya Pradesh, Kerala and Tamil Nadu

and AIDS. The technical oversight and guidance to the national program are provided through different mechanisms: the Technical Resource Groups, the national level Technical Support Unit and the Steering Committee (consisting of all development partners, civil societies and private sector).

***States AIDS Control Societies (SACS):*** During the NACP II, the national program implementation was decentralized to the SACS, which are semi-autonomous societies implementing the state level annual action plans that are guided and financed by NACO. At state level the SACS are governed by (a) the SACS Governing Body represented by key government departments, members of the civil society, representatives of trade and industry, private health sector and representatives from community Networks; and (b) the Executive Committee which exercises powers as delegated to it by the Governing Body. The Executive Committee provides oversight to the program at state level and approves the expenditure of SACS. SACS are assisted by Technical Support Units which help in monitoring of targeted interventions and provide other managerial support to the program. The broad operational areas of SACS are: administration, planning, inter and intra sectoral coordination, monitoring & evaluation, project implementation, financial management and procurement. Involvement of NGOs and CBOs are important to the effectiveness of program implementation. The deliverables, administrative control and financial agreement between the SACS and the NGOs/CBOs are governed by contractual arrangements. ***District AIDS Prevention Control Units (DAPCU)*** is the district level administrative structures under SACS, established in the last three years in high burden districts (i.e., in category A and B districts) in India. The main objective of DAPCU is to coordinate NACP activities at district level and facilitate multi sector mainstreaming with other departments in the district.

***Technical Support Units (TSUs)*** were established during NACP III to oversee the quality and monitoring, handholding, mentoring and supporting of the targeted interventions in the states. The financing and management of some TSUs have been transferred from development partners (i.e. Bill and Melinda Gates Foundation/ Avahan program, DFID and USAID) to NACO, while some might continue to be supported by partners for a limited period. During NACP IV, the human resources strategy of NACO will be reviewed to ensure adequate staffing of key positions at all levels, especially for carrying on the functions that TSUs now perform in order to enhance the SACS capacity and ensure the sustainability of the program.

### **5.3. Current Status of ICWM implementation:**

Efforts towards Infection Control and Waste Management (IC-WM) have already been introduced under NACP Phase III and a wide range of activities has been undertaken in this direction. To name a few: development of guidelines on ICWM, resource material for training, training of various categories of medical and other technical professionals on ICWM, special focus and guidelines on disposal of used needles and syringes by IDU TIs, training of staff of IDU interventions on waste management (disinfection and final disposal of used needles and syringes), provision of materials for waste disposal for IDU TIs, provision of Personal Protective Equipment for staff handling bio-medical waste and continuous monitoring of IC activities through TI supervisory mechanisms established at state levels.

To review the work already accomplished and adapt the existing NACP III ICWM plan for NACP IV, an environmental assessment was conducted. A team of consultants was assigned the task of assessing ICWM activities, reviewing documents and updating the effectiveness of implementation, identifying

emerging needs and providing recommendations for implementation under NACP Phase IV.

#### **5.4. Key Findings from the environmental assessment:**

The assessment (attached as Annex) highlighted the significant ICWM activities that were conducted all over the country under NACP III.

The site visits observations, along with review of documents and available reports indicate the following with regards to the TI programme:

- ❖ ICWM plan as recommended in NACP III has created satisfactory level of awareness and practices in various facilities including TIs.
- ❖ Training and capacity building of TIs on BMW management and disposal has been in place but needs to be more structured and has to percolate to all levels.
- ❖ High Risk Groups and Targeted intervention areas have high potential for spread of infection, not only of HIV but of other blood-borne pathogens. The ICWM guidelines are implemented in TI clinics inside larger facilities and in cities. In stand- alone facilities and in remote areas with non-availability of an approved waste disposal agency, the present waste disposal methodology could be strengthened.
- ❖ Indicators related to some ICWM under the national programme were found to be monitored and reported (e.g. IDU TI projects) at state and national levels. Key indicators of various programme components under NACP III are monitored through a well-established Computerized Management Information System (CMIS).

#### **5.5. Recommendations:**

The key technical recommendations for the TI programme included:

- a) Compliance to Biomedical Draft Rules (management and Disposal) 2011, Govt. of India in TI projects;
- b) Scaling up of activities in TI areas where there is greater likelihood of infection to spread and
- c) Adherence to universal precautions in TI facilities.

The assessment also had some administrative recommendations pertaining to the Targeted interventions programme which are detailed in the assessment report attached as Annex II.

#### **5.6. Revised Action Plan:**

The revised plan for IC-WM under NACSP includes compliance by targeted intervention projects to the Biomedical Draft Rules (management and Disposal) 2011, Government of India after final approval. ICWM activities in TI areas with greater likelihood of spread of infection will be further strengthened and more emphasis provided to adherence to universal precautions. The institutional framework at National, State, district and institutional levels will continue to be strengthened through various initiatives in TI programme. Training for all levels of TI personnel will be conducted to strengthen capacities. Monitoring of TI ICWM activities will be enhanced by setting performance indicators, periodical assessments by supervisory staff and systemic review of visit reports and integrating the IT module on ICWM in the CMIS which is presently available.

A brief overview of proposed activities is included in the work plan, attached as Annex I. This activity plan, specific to the Targeted Interventions component of the HIV programme, has been developed for the

project period of NACSP. ICWM activities related to other HIV services outside the purview of the project, including testing and lab services will continue to be carried out, reviewed at regular intervals by NACO and changes made as necessary during the implementation of NACP IV. The specific activities proposed under the plan are:

- **Capacity building and awareness:** ICWM plan as recommended in NACP III has created satisfactory level of awareness and practices in various facilities including TIs. The detail assessment of waste management in the project areas has recommended the need for structured training and capacity building on BMW management and disposal at all levels. The training on waste management will be integrated into the regular training of project managers and other staff at TI level. The existing training modules will be reviewed and updated in light of the revised guidelines. For effective capacity building, the training resource pool for IDU interventions at national and state level will be skilled to impart trainings for IC-WM activities.
- **Reporting, monitoring and evaluation:** The action plan has specific measures for monitoring of the project through supportive supervision which will include the field visits. Indicators for IC-WM activities will be identified at TI level and will be reported regularly. The need based technical assistance will be provided to all the project team.
- **Review of existing guidelines:** The project will organize a consultation meeting on the Draft Rules - 2011 on Bio Medical Waste Management and Handling framed under Ministry of Environment and Forest (MOEF) involving officials from Pollution control boards, MOEF, subject experts, MOHFW, NACO staff. The outcomes will help in revision of NACO guidelines on BMW management by IDU TIs to incorporate the updated rules on Bio Medical waste management and handling framed under Ministry of Environment and Forest. The whole process will also guide the need for procurement of PPE and ICWM material for safe handling of BMW by Targeted interventions.

## **5.7. Cost estimates for Infection Control and Waste Management Action Plan**

All the costs related to management of bio-medical waste are embedded into the unit cost of TIs and training budget allocated to STRC. No separate cost will be needed for implementation of the Infection Control and Waste Management Action Plan.

## 6. List of References

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12. Guidelines on HIV Testing, NACO, March 2007.
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**Annex I: Infection Control and Waste Management Action Plan – NACP IV (2012-17)**

Action points		Responsibilities	2012-13				2013-14				2014-15				2015-16				2016-17				
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
1	Organize consultation meeting on the Draft Rules - 2011 on Bio Medical Waste Management and Handling framed under Ministry of Environment and Forest (MOEF) involving officials from Pollution control boards, MOEF, subject experts, MOHFW, NACO staff	NACO		x									x										
2	Inclusion of Waste Management in the training curriculum for Project Managers of IDU TIs	NACO	X																				
3	Inclusion of Waste Management in SOPs for IDU TI Drop-in-centres and Needle Syringe Programme	NACO	x																				
4	Review and revision of NACO guidelines on BMW management by IDU TIs to incorporate the updated rules on Bio Medical waste management and handling	NACO					x	x															

Action points		Responsibilities	2012-13				2013-14				2014-15				2015-16				2016-17						
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
	framed under Ministry of Environment and Forest																								
5	Revision of training module for PMs and SOPs for IDU TIs based on the revised guidelines	NACO					x	x																	
6	Training of trainers (TOT) and other resource people	State training resource centres (STRC), TI division of SACS							x	x				x	x										
7	Training of TI staff on BMW management	Master trainers through STRCs							x	x	x	x	x	x	x	x			x				x	x	
8	Procurement of PPE and ICWM materials for safe handling of BMW	TI NGO					x				x				x					x					
9	Monitoring and supportive supervision: Field visits of TI sites, treatment and disposal sites	STRC, TI division of SACS, TSU/NERO staff				x		x		x		x		x		x			x			x		x	
10	Reporting on Indicators identified	NGO implementing TI,SACS				x		x		x		x		x		x			x			x		x	
11	Follow up actions including TA where ever needed	TSU, TI division of SACS and NACO					x		X		x		x		x		x			X			x		

**Annexure II**

**“ENVIRONMENT ASSESSMENT AND REVISION OF INFECTION CONTROL AND WASTE  
MANAGEMENT PLAN”**

**Draft Report**

**Prepared by:**

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**April 4, 2012**

**Submitted to**

**NATIONAL AIDS CONTROL ORGANISATION,  
MINISTRY OF HEALTH & FAMILY WELFARE (NACP-IV)  
GOVERNMENT OF INDIA  
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## ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
APD	Additional Project Director
ART	Anti-Retroviral Treatment
BMW	Bio Medical Waste
CBWTF	Common Biomedical Waste Treatment Facility
CD4	Cluster of Differentiation 4
DAPCU	District AIDS Prevention and Control Unit
DTC	District Tuberculosis Centre
DHS	Director of Health Services
DHO	District Health Officer
DIC	Drop in Centre
EA	Environmental Assessment
FRU	First Referral Unit
HCE	Health Care Establishment
HCW	Health-Care Worker
HFW	Health and Family Welfare
HRG	High Risk Group
HIV	Human Immune Deficiency Virus
IC-WM	Infection control and Waste Management
IC	Infection Control
ICTC	Integrated Counseling and Testing Centre
IDU	Intervenous Drug User
JD	Joint Director
MIS	Management Information System
OI	Opportunistic Infections
NACO	National AIDS Control Organization
NACP	National AIDS Control Program
NGO	Non-Governmental Organization
NRL	National Reference Laboratory
NRHM	National Rural Health Mission
PCB	Pollution Control Board
PCC	Pollution Control Committee
PEP	Post Exposure Prophylaxis
PIP	Project Implementation Plan
PLHA	People Living with HIV /AIDS
PPE	Personal Protective Equipment
PPP	Public Private Partnership
PPTCT	Prevention of Parent to Child Transmission
RCH	Reproductive and Child Health Care
RNTCP	Revised National Tuberculosis Control Program
SACS	State AIDS Control Society
SPCB	State Pollution Control Board
SRL	State Reference Laboratory (HIV)
STD	Sexually Transmitted Diseases (synonymous with STI)
STI	Sexually Transmitted Infections
TI	Targeted Interventions
TTI	Transfusion Transmitted Infections
TOR	Terms of Reference
UP	Universal Precautions
UT	Union Territory
ICTC	Integrated Counseling and Testing Centre
WM	Waste Management

## **EXECUTIVE SUMMARY**

### **Introduction**

After the first case of HIV was detected in India in 1986, Government of India initiated AIDS control activities as early as 1987 and evolved the National AIDS Control Programme (NACP). NACP Phase I was launched in 1992, followed by Phase II in 1999 and Phase III in 2006. Due to extensive coverage and intense efforts, prevalence of HIV infection among adults has decreased from 0.41% in 2000 to 0.31% in 2009, which is remarkable. Presently, NACP IV is being launched with the vision that, by 2020, the number of HIV infected people in India, will gradually come to low levels and HIV could become a chronic manageable illness in India. According to the draft strategy paper for NACP IV, the program plans to bring about significant reduction in new HIV infections.

### **Current Status:**

The ongoing NACP III has been classified as Category “B” as per the World Bank’s Operational Policy (OP 4.01) on Environmental Assessment, as there is likelihood of spread of infections if infection control and bio medical waste are not managed effectively.

Efforts towards Infection Control and Waste Management have already been introduced under NACP Phase III, which has a component of Infection Control and Waste Management (IC-WM). A wide range of activities has been undertaken during NACP III in this direction. To name a few: development of guidelines on ICWM, training manuals, training of various categories of medical and other technical professionals, special focus and guidelines on needles disposal and management for IDU clinics, ensuring adequate supplies for Personal Protective Equipment and inclusion of IC activities through TI monitoring reports.

### **Context for the revised ICWM Plan:**

NACP phase IV is scheduled to start from April 2012 and the preparatory process for the strategic plan and related activities are underway. To review the work already accomplished and revise the existing ICWM plan for NACP IV an environmental assessment was planned. A team of two consultants was assigned the task of assessing ICWM activities, reviewing documents and updating the effectiveness of implementation, identifying emerging needs and providing recommendations for implementation under NACP Phase IV.

### **The Process:**

The overall context for healthcare waste management in India is provided by the Government of India in the Ministry of Environment and Forest Bio Medical Waste (Management and Handling) Rules, 1998, which are being modified and the Draft rules 2011 has already gone through public inspection. These draft rules are more descriptive and have removed some of the ambiguities present in the earlier rules.

On the basis of the Biomedical Waste (Management and Handling) Draft Rules, 2011 and NACP Phase III guidelines, an environmental assessment and situation analysis was done by the consultants by (i) Performing a desk review of all available documents and reports; and (ii). on-site visits of 24 facilities

from two states, one each from northern and southern region, representative of a high –prevalent state and one with emerging high-risk( IDU) group. At all the facilities visited, stakeholder consultations, documents review and observation of practices in compliance to BMW Rules and ICWM guidelines were undertaken and (iii) Consultations with officials of NACO.

## **Methodology and Observations**

### **Desk review**

All the available manuals from NACO, SACS reports, Joint Inspection Review report, monitoring reports from TI areas, Annual reports on NACP, WHO manual on Bio safety, Biomedical Waste (Management and Handling) Rules, 1998 (amended 2003) and Draft Rules 2011, Draft of planning commission report for NACP Phase IV were some of the main documents subjected for review, besides other connected review reports and documents.

### **Site visits**

Site Visits to 24 healthcare facilities across two states of Andhra Pradesh and New Delhi were done. During these visits, current systems of IC and WM and practices were observed as well for their compliance to the Biomedical Waste (Management and Handling) Rules, 1998 (amended 2003) and Draft Rules 2011, NACP III and other operational guidelines issued by NACO . At each of the facilities visited stakeholder consultation with various key personnel in the States and within the facilities were undertaken.

The site visits observations, along with review of documents and available reports indicate that

- ❖ ICWM plan as recommended in NACP III has created satisfactory level of awareness and practices in ART Centre's, STI clinics and PPTCT Centre's as well as in general hospitals, where these facilities are located.
- ❖ Training and capacity building on BMW management and disposal has been in place but needs to be more structured and has to percolate to all levels of ICWM personnel including the sanitation workers uniformly.
- ❖ High Risk Groups and Targeted intervention areas have high potential for spread of infection, not only of HIV but of other blood-borne pathogens. The ICWM guidelines are implemented in TI clinics inside larger facilities and in cities. In stand- alone facilities and in remote areas with non-availability of an approved waste disposal agency, the present waste disposal methodology could be strengthened.
- ❖ Handling of sharps and waste in HIV laboratories and blood banks require attention.
- ❖ Indicators related to some ICWM under the national programme were found to be monitored and reported (e.g. IDU TI projects) at state and national levels. Key indicators of various programme components under NACP III are monitored through a well-established Computerized Management Information System (CMIS).

**Recommendations:**

The revised plan for IC-WM under NACP Phase IV includes, among others, the following key recommendations:

**Technical recommendations:**

- a) Compliance to Biomedical Draft Rules (management and Disposal) 2011, Govt. of India;
- b) Scaling up of activities on TI areas where there is greater likelihood of infection to spread.
- c) Further strengthening of quality assurance of HIV laboratories through accreditation;
- d) Facilitate quality management systems for transfusion transmitted infections in blood banks and
- e) Adherence to universal precautions

**Administrative recommendations:**

- a) Strengthening the institutional framework at National, State, district and institutional levels by identifying and empowering Nodal officers for IC-WM by allocating ICWM responsibilities Quality Managers who are already present in SACS.
- b) Instituting advisory committees/task forces at all levels to advice, issue local guidelines and provide necessary directions.
- c) Strengthen capacity building and training for all levels of ICWM personnel;
- d) Set performance indicators to monitor ICWM activities through periodical reports and the IT module on ICWM is to be integrated in the presently available CMIS.
- e) A modular curriculum for training has also been developed by consultants which can be the basis of training programs during NACP-IV.

## 1. INTRODUCTION

Since the first HIV infection was identified in India in 1986, the Government of India has programmatically undertaken strategies to contain and prevent the spread of HIV and to provide care, support, and treatment for those already infected. In 1992, **India's first National AIDS Control Programme** was launched with an objective to control HIV infection. During this period, major expansion of safety in blood banks, STI clinics, and HIV sentinel surveillance system were initiated. Many NGOs were involved to spread awareness on HIV infection and prevention.

**The second phase of NACP** (1999-2006) expanded the above activities. In addition, during this period, targeted intervention focusing on High Risk Groups (HRG), VCTCs to promote HIV testing and counseling, intervention to prevent mother to child transmission and initiation of free ART in few hospitals took place. Improved awareness on HIV and creation of 'drop-in-Centre' was also implemented successfully.

Based on the learning from NACP I and II, the government designed and implemented **NACP III (2007-2012)** with an objective to "halt and reverse the HIV epidemic in India" by the end of the project. There is a steady decline in overall prevalence and nearly 50% decrease in new infections over last ten years. India is committed to achieving Millennium Development Goals (MDG) in reducing HIV mortality. The country is clearly progressing towards achieving this goal through focused effort by a large number of partners brought together through National AIDS Control Program.

NACP is an excellent example of community involvement and ownership in developing appropriate strategies and in reaching out to high risk and vulnerable populations. The program has greatly benefited by the critical role played by civil society and PLHA networks in community mobilization, increasing access to services, addressing stigma and discrimination issues. NACP IV, currently under plan, will build on the motivation of these stakeholders particularly at the community level (NGOs, social activists, service providers, consumers and policy makers) to actively engage with complex issues of HIV. It will focus on reduction of stigma and discrimination in the health care setting, work places and educational institutions, besides Infection Control and Biomedical Waste Management.

Funding from Development Partners has played significant role in supporting the NACP programme interventions in the past. During NACP III external resources were substantial. In fact Domestic Budgetary Support to the Department of AIDS Control was less than 5% of the Department's budget. However, in light of the global economic recession external funding for HIV will shrink dramatically. Therefore, the next phase of the programme will primarily depend upon domestic resources. Therefore, one of the critical challenges is to move towards more effective and efficient approaches through convergence and integration of programme components such as basic HIV services, comprehensive care, support and treatment with National Rural Health Mission (NRHM) and general health systems to the extent possible.

### 1.1. Background for ICWM under NACP-III

PricewaterhouseCoopers was engaged to develop a comprehensive Infection Control and Waste Management (IC-WM) Plan for NACP-III, which was built on existing documentation, to ensure efficient

and sustainable management of potentially harmful waste generated from healthcare facilities which cater to the prevention, care and treatment of HIV/AIDS.

In keeping with this objective, visits to 33 healthcare facilities across five states catering to prevention, care and treatment of HIV/AIDS were undertaken. During these visits, systems of IC and WM were observed as well their conformance to the Biomedical Waste (Management and Handling) Rules, 1998 (amended 2003). At each of the facilities visited, stakeholder consultation with various key personnel within the facility as well as those outside but associated with IC-WM practices was undertaken. It was discerned from the assessment during the site visits and the stakeholder consultations, that the level of awareness related to IC-WM varied from nil to high, depending upon the state and facility visited. Further, training on these IC- WM issues was found to be restricted to a few personnel with wider dissemination of relevant knowledge. Adherence to statutory requirement and good practices was not particularly evident at most of the facilities surveyed. It was evident that the then prevailing IC-WM practices posed a high risk of infection to healthcare workers, patients and their relatives and biomedical waste handlers. The visits also revealed an opportunity for strengthening the IC WM practices.

Based on the findings of the site visits, the stakeholders consulted and scan of existing national and international frameworks, an ICWM Plan was developed that included technical guidance on waste management, training plan, institutional framework, monitoring and evaluation plan, time schedule and cost estimates for implementation. NACP III had addressed Infection Control and waste management, as an integral component of all activities relating to testing, treatment, prevention and patient care.

In NACP-III, the key activity areas where IC-WM plan had been recommended were:

- IDU and other High risk behavior management
- Blood banking & Blood storage at First Referral Units
- Testing for HIV/AIDS, STIs, CD4, OIs
- Care & Treatment of patients at various clinics, ART Centre's and hospitals
- Promoting Prevention of Parent to Child Transmission (PPTCT) units

In view of the fact that the above mentioned areas generate harmful healthcare waste and can lead to fresh infections if not managed properly, the program was classified as Category "B" as per the World Bank's Operational Policy (OP 4.01) on Environmental Assessment (EA), which means that the project had the potential to adversely affect humans and the environment.

## **1.2. Consolidation of IC-WM under NACP-IV**

Currently, Project Implementation Plan has been drafted for NACP Phase IV and is likely to be implemented from April 2012. During this phase, it is necessary to capitalize on what has already been achieved with respect to IC-WM in NACP Phase III. Since there has been no comprehensive review of ICWM programmes implemented across the country to assess the achievements made and challenges faced and issues to be handled in the future, an environmental assessment was planned. A team of two consultants were entrusted with the assignment to conduct desk review and make assessment of IC-WM activities during NACP-III, identify the achievements and challenges and provide a revised ICWM plan along with recommendations for implementation under NACP Phase IV.

## **2. ASSESSMENT METHODOLOGY**

### **2.1 Objective**

The proposed objective for this assignment is to perform an environmental assessment of activities implemented as part of NACP-III by undertaking a situation analysis through review of reports and documents, undertake site visits and subsequently to assess gaps, identify challenges to be faced based on which, a revised Infection Control and Waste Management (IC-WM) Plan could be recommended for implementation during NACP-Phase-IV.

### **2.2 Activities undertaken**

The Environmental Assessment methodology consisted of the following activities:

**Activity 1:** This included

- (a) Guidelines review: Review of Bio medical Waste management Rules (Handling and Disposal) 1998 and Draft Rules 2011 issued by Govt. of India and PIP of NACP Phase III with specific reference to IC-WM
- (b) Preparation of checklist: Based on the above mentioned documents, preparation of a checklist and proforma to be used for site assessments
- (c) Plan for representative site visits
- (d) **Site visits** to few facilities, including blood banks, ART Centre's, TI units, PPTCT Centre's, HIV referral labs etc. in selected States
- (e) Assessment of IC- WM practices implementation.

#### **Methodology adopted for Activity-I:**

##### **a) The following documents /reports were reviewed:**

- (i) Price Waterhouse Coopers' Report on' Environmental Assessment(Infection Control and Waste management Plan) for NACO;2006
- (ii) National AIDS Control Program Phase III, PIP, 2006
- (iii) Bio Medical Waste Draft Rules ( Handling and Disposal) 2011 and Rule, 1998
- (iv) All training manuals and guidelines published by NACO and available online
- (v) Infection Management and Environment Plan-guidelines for Healthcare workers for Waste Management and Infection control in Primary Health Centre's developed by Ministry of Health and family Welfare, Department of International Development (DFID) and the World Bank.
- (vi) Guidelines on safe disposal of Used Needles and Syringes in the Context of targeted Intervention for Injecting Drug Users -2009
- (vii) Report on Regional Workshops for HIV Referrals on Calibration, Bio safety and Strategic Information Management System by PCI. (viii) Mainstreaming and Partnerships Working Group for NACP-IV Minutes of Meeting

Held on May 6-7, 2011 at Parkland Retreat, New Delhi

- (ix) Monitoring reports from program officers of TI
- (x) Report of the Joint Inspection Review Team NACP III, 2011
- (xi) Annual review report of five years TI intervention, 2012 conducted by NACO

**b) Situation analysis:**

During the site visits, details of current methods of waste management (segregation, treatment and disposal), the frequency of collection, disposal arrangements especially of liquid wastes and sharps, disposal and treatment technologies available etc. were observed. The levels of scavenging or recycling of infectious sharps, plastic waste inside healthcare facilities or immediate vicinity were assessed wherever applicable. Review of existing levels of awareness and capacity on healthcare waste management and established institutional framework for monitoring of this component between Centre and states were carried out. Discussions with stakeholders and persons in and around the visited facilities were also undertaken.

**Activity 2:**

Preparation of a review with regard to implementation, including behavioral practices; institutional structures at NACO and SACS; capacity building and awareness activities; monitoring and reporting mechanisms within SACS and between SACS and NACO; issues relating to proper waste management such as procurement and distribution of consumables and PPE, final disposal arrangements for stand-alone facilities and those housed within larger hospitals.

**Methodology adopted for Activity-II:**

The review was based on the existing Bio Medical waste management ( Handling and Disposal) Rules 1998 and the Draft Rules 2011, PIP of NACP III( specifically Annexure 7.1) and various Guidelines issued by NACO for TI activities, like those for IDUs, Blood Banks, HIV testing, CD4 lymphocyte testing etc., as enumerated above.

On completion of the above tasks, a revised IC-WM plan and recommendations were prepared. It was ensured that the Plan and Recommendations are in accordance with the Draft Bio medical Waste (Management and Handling) Rules 2011 of Ministry of Environment and Forests and the over-arching reinforcement principles of NACP-IV namely, quality innovation, leveraging partnerships and integration for consideration of NACO and World Bank.

### **3. CURRENT LEGAL, ADMINISTRATIVE AND OPERATIONAL FRAMEWORK FOR BIOMEDICAL WASTE MANAGEMENT IN INDIA**

#### **3.1. Policy and Present Regulatory mechanism**

##### **3.1.1 The Environment Protection Act (EPA) 1986:**

The EPA is an umbrella legislation designed to provide a framework for environment protection of all activities.

##### **3.1.2 The Bio-medical Waste Management & Handling Rules, 1998**

It was implemented in India in 1998, through notification by Ministry of Environment & Forest for safe handling, segregation, storage, transportation, treatment and disposal of bio-medical waste generated from health care establishments. These rules were amended in the years 2000 and 2003. The State Pollution Control Boards have been notified as the prescribed authority for implementing the provisions of these rules in their respective states/UTs. The Central Pollution Control Board advises the government and lays down procedures and standards for prevention of environmental pollution across the country.

##### **3.1.3. National Guidelines on Hospital Waste Management, 2002**

It was issued by the Ministry of Health & Family Welfare, Govt. of India. These guidelines include safety measures, waste management, training and related administrative functions in hospitals and its environment.

##### **3.1.4. Bio Medical Waste (Management and Handling) Draft rules, 2011**

The Ministry of Environment & Forests has already gazetted and initiated the public notification process of its draft Bio-Medical Waste (Management and Handling) Rules, 2011. These rules have described the duties and responsibilities of occupier and operator in detail, besides the procedures for certification, authorization, monitoring etc. The changes made in the 2011 Rules which are relevant to this report are as follows;

**3.1.4.1.** It has been stipulated that every occupier of the healthcare facility shall set up the required biomedical waste treatment equipment<sup>2</sup>s prior to commencement of its operation or make necessary arrangements through an authorized common bio medical waste treatment facility.

**3.1.4.2.** In the earlier rules, occupiers of an institution, which provided service to less than 1000 patients per month, need not take authorization from the prescribed authority.

Under the new rules, every occupier, irrespective of the number of patients served or the quantum of bio medical waste generated is required to obtain authorization.

**3.1.4.3.** Under existing rules, there was an overlap with regard to colour coding and segregation of waste. Now, the color codes have been clearly specified to avoid confusion and overlapping (Table-1).

**3.1.4.4.** The number of categories of waste has been reduced from ten to eight. Colour coding for non-infectious waste has also been prescribed.

**3.1.4.5.** Duties and responsibilities of the occupier including occupational safety and training requirements have been delineated in detail.

**3.1.4.6.** Similarly, duties and responsibilities of the operator of the waste treatment facility are also provided in detail.

**3.1.4.7.** Use of chlorinated plastic bags for segregation of waste by the occupier and incineration of the same by the operator is prohibited under the revised rules.

A table of comparison giving details of classification of categories of waste as provided in the above Rules, 1998 and 2011 is appended as Annexure I.

**Table.1. Revised Color coding and types of containers for disposal of bio-medical wastes as per Biomedical Waste (Management and Handling) Draft Rules 2011**

Color coding	Type of container to be used	Waste category Number	Treatment options as per schedule I
Yellow	Non-chlorinated plastic bags	Category 1,2,5,6	Incineration
Red	Non-chlorinated plastic bags/puncture proof container for sharps	Category 3,4,7(4-Waste sharps)(In the earlier rules, soiled wastes are for Red color)	Autoclaving/ Microwaving/ Chemical treatment /shredding
Blue	Non-chlorinated plastic bags container	Category 8( chemical wastes)	Autoclaving/ Microwaving/ Chemical treatment /shredding
Black	Non-chlorinated plastic bags	Municipal waste	Disposal in Municipal dump sites

### **3.2 Infection Control and Waste Management under NACP III:**

#### **3.2.1. Plan and Recommendations**

The PIP of NACP III has provided a detailed plan on IC-WM and recommended that good practices may be further tailored to suit the facility's needs. The Plan has been developed on the following framework:

#### **3.2.2. Components of IC-WM practices in relation to NACP:**

##### **3.2.2.1. Waste Segregation and On-site Storage**

This Component includes segregation at source; availability of designated segregation points, as close as possible to the generation points; good quality and adequately sized containers, use of

non-chlorinated plastic bags; needle cutters and safety boxes; strict adherence to colour-coding provided in the Bio Medical Rules and compliance to the above to be ensured by programme implementers of NACP III.

#### **3.2.2.2. Collection and Transportation of Biomedical Wastes:**

This section encompasses transport of waste to a central location; specially designated waste routes to avoid patient care areas within the facility; Special timing for transportation of biomedical waste to the central point; use of dedicated wheeled-containers, trolleys or carts to transport the waste to the collection/treatment site and training and provision of barriers for waste handlers.

#### **3.2.2.3. Treatment and Disposal of Biomedical Wastes:**

It delineates, disinfection of used blood bags, syringes and other infectious plastic and liquid wastes in 1% Sodium hypochlorite solution; proper handling and disinfection of infected linen and maintenance of a log book for quantity of waste generated by type, name of waste handler, time of emptying waste container, time of cleaning the containers and pouring disinfectant.

#### **3.2.2.4. Sharps Management:**

This section prescribes use of barrier protection; segregation and storage in puncture-proof containers at the point of generation; mutilation of sharps before treatment and disposal; disinfection and appropriate disposal of mutilated sharps; final disposal in a secured landfill or sharp pits and mandatory immunization against Hepatitis B for all the health care workers.

#### **3.2.2.5. Blood safety in Laboratory:**

Besides the appropriate guidelines in the above sections, it specifically stipulates proper disinfection and disposal of infected blood and use of proper double-walled transport containers

#### **3.2.2.6. Infection Control:**

The four key areas of infection control recommended are:

- Immunization against nosocomial infections
- Availability and use of barrier protection
- Timely management of PEP, and
- Creating awareness about Infection Control at all levels

### **3.2.3. Capacity Building and Awareness**

NACP-III has recommended that training should focus on universal precautions, principles of waste management, identification of roles and responsibilities for implementation, monitoring and reporting, provision of IEC material on universal precautions and their dissemination across the States and UTs. It was also recommended that most of the training programmes would be carried out at the State level and be coordinated by the SACS, with technical and financial support from the national level/NACO.

### **3.2.4. Institutional Framework:**

It was recommended under NACP-III that:

- ❖ A JD or APD and one Nodal officer should be identified and given the overall responsibility for IC-WM planning and implementation.
- ❖ Whilst the JD/APD shall provide supervision, the Nodal Officer will be responsible for monitoring, reporting and follow-up activities at all facilities being operated by SACS.

### **3.2.5. Reporting, Monitoring and Evaluation**

The Monitoring & Evaluation of the implementation of ICWM has been stipulated with a mix of internal and external approaches. The internal reporting and evaluation was recommended to be integrated with overall NACP-III reporting mechanism using an IT-based Management Information System (MIS) and external monitoring in the form of ICWM implementation audits. Reporting frequency at National, State, and facility levels were also recommended along with performance indicators for incorporation in CMIS.

### **3.3. Achievements of IC-WM during NACP III**

During NACP III, a wide range of policy documents, operational guidelines and component specific reports were prepared at various levels on NACP III implementation. These documents provide sufficient information on the extent of implementation of IC-WM guidelines as recommended under NACP III. Component specific reviews and activities have also covered the implementation of IC-WM during NACP-III. These reviews and reports have also provided insights into the work done so far on IC\_WM aspects.

Following are the sources of information that were used to review the achievements of ICWM under NACP III in this report:

#### **3.3.1. NACO documents/manuals prepared during NACP III, incorporating IC-WM guidelines and practices**

- Guidelines for IDU (NACO, 2009)
- Guidelines on safe disposal of used needles and syringes in the context of Targeted Interventions for Injecting Drug Users (NACO,2009)
- Operational Guidelines for DAPCU (NACO, 2009)
- TI Monograph, 2011
- NACP factsheet, 2011
- Guidelines for HIV testing, 2007
- National guidelines for the enumeration of CD4 lymphocytes, 2007
- National Guidelines on Prevention, Management and Control of Reproductive Tract Infections including Sexually Transmitted Infections, 2007
- Standards for Blood Banks & Blood Transfusion Services, 2007
- Targeted Intervention-Annual Evaluation tool (FSW/MSM/IDU), 2012.

In summary, each of these documents had appropriate components of Infection Control and Waste Management guidelines and practices, such as hand washing, Universal precautions, management of NSIs, prevention of TTIs, waste segregation and disposal, sharps management etc. incorporated in them.

##### **3.3.1.1. Documents /manuals prepared by SACS**

SACS from various states (eg, West Bengal, Orissa, New Delhi, Andhra Pradesh, Gujarat, Tamil Nadu, Karnataka etc.,) have prepared Training Manuals for all categories of staff in which IC-WM guidelines and practices are covered based on NACP III - PIP.

### **3.3.2. Trainings conducted on IC-WM**

#### **3.3.2.1. National Level:**

NACO had conducted several training of trainers (ToT) for Blood safety, HIV laboratory testing, ART & CD4 testing covering IC-WM as a subject incorporated into them. In addition, a series of regional level workshops were conducted by NACO and CDC in the year 2011 on calibration, bio-safety and laboratory component of the Strategic Information Management Systems (SIMS). 13 workshops were conducted in five months (from May to September 2011) across the country, where laboratory personnel, quality managers from SACS and representatives from NACO participated and key stakeholders trained. . Totally 306 persons from 13 NRLs and 118 SRLs were trained in these workshops.

#### **3.3.2.2. SACS level:**

All the SACS, have conducted training programs on prevention, care and treatment of HIV/AIDS in which IC-WM has been covered as a topic for personnel providing services at most of the General hospitals, Medical colleges, NRLs, SRLs, Regional Blood Banks, NGOs working on Targeted Interventions(TI) for High Risk groups (HRGs)

However, there is no nationwide consolidated information on the number of trainings done during NACP Phase III, number of persons trained and the effectiveness of these trainings specific to IC-WM.

#### **3.3.2.3. DAPCU level:**

At district level, the District AIDS Prevention Control Units (DAPCUs) were involved in facilitating training programs for medical officers, ANMs and, NGOs based on NACO guidelines.

#### **3.3.2.4. Institutional level**

Based on the discussions with stakeholders during site visits and from the annual reports from hospitals, it is seen that many of the general hospitals have conducted induction training for their employees. Waste disposal agencies also have conducted trainings for the employees of hospitals and one training module was seen at the district hospital in Andhra Pradesh which the consultants visited. The Joint Inspection Review team that visited Gujarat during December 2011 has also made a similar observation.

### **3.3.4. Educational initiatives**

A Certificate course in Healthcare Waste management (CHCWM) as a six-month distant education course for doctors, nurses and other professional workers was introduced by IGNOU in collaboration with WHO, SEARO in 2006. Though this is not a NACP III initiative, this has also created awareness on the importance of IC-WM during this period.

### **3.3.4. Review mechanisms**

#### **Periodic Monitoring of IC-WM activities:**

Compliance to IC-WM activities such as availability of hypochlorite, disposal of needles, and coordination with district hospital for sharps disposals were routinely monitored by program officers of TI project areas as evident from their monthly reports. Annual evaluations of NGO managed TI projects also show that the needle return rate was one of the indicators used for scoring of the TI centres in addition to other parameters.

### **Periodic reviews**

Annual reviews of the program conducted by NACO, reviewed IC-WM activities extensively. Give below is an extract from the recently conducted Joint Review Mission for the state of Gujarat in December 2011, which has a detailed account of practices observed in various hospitals in the state. .

- ❖ The JIR team assessed the quality of infection control and waste management in all site visits and noted consistent good practices.
- ❖ The JIR team commended NACP III for the impressive waste management system of a district hospital in Gujarat and the innovative method used for disinfecting sharps to prevent double-handling.
- ❖ The staff at the facility is aware of the biomedical waste management compliance requirements as well as the occupational safety and infection control measures required for their core areas of work.
- ❖ IEC materials were in the appropriate locations and the staff has received their requisite vaccinations.
- ❖ PPE supply seemed to be adequate.
- ❖ Procurement of consumables was well managed with clear forecasts of hospital requirements.
- ❖ Monitoring, supervision and re-training were provided by appropriate hospital authorities at regular intervals.
- ❖ Waste management systems in blood donation camps could be improved with respect to sharps management.
- ❖ The storage area was appropriately enclosed and well maintained with proper segregation of the color coded bags
- ❖ Waste generated from each unit was well recorded and documented, based on which the payments were made to the contracted service provider (run by the local Medical Association) who operated the centralized treatment facility.

### **3.3.5 Information from Monitoring reports from TI areas**

Targeted Intervention areas required more inputs, training and monitoring as these are the areas where there is highest transmission of HIV infection. With increasing numbers of IDUs and DICs, the program officers of TI have the additional responsibility of monitoring the return of sharps as well as disposal of sharps and needles. Monitoring reports from TI areas reveal good compliance to sharps management and IC WM practices. (Targeted Intervention-Annual Evaluation Tool (FSW/MSM/IDU). TIs less than 5years- 2012) - indicator no 2.1), in which a maximum score of 3 has been allotted for ICWM as waste disposal mechanism was found to be in place; collection, disinfection and final disposal were reported to have been done as per NACO guidelines.

## **4. SITE VISITS & OBSERVATIONS**

### **4.1. Objective**

Site visits were made by the consultants with an objective to observe the implementation of IC-WM guidelines and practices with respect to awareness of staff and available capacity, segregation, treatment and disposal of waste, management of infectious sharps, plastic waste, and frequency of collection, disposal arrangements, and institutional framework for monitoring these activities on a sustainable basis.

### **4.2. Sites and facilities visited**

Two States from different regions of the country, one with High-Risk of HIV transmission (Andhra Pradesh, Southern region) and the other with emerging HRG (IDU) issues (New Delhi- Northern State) were chosen for site visit. Twenty four sites including, ART centres, STI clinics, IDU-DICs, Blood banks, HIV and CD4 laboratories, PPTCT clinic and labour wards, RNTCP clinic, General hospitals were visited in each of the State.

### **4.3. Stakeholders consulted**

In these centres, consultants held meetings and discussions with officers of State AIDS control Societies including the PD/JD, Hospital Superintendent/Administrator, teaching faculty in-charge of Hospital Infection Control Committees, Medical Officers of ART centres /PPTCTs, Counselors of /ART center/PPTCT/IDU /STI clinic, Junior doctors, Medical officers, NGOs, Staff Nurses, BMW workers and peer educators. In addition, discussions were held with officials at NACO to understand ICWM implementation and to receive the documents/reports connected with ICWM implementation during NACP-III.

### **4.4. Data collected**

A proforma prepared for this purpose was used to record the observations and assess the status of ICWM practices in these centers. (Annexure II) the data collected included the following:

#### **4.4.1. General information:**

It included, presence of a documented policy, guidelines, designated person for IC, monitoring activities, availability of protocols for NSIs and spill management and PPE,

#### **4.4.2. Waste segregation:**

Information on availability of colour coded bags, bins; sharps containers, needle destroyers and reuse of plastics were collected.

#### **4.4.3. Storage and disposal**

Availability of designated storage place, location, security, transport facility, transport frequency, disposal agency status, alternate arrangements in case of non-availability of disposal agency and handling of liquid waste were recorded.

#### **4.4.4. Documentation**

Reporting of NSIs, log book maintenance on the amount of waste disposed, disposal records and record of administering Hepatitis B vaccination for HCW were looked into.

#### **4.4.5. Training and awareness**

Training plan, manuals, records, category of staff trained and frequency of training were included under this section. Secondary information collated included manuals on waste management, training manuals, standard operating procedures, IEC materials etc.

### **4.5. Observations during the Site Visits:**

#### **4.5.1. IC-WM Practices in General**

##### **4.5.1.1. Government -run facilities**

Out of the government facilities visited, Gandhi Medical College hospital and Institute of Preventive Medicine, Hyderabad and Maulana Azad Medical College & LNJP Hospital, New Delhi had adequate IC-WM practices. Awareness was good among all categories staff and there were designated persons to take care of Infection control activities.

While, in all government-run facilities at New Delhi and Hyderabad, awareness on IC-WM practices were satisfactory, in the district hospital of Sangareddy, some of the staff were not fully aware of the guidelines and practices. Generally, even though training programmes were conducted, the capacities need to be further strengthened.

##### **4.5.1.2. HIV service delivery facilities**

In general, all HIV service delivery facilities such as ICTCs, PPTCTs, ARTs, and Blood Banks demonstrated awareness and good compliance to IC WM practices. These facilities had regular training programs, adequate supply of PPEs, needle cutters. They are located inside government hospitals and hence are dependent on waste disposal facilities of the hospital. In all the visited hospitals, the government had entered into an agreement with private waste disposal agencies which collected and transported waste regularly. However, at a few locations (eg.Sangareddy district Blood bank, Andhra Pradesh) it was noticed that the segregation practices were incorrect.

##### **4.5.1.3. Privately-run /NGO Facilities**

In Hyderabad and New Delhi, STI clinics and IDU centres run by NGOs were assessed for their IC-WM practices. Similar to Public sector facilities, the privately-run NGO sectors too practiced good IC WM facilities in many places. There were well-established systems for infection control and waste management. In both the STI clinics one in New Delhi and the other in Hyderabad, waste disposal was not as good as the IDU centres, where they were good. In both the stand alone STI clinics, the NGO had not entered into a contract with waste disposal agency, though such mechanisms were available and were disposing the waste at nearby Govt. hospital.

#### **4.5.2. Awareness of Regulations and Regulatory Requirements**

In public sector facilities and TI clinics, IC-WM was covered in the regular HIV training. Blood banks and laboratories had regular planned training programs. Awareness on IC-WM was high as the staffs at 22 out of 24 facilities visited were aware of the guidelines on segregation and disposal. Though there was no structured training plan or records, many employees mentioned that they had undergone training in BMW either by the hospital or by waste disposal agency at least once.

#### **4.5.3. Infection Control and Waste Management Committees**

In most instances, the Medical Superintendent, Nursing Superintendent and the Microbiologist from the medical college were nominated as members of the IC- WM committees. Nodal officers were identified in all centres except at the district hospital. The nodal officers informed that they could not perform optimal monitoring functions to the expected levels as they were assigned this as an additional responsibility. Even in those facilities in which IC and WM committees were present, the authorities admitted that they were not very active since ICWM was additional responsibility.

#### **4.5.5. Use of PPE**

In general hospitals, blood banks and District TB centre, there was satisfactory availability of gloves and masks. All the HIV service delivery units supported by SACS such as ART clinic, HIV laboratories, and gloves were available for procedures.

#### **4.5.6. Sharps handling and disposal**

In public sector facilities such as ART clinics, HIV laboratories, IDU clinics, sharps handling was found to be satisfactory. Needle recapping was not done. Needles were cut and disposed as per guidelines. However, in general hospitals in general healthcare areas, sharps handling and disposal needs to be improved as there were a few instances of recapping and improper disposal even though needle cutters were available. Needle Stick Injuries (NSI) were reported and referred to ART centres for PEP.

In IDU centres, the practices were satisfactory. In view of the fact that all needles are not returned to the DIC, they may get mixed with municipal waste and can harm the rag pickers and the public so disposal practices need to be re-emphasized. It was observed that the Delhi-SACS has monthly statements of NSIs getting reported from public sector facilities supported by under NACP.

#### **4.5.7. Waste transport and disposal**

Covered trolleys are available in medical college hospitals visited. Designated route and specific timing for internal transport are not practiced. At most of the facilities, transport of Biomedical Waste inside the facility areas was carried out depending upon the location specific arrangements.

#### **4.5.8. Frequency of collection and disposal**

In general the frequency of collection and disposal of BMW has been satisfactory. Bigger centres had their waste collected daily. At smaller intervention sites such as IDU centres, the collection was thrice a week.

#### **4.5.9. Immunization of staff against Hepatitis B**

Though the larger hospitals have made vaccination against Hepatitis B free, not all the staff are immunized. Most of the HIV/AIDS program staff is immunized against Hepatitis B.

#### **4.5.10. Innovative practices in IC-WM**

It was encouraging to witness in some of the centres visited by the consultants and by the Joint Inspection review team of NACO, certain innovative approaches to IC-WM by healthcare workers and administrators.

The following are some of them:

**4.5.10.1.** In the IDU clinic, New Delhi, run by an NGO, well-designed tin boxes were fabricated and used as puncture proof containers to bring used and discarded needles from the 'hotspots'. They have tight lids which could be secured well.

**4.5.10.2.** Similarly, in the IDU centres in Manipur visited by NACO, the team had made a special mention about the design of puncture proof containers designed and used by them.

**4.5.10.3.** SACS, Delhi had implemented a very unique helpline service in which management of needle stick injuries was informed to the caller in an interactive way. It was seen from their call log that this service was used well by public.

**4.5.10.4.** In Gujarat, during the visit of Joint Inspection Review team, the members had made a special mention about the innovation by which, the blue waste disposal bags were cut at the bottom to serve as sieved bins, thus saving on the cost and use of bins.

**4.5.10.5.** The consultants were informed by the PD; Delhi SACS that the programme intends to review the possibilities of sanctioning medical expense & service for the IDU patients when they need hospital admission or antibiotics for abscess management.

Karnataka SACS has addressed the issue of disposal of needles and syringes and prepared good documentation as well.

These are a few instances where the consultants and visiting teams had observed these innovative approaches to IC-WM. It is inferred that more such practices could be in existence in many other places, too.

### **5. NACP IV AND ICWM**

#### **5.1. Objectives**

NACP Phase IV which is scheduled to commence from April, 2012, is designed to:

- (i) Consolidate the gains obtained from NACP III and take it further so that resurgence of the HIV epidemic does not take place
- (ii) Intensify ICWM efforts on high risk groups and

(iii) Strengthen the integration of NACP-IV activities with Health system.

The objective with respect to ICWM under NACP IV is to arrive at a need-based, practical, effective, sustainable plan that would be implementable during the phase IV of NACP, keeping in mind, and the proposed integration of HIV/AIDS program with general health services of the country.

## **5.2. Emerging Issues in IC-WM**

Document review, scrutiny of annual reports of NACO, SACS, TI monitoring reports, Joint Inspection review report 2011, training manuals available at SACS, DAPCU and at centres visited along with observations made at visited facilities have highlighted the tasks accomplished during NACP III in the area of Infection control and Waste management. They have also clearly brought out the challenges that lie ahead for implementation of ICWM in the future.

### **5.2.1. Integration with other services**

For any disease control program to be integrated successfully, an efficient general health services is essential. Since most of the NACP supported HIV service delivery facilities are located inside general hospitals/ CHCs, all categories of personnel need to be educated adequately on IC-WM and the practices are made to be implemented uniformly. However, this is a state responsibility which is not in the mandate of NACP. It is planned to integrate HIV services with other programs like NRHM, RCH, and RNTCP over a period of time. HIV /AIDS activities alone cannot function well if other services are not going to satisfactorily manage bio-waste and infection. It is necessary to educate and train all the healthcare and sanitation workers and also ensure adequate supplies of ICWM materials, PPE etc. Considering the magnitude of this task, this may be a great challenge during NACP-IV and may require substantial collaboration with the Health System.

## **6. REVISED INFECTION CONTROL & WASTE MANAGEMENT (ICWM) PLAN AND RECOMMENDATIONS**

The revised ICWM Plan under Phase IV of NACP as proposed below, is based on the observations made by the consultants during site visits, discussion with healthcare professionals and stakeholders, review of documents and reports available at the national, State and district levels including conformance reports, Joint Inspection Review of NACP III done in December, 2011, BMW training reports available at hospitals and facilities, training materials available at NACO, Reference laboratories and Blood Banks and knowledge of existing practices among other programs such as RNTCP, RCH, NRHM and general health services. The achievements and challenges that have emerged in that process and areas that require attention were identified were taken into consideration while developing the revised ICWM Plan.

To have a long-lasting impact on environment and safety, ICWM has to evolve as a sustainable programme and hence cannot exist as an independent activity under HIV/AIDS program of NACO.

### **Components of the revised ICWM plan and recommendations:**

In view of the above, since the basic principles of ICWM may remain the same as evolved under NACP-III, the proposed revised plan is modified in line with the Biomedical Waste (Management and Handling)

draft rules, 2011 of Government of India and also to address the challenges & emerging issues observed in this analysis.

## **6.1. Institutional Framework**

### **6.1.1. Background**

Effective implementation of the IC-WM Plan necessitates the need for a strong institutional framework both at the State (SACs) as well as at the national level (Department of AIDS Control) for successful implantation of the Plan.

### **6.1.2. Description**

#### **6.1.2.1. At National level ( concerning NACP )**

A JD /National program officer (surveillance) should review the ICWM reports received from various States through CMIS/reports and give feedback to the leadership.

The officer may have to support agencies on the levels of implementation, progress of activities under ICWM of NACP IV.

#### **6.1.2.2. At State level**

At state level, SACS Project Director may have to identify, from among the existing officers, one Joint Director (JD) and one Nodal officer (preferably the quality manager) and make them responsible for IC WM planning and implementation.

## **6.2. Scaling up ICWM implementation in TI areas**

- ❖ TI areas need additional attention and services as chances of transmission of infection is higher, if adequate inputs are not provided.
- ❖ Through NGO's implementing TI, the program officer may have to be empowered to implement ICWM plan in his/her area of operation. Additional requirement in the form of PPEs, waste disposal bags, bins, sharps containers, fee for the waste management agency or provision of autoclaves in remote centres where BMW management agencies do not exist, have to be provided as per requirement.
- ❖ Education and training of peer educators, HRG population should be done in addition to HCWs. These should be more frequent and intense and in the respective vernacular languages enriched by interactive ICT-based multimedia tools.

## **6.3. Capacity building**

Capacity Building is one of the most important components of infection control and waste management that is to be intensified during NACP-IV. NACO has issued several guidelines over the years that draw the best practices from a wide variety of national and international resources. Some of the more widely circulated ones are listed in the references. These publications are comprehensive ones, and do not need to be enhanced significantly.

### **6.3.1. The process**

SACS Nodal officers should conduct baseline assessment of training needs for workers at SAC supported facilities.

### **6.3.2. Training programs**

- ❖ Training programs need to be planned in such a way that at least one program is conducted every year for each category of health care professionals.
- ❖ Training of trainers (ToT) is to be taken up by NACO for groups of representative faculty across the country who would in turn train state level trainers.
- ❖ The trainings also need to be more practice oriented with clearly defined learning objectives and outcomes. It should consist of case studies, participatory exercises supported by multimedia tools rather than being theoretical.

### **6.3.3. Education initiatives**

- ❖ Centre for Environment Education (CEE) conducts training courses under its HEWMEP (Health Establishments Waste Management Education Program). This may be fully utilized during NACP-IV as one of the educational integration initiatives.
- ❖ In addition, many authorized BMW-management and disposal agencies also conduct training programs, though not regularly, which may be made structured and conducted. The SACS can also take assistance from all the above agencies also to create awareness and conduct training programmes on BMW management and Infection Control.

## **6.4. Infection Control**

### **Background**

Prevention and reduction of infection is the key driver to bring-in safety in the work environment. This is even more important for healthcare workers and those involved in treatment of HIV/AIDS patients, since nosocomial infections form one of the most important routes of contracting HIV/AIDS.

### **6.4.1. Description**

#### **6.4.1.2. IC recommendations:**

- ❖ General observance of personal hygiene is important. With all staff to be sensitized for clean, habits of with clean uniforms, nails care, short or tied-up hair, etc.,
- ❖ Staff must observe Universal Precautions including barrier protection, hand washing, safe techniques, careful handling of sharps, sterilization and disinfection.
- ❖ Since the two most common routes of acquiring infection are contact with blood or blood stained body fluids and accidental needle stick injuries, staff should ensure the use of barrier protection (gowns, masks, caps, gloves and shoes) to prevent contact with contaminated blood/body fluids. Similarly, disposable needles should be used to reduce sharp injury from recapping and sterilizing procedures.
- ❖ Staff should also ensure that disposable needles are used only once and that they are mutilated in thermal/mechanical needle cutters. After mutilation, the needle and hub should be immersed in 1% Sodium hypochlorite solution or any other recommended disinfectant for at least 30 minutes.

#### **6.4.1.4. Reduction of Biomedical waste generation:**

It should also be possible to minimize bio waste generation including syringes and needles in hospital facilities with centralized blood collection as per requirements and dispatching to individual laboratories with bar coded computerized tracking cum identity system.

#### **6.4.1.5. Capacity building and training:**

Capacity building and training, monitoring and supervision and incident reporting and management are approaches to Infection Control as well.

#### **6.4.1.6. Accident Reporting and its Format**

Accident/incident reporting should be diligently followed

1. Date and time of accident:
  2. Sequence of events leading to accident
  3. The waste involved in accident:
  4. Assessment of the effects of the accidents on human health and the environment
  5. Emergency measures taken
  6. Steps taken to alleviate the effects of accidents
  7. Steps taken to prevent the recurrence of such an accident
- Date ..... Signature.....  
Place..... Designation.....

*Source: Form III, Biomedical Waste (Management and Handling) Rules, 2003*

## **6.5. Bio-Medical Waste management**

### **Background**

The appropriate treatment of biomedical waste and its disposal along with infection control are the cornerstone of good housekeeping and overall hygiene in any healthcare facility. Drawing largely from the Biomedical Waste (Management and Handling) Rules, 1998 (amended 2003) and Draft Rules, 2011, this section details the various waste management and disposal good practices in the absence of a centralized biomedical waste treatment facility.

### **6.5.2. Norms, Specifications and recommendations:**

- ❖ Although there is no standard and uniformly accepted definition of hospital waste, it is generally recognized as biomedical waste generated in diagnosis, treatment or immunization of human beings, in research pertaining there to or in the production or testing of biologicals. Further categorization of biomedical waste has been done under 8 different heads in the Biomedical Draft Waste Rules, 2011, as given in Annexure I
- ❖ To the extent feasible, the healthcare facility should plan to use centralized treatment and disposal facilities, if they exist in the vicinity. In this context, the facility is encouraged to enter into public-private partnership with existing state waste management facilities. This will also avoid needless duplication of resources and efforts to manage waste. Additionally, it will ensure uniformity in practices adopted across facilities. One such healthy practice is the tripartite arrangement involving the Delhi Government, Delhi Medical Association (DMA) Nursing Home and Medical Establishment Forum and an NGO, 'Synergy'. In this partnership, the biomedical wastes are collected from the private medical facilities that are members of the DMA by 'Synergy' and the incineration is undertaken by the Delhi Government. Similarly, Andhra Pradesh Government also has entered into an agreement with a waste management agency, 'SemRamkey' for all the government hospitals, CHCs, PHCs etc.

However, if there is no access to centralized facilities, the potentially infectious waste should have to be managed as follows:

**6.5.2.1. Sharps** that are in their puncture proof containers should be drained of the disinfectant and should be placed in the sharps pit, which is to be located within the premises.

**6.5.2.2. Infected organic waste** should be taken to the onsite deep burial pits and covered with a layer of lime and soil.

**6.5.2.3. Infected recyclables** such as plastics and metals should be first disinfected using bleach solution and / or autoclaved before it is sent for recycling.

**6.5.2.4. Infected linen** in the hospital should be carefully packed in plastic bags, taken to the washing area, stored in bleach solution and then laundered with the usual cleaning agents. Personnel involved in laundering infected linen should take adequate precautions to prevent the exposure to infections.

**6.5.2.5. All equipment** used for bio-medical waste treatment should be periodically subjected to maintenance checks to ensure its functioning. Both preventive and corrective maintenance schedules and records should be retained in the facility.

### **6.5.3. Waste Segregation and On-site Storage**

#### **6.5.3.1. Background**

Segregation at source is the most important means of ensuring adequate waste management. Separation becomes almost impossible if hazardous and non- hazardous wastes are mixed together. This also leaves the waste handlers open to risk of infection. Hence, the guidance, based on Biomedical Rules, provide means of segregation and treatment options.

#### **6.5.3.2. Norms, Specifications and recommendations**

- ❖ Biomedical Waste Rules have provided for color coding for waste segregation as given earlier in this document and should be followed.
- ❖ The facility should have earmarked segregation points, as close to the generation points as possible.
- ❖ The facility should ensure availability of good quality and adequately sized containers for waste segregation and on-site storage. These should preferably be thick plastic and should be lined with non- chlorinated plastic liners.
- ❖ Where potentially infected wastes are being generated, the waste containers should contain 2% freshly prepared bleach solution and the waste should be immersed in this solution. Additionally, it should be ensured that the waste containers be kept closed all the time and that no waste or bleach solution overflows from them. At all times, the waste container should not be more than 3/4th full.
- ❖ All waste handling personnel should ensure barrier protection (gloves, gowns, masks and boots).
- ❖ They should observe Universal Precautions when handling the waste.
- ❖ The waste containers should be emptied at least once every day.
- ❖ A log book need to be maintained on the of quantity of waste generated by type, name of waste

handler, time of emptying waste container, time of cleaning container and pouring disinfectant should be maintained.

#### **6.5.4. Collection and Transportation of Biomedical Wastes**

##### **6.5.4.1. Background**

Transportation of biomedical wastes, if not handled carefully, has the potential to cause harm to a greater number of people. This is because transportation occurs both within the facility as well as outside it. When within the facility, it poses a risk to patients, their relatives and even healthcare workers not associated with waste management. Similarly, outside the facility it may leave its trail in the neighborhood, on roads, near eating joints, etc. The following guidelines provide an overview of good practices to be observed during transportation.

##### **6.5.4.2. Norms, specifications and recommendations**

- ❖ Waste should be collected from various sources centrally.
- ❖ For transportation within the hospital, special waste routes should be designated to avoid the passage of waste through patient care areas.
- ❖ Special timing should be identified for transportation of biomedical waste to the central point to reduce chances of its mixing with general waste.
- ❖ Dedicated wheeled containers, trolleys or carts to transport the waste bins/ plastic bags to the site of storage treatment need to be identified. These should be such that the waste can be easily loaded, remains secured during transportation and does not have any sharp edges and is easy to clean and disinfect.
- ❖ The trolleys/carts are to be thoroughly cleaned and disinfected in the event of any spillage,
- ❖ Waste handlers should have barrier protection during transportation. .
- ❖ Whilst transporting outside the facility, transportation of infectious waste in dedicated vehicles should be containing waste in appropriate color coded bags and with Cytotoxic/biohazard waste symbols.

#### 6.5.4.3. Label for transport of Bio-Medical waste containers/ bags

Day .....	Month .....
Year .....	
Date of generation .....	
Waste category No .....	
Waste class	
Waste description	
Sender's Name & Address    Receiver's Name & Address	
Phone No .....	Phone No .....
Telex No ....	Telex No .....
Fax No .....	Fax No .....
Contact Person .....	Contact Person .....
In case of emergency please contact Name & Address : Note : Label shall be non-washable and prominently visible	

*Source: Bio-medical Waste Management Rules, 1998, Schedule II.*

## **6.6. Monitoring and Evaluation**

### **6.6.1. Background**

In order to make sure that training translates into practice, regular supervision and monitoring is absolutely necessary using reports, checklists and audits. Regular supervision is the appropriate tool to assess risk and take prompt corrective and preventive measures using structured methodology supported by IT-based Management Information system (MIS).

### **6.6.2. Norms, Specifications and recommendations:**

#### **6.6.2.1. Risk Assessment**

#### **6.6.2.2. Monitoring**

Inclusion of ICWM information reports in MIS was suggested during NACP III. NACP IV should explore the possibility of including all the parameters in a IT-Structured pattern relating to ICWM.

#### **6.6.2.5. Performance Indicators**

Some generic Performance Indicators of the ICWM Plan have been recommended below, which though not exclusive, can form part of monthly reports and should be monitored at the district and state levels.

- Vaccination report of HCWS/ICWM personnel (in NACP) against Hepatitis-B
- Trainings conducted

## **6.7. Quality assurance and Accreditation of HIV laboratories**

- ❖ Accreditation standards, address patient safety, sample/blood safety, environment safety and worker safety; when HCEs prepare themselves for accreditation, ICWM gets implanted automatically. In addition, due to the mandatory requirement of internal and external audits, monitoring and assessment also are ensured.
- ❖ Of the total 118 HIV laboratories, 9 are currently accredited and there are plans to get at least 40% of the labs accredited by NABL by 2017. A budget of Rs.2.76 lakhs is provided to the laboratory to get the needful done for accreditation.
- ❖ Under NACP IV, more inputs may have to be provided to laboratories to facilitate accreditation. Assistance from external agencies/consultants should be sought to sensitize, train laboratories on quality management system and accreditation.

## **6.8. Ensuring Quality management system for Blood banks**

- ❖ Prevention of Transfusion transmitted Infections and safe disposal of infected and expired blood bags is an important component of infection control which are specific to blood banks in addition to universal precautions and proper biomedical waste management. Good quality management systems should be facilitated in all blood banks through sensitization and training.

**6.9. Implementation schedule (NACP Facilities)**

<b>Activities</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Remarks</b>
Resource Identification					
<i>Training/Reorientation Preparation</i>					
Preparation of Training/reorientation modules					
<i>Conduct of Training</i>					
<i>Reorientation</i> Training for LT's/ counselors/ Nurses under NACP					
Training for SACs Personnel					
Training for NGOs (nodal person involved in implementation of activity)					
<i>Treatment and Disposal</i>					
Monitoring of activities by Third Party					
Monitoring of training activities					

**6.10. Finance estimates:**

**Nominal charges may be provided for a waste disposal agency if there is no possibility of collaborating with any NGO/ agency which is involved in waste disposal locally.**

**Annexure III: BIO MEDICAL WASTE MANAGEMENT RULES 2011**

Category	Waste Category	Treatment and Disposal- 1998	Treatment and disposal 2011
1	Human Anatomical Waste(human tissues, organs, body parts)	Incineration/Deep burial	Incineration
2	Animal Waste (animal tissues, organs, body parts, carcasses, bleeding parts, fluid, blood and experimental animals used in research, waste generated by veterinary hospitals, colleges, discharge from hospitals, animal houses)	Incineration/deep burial	Incineration
3	Microbiology & Biotechnology Waste and <i>other Laboratory waste</i> (wastes from laboratory cultures, stocks or specimens of microorganisms, live or attenuated vaccines, human and animal cell culture used in research and infectious agents from research and industrial laboratories, wastes from production of biologicals, toxins, dishes and devices used for transfer of cultures)( <i>wastes from clinical samples, pathology, biochemistry, hematology, blood bank,</i> )	Local autoclaving/microwaving/incineration	Disinfection at source by chemical treatment or by autoclaving /microwaving followed by mutilation/shredding and after treatment final disposal in secured landfill or disposal of recyclable wastes (plastics or glass) through registered or authorized recyclers.
4	Waste sharps (needles, syringes, scalpels, blades, glass, etc, that may cause puncture and cuts. This includes both used and unused sharps.)	Disinfection (chemical treatment /autoclaving/microwaving and mutilation/shredding)	Disinfection by chemical treatment or destruction by needle and tip cutters, autoclaving or microwaving followed by mutilation or microwaving followed by mutilation or shredding, whichever is applicable and final disposal through authorized CBWTF or disposal in secured landfill or designated concrete waste sharp pit.
5	Discarded medicines and Cytotoxic drugs	Incineration,	Disposal in secured

Category	Waste Category	Treatment and Disposal- 1998	Treatment and disposal 2011
	(wastes comprising of outdated, contaminated and discarded medicines)	destruction and drug disposal in secured landfills	landfill or incineration
6	Solid waste (Items contaminated with blood, and body fluids, including cotton, dressings, soiled plaster casts, lines, beddings, other material contaminated with blood)	Incineration/autoclaving/microwaving	Incineration
7	<i>(Infectious)</i> Solid waste (Waste generated from disposable items other than the waste sharps such as tubings, catheters, intravenous sets etc)	Disinfection by chemical treatment /autoclaving/microwaving and mutilation shredding	Disinfection by chemical treatment or autoclaving or Microwaving followed by mutilation or shredding and after treatment final disposal through registered or authorized recyclers
8	Chemical Waste( chemicals used in production of biologicals, chemicals used in disinfection, as insecticides, etc)	Chemical treatment and discharge into drains for liquids and secure landfill for solids	Chemical treatment and discharge into drains meeting the norms notified under these rules and solids disposal in secured landfill

**Note; Words in italics are additions to Draft Rules 2011.**

Following two categories that were present in Rules 1998 have been removed in Draft Rules 2011.

1.	Liquid waste(waste generated from laboratory and washing ,cleaning, house-keeping and disinfecting activities)	Disinfection by chemical treatment and discharge into drains
2.	Incineration Ash (ash from incineration of any biomedical waste)	Disposal in municipal landfill