Environment

Provision of preventive and diagnostic services under the HIV/AIDS project is expected to benefit the hygiene and sanitation situation in the country however it could generate infectious bio-medical wastes such as sharps (infected needles and syringes, etc), infected blood, HIV test kits used in VCT centers, blood banks and laboratories and pharmaceutical wastes. These wastes, if not managed and disposed properly, can have direct environmental and public health implications.

The proposed project has been classified as category “B” as per the World Bank’s Operational Policy on Environmental Assessment (OP 4.01) for environmental screening purposes given the risks associated with the handling and disposal of medical waste and general health waste. Category B projects imply that the potential adverse environmental impacts of the program are site-specific and in most cases mitigatory measures can be designed readily and appropriately.

The MoPH and the NACP team are feeling that under this project we are focusing on the Infection Control and Waste Management issues only in the activities pertaining to this current HIV/AIDS project but it could be a good start and foundation stone for a more comprehensive Waste Management Framework with other programs and institutions in the country in the future.

An Infection Control and Waste Management (IC-WM) Plan has been developed by NACP which focuses on the establishment of a sound management system for the treatment and disposal of the waste related to the testing, treatment and prevention of HIV/AIDS STI and includes generic guidance and protocols and alternative technologies for treatment, transportation and disposal in accordance with the size of healthcare facilities.

Safeguard Policies

This project has triggered OP 4.01 Environmental Assessment due to the potential Adverse environmental impacts of healthcare waste as discussed in the previous section. A Limited environmental assessment was undertaken, by different stakeholders, by visiting some government run and some NGOs run facilities, which included field visits and consultations. NACP does not have the necessary institutional capacity to implement the IC-WM Plan and would need to obtain appropriate support for components such as training, IEC and monitoring. An external independent evaluation is recommended before the mid term review of the program to ensure all activities are on track.
The final version, of the Infection Control and Waste Management Plan should be disclosed in the World Bank InfoShop prior to Appraisal and also it is the responsibility of the NACP and the MoPH to make it available to all relevant national stakeholders in the local languages as well as in the relevant websites.

<table>
<thead>
<tr>
<th>Safeguard Policies Triggered by the Project</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Assessment (OP/BP 4.01)</td>
<td>[X]</td>
<td></td>
</tr>
<tr>
<td>Natural Habitats (OP/BP 4.04)</td>
<td></td>
<td>[X]</td>
</tr>
<tr>
<td>Pest Management (OP 4.09)</td>
<td></td>
<td>[X]</td>
</tr>
<tr>
<td>Physical Cultural Resources (OP/BP 4.11)</td>
<td></td>
<td>[X]</td>
</tr>
<tr>
<td>Involuntary Resettlement (OP/BP 4.12)</td>
<td></td>
<td>[X]</td>
</tr>
<tr>
<td>Indigenous Peoples (OP/BP 4.10)</td>
<td></td>
<td>[X]</td>
</tr>
<tr>
<td>Forests (OP/BP 4.36)</td>
<td></td>
<td>[X]</td>
</tr>
<tr>
<td>Safety of Dams (OP/BP 4.37)</td>
<td></td>
<td>[X]</td>
</tr>
<tr>
<td>Projects in Disputed Areas (OP/BP 7.60)</td>
<td></td>
<td>[X]</td>
</tr>
<tr>
<td>Projects on International Waterways (OP/BP 7.50)</td>
<td></td>
<td>[X]</td>
</tr>
</tbody>
</table>

Activities and Responsibilities of NACP

NACP is the platform where the following Activities must take place:

- Development, revision and implementation of Afghanistan National HIV/AIDS Strategic Framework
- Establishment and running VCCT centers in different parts of the country
- Development and adaptation of different types of guidelines and protocols
- Establishment and co-ordination of HIV/AIDS Co-ordination Committee of Afghanistan (HACCA)
- Supervising different surveys and studies regarding HIV/AIDS
- Fund raising for smooth running of Program

Provision of preventative and treatment services under the NACP is expected to generate infectious bio-medical wastes such as sharps (infected needles and syringes, equipment, IV sets) infected blood, HIV test kits used in VCT centers, blood banks and laboratories and pharmaceutical wastes. These wastes, if not managed and disposed properly, can have direct environmental and public health implications. Healthcare workers (HCWs) are at great risk as most bloodborne occupational infections occur through injuries from sharps contaminated with blood through accidents or unsafe practices. Systematic management of such clinical waste from source to disposal is therefore integral to prevention of infection and control of the epidemic.

In this context, governments have an obligation to implement the provisions of the 2001 United Nations Declaration of Commitment on HIV/AIDS, which include a commitment to strengthen health-care systems and expand treatment, as well as to respond to HIV/AIDS in the world of work by increasing prevention and care programs in public, private and informal work-places.

HIV/AIDS Control Program in Afghanistan

2
The first HIV positive case was identified in central blood bank in 1989. As the country was in conflict in that time the Government of Afghanistan responded to it by launching awareness programs. In 2003 the Government of Afghanistan formed National AIDS Control Program (NACP) in MoPH. The first National HIV/AIDS Strategic Plan was developed which was revised in 2006. Now the six functional VCCT centers are functioning throughout the country. Afghanistan National Development Strategy has a statement regarding HIV/AIDS which indicate a high political commitment on government side.

**Environment and Public Health Impacts of the Program**

Provision of preventative and treatment services under the HIV AIDS project is expected to generate infectious bio-medical wastes such as sharps (infected needles and syringes, surgical equipment, IV sets) infected blood, HIV test kits used in VCT centers, blood banks and laboratories and pharmaceutical wastes. These wastes, if not managed and disposed properly, can have direct environmental and public health implications. Healthcare workers (HCW) are at great risk as most blood-borne occupational infections occur through injuries from sharps contaminated with blood through accidents or unsafe practices. Systematic management of such clinical waste from source to disposal is therefore integral to prevention of infection and control of the epidemic.

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The NACP projects specially world bank supported project for the first time, has been classified as Category “B” as per the World Bank’s Operational Policy on Environmental Assessment (OP 4.01). Category B projects imply that the potential adverse environmental impacts of the program are site-specific and in most cases mitigatory measures can be designed readily and appropriately. NACP is developing an Infection Control and Waste Management Plan which defines a structured a systematic approach to institute best practices in managing health and environmental risks effectively.

Also the ministry has developed guidelines on Auto-Disable Syringes Use and Disposal. Auto-Disable (AD) syringes have been introduced in the country as part of the Universal Immunization Program. Accordingly, the MoPH has laid down the National Guidelines on use and disposal of AD syringes.

In the following are some rules for Bio-medical Waste Management to be followed during the project Implementation.

<table>
<thead>
<tr>
<th><strong>Table 1: Bio-medical Waste Management Rules</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
</tr>
</tbody>
</table>

3
<table>
<thead>
<tr>
<th></th>
<th>Human Anatomical Waste (human tissues, organs, body parts)</th>
<th>Incineration / deep burial</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>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)</td>
<td>Incineration / deep burial</td>
</tr>
<tr>
<td>3</td>
<td>Microbiology &amp; Biotechnology Waste (wastes from laboratory cultures, stocks or specimens of micro-organisms live or attenuated vaccines, human and animal cell culture used in research and infectious agents from research and industrial laboratories, wastes from production of biological, toxins, dishes and devices used for transfer of cultures)</td>
<td>Local autoclaving / microwaving /incineration</td>
</tr>
<tr>
<td>4</td>
<td>Waste sharps (needles, syringes, scalpels, blades, glass, etc. that may cause puncture and cuts. This includes both used and unused sharps)</td>
<td>Disinfection (chemical treatment/autoclaving/microwaving and mutilation/shredding)</td>
</tr>
<tr>
<td>5</td>
<td>Discarded Medicines and Cytotoxic drugs (wastes comprising of outdated, contaminated and discarded medicines)</td>
<td>Incineration, destruction and drugs disposal in secured landfills</td>
</tr>
<tr>
<td>6</td>
<td>Solid Waste (Items contaminated with blood, and body fluids including cotton, dressings, soiled plaster casts, lines, beddings, other material contaminated with blood)</td>
<td>Incineration /autoclaving /microwaving</td>
</tr>
<tr>
<td>7</td>
<td>Solid Waste (wastes generated from disposable items other than the waste sharps such as tubing, catheters, intravenous sets etc).</td>
<td>Disinfection by chemical treatment /autoclaving /microwaving and mutilation shredding</td>
</tr>
<tr>
<td>8</td>
<td>Liquid Waste (waste generated from laboratory and washing, cleaning, house-keeping and disinfecting activities)</td>
<td>Disinfection by chemical treatment and discharge into drains</td>
</tr>
<tr>
<td>9</td>
<td>Incineration Ash (ash from incineration of any biomedical waste)</td>
<td>Disposal in municipal landfill</td>
</tr>
<tr>
<td>10</td>
<td>Chemical Waste (chemicals used in production of biological, chemicals used in disinfection, as insecticides, etc.)</td>
<td>Chemical treatment and discharge into drains for liquids and secured landfill for solids</td>
</tr>
</tbody>
</table>

Notes:
1. Chemicals treatment using at least 1% hypochlorite solution or any other equivalent chemical reagent. It must be ensured that chemical treatment ensures disinfection.
2. Mutilation/shredding must be such so as to prevent unauthorized reuse.
3. There will be no chemical pretreatment before incineration. Chlorinated plastics shall not be incinerated.
4. Deep burial shall be an option available only in towns with population less than five lakhs and in rural areas.
Institutional and Administrative Framework

National AIDS Control Program was established in 2003 as a unit in MoPH to lead the country response to the epidemic of HIV/AIDS. NACP has the responsibility of steering, supporting, coordinating and overseeing the activities carried out for HIV/AIDS control program. HIV/AIDS Co-ordination Committee of Afghanistan (HACCA) is the entity which oversees NACP.

NGOs form an important element of targeted intervention. NGOs undertake HIV prevention activities through the public health system as well as through targeted interventions. Thus while the bulk of VCTCs, STD clinics are in the public sector, targeted interventions are implemented through NGOs who work with the high risk groups. For the most, these NGOs also make testing services available through the same public networks.

BASELINE DATA AND CURRENT PRACTICES OF IC-WM

Sites and Facilities Visited and Stakeholders Consulted

The information relating to current practices enumerated below is based on site visits to
(Place, Facilities number ---------------------------------------

The facilities visited included primary, secondary and tertiary health-care facilities (government-run), VCCTCs, Blood banks, and STD Clinics (including associated laboratories). The stakeholders consulted during site visits included:

- HACCA
- NGOs
- Health-care workers at blood banks, VCCTs, blood banks, and STD clinic
- Primary/secondary/tertiary health-care facilities
- Local communities, including patients, peer educators, commercial sex workers
- Waste management facilitators (private organizations)

Prevailing IC-WM Practices

Survey Findings:

The findings from the site visits and primary data collection have been grouped in two categories:

- Government-run Facilities (“Government Facilities”) that include primary, secondary and tertiary healthcare facilities
- NGO-run Facilities (“NGO Facilities”) that include VCTC and STD clinics

Government-run Facilities

Overview
Most of the government-run facilities surveyed had poor standards of hygiene and inadequate IC-WM practices. Although awareness of the Bio-medical Rules and Hospital Waste Management Guidelines is high (over 90% of the facilities visited), lack of funds, irregular supply of barrier protection and PEP (Post Exposure Prophylaxis) and human resource shortage were cited as the main reasons for poor implementation of IC-WM practices. Though more than 90% of the facilities visited were aware of the Applicable statute and guidelines, specific compliance requirements were not known to the majority of the HCWs interviewed.

In most of the facilities surveyed, hospital infection control committees had not been constituted. Even in those facilities in which IC-WM committees were present, the authorities admitted that these were not very active.

Few or none IEC material were observed in most of the facilities visited. Additionally, there is no evaluation process to assess the quality of training imparted and its outcome in terms of improved IC-WM practices.

**Employment of Infection Control Measures**

The general assessment was that a large number of nurses, paramedics were found to be ignorant of good practices. Since these HCW also will work with HIV/AIDS patients, the lack of availability of barrier protection, disposable needles and PPE becomes a critical issue. In several instances the staff admitted to not using gloves during blood handling procedures. They also admitted to using the same disposable syringe for several patients and thus needle recapping was a common practice. AD syringes could not be observed at any of the facilities visited.

On the contrary glass syringes were being used at several places for which the general practice is reuse after sterilization.

Needle Cutters were rarely available and were mostly electric ones which are prone to being underutilized during power cuts or being damaged due to voltage fluctuations. It was observed that HCW either did not utilize the needle-cutters or instead broke the needles with their bare hands, or by using a heavy object, or even not at all. In majority of the instances the intact syringes or mutilated needles were not immersed in 1% hypochlorite solution as required.

HCW in several of the secondary and tertiary facilities did report accidents due to needle stick injuries. However, the incidence of reporting was low, with only 30-40% of the total injuries being reported.

In PHCs, no waste segregation and disinfection practices could be observed. The general standards of sanitation and hygiene were found to be very low. Infectious waste (blood-soaked cotton, used un-mutilated syringes, worn gloves) was seen scattered under the patients’ beds, in the corridors and washrooms. All infectious and non-infectious waste was observed to be collectively disposed in shallow open pits.

In secondary and tertiary facilities partial waste categorization and segregation practices were observed though awareness of statutory (Regulatory) requirements was largely
absent. Even if known, non-availability of appropriately colored poly-bags and bins, leads to improper segregation with waste being generally handled without any barrier protection.

NGO–run Facilities

Overview

In general, all NGO run-facilities demonstrated awareness of and adherence to good IC-WM practices, partial or complete. These facilities typically had regular training, sufficient funds, regular supply of barrier protection and PEP and human resources. Awareness of NACP publications was also high as these form the basis of training and functioning of these facilities. Since the funding of NGO facilities is separate from that of Government facilities, hence selective training and equipment availability could be observed.

Employment of Infection Control Measures

Due to systematic training and re-training, the awareness is significantly higher in these HCW. NGO have been providing barrier protection, PEP, disposable needles and needle cutters (electrical type) on a regular basis. Accident Reporting is also observed to a large extent and most workers had been vaccinated against HBV.

Employment of Waste Management Measures

The fact that the waste disposal for NGO facilities is dependent on the host facility’s disposal practices further compounds the problem of waste management. In instances where waste management is being carried out by third parties (such as at Common Treatment Facilities) there is a higher degree of conformance to Biomedical Rules.

RECORD OF CONSULTATION/DISCUSSION WITH RELEVANT STAKEHOLDERS

Two types of consultations were held during the course of this study:
Consultation with individual stakeholders during the site visits
�� Consultation convened by the NACP design team and facilitated by environmental department of MoPH

The IC-WM Plan proposed below is based on existing documentation, observations during site visits, review of existing practices amongst other health initiatives and discussions and consultations with stakeholders.

INFECTION CONTROL AND WASTE MANAGEMENT PLAN
The IC-WM Plan (“Plan”) provides a consolidated, reference material on IC-WM good practices that may be further tailored to suit the facility’s needs. The Plan is built on the following framework:

- Section I: Infection Control and Waste Management
- Section II: Capacity Building
- Section III: Institutional Framework
- Section IV: Monitoring and Evaluation
- Section V: Implementation Schedule

Section I: Infection Control and Waste Management

Healthcare workers involved in the NACP face the highest occupational risk due to the nature of their work dealing with testing and treatment of HIV/AIDS cases. Infectious waste from AIDS related activities include primarily: needles and sharps, blood and blood bags, used test kits, culture samples and slides and other related infectious waste such as swabs, gloves, bandages, sputum cups etc. Thus it is imperative that good IC-WM practices are implemented. This activity should not be restricted only to certain sections of the healthcare facility like VCTC, PPTCT, but extend to all facilities runned by NACP.

1. Waste Segregation and On-site Storage

Segregation at source is the most critical step towards a well-functioning waste management system. Separation of infectious and non-infectious waste becomes impossible once mixed, resulting in greater risk to all concerned.

The Bio-medical Rules provides color coding for waste segregation and their respective treatment options, as listed below in Table

<table>
<thead>
<tr>
<th>Color coding</th>
<th>Waste Category</th>
<th>Treatment option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow</td>
<td>Plastic bag Cat. 1, Cat. 2, and Cat. 3, Cat. 6.</td>
<td>Incineration / deep burial</td>
</tr>
<tr>
<td>Red</td>
<td>Disinfected container/plastic bag Cat. 3, Cat. 6, Cat.7</td>
<td>Autoclaving / Microwaving / Chemical Treatment</td>
</tr>
<tr>
<td>Blue / White Translucent</td>
<td>Plastic bag/puncture proof Cat. 4, Cat. 7. Container</td>
<td>Autoclaving / Microwaving / Chemical Treatment and Destruction / shredding</td>
</tr>
<tr>
<td>Black (solid)</td>
<td>Plastic bag Cat. 5 and Cat. 9 and Cat. 10.</td>
<td>Disposal in secured landfill</td>
</tr>
</tbody>
</table>

The facility should ensure that there are designated segregation points, as close to the generation points as possible. Segregation requires appropriate consumables, such as good quality and adequately sized containers, non-chlorinated plastic bags, needle cutters
and safety boxes. The specifications and color-coding provided in the Biomedical Rules need to be strictly followed.

2. Collection and Transportation of Bio-medical Wastes

Transportation of bio-medical wastes, within and outside the healthcare facility needs to be secure and well-managed. Spills and leakages can be risky for patients and the community, but can also result in pilferage and reuse of potentially infectious items such as syringes etc.

Specific steps to be taken by each facility include:
① Waste should be collected from various sources and transported to a central location.
② Within the facility, special waste routes should be designated to avoid patient care areas. Special timing should be identified for transportation of bio-medical waste to the central point.
③ Dedicated wheeled containers, trolleys or carts should be used to transport the waste to the collection/treatment site. These should be such that the waste can be easily loaded and emptied and remain secured during transportation. They should not have any sharp edges and be easy to clean and disinfect.
④ If disposal is done within the premises of the healthcare facility, care should be taken that different categories of waste are disposed of accurately (sharps in sharps pit, anatomical waste in deep burial pits etc) as designated in the Biomedical Rules.
⑤ Waste handlers should be properly trained and should use barrier protection during transportation.

3. Treatment and Disposal of Bio-medical Wastes

- Used sharps (needles, slides, scalpels etc), blood bags, syringes and other infectious plastic and liquid wastes (Categories 4, 7, 8, and 10 of the Biomedical Rules) need to be disinfected by immersion in 1% hypochlorite solution or any other equivalent chemical reagent. It must be ensured that chemical treatment ensures disinfection.
- Waste containers should contain freshly prepared disinfectant solution and be kept closed all the time. At all times, the waste container should not be more than 3/4th full.
- The waste containers should be emptied at least once everyday.
- Infected linen in the hospital should be carefully packed in plastic bags, and disinfected before being sent for washing. Personnel involved in laundering infected linen should take adequate precautions to prevent the exposure to infections.
- A log 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.
- Disposal as recommended in the Rules, should be as follows:
Sharps in their puncture proof containers should be drained of the disinfectant and disposed in the sharps pit, constructed within the premises.

Infected organic waste should be disposed of in the deep burial pits also constructed within the facility and covered with a layer of lime and soil.

Infected recyclables such as plastics and metals, can be sent for recycling but only after disinfection and/or autoclaving.

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. As a general practice of maintaining good hygiene, the floors of the facility should be first swabbed with a wet cloth, then swept to remove grits to avoid dust carrying pathogens from rising into the air and, finally, swabbed with a disinfectant solution. The swab cloth should be washed with detergent after every use. The housekeeping personnel should employ use of protective barriers to prevent exposure to infection.

4. Sharps Management

Given the high risk of infection from infected sharps, a separate section on the safe use and disposal of sharps is being detailed. Sharps are anything that may cause puncture and cuts. Sharps include needles, scalpels, blades, broken glass, slides, lancets, sutures, and IV catheters. Infected needles, sharps and blood, if improperly handled, can be a source of infection for the HCWs.

Although the risk of infection from contaminated sharps is high for all categories of HCW, those most at risk of exposures are nurses, medical staff and clinical laboratory staff (blood collectors). Physicians are at some risk, but surgical and dental staff, although at high risk of injury, have a lower risk of infection. It must be remembered that all health care personnel (including cleaners, laundry staff and waste contractors) may be exposed to inappropriately discarded sharps. While emergency rooms and operating theatres pose high risk for HCW, it has been found that a) the majority of exposures have occurred in general ward areas and b) a larger number of exposures which would be classified as high risk have occurred in medical wards.

The following measures must be taken to ensure sharps safety in the work-place:

- Barrier protection must always be used when handling sharps.
- Sharps must be segregated and stored in puncture-proof containers at the point of generation.
- Sharps must be mutilated before treatment and disposal. Used disposable or Autodisable (AD) syringes should be mutilated by using needle cutters/ destroyers and hub-pullers and dropped into a puncture-proof container. Clipping, bending or breaking of needles by hand or re-capping should be avoided as this may cause accidental injuries.
- Used sharps should not be left untreated or carelessly on counter tops, food trays, or beds, as this can pose a risk to all concerned.
- Mutilated sharps should be immersed in 1% hypochlorite solution or any other equivalent chemical reagent for disinfection. Treatment by autoclaving / microwaving is also approved.
Final disposal should be in a secured landfill. Wherever this is not available everywhere, sharps pits or encapsulation should be used.

- A sharps pit is a circular or rectangular pit, where sharp wastes are disposed. These pits are lined with brick, masonry or concrete rings. The pit should be covered with a concrete slab. When the pit is full, it should be sealed completely and another pit is prepared.
- Encapsulation is another method. When a container (puncture & leak proof containers) is three-quarter full, material such as cement mortar, bituminous sand, plastic foam or clay is poured until the container is completely filled. After the medium has dried, the containers are sealed and disposed in landfill sites.

<table>
<thead>
<tr>
<th>GUIDELINES FOR DISPOSAL OF USED DISPOSABLE SYRINGES:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
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<tr>
<td>3</td>
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<td>4</td>
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<td>5</td>
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<td>7</td>
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<td>8</td>
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</tbody>
</table>

5. Blood safety in Laboratory

Blood is the single most important source of HIV, HBV, HCV and other blood borne infections for HCWs. It is mandatory to screen blood units for five transmissible infections: Hepatitis B, Hepatitis C, HIV, syphilis and malaria. The Rules in the country
also require for testing procedures, quality control, standard qualifications, and experience for blood bank personnel, maintenance of complete and accurate records, strict guidelines for holding of blood donation camps etc. and to be further improved. Careful donor screening, discouraging use of paid donors, stringent screening of donated units of blood to prevent HIV transmission through blood and blood products. Another important action taken by MoPH has been to modernize the blood banks in the country.

Risk of infection varies with a number of factors, including type and number of exposures, amount of blood involved in the exposure, amount of virus in the patients’ blood etc. Modes of exposure to blood borne pathogens in a laboratory have been defined as below:

Modes of Exposure to Blood-borne Pathogens in the Laboratory

<table>
<thead>
<tr>
<th>Procedure</th>
<th>HCW at risk</th>
<th>Source/Modes of Transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection of blood/body fluid</td>
<td>Laboratory technician</td>
<td>Needle stick injury, Broken specimen container, Blood contamination of hand with skin lesions/breach</td>
</tr>
<tr>
<td>Transfer of specimen</td>
<td>Laboratory technician and transport worker</td>
<td>Contaminated exterior of container, Broken specimen container, Spills/splashes of specimen</td>
</tr>
<tr>
<td>Processing of specimen</td>
<td>Laboratory personnel</td>
<td>Puncture of skin, Contamination of skin from spills, splashes, glassware and work surface, Faulty techniques, Perforated gloves</td>
</tr>
<tr>
<td>Cleaning/Washing</td>
<td>Laboratory support staff</td>
<td>Puncture of skin, Contamination of skin from spills, splashes, glassware and work surface</td>
</tr>
<tr>
<td>Disposal of waste</td>
<td>Laboratory support staff</td>
<td>Contact with infectious waste, specially sharps, broken containers</td>
</tr>
<tr>
<td>Specimen</td>
<td>Transport/postal staff</td>
<td>Broken/leaking container or</td>
</tr>
</tbody>
</table>
As per the Bio-medical Rules, infected blood and blood samples is characterized as liquid waste and should be disinfected with hypochlorite solution.

Screened positive blood bags, contaminated test kits and items are categorized as infected solid waste and should be disinfected by chemical treatment / autoclave and mutilated before disposal.

Transport of specimens should be done in a diligent manner. The sample should be kept first in primary container with enough absorbent material around it. The primary container should then be placed in secondary container.

Staff should take care that the secondary container is also leak-proof, properly sealed and labeled. Upright position must be maintained at all times.

6. **Infection Control**

The four key areas of infection control for the NACP are:
- Immunization against nosocomial infections
- Availability and use of barrier protection
- Management of PEP
- Awareness

Activities of high risk include invasive diagnostic and therapeutic procedures, wound dressing, operation theatre procedures, handling of blood/serum/body fluids and tissues etc. and special attention should be paid to ensuring safety precautions during these activities.

Barrier protection (gowns, masks, caps, gloves, shoes) should be maintained to prevent contact with contaminated blood/body fluids.

HCW working in high risk areas should be immunized, at the minimum, against HBV.

Daily cleaning of facility premises with appropriate disinfection should be done.

Spills are an important source of infection and should be cleaned up immediately. The spill should be covered with absorbent material, disinfectant poured around the spill and over the absorbent material. The surface should be wiped again with disinfectant. HCW must utilize barrier protection, specially gloves, when managing spills.

General observance of personal hygiene is important. All staff must be neat and clean always, with clean uniforms, nails, short or tied-up hair, etc.

PEP is required when there has been contact with known HIV/AIDS infected materials resulting from:
- Percutaneous inoculation (needle stick, cut with a sharp, etc.)
- Contamination of an open wound
- Contamination of breached skin (chapped, abraded, dermatitis)
- Contamination of a mucous membrane including conjunctiva
In all such instances immediate post-exposure management is crucial to reducing the risk of acquiring infection. This should be done in the manner prescribed by the above mentioned guideline to be developed by NACP.

All accidents whether needle stick injuries or spills should be reported.

Section II: Capacity Building and Awareness

Training and sensitization of various HCWs and functionaries within and outside the health care system is vital for the successful implementation of any IC-WM Plan. The training should focus on Universal Precautions, principles of waste management, identification of roles and responsibilities for implementation, monitoring and reporting. All awareness, training and communication initiatives should be oriented towards providing knowledge / information, building skills & competencies and bringing about a fundamental, mindset change in the attitudes of staff & personnel. The Training Plan and budget should be included into the MoPH PIP and into NACP PIP and program budget.

The following steps should be followed for implementing training:
1. Conduct baseline assessment of training needs for HCWs involved in the implementation of AIDS Control Program. For an integrated approach
2. A Training Plan needs to be developed based upon existing capacity and training needs. At the outset, this plan should distinguish between trainers and non-trainers and elaborate the criteria for identifying trainers and their requirement for training.
3. Training should be provided to all HCWs, including doctors, nurses, ward boys, paramedics, laboratory technicians, and Class IV and/or housekeeping staff.
4. Training should be imparted through:
   - Dissemination of Information, Education and Communication (IEC) material that will sensitize HCWs and create general awareness on importance of IC-WM.
   - Technical training for HCWs with specific responsibilities for discrete activities related to IC-WM.
5. Training in Infection Control and in Waste Management should be a comprehensive package as the two are closely inter-twined.
6. The Train the Trainer program will have to be undertaken at two levels – state and district levels. Training should be provided on an annual basis, with refresher courses annually or biannually.
7. In addition to classroom type training, IEC material and awareness-creating activities also need to be employed for training the HCW. Training should preferably be provided on site.
8. Each facility should keep records of training provided to employees, by category of employee.
9. The IEC material must be prepared in the local language on both IC and WM and should be prominently displayed at various places. It should serve as a reminder for all the trained employees as well as sensitize patients visiting the facility.
Section III: Reporting, Monitoring and Evaluation

Monitoring & evaluation will be done through a mix of internal and external approaches. The internal reporting and evaluation mechanism on the IC-WM implementation should be integrated with overall NACP reporting. Management Information Systems (MIS) indicators pertaining to the IC-WM will be developed during implementation. External monitoring in the form of IC-WM implementation audits is also being recommended.

i) Quarterly monitoring

Each facility must establish a robust system of monitoring through regular documentation and assessments. Ideally, each facility should designate one senior employee responsible for documentation and another for internal evaluation. In the case of VCTC, PPTCT and blood banks, the laboratory technician should maintain records of waste sharps, gloves, etc. and infectious waste. The records must be maintained on a daily basis and internal assessments should be conducted on a monthly basis.

The monthly report from NGO should directly be send to NACP.

ii) Periodic Implementation Review

Periodic implementation review of the IC-WM should be undertaken, and as far as possible, this review should be inbuilt into the regular review process of the NACP. This review should focus on consolidated information and reporting from individual facility level. To facilitate regular and sustained monitoring, each NGO implementing HIV/AIDS program develops annual Action Plans specifically for IC-WM, which should be included into the MoPH PIPs.

iii) Performance Indicators

NACP envisages a robust nationwide Strategic Information Management System (SIMS) with focus on implementation, monitoring, evaluation and strategic surveillance, appropriate standards for measuring performance, analyzing variances, identifying bottlenecks, alerting program managers and facilitating corrective measures. Some generic Performance Indicators of the IC-WM Plan have been recommended below, which should be integrated into the NACP SMIS.

Implementation of all components of the IC-WM Plan
- Timely procurement and distribution of IC-WM consumables and equipment
- Regular and timely training programs undertaken
- Regular evaluation of training effectiveness and assessment of employee behavioral practices
- Timely interventions and coordination with host facility on significant issues which could hinder effective implementation of IC-WM Plan
- Timely and regular reporting and evaluation undertaken, with corrective measures when necessary.
iv) External Implementation Audits

The NACP will be responsible for hiring of an external technical consultant/firm to undertake an independent evaluation of the program and its implementation. The agency to conduct this technical review should be chosen on the basis of their technical expertise and established experience in Bio-medical waste management and environmental auditing. Such an independent audit review will be undertaken once during the life of the program, preferably before a mid-term evaluation is conducted.