ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

Hanoi, November, 2013
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<td>Commune Health Center</td>
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<tr>
<td>CPMU</td>
<td>Central Project Management Unit</td>
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<tr>
<td>ESMF</td>
<td>Environmental and Social Management Framework</td>
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<td>FS</td>
<td>Feasibility Study</td>
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<td>HzHCW</td>
<td>Hazardous healthcare waste</td>
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<td>IDA</td>
<td>International Development Association</td>
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<td>MONRE</td>
<td>Ministry of Natural Resources and Environment</td>
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<td>MOST</td>
<td>Ministry of Science and Technology</td>
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<td>NO</td>
<td>No Objection</td>
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<td>HPET</td>
<td>Health Professional Education and Training</td>
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<td>ODA</td>
<td>Official Development Assistance</td>
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<td>PDO</td>
<td>Project Development Objectives</td>
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<td>PMU</td>
<td>Project Management Unit</td>
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<td>PPMU</td>
<td>Provincial Project Management Unit</td>
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<tr>
<td>QCVN</td>
<td>Vietnam national technical regulations</td>
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I. INTRODUCTION

1.1 PROJECT DESCRIPTION

**Project name:** Health Professional Education and Training for Health System Reform project

**Project objectives:** To improve the efficiency of health worker education and training, health management and capacity of primary health care, and to implement strategies and policies of the State and National Party on developing health systems to achieve Millennium Development Goals (MDG) and construction of new rural areas.

**Project components:** The project comprises 4 components.

- **Component 1: Improve the quality of health worker education (US $ 63 million).** This component is expected to support the MOH to implement its plan in health personnel development in 2012-2020 in order to improve the quality of the healthcare workforce through improving the quality of education programs. The component 1 comprises 2 main sub-components:
  - **Sub-component 1.1: Strengthen the Quality Assurance System of Health personnel Education (estimated 20 million USD).** The subcomponent will support establishment of a quality assurance system of health personnel education managed by the Department of Science, Technology and Training, MOH. The project will support Developing regulations, procedures and guidance of quality accreditation and assurance; Renewing the output capacity-based student evaluation method and standardizing graduation examination; Strengthening policies and the role of the Department of Science, Technology and Training, MOH in managing the quality of medical and nursing training.
  - **Subcomponent 1.2: Supportive measures for training institutions to meet standards of health professional training in Vietnam (estimated USD43 million).** Activities included in this subcomponent will depend on the proposals submitted by schools and is based on specific conditions of each school. They may include, but not limited to, following activity groups: strengthening the education quality management and assurance system at schools; enhancing the quality of training programs; reform of standardized capacity-based teaching and learning method – training of trainers of regional and international standards; and improving the quality of student evaluation. The project will improve the implementation of medical and nursing education curriculum, for example establishing a functioning network of clinical practice sites with provincial hospitals, district hospitals and primary health care facilities. Beside technical assistance, project will finance teaching, training and learning facilities, for example procuring medical/nursing skill laboratories, establishing field practice laboratories, modernizing and strengthening of the library, improving internet/electronic connectivity to facilitate e-learning through e-library and networking among medical universities. The project will support minor renovation or simple refurbishing of training institutions.

- **Component 2: Promoting the capacity of health management and health personnel management and usage (USD 12 million).** This component aims to assist the MOH in implementing solutions indicated in the “Development plan for healthcare human
resources for period of 2011-2012”. This component will support: (i) training and improving the policy management, making and implementation capacity for managers from central hospitals to grassroots healthcare stations, and (ii) making and implementation of policies in enhancing human resources in order to provide more high-quality healthcare workers to the disadvantaged areas. The component 2 consists of 2 subcomponents.

**Subcomponent 2.1: Improving the health management capacity (USD6 million).** The project will enhance the capacity of the two training centers for health manager in the School of Public Health and Ho Chi Minh City Institute of Hygiene and Public Health. The project will support minor renovation or simple refurbishing of training centers, training material and IT equipment, training of trainers, curriculum development. The project also support the two training centers to deliver developed management training course to health managers at the central, province, district levels.

**Subcomponent 2.2: Strengthening the capacity of healthcare human resource management and usage (USD 6 million).** The project will support the new MOH young volunteer medical doctor program which was designed by the MOH to alleviate the shortage of MDs in the most disadvantaged areas. It will finance the training of fresh medical graduates in specialty areas: internal medicine, pediatrics, surgery, obstetrics, etc. The training will be for 18 months, and 6 month work in the PHC setting leading to a CK1 level. About 500 young physicians will be trained under the project and dispatched to the 62 poorest districts. Beside, the project will support building policies and regulations in order to strengthen the effective management and usage of the healthcare human resources such as establishing a job description for health workers at district and commune health stations, HRH planning and implementing some policies on management and usage of healthcare human resources.

**Component 3: Enhancing capacity and coverage of primary health care personnel at grassroots healthcare establishments (USD 41 million).** This component aims to support the communes involved in the projects to have national standard commune healthcare system in period 2011-2020 The component 3 comprises 2 subcomponents.

**Subcomponent 3.1: Training of primary health care workers at commune level (USD 19 million).** This subcomponent will focus on supporting continuous training, training on expertise, strengthening knowledge and practical skills and providing training on management to primary health care workers currently working in commune healthcare establishments in some provinces, including family doctors, general doctors, physicians, nurses, technicians, pharmacists of mid-term vocational training level, members of population and family planning, village health workers and village midwives. This subcomponent aims to ensure the primary health care workers at communal level to have sufficient competencies to provide comprehensive and continues primary health care services which are integrated between various healthcare levels, between prevention, treatment and function recovery in order to better adapt to the change on disease pattern containing double burden of disease - including both non-communicable and infectious diseases as well as changes on population structure with increasing rate of elder people.
Subcomponent 3.2: Provision of medical equipment to primary health care establishments (USD 22 million). This subcomponent will focus on financing in providing more medical equipment to the CHCs based on the list of medical equipment issued by the MOH in order to support the CHCs located in the provinces involved in the project to have sufficient conditions for achieving national standards on communal health for period of 2011 – 2020. The CHCs will be provided with medical equipment in order to create a favorite working environment for health workers offering primary health care services. The project will provide medical equipment to selected CHCs based on the list of equipment need to be provided identified by provinces of the project and provide village medical kit to village health workers and village midwives in the communes of the project’s provinces whose health workers participate in training courses on primary health care. Besides financing in providing medical equipment to CHCs, the project can also finance basic medical equipment in on-site training institutions (for example district health stations) in order to ensure good practical conditions in localities for primary health care workers. The practical facilities (district health station, regional clinics, etc.) are provided with equipment for teaching of clinical practice.

Component 4: Project management (US$ 5 million).

Major activities included in the Component 4 will be activities of preparing project documents, improving the project management capacity (domestic and overseas training), enhancing the capacity of output-based support and performance assessment, assessment conferences on annual, mid-term basis or at the end of the project, technical consultancy, provision of required office equipment and vehicle, monitoring and evaluation, clarification and observation of the financed technical systems, auditing (internal and independent). In addition, this component will support conducting some studies and analysis of policies on health workforce, health personnel training and health system.

Project duration: 6 years: 2014-2019

Project Budget: USD $ 121 million, of which USD $ 106 million from IDA, USD $ 10 million from EU and USD $ 5 million from Counterpart Fund.

1.2 PROJECT AREA

Under component 1 the project will provide financial support to the 27 medical and nursing schools as follows:

Universities:
1. Hà Nội Medical University
2. Hồ Chí Minh city Medical and Pharmaceutical University,
3. Hà Nội Pharmaceutical University
4. Public Health School,
5. Medical and Pharmaceutical School, Hue University,
6. Cần Thơ Medical and Pharmaceutical University, 
7. Medical and Pharmaceutical School, Thái Nguyên University, 
8. Thái Bình Medical University, 
9. Hải Phòng Medical University, 
10. Nghệ An Medical University, 
11. Medical Faculty, Central Highlands University 
12. Nam Định Nursing university, 
13. Hải Dương Health Technique University, 
14. Phạm Ngọc Thạch Medical University, 
15. Đà Nẵng Health Technique University, 
16. Medical and Pharmaceutical Faculty, Hà Nội National University, 
17. Medical Faculty, Hồ Chí Minh city national university.

Health colleges:
1. Sơn La health college, 
2. Lạng Sơn health college, 
3. Quảng Ninh health college, 
4. Hà Tĩnh health college, 
5. Quảng Nam health college, 
6. Khánh Hòa health college, 
7. Đồng Nai health college, 
8. Lâm Đồng health college, 
9. Đồng Tháp health college, 

- Under the component 2.1, the project will support 2 health management training centers in Hanoi school of Public Health and Ho Chi Minh city institute of hygiene and Public Health
- Under the component 2.2, the project will support the MOH to train and send young voluntary medical doctor to 62 poorest districts according to the Directive 30a/2008/NQ-CP dated 27/12/2008 of the Prime Minister.

<table>
<thead>
<tr>
<th>Province</th>
<th>District name</th>
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<tr>
<td>Ha Giang</td>
<td>Đồng Văn, Mêo Vạc, Yên Minh, Quản Bạ, Hoàng Su Phi, Xín Mần</td>
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<tr>
<td>Cao Bang</td>
<td>Bảo Lâm, Bảo Lạc, Thông Nông, Hà Quảng, Hà Lang</td>
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<tr>
<td>Lao Cai</td>
<td>Si Ma Cai, Mường Khương, Bắc Hà</td>
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<td>Yen Bai</td>
<td>Mù Cang Chải, Trạm Tấu</td>
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<td>Bac Kan</td>
<td>Ba Bể, Pác Nầm</td>
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<td>Bac Giang</td>
<td>Sơn Đồng</td>
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</table>
Phu Tho : Tân Sơn
Son La : Sopp Cờp, Phủ Yên, Bắc Yên, Mường La, Quỳnh Nhai
Lai Chau : Mường Tè, Phong Thổ, Sin Hồ, Tân Yên, Than Uyên
Điện Biên : Điện Biên Đông, Mường Nhé, Tủa Chùa, Mường Ảng
Thanh Hoa : Lang Chánh, Thường Xuân, Quan Hóa, Quan Sơn, Mường Lát, Như Xuân, Bá Thước
Lai Châu : Kỳ Sơn, Tương Dương, Quế Phong
Quang Bình : Minh Hóa
Quang Tri : Da Krông
Quang Ngai : Sơn Hà, Trà Bồng, Sơn Tây, Minh Long, Tây Trà, Ba Tô
Quang Nam : Nam Trà My, Tây Giang, Phương Sơn
Bình Định : An Lão, Vĩnh Thạnh, Văn Canh
Ninh Thuan : Bác Ái
Kon Tum : Tu Mơ Rông, Kon Plông
Lam Đồng : Đam Rông

Under the component 3, the project will provide retraining and basic medical equipment to the primary health care teams at the grass-root level in the following provinces: Lai Châu, Điện Biên, Sơn La, Cao Bằng, Lào Cai, Yên Bái, Hà Giang, Gia Lai, Kontum, Đắc Nông, Thái Bình, Nam Định, Khánh Hòa, Đồng Tháp, Lâm Đồng. It is expected that 60% of PHC teams in these provinces will be retrained and equipped.

1.3 PROJECT MANAGEMENT AND PERSONNEL

MOH will be Project managing agency. MOH is responsible for overall direction, coordination and collaboration with People's Committees of the provinces, relevant ministries and agencies to implement state management in accordance with all regulations. The Central Project Management Unit (CPMU) established by MOH is based in Hanoi. Its staff consists of key leaders and officials of the Department of Science, Technology and Training, Department of Personnel and some Departments related to each component of the Project. The CPMU representing the Project Owner is responsible for managing the entire project from its start to end. The CPMU will work under the direct guidance and monitoring on statement management of the MOH during the project implementation.

CPMU will have 3 Vice Managers: 01 one in charge of assisting the Manager in planning, procurement, bidding, disbursement and overall coordination; 01 one in charge of assisting the Manager in activities of quality assurance of education in health personnel training institutions; and the other 01 in charge of assisting the Manager in guiding the implantation of training activities at the grass-root healthcare level, transferring doctors to poor districts, supporting two centers training health managers and building the database of the health workforce.

Major staff in CPMU will include: staff of Planning and Training, staff of procurement management and logistics, staff of accounting and disbursement, and staff of financial management, and technical consultants.
Project implementation units. Each universities and colleges participating in the Project will establish a Project Implementation Unit (PIU) at school level. Heads of Project Implementation Units can be from the School's leadership (on part-time basis). Other staff of PIU includes 01 chief accountant (who is the chief accountant of the training institution), 01 accountant (can work part-time, depending on the job requirements) and 01 on-site Project Coordinator.

II. Scope of the ESMF

The HPET will comply with the World Bank Safeguard Policies and Vietnamese environmental regulations to avoid or minimize impacts to humans and the environment during the implementation. The project will support for 27 medical, nursing universities and colleges; and support for enhancing the capacity of health care providers at different levels in 15 provinces and 62 disadvantaged districts. The project may cause some potential adverse environmental impacts associated with the small scale renovation activities under components 1 and 2 and provision of medical equipment under component 3. The detailed investment items for 26 participating schools and exact location of clinical training sites and Commune Health Stations (CHSs) are not fully known by appraisal. Consequently, an Environmental and Social Management Framework (ESMF) is developed by Ministry of Health (MOH) as part of the preparation process to address potential impacts arising from project implementation and operation. The ESMF includes 2:

(i) An Environmental Codes of Practice (ECOPs) to be implemented by contractors for building renovation/ refurbishment activities under components 1 and 2.

(ii) A waste management plan to be followed by clinical training sites and CHSs receiving financing under component 3

III. ENVIRONMENTAL POLICIES APPLICABLE TO THE PROJECT

3.1 Vietnamese Environmental regulations

- Environmental Protection Law (EPL) No 52/2005/QH11 dated 29/11/2005 and in effect from 01/7/2006. EPL provides frameworks on the responsibilities of individuals and organizations in environmental assessment, environmental protection in hospitals and health facilities, and management of hazardous waste, general waste, wastewater and gas emission.

Legal documents relating to environmental assessment:


Legal documents relating to healthcare waste management and occupational health and safety:

- Decision No 3079/QĐ-BYT dated 21/8/2008 of Minister of Health promulgating Regulations on organization and activities of working safety system in health facilities;

3.2 World Bank safeguard policies

- OP/BP 4.01 Environmental Assessment
- Public Consultations and Information Disclosure
- The World Bank Group Environment, Health and Safety (EHS) General Guidelines

IV. Environmental Safeguard screening

The investment items which are not eligible for financing under project include:

- Any new construction activity
- Any renovation activity that is not be done in the same existing building nor within the same footprint nor with the extension of the respective building (including the addition of the any story and/or floor)
- Any biomedical equipment that would generate radioactive healthcare waste during operation
- The procured medical/nursing skills laboratories and established field practice laboratories eligible for financing under components 1 only include simple equipment e.g. mannequins, simulators that do not generate healthcare waste during operation.
V. POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 Potential Environmental Impacts

5.1.1 Potential impacts due to minor renovation activities

The project will have some adverse impacts associated with the renovation and refurbishing activities of the schools under component 1 and the training centers under the component 2. The renovation and refurbishing activities are minor and would be done in the same existing buildings, within the same footprint and without the extension of the respective buildings. These renovation activities may generate some adverse environmental impacts including the generation of dust, noise, vibration, waste, solid waste and safety issues. In addition, for the building renovation activities including the changes of the internal layout, there is a potential risk on the stabilization and safety of the existing buildings. These impacts are assessed to vary from small to medium scale, localized, in short-term period and manageable via good design and construction practices.

5.1.2 Potential impacts in operation phase

The project will improve the capacity of healthcare providers at the grass – root level and provide them with basic medical equipment. As the result, the healthcare waste and wastewater will be increased slightly.

Solid healthcare waste: the majority of healthcare waste is general waste which is similar to domestic waste. Only 20% of solid healthcare waste is hazardous. According to MOH's survey, generation of HzHCW from a CHC is about 0.08 kg/bed/day. A typical CHC generates about 0.5 kg of HzHCW per day and an inter-commune polyclinic generates from 1 kg to 2 kg of HzHCW per day.

At commune health centers and PHC training sites, hazardous healthcare waste are mainly infectious wastes including the following groups:

- Sharp waste: is waste that can cut, puncture including needles, scalpels, knives, nails, bladders, broken glass and other sharp objects used in health activities

- Non-sharp infectious waste is waste in contact with blood and body fluids such as bandages,

- Anatomical waste includes parts of human body, tissues, placentae and animal carcasses

Healthcare wastewater from commune health centers has insignificant weight approximately 1m³ per day and has the same basic component as the domestic wastewater.

Hazards of healthcare waste. Exposure to hazardous health-care waste can result in disease or injury. All individuals exposed to hazardous health-care waste are potentially at risk, including those within health-care establishments and those outside these sources. The main groups at risk are the following:
- Health staff: doctors, nurses, technician
- Patients visit the DHC
- Patient relatives and visitors
- Workers in waste disposal facilities including scavengers.

Pathogens in infectious waste and wastewater may enter the human body by a number of routes: through a puncture, abrasion, or cut in the skin; through the mucous membranes; by inhalation; by ingestion. The existence in health-care establishments of bacteria resistant to antibiotics and chemical disinfectants may also contribute to the hazards created by poorly managed health-care waste. Sharps may not only cause cuts and punctures but also infect these wounds if they are contaminated with pathogens. Sharp injuries are most popular accidents in health facilities. Sharp injury is the main transmission way of several dangerous infectious diseases such as HIV, HBV, and HCV. About 80% of occupational infections of HIV, HBV, HCV are resulted from injuries by contaminated needles and sharps. The principal area of concern of healthcare wastewater is high content of enteric pathogens which are easily transmitted through water.

In addition to health and environmental impacts, the general public is very sensitive about the visual impact of anatomical waste, that is recognizable human body parts, including fetuses. In no circumstances is it acceptable to dispose of anatomical waste inappropriately, such as on a landfill.

Unless healthcare waste is managed strictly, they are easily caused the polluted environment and health impacts. Given to small amount of HzHCW and wastewater from PHC facilities, the environmental and health impacts are localized and manageable.

5.2 Typical Mitigation Measures

5.2.1 *Standard mitigation measures in preparation phase for the renovation activities*

Prior to the renovation/refurbishment execution, the participating universities and training centers shall ensure to hire competent consultants to prepare and review the design for renovation/refurbishing units. The designs for these renovations shall be approved by local competent agencies in line with the relevant legal documents.

5.2.2 *Standard Mitigation measures in sub-project implementation phase* The contractors shall be responsible for implementing Environmental Code of Practices (ECOPs). These ECOPs shall be incorporated into the Contract of Civil works.
<table>
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<tr>
<th>Environmental issues</th>
<th>Mitigation measures</th>
<th>Applicable regulations</th>
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| 1. Dust, noise and vibration generated from rehabilitation/ minor construction activities | - The Contractor is responsible for compliance with relevant Vietnamese legislation with respect to ambient air quality, noise and vibration.  
- The Contractor shall ensure that the generation of dust is minimized and implement a dust control plan to maintain a safe working environment and minimize disturbances for patients, staff and surrounding residential areas.  
- The Contractor shall implement dust suppression measures (e.g. water paths, covering of material stockpiles, etc.) as required. Material loads shall be covered and secured properly during transportation to prevent the scattering of soil, sand, materials, or dust. Exposed soil and material stockpiles shall be protected against wind erosion and the location of stockpiles shall take into consideration the prevailing wind directions and patient wards.  
- The contractor shall ensure onsite latrine be properly operated and maintained to collect and dispose waste water from the workers.  
- The Contractor should not carry out construction activities generating high level of noise during teaching and learning time. | QCVN 05:2009/BTNMT: National technical regulation on ambient air quality  
QCVN 26:2010/BTNMT: National technical regulation on noise  
QCVN 27:2010/BTNMT: National technical regulation on vibration |
| 2. Solid waste generated from rehabilitation                                          | - The Contractor shall develop a solid waste control procedure (storage, provision of bins, site clean-up schedule, bin clean-out schedule, etc.) before construction and strictly comply with developed procedure during construction activities.  
- The Contractor shall provide litter bins, containers and waste collection facilities at all places of work.  
- The Contractor store solid waste | Decree 59/20078/ND-CP on solid waste management |
temporarily on site in a designated place prior to off-site transportation and disposal through a licensed waste collector.

- The Contractor shall dispose of waste at designated place identified and approved by local authority. Opened burn or bury of solid waste in hospital shall not be allowed. Under no circumstances shall the contractor dispose of any material in environmentally sensitive areas, such as watercourses.

- Recyclable materials such as wooden plates for trench works, steel, scaffolding material, site holding, packaging material, etc shall be segregated and collected on-site from other waste sources for reuse or recycle (sale).

- The removal of asbestos-containing materials or other toxic substances shall be performed and disposed of by specially trained and certified workers.

3. Safety risks to workers, health staff, patients and their relatives

- The Contractor shall comply with all Vietnamese regulations regarding worker safety.

- The Contractor shall prepare and implement action plan to cope with risk and emergency.

- The Contractor shall provide workers with training on occupational safety regulations and personal protective equipment.

- The contractor shall provide safety measures as installation of fences, use of restricted access zones, warning signs, lighting system to protect workers, hospital staff and patients against falling debris and other risks.

5.2.3 Standard Mitigation measures in operation phase

Development of one simple waste management plan

This plan will describe the management methods of solid healthcare waste generated in commune health centers. These methods are indicated in the table below:
1. Solid healthcare waste generated from healthcare activities

CHCs will follow a healthcare waste process including: segregation, collection, treatment and disposal of solid HCW. The principals of solid health care wastes management are described in accordance with Decision 43/2007/QĐ-BYT regulation on HCWM as bellow. The standardized processes for HCWM are presented in annex1.

**Segregation of solid HCW:**
- Need to distinguish the waste immediately at the place of waste generation
- Healthcare solid waste shall be segregated into 5 categories: infectious waste (sharp, non-sharp, highly infectious and anatomical waste), hazardous chemical waste, pressurized containers and general waste.

**Collection of solid HCW**
- Each commune health centre has to specify the location of waste containers for each type of healthcare waste where they are generated.
- The location of waste containers must have the instruction of waste classification and collection.
- Each group of healthcare waste must contain in the bag or box fitted the code color and the technical standard which is suitable for the Regulations on healthcare waste management (Decision 43/2007/QĐ-BYT)

**Treatment and Disposal of solid HCW:**
CHS can apply one or several treatment
| **2. Wastewater generated from medical facilities** | Wastewater shall be collected separately from rainwater. Hygiene latrines shall be available and accessible to patients, health staff and visitors in CHC. Wastewater shall be treated by on-site primary treatment facilities and disinfected before discharge into environment. Effluent shall meet Vietnam technical regulation on healthcare wastewater. | Vietnam Plumbing code  
National technical regulation on Hygienic conditions for Latrines (QCVN 01:20011/BYT)  
Standard TCVN 7957:2008 on design of drainage and sewerage external networks and facilities |
|---|---|---|
| **3. Risks associated with exposure to hazards in health environment** | - All of the health providers will be provided labor protection items  
- Solving unexpected situations (injured caused by needles)  
- The annex introduces sample SOPs for treatment of accident due to sharp waste. | MOH’s guidelines for HIV/AIDS diagnosis and treatment (issued in accordance with Decision 3003/QĐ – BYT dated 19/8/2009) |
VI. ENVIRONMENTAL MANAGEMENT

6.1. Role and responsibility

6.1.1 The project universities and colleges

The 27 universities/colleges and 02 training centers receiving financial support under the components 1 and 2 are responsible for ensuring safeguard compliance during implementation of refurbishing and renovation activities. The responsibilities of each participating university, college and training center include:

- Ensure the design for renovation/refurbishment activities are appropriately prepared by design engineer and get approval by local competent authorities
- Incorporate ECOPs into the contractual documents
- Internal monitoring the implementation of mitigation measures by contractors
- Report on environmental compliance of the hospital and contractors to CPMU for reviewing

The faculties of participating universities and colleges implementing training programs under the component 3 are responsible for including solid healthcare waste and occupational health and safety in their training modules. The faculties are also responsible for supervising implementation of HCWM plans by the primary healthcare teams and facilities. The Annex 6 introduces a sample of HCWM monitoring checklist.

6.1.2 The primary healthcare teams and facilities

The primary healthcare teams and CHCs receiving training and biomedical equipment financing under component 3 are responsible for developing simple healthcare waste management implementing this plan during operation phase. The plan will cover segregation; collection, treatment and disposal of healthcare waste as well as responses to occupational exposure to hazardous materials such as needle stick injury (annex 1-5 present sample HCWM plan/procedures).

6.1.3 The Central Project Management Unit

CPMU will coordinate activities to ensure that the project investments comply with Vietnamese environmental management requirements and the Bank’s safeguard policies. Responsibilities of the CPMU will include, but not limited to the followings:

- Supervise safeguard implementation by universities, colleges; training centers
- Prepare six-monthly environmental report in agreed form and submit to the Bank prior to its supervision missions;

6.1.4 The World Bank

The WB will provide guidance and technical assistance to CPMU on project implementation including safeguard execution.
6.1.5 Contractor and equipment suppliers
To carry out mitigation measures and self-monitoring during implementation of minor civil work and equipment supply.

6.1.6 Design consultant
To carry out the designs for the renovation and refurbishment units/buildings in accordance to the construction standards and legal documents

6.2. Monitoring and reporting
During implementation of renovation and refurbishing activities under subcomponent 1.2 and 2.1, the universities, colleges and training centers will be responsible for day to day supervision on implementation of mitigation measures by contractors as specified in the ECOPs of the contractual documents. The participating universities, colleges and training centers shall send the biannually reports on the safeguard implementation to CPMU as part of their progress reports.

During implementation of component 3, the faculties implementing training programs are responsible for supervising the implementation of HCWM plans by the CHCs. The faculties shall biannually report to the CPMU on the implementation of the HCWM plans by the CHCs.

Local communities are encouraged to undertake monitoring. If there are complaints from local project-affected groups, the CPMU and the universities and colleges should be prepared to send staff in a timely manner to assess the validity of complaints and take any necessary actions to remedy the situation.

CPMU is responsible to provide technical guidance as needed to the universities, colleges and the training centers to enable them fulfill their supervision responsibilities and related reporting and documentation requirements. The CPMU shall consolidate and report to the Bank on safeguard implementation by provinces prior to the Bank’s semi-annual supervision missions.

6.3. Training Plan
Solid healthcare waste and Occupational Health and Safety training program are supplemented to the training program of healthcare providers at commune health centre. Learners will be educated 2 courses including:

- Module on Medical Waste Management
- Module on Occupational health and Safety

6.4 Cost for safeguard implementation
The cost for safeguard implementation is taken from the management budget of units involved in the project.
- Cost for Environmental safeguard at the CPMU will be covered by component 4.
- Cost for Environmental safeguard at the University/College will be covered by the grant under the component 1.2 and counterpart fund.
- Cost for Environmental safeguard at the CHC and training sites will be covered by component 3.1 and counterpart fund
- Cost for implementation of ECOPs will be included in contract with contractor.

VII. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

7.1. Consultation meeting with Schools in the project

Administration of Science Technology and Training, Ministry of Health issued the official letter No 560/K2ĐT-VP dated 30th September 2013 and sent to 27 medical colleges and universities in order to get their comments about the draft “Environmental and social management framework”. At present, Ministry of Health received comments of 27 colleges and universities by documents including:

- 26 colleges and universities fully agreed with the content of the draft “Environmental and social management framework”. They had few comments about spelling errors in the draft.
- Ha Tinh Medical College had some comments on part 3 of annex 5 (Sample standardized operating procedures for treatment of accident due to sharp waste):
  "After treating the wound, Head of CHS will be responsible for reporting to health office. Head of health office will be responsible to counseling and providing anti-retrovirus therapy. However, Center for Preventive Medicine is the state management unit of health programs. Consequently, Head of CHS should send completed report form to Center for Preventive Medicine"

Detailed comments of 27 colleges and universities are presented in the annex 7.

Having received comments about the draft of 27 colleges and universities, Ministry of Health revised, corrected and finalized the draft “Environmental and social management framework” before publishing on the website of MOH.

7.2. Disclosing Information on Website of MOH and WB

As soon as WB has No Objection Letter of the draft “Environmental and social management framework” and “Plan on developing ethnic minorities”, Ministry of Health will issue the Decision approving the draft documents to be disclosed in the website of MOH.
ANNEX 1. SAMPLE STANDARDIZED OPERATING PROCEDURES SEGREGATION OF HEALTH CARE WASTE

<table>
<thead>
<tr>
<th>Commune Health Center (Name...)</th>
<th>STANDARDIZED OPERATING PROCEDURES SEGREGATION OF HEALTH CARE WASTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Version</td>
</tr>
<tr>
<td></td>
<td>Date of effect</td>
</tr>
</tbody>
</table>

1. **Purpose:** ensure correct segregation of health care waste.

2. **Scope of application:** all rooms in Commune Health Center generating health care waste shall apply this procedures.

3. **Responsibility:** all persons working in Commune Health Center (including staff, medical students, patients and their relatives) generating health care waste shall apply this procedures.

4. **Equipments and supplies:**

   - **waste bags** shall meet the following requirements: color coding (yellow, green, white, black); Yellow and black waste bags must be made of PE or PP, do not use PVC bags; Health care waste bags’ minimum thickness is 0.1mm, bag capacity is appropriate to waste volume, maximum capacity is 0.1 m³; The outside of bags must have horizontal line at level ¾ and have sentence of “DO NOT CONTAIN WASTE OVER THIS LEVEL”; Waste bags must comply with regulations of color system in Clause 7 of this Decision and be used in the right way. The outside of hazardous or recycled health care waste bags and must include the suitable logo for each type of waste as follows: Yellow bags and containers for infectious waste must have logo of hazardous biological waste; White bags, containers for recycled waste must have logo of recycled waste.

   - **Sharp containers** shall meet the following requirements: Hard wall and bottom are hardly penetrable, leak-proof capacity, suitable size, the lid easy to open/close, the opening is big enough to contain sharp items without propulsive force, marked with the inscription “for sharp items only”, a horizontal line running at the height of 3/4 of the bag with the inscription of "no storing beyond this line", yellow color, with handle or enclosed with fixation system, sharp items inside aren’t dropped out during transportation.

5. **Methods:**

   - **Definition of healthcare waste**

     Waste generated from Commune Health Center is classified into the following categories: infectious waste, chemical waste, and general waste.

     Infectious waste includes 4 groups as follows:

     Sharp waste (group 1A): is waste that can cut, puncture including: needles, syringe, scalpels, knives, nails, bladders, broken glass and other sharp objects used in health activities.

     Infectious non-sharp waste (group 1B): is waste in contact with blood, humor and waste generated from sterile rooms.
Highly infectious waste (group 1C): generates from laboratories such as: autopsies and tools in contact with autopsies

Anatomical waste (group 1D): includes parts of human body, tissues, placentae, foetus and animal carcasses.

Chemical waste includes Pharmaceuticals that are expired, low-graded or no longer needed; and Harmful chemical substances in health care activities

General waste which does not contain hazardous agents include non-recycled waste and recycled waste

**- Segregation:**

- Health care waste must be segregated as soon as it is generated.
- Each type of waste must be contained in specialized bags and containers with suitable logos.
- Infectious waste is segregated into yellow color bags
- Sharp waste is segregated into sharp containers
- Chemical waste is segregated into black color bags
- General waste is segregated into green color bags
- Recycled waste is segregated into white color bags
ANNEX 2. SAMPLE STANDARDIZED OPERATING PROCEDURES COLLECTION OF HEALTH CARE WASTE

<table>
<thead>
<tr>
<th>Commune Health Center</th>
<th>STANDARDIZED OPERATING PROCEDURES COLLECTION OF HEALTH CARE WASTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Name...)</td>
<td>Code</td>
</tr>
<tr>
<td></td>
<td>Version</td>
</tr>
<tr>
<td></td>
<td>Date of effect</td>
</tr>
</tbody>
</table>

1. **Purpose:** ensure correct collection of health care waste.
2. **Scope of application:** all rooms in Commune Health Center generating health care waste shall apply this procedures.
3. **Responsibility:** persons in charge of environment in Commune Health Center.
4. **Equipments and supplies:**
   - **waste bags** shall meet the following requirements: color coding (yellow, green, white, black); Yellow and black waste bags must be made of PE or PP, do not use PVC bags; Health care waste bags’ minimum thickness is 0.1mm, bag capacity is appropriate to waste volume, maximum capacity is 0.1 m³; The outside of bags must have horizontal line at level ¾ and have sentence of “DO NOT CONTAIN WASTE OVER THIS LEVEL”; Waste bags must comply with regulations of color system in Clause 7 of this Decision and be used in the right way. The outside of hazardous or recycled health care waste bags and must include the suitable logo for each type of waste as follows: Yellow bags and containers for infectious waste must have logo of hazardous biological waste; White bags, containers for recycled waste must have logo of recycled waste.
   - **waste container** shall be made of high-density, thick, rigid PE or of metal that have a lid able to open by foot. Containers with large capacity (over 50 litres) must have wheels; Yellow containers are used to collect yellow waste bags and boxes; Black containers are used to collect black waste bags. The containers for radioactive waste must be metal; Green containers are used to collect green waste bags; White containers are used to collect white waste bags; Capacity depends on an amount of generated waste, from 10 litres to 250 litres; The outside of containers must have a horizontal line at level or ¾ and a sentence of “DO NOT CONTAINS SHARPS OVER THIS LEVEL”.
5. **Methods:**
   - Location of waste bags and containers:
     - all rooms in Commune Health Center has to identify health care waste containers locations for each category of waste. Appropriate bags and containers must be located in all places where waste is generated.
     - The waste containers locations must have instructions for classification and collection.
- Waste containers must be used following to set standards and cleaned daily.
- Clean waste bags must be available in places where health care waste is generated in order to replace bags with the same type delivered to temporary storages of health facilities.
- Each category of waste must be collected to waste bags and containers according to prescribed color codes and must label places of waste generation
- Hazardous waste and general waste are not collected together. If they are collected together, the mixture of waste will be treated as hazardous waste.
- The volume of waste in each bag is about 3/4 full and then closed by tying the necks.
- Frequency of collection: Hospital orderly or staff is assigned a duty to collect hazardous health care waste and general waste from generating places to department’s waste storage at least once a day and when needed.
- Highly infectious waste must be primarily treated in a place where it is generated before collecting to central waste locations of health facilities.
ANNEX 3. SAMPLE STANDARDIZED OPERATING PROCEDURES STORAGE OF HEALTH CARE WASTE

<table>
<thead>
<tr>
<th>Commune Health Center (Name...)</th>
<th>STANDARDIZED OPERATING PROCEDURES STORAGE OF HEALTH CARE WASTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Version</td>
</tr>
<tr>
<td></td>
<td>Date of effect</td>
</tr>
</tbody>
</table>

1. **Purpose:** ensure correct storage of health care waste.

2. **Scope of application:** The area/department of storage in Commune Health Center

3. **Responsibility:** persons in charge of healthcare waste storage area in Commune Health Center

4. **Equipments and supplies:**
   
   Storages place shall meet the following requirements: be far from food-preparing places, patients’ wards, crowded sites and public paths at least 10 m; have roofs, doors and locks to prevent animals, rodents and unassigned persons from freely penetrating therein; the area is suitable to the waste volumes generated from the healthcare establishments; be built with water drainage systems, water-resistant floor and wall, good ventilation.

   Storage equipments for sharp waste are containers made of high density plastic, having thick and rigid wall, capacity of 70 liters and yellow color. The container’s outside is marked with bio-hazard symbol, inscription of “sharp waste only”, a line at level of 3/4 and inscription of “not storing beyond this line”.

5. **Methods:**

   - Different waste streams are stored separately.
   - Healthcare waste is stored in standard storage equipment
   - Storage time of healthcare waste does not exceed 48 hours.
   - Anatomical waste must be buried or disposed daily.
   - Storage area and equipment must be cleaned and disinfected regularly
ANNEX 4.1. GUIDANCE FOR SELECTING METHODS OF HCW TREATMENT AND DISPOSAL

Treatment model:

According to Regulations on healthcare waste management and official letter No.7164/BYT-KCB dated 20/10/2008 of Minister of health, the health facilities are allowed to apply one of following model of treatment:

- In central managed cities where density of healthcare facilities is high, traffic system is favorable, healthcare facilities apply centralized model of hazardous healthcare solid waste treatment, one treatment facility treat all hazardous healthcare solid waste generated in city in order to save investment and operational cost.

- In other provinces and cities, healthcare facilities apply cluster model of hazardous healthcare solid treatment for hospitals, healthcare facilities locating within or surround cities and towns (distance to treatment facility is less than 30 km).

- Healthcare facilities locating in remote area, traffic poor area apply onsite waste treatment, use suitable treatment technology.

Treatment technologies

While incineration is adequate to many types of healthcare waste, non-incineration technologies are adequate to certain types of waste. Disinfection by steam, microwave or chemicals is applicable to most of infectious waste, but not suitable to treat anatomical waste, sharps and chemical waste. Concrete bury pit is only applied to anatomical waste and sharps. Innertization is only adequate to chemical and pharmaceutical waste (see Table 1). Based on socio-economic conditions and availability of technologies, the CHC should select the treatment technologies which are most suitable to its specific circumstances (see Table 2).

Table 1: Treatment and disposal methods suitable for different categories of healthcare waste

<table>
<thead>
<tr>
<th></th>
<th>Pyrolytic incinerator</th>
<th>Wet thermal disinfection</th>
<th>Microwave irradiation</th>
<th>Chemical disinfection</th>
<th>Safe burying</th>
<th>Innertization</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infectious waste</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharps</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Non-sharps</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Highly infectious</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Anatomical</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td><strong>Chemical waste</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>For small quantities</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Return to supplier</td>
</tr>
<tr>
<td>Technology</td>
<td>Advantages</td>
<td>Disadvantages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-incineration technologies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needle cutter</td>
<td>- Prevent needle reuse</td>
<td>- Needles need further treatment after cut and separated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Easy to operate, low cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Syringe can be recycled</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needle destroyer</td>
<td>- Needle is disinfected and destroyed by electricity</td>
<td>- Require electricity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Easy to operate, low cost</td>
<td>- Stem of needle still exists after destroying.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Syringe can be recycled</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innertization</td>
<td>- Applicable to chemical waste and pharmaceutical waste</td>
<td>- Not applicable to other waste</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Simple to operate, low cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cement bury pit</td>
<td>- Applicable to sharps and pathological waste</td>
<td>- Requires land and space</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Simple to operate, low cost</td>
<td>- Potential impact to underground water if poor design, construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safe burying</td>
<td>- Relatively safe if access to site is restricted and where natural infiltration is limited.</td>
<td>- Only apply to hospitals in mountainous and rural area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Low investment and operation cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disinfection by steam (autoclave) and/or microwave</td>
<td>- Highly efficient disinfection</td>
<td>- Inadequate for anatomical, pharmaceutical and chemical waste, and waste that is not readily steam permeable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Reduction in waste volume if shredder available</td>
<td>- Requires trained operator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Low operational cost</td>
<td>- High investment cost, requires thermal resistant waste bags</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Environmentally sound</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Well-known technology in hospitals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Incineration technologies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two chamber or Pyrolytic incinerator</td>
<td>- Adequate for all infectious waste, most chemical waste, and pharmaceutical waste</td>
<td>- Incomplete destruction of cytotoxics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Drastic reduction of weight and volume of waste</td>
<td>- Relatively high investment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- High operational cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Requires qualified operator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Emissions of air pollutants in case of improper operation and maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ANNEX 4.2. SAMPLE STANDARDIZED OPERATING PROCEDURES FOR TREATMENT AND DISPOSAL OF HEALTH CARE WASTE

Commune Health Center (Name...)  

<table>
<thead>
<tr>
<th>STANDARDIZED OPERATING PROCEDURES TREATMENT AND DISPOSAL OF HEALTH CARE WASTE</th>
<th>Code</th>
<th>Version</th>
<th>Date of effect</th>
</tr>
</thead>
</table>

1. **Purpose:** ensure safe treatment and disposal of health care waste.

2. **Scope of application:** The treatment and disposal location

3. **Responsibility:** persons in charge of healthcare waste treatment and disposal for Commune Health Center

4. **Selected equipments and methods:**
   (Mark "X" to selected quipments and methods)

<table>
<thead>
<tr>
<th>Treatment and disposal models</th>
<th>Treatment and disposal methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>In CHC Outside CHC</td>
<td>Pyrolytic incinerator Wet thermal disinfection Microwave irradiation Chemical disinfection Safe burying Innertiza- tion Others</td>
</tr>
</tbody>
</table>

**Infectious waste**
- Sharps
- Non-sharps
- Highly infectious
- Anatomical

**Chemical waste**
- Pharmaceuticals
1. **Purpose:** Ensure effective prophylaxis treatment of injury due to sharp waste.

2. **Scope of application:** all departments in the hospital shall be responsible for applying this procedure

3. **Responsibility:**
   - Injured person shall be responsible for treating wound site, reporting to the supervisor and complete the report form, complying with testing and post-exposure prophylaxis treatment.
   - Head of department: sent completed report form to Center for Preventive Medicine
   - Center for Preventive Medicine: shall be responsible for counselling and providing anti-retrovirus therapy
   - Head of Infection control department: update the incident and take measures to prevent similar exposure.

4. **Equipments and supplies:**
   - First aids tools for treatment of exposure site
   - Equipment for HIV, HBV, HCV testing
   - Antiretrovirus treatment drugs

5. **Methods:**
   - **Step 1: Treat the exposure site:** Flush the wound with tap water, Let the wound bleed for a short time 3 – 5 minutes, do not squeeze; clean the wound thoroughly with soap and water; disinfect wound by disinfectants (Dakin, Javel 1/10, alcohol 70°) in at least 5 minutes.
   - **Step 2: Report to the manager and complete the report form:**
     Indicate the date, time and the context of exposure, describe the wound and assess the level of risk. Get the signatures of the witnesses and the supervisor.
   - **Step 3: Assess the risk of exposure**
   - **Risk presents with:** Bleeding percutaneous wounds caused by containing blood needles: the risk is higher in case of deep wounds caused by large-bore needle containing a lot of blood compared with that of shallow wounds from fine needles with less blood; Deep percutaneous wounds caused by scalpels or broken tubes containing patient's blood and
body fluids; Existing lesions, ulcers or scratches on the skin or mucus membranes exposed to patient's blood and body fluids (even when the status of ulcers is unclear): the risk is higher with large ulcers or scratches.

- **No risk:** normal skin exposed to patient's blood or body fluids.

- **Step 4: Determine the HIV, HBV, HCV status of the source of exposure:** If the source patient is HIV (+), HbsAg (+), Anti HCV (+): get information on the use of and response to ARV treatment; If the HIV, HBV, HCV status of the source is unknown: provide counseling and perform HIV, HBV, HCV tests. In some cases it is impossible to identify the HIV status of the source (being exposed while on duty, the subject ran away), treat as HIV (+), HbsAg (+), Anti HCV (+) cases.

- + **Step 5: Determine the HIV, HBV, HCV status of the exposed person:** Provide pre-test and post-test counseling as regulated. If the exposed person has positive test result right after the exposure incident: HIV, HBV or HCV infection occurred before, not due to the exposure incident; If HIV (-), HBV (-), HCV (-) then HIV, HBV or HCV test is required after 3 months and 6 months.

- + **Step 6: Counsel the exposed person on.** Risk of infection with HIV, HBV, HCV; Information and services of the prophylaxis, its benefits and risks; Side effects of ARV and signs of primary HIV infection: fever, rash, nausea or vomiting, anemia, lymphadenopathy, etc; tư vấn Prevention of HIV transmission to others: exposed person may transmit HIV to others even if the test is negative (the window period) and they, therefore should practice all prevention measures; Adherence to treatment and psychological support.

- + **Step 7: ARV prophylaxis for the exposed person:** Provide ARV treatment as soon as possible, best within 2 – 6 hours after and before 72 hours after the exposure to all exposure cases with risk. At the same time, assess the HIV status of the source of exposure and the exposed person. If the source of exposure is HIV (+): continue the treatment. If the source of exposure is HIV (-): it is possible to discontinue the treatment. If the source is suspected as having risk factor and is in the period window, the treatment should be continued. If the exposed person is HIV (+): do not provide prophylaxis, refer for follow-up and provide treatment as a normal HIV positive case. If the exposed person is HIV (-): continue the treatment; Exposure with no risk: no treatment is needed; If the HIV status of the source of exposure cannot be determined: treat as a case of exposure to the HIV (+) source.
## ANNEX 6. CHECKLIST ON HEALTHCARE WASTE MANAGEMENT

### 1. Assessment of current situation

<table>
<thead>
<tr>
<th>No</th>
<th>Criteria</th>
<th>Status</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Healthcare waste is correctly and safely segregated at generating source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Sharp waste is segregated correctly and safely at generating source</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>1.2</td>
<td>Infectious waste is segregated correctly and safely at generating source</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>1.3</td>
<td>Chemical waste is segregated correctly and safely at generating source</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>1.4</td>
<td>General waste is segregated correctly and safely at generating source</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>1.5</td>
<td>Recyclable waste is segregated correctly and safely at generating source</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>1.6</td>
<td>Visible pictures or posters instructing healthcare waste segregation in department</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>2</td>
<td>Healthcare waste is safely collected at commune health center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>CHC designates a dirty room or area for waste collection</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>2.2</td>
<td>At collection place, there are visible instruction on waste collection</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>2.3</td>
<td>Infectious waste is safely collected in CHC</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>2.4</td>
<td>Chemical waste is safely collected in CHC</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>2.5</td>
<td>General waste is collected safely in CHC</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>2.6</td>
<td>Recyclable waste is safely collected in CHC</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>2.7</td>
<td>Waste containers cleaned and disinfected daily or regularly so that there is not dirt and bad odor</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>3</td>
<td>Healthcare waste is safely stored in CHC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Healthcare waste storage area is in place</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>3.2</td>
<td>Healthcare waste storage area, if available, meet the regulatory requirements</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>3.3</td>
<td>Infectious waste is stored safely</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>3.4</td>
<td>Chemical waste is stored safely</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>3.5</td>
<td>General waste is stored safely</td>
<td>□Yes</td>
<td>□No</td>
</tr>
<tr>
<td>3.6</td>
<td>Waste storage area and equipment are cleaned and disinfected daily</td>
<td>□Yes</td>
<td>□No</td>
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<tr>
<td>4</td>
<td>Healthcare waste is safely treated and disposed on-site or off-site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Criteria</td>
<td>Status</td>
<td>Note</td>
</tr>
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</tr>
<tr>
<td>4.1</td>
<td>In case of off-site treatment, hazardous healthcare waste is transported to legal treatment and disposal facilities by special means in a controlled manner and in line with hazardous healthcare waste management regulations.</td>
<td>☐ Yes ☐ No</td>
<td>Applicability</td>
</tr>
<tr>
<td>4.2</td>
<td>In case of on-site treatment, infectious waste is sterilized and shredded, then continued to treat for disposal as general waste</td>
<td>☐ Yes ☐ No</td>
<td>Applicability</td>
</tr>
<tr>
<td>4.3</td>
<td>In case of on-site treatment, some hazardous healthcare waste (anatomical waste, sharps, and some chemical waste) is encapsulated or isolated in concrete pits being designed and operated in line with regulations on hazardous waste management</td>
<td>☐ Yes ☐ No</td>
<td>Applicability</td>
</tr>
<tr>
<td>4.4</td>
<td>In case of on-site treatment, chemical healthcare waste is innertized by cement, then transported to legal landfill for disposal</td>
<td>☐ Yes ☐ No</td>
<td>Applicability</td>
</tr>
<tr>
<td>4.5</td>
<td>In case of on-site treatment, healthcare waste is safely treated by existing incinerator applied stringent pollution control measures so that secondary pollution due to incinerator’s gas emission and bottom ash are avoided</td>
<td>☐ Yes ☐ No</td>
<td>Applicability</td>
</tr>
<tr>
<td>5</td>
<td><strong>Wastewater from CHC is collected and treated properly</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>Healthcare wastewater is collected separately from storming water in collection network which meet regulatory requirements</td>
<td>☐ Yes ☐ No</td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>Latrines are sufficient to health staff and patients. Latrines meet technical regulations on design, operation and maintenance of hygienic latrine</td>
<td>☐ Yes ☐ No</td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>Wastewater is treated properly before discharge into environment</td>
<td>☐ Yes ☐ No</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td><strong>Healthcare waste management procedures are developed correctly and systematically.</strong></td>
<td>☐ Yes ☐ No</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td><strong>CHC’s staff are provided with sufficient personal protective equipment and use them properly</strong></td>
<td>☐ Yes ☐ No</td>
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2. Main findings and recommendations

<table>
<thead>
<tr>
<th>Main findings</th>
<th>Recommendations</th>
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