INITIAL REPORT FOR TASK 1, 2 AND 5

Current status of healthcare waste management

Given Vietnam’s unprecedented economic growth, waste from households, industries, commercial enterprises, and hospitals is expected to increase rapidly over the next decade. Managing this waste is a monumental challenge-both because of its substantial cost and its large potential benefits to public health and the quality of life. It is also important for improving the lives of many poor Vietnamese, who are more susceptible to the health effects of improper waste management and rely on informal waste collection and recycling activities for their livelihood.

Vietnam produces over 15 million tons of waste each year from various sources. More than 80 percent (12.8 million tons/yr) is from municipal sources, including households, restaurants, markets, and business. About 160,000 tons/yr (1 percent) of Vietnam’s waste is considered hazardous, including hazardous healthcare waste from hospitals; toxic or flammable waste from industrial process; and pesticide and pesticide containers from agriculture. If not managed well, the toxic, carcinogenic, hazardous healthcare, and other hazardous properties of this waste pose a significant threat to public health and the environment.

Medical staff, especially nurses, are at highest risk of being injured due to infectious sharps. It is more dangerous if they provide health care for patients infected HIV/AIDS or hepatitis B or C. Other hospital staff and waste handlers (cleaning workers, garbage scratching workers) are also at risk. Hazardous HIV/AIDS health care wastes are identified as clinic waste group A, B, C and E.

Hazardous healthcare waste treatment capacity is growing but hampered by poor operation. Recent investments have established enough incinerator capacity to treat 50 percent of Vietnam’s hazardous healthcare waste. However, a lack of financing for operation and maintenance of incinerators has often led to improper operation, which increases the risk of toxic dioxin and furan emissions or the disposal of healthcare waste as municipal waste. There is a need to develop a coherent and consistent approach to healthcare waste management.

WORK PLAN FOR THE STUDY

Work plan for task 1
**STEP 1.** Review international and national existing legislation and standard relating to health care waste management in general and HIV/AIDS HCWM in particular.

**STEP 2.** Detailed study of national existing legislation and standards on the following aspects:
- Are there available detailed regulations and standards on stages of health care waste management process? Are these regulations and standards consistent and adequate?
  - Are existing regulations and standards overlapped?
  - Whether obligations of each ministry and organization in each stage of HCWM are regulated in existing legislation or not?
  - Apply these regulations and standards to the HIV/AIDS HCWM.

**STEP 3.** Compare national health care waste regulations and standards with international ones.

**STEP 4.** Collect experts’ suggestions on feasibility, consistency, adequacy and weaknesses of existing HCWM regulations and standards (interview experts from environment and health ministries and agencies, people responsible for HCWM in hospitals and communities).

**STEP 5.** Based on results from step 1 to step 4, write recommendation for strengthening the legislative framework.

---

**Work plan for task 2**

**STEP 1.** Review existing documents including legislation in order to identify the followings:
- Current roles and responsibilities of environment and health institutions for HCWM in general and HIV/AIDS HCWM in particularly.
- Different staff groups in hospital responsible for HCWM in general and HIV/AIDS HCWM in particularly.
- Different groups and units in the communities responsible for HCWM in general and HIV/AIDS HCWM in particularly.

**STEP 2.** Work with experts from relevant ministries, institutions
- Work with national environment and health institutions (including interview leaders and staff) on current HCWM/HIV/AIDS HCWM and their roles, responsibilities as well as their interactions.
- Work with some central and local hospitals on their roles and responsibilities for HCWM/HIV/AIDS HCWM, responsible staff groups and their knowledge and capacity for HCWM/HIV/AIDS HCWM.
- Work with some district people committees on their roles and responsibilities for HCWM/HIV/AIDS HCWM, capacity and knowledge of assigned people for this task in the communities.

STEP 3. Synthesize, analyze data collected and write the final report.

TASK 1. ASSESSMENT OF LEGISLATIVE FRAMEWORK FOR HIV/AIDS HEALTH CARE MANAGEMENT

I. Identification of existing legislation and regulatory framework at the national and local level for health care waste management in general and HIV/AIDS HCWM in particular

There is no specific law that addresses the management of HIV/AIDS healthcare waste in Vietnam at the moment. However the regulatory framework for management of healthcare waste has been in place for some time. Some of the laws that have relevance to HealthCare Waste Management include:

1.3. Environmental Protection Law 27/12/1993.
1.5. Ordinance of Radiation Safety and Control 25/6/1996.
1.6. Directive No 199/TTg dated 03/04/1997 on urgent measures to manage solid waste in urban and industrial areas.
1.8. Decision No 155/1999/QD-TTg dated 16/07/1999 by Prime Minister promulgating regulations on hazardous waste management
1.9. Inter-ministries legislation:
   - Joint Circular No 1590/1997/TTLT-BKHCNMT-BXD dated 17/07/1997 by Ministry of Science, Technology and Environment and Ministry of Construction guiding to enforce urgent measures to manage solid waste in urban and industrial areas.
   - Joint Circular No 2237/1999/TTLT/BKHCNMT-BYT dated 28/12/1999 by MOSTE and MOH guiding radiation safety in health care facilities including radiation waste management.
1.10. Legislation issued by MOH:
   - Hospital Regulation was issued by Minister of Health: Article 12 Part IV regulates waste management; Article 25 Part V regulates infection control.
   - Regulation on clinic Waste Management was issued by Minister of Health.
- MOH Official Document No 4527/Dtr dated 8/6/1996 giving the instructions to manage solid waste in hospitals.

1.11. Regulations of some hospitals:
- Regulation on infection control was issued by Bach Mai hospital in 2000.

1.12. Penalties for breaches of the environment protection laws and regulations.
- Decree 26/CP on administrative penalties for breaches of the environment protection laws and regulations;
- Criminal Law
- Track down the penal responsibilities was regulated in Criminal Law (Chapter XVII, from Article 182 to Article 191);
- Environmental Protection Law.

II. Review of definitions and standards

1. Definitions:
1.1. Healthcare waste: substances generated in healthcare units from examination and treatment, laboratory tests, disease prevention, research, training, and nursery. Healthcare waste includes five types: clinic waste, radioactive waste, chemical waste, compressed air containers, and human waste.
1.2. Hazardous waste: waste generated during production and other activities by society that can pose a substantial or potential hazard to human health or environment when improperly managed.
1.3. Hazardous healthcare waste: healthcare waste, which includes any of the following: blood and blood products, egesta, human and animal body parts or organs, syringes or needles, sharp objects, pharmaceutical products, chemicals, and radioactive materials used in health sector. If not properly treated, these substances will be hazardous for the environment and people’s health.
1.4. Hazardous healthcare waste management: the process of controlling waste from the stage that waste are produced to preliminary waste treatment, collection, transportation, storage and destruction.
1.5. Waste collection: the process of picking up wastes from healthcare facilities, or a collection point, loading them into a vehicle, and transporting them to a processing site, transfer station, or landfill.
1.6. Waste transportation: the process of transporting waste from healthcare facilities, or a collection point to preliminary treatment places, to keeping and destroying places.
1.7. Preliminary waste treatment: the process of disinfecting or sterilizing highly-infectious waste in the area, which is near the waste generating places, before transporting waste to keeping or destroying places.
1.8. Waste destruction: the process of using technologies to isolate (including burial) and disable hazardous waste.
2. Healthcare waste identification and classification:

Healthcare wastes are classified as follows:

- Clinic waste includes 5 groups:
  + Group A - Infectious waste: waste containing pathogenic organisms like bacteria, viruses, parasites and fungi in sufficient quantities to cause disease in susceptible hosts. Infectious wastes are materials or equipment that have been in contact with patient blood and excretion (e.g. bandages, cotton, dressings, gloves, cloth, etc.)
  + Group B – sharps: All items that pose a risk of injury and infection due to their puncture and cutting properties e.g. needles, scalpels, knives, glass, syringes, pipettes and similar items having a pointed or sharp edge or that are likely to break during transportation and result in such an edge.
  + Group C – highly-infectious waste: wastes are generated from laboratories. High infectious wastes include gloves, test-tubes, and swabs after biopsy/testing/culturing, blood bags, etc.
  + Group G: Pharmaceutical waste
  + Group E: Human and animal tissues and body parts.
- Radioactive waste is any solid, liquid, or pathological waste contaminated with radioactive isotopes of any kind.
- Chemical waste is divided in two groups:
  + Non-hazardous chemical wastes include sugars, amino acids, and certain organic and inorganic salts.
  + Hazardous wastes include Formaldehyde, Photographic chemicals, solvents, trichloroethylene, and organic and inorganic chemicals.
- Pressurized containers
- Human waste is the waste generated from in- or out-patient activities that are not contaminated or stained with blood or body fluids from surgical operations, injection room (other than sharps) etc.

3. Standards:

3.1. Solid waste:
- National standards on hygienic burying pumps and hazardous chemicals.
- Hospital Regulation:
  + Chapter III: Solid waste collection and keeping in healthcare facilities.
  + Chapter IV: Transportation of healthcare hazardous solid waste.
- TCVN 6560:1999 Gas generated from healthcare solid waste incinerator – Permissible limits.

3.2. Gas waste:
- Hospital Regulation: Chapter VI regulates allowable limits for hospital waste water and gas before going out of hospitals.

3.3. Liquid waste:

III. Comparison with international standards and identification of gaps

World health organization has reviewed legislation on healthcare waste management in the region. They include the followings:

a) Regulations on management of solid waste and waste water (living, industry waste and hazardous waste)
b) Legislation on water pollution monitoring.
c) Legislations on air pollution monitoring.
d) Occupational Health and Safety Legislation.
e) Legislation on hazardous and toxic waste.
f) Legislation on radiation monitoring.

Currently, there are international conventions on healthcare waste management as follows:
- The Basel Convention: signed by more than 100 countries, this convention concerns transboundary movements of hazardous waste and it also applicable to healthcare waste.

Further more, the WHO developed “Healthcare Waste Management Handbook- A WHO guide for developing countries”, in which there are healthcare waste definition and classification, regulations and standards for management of each waste category.

Many countries have a national legislation or regulations governing healthcare waste management. For example:
- **Malaysia**: the disposal of clinical waste must comply with the requirements of the Environmental Quality Act 1974 (Act 127) and the following subsidiary legislation made under it:
  + Environmental Quality (Scheduled Waste) Regulations 1989.
  + Environmental Quality (Prescribed Premises) (Schedules Wastes Treatment and Disposal Facilities) Regulations 1989.
  + Environmental Quality (Clean Air) Regulations 1978.
+ Waste contaminated with pathogens of diseases covered by the Control of Infectious Diseases Act 1988 must be disposed of in accordance with the requirements of this Act.

- **Manila-Philippine.** There are number of laws and regulations concerning waste management regulations and environmental protection. However, most of these are not specific to hospital waste management. Hence, listed below are those that are considered important:

  + **Specific Laws:**
    * MMA Ordinance No.16 – regulating the management, collection and disposal of hospital waste and those of similar institutions in Metro Manila.
    * Republic Act No.4226 – Hospital Licensure Law.
  + **Existing Related Laws and Regulations on Waste Management:**
    * Presidential Decree No.1152- Philippine Environmental Policy.
    * Presidential Decree No.1151- Philippine Environmental Code.
    * Republic Act No 6969- An act to control toxic substances and hazardous and nuclear wastes, providing penalties for violations thereof, and for other purposes.
  + **Technical requirements:** Administrative Order No.68-A, s.1989 by the Bureau of Licensing and Regulation of the Department of Health- Revised Rules and Regulations Governing the Registration, Licensure and Operation of Hospitals in the Philippines.

- **Samoa.** Legislation or regulations governing healthcare waste management include:

  + The Health Ordinance 1959
  + The Poisons Act 1968
  + Labour and Employment Act 1972
  + Lands, Surveys and Environment Act 1989

- **Bhutan.** Currently there is no specific waste legislation in force in Bhutan.


  + Infection control policy is established in the Guidelines for Infection Control in Health care settings.

- **Ghana.** There is no specific law that addresses the management of health care waste in Ghana at the moment. Some the laws that have relevance to health care waste management include:

  + The Environmental Protection Agency Act, 1994
  + Environmental Assessment Regulations, 1999
  + The Local Government Act, 1993
  + National Building Regulations, 1996
  + Town and Country Planning Ordinances, 1944
  + Vaccination Ordinance Cap 76
  + Quarantine Ordinance Cap 77
  + Mosquito Ordinance Cap 75
+ Infectious Disease Ordinance
+ Food and Drugs Law 305b (1992)
+ Mortuaries and Funeral Facilities Act, 1998
+ The Criminal Code, 1960
- US:
  + Public Health Law: Section 1389-aa Definitions; Section 1389-cc Storage and containment of regulated medical waste; and Section 1389-dd Treatment and disposal of regulated medical waste.
  + Environmental Conservation Law

**TASK 2. ASSESSMENT OF INSTITUTIONAL FRAMEWORK FOR HIV/AIDS HCWM**

1. Ministry of Natural Resources and Environment (MOMRE)
   - Planning, formulating strategies, legislation, and policy
   - Guiding on application of Vietnam’s environmental standards
   - Approving impact assessment reports related to treatment of hazardous healthcare waste projects.
   - Environmental monitoring and coordinating the enforcement of healthcare facilities.

2. Ministry of Health
   - Overseeing delivery of service for healthcare waste.
   - Formulating policies related to waste from healthcare facilities, and supervising their implementation.

3. Provincial/Municipal People Committees (PPC)
   - Overseeing environmental management within its jurisdiction

4. Public urban environmental companies (URENCO) under PPC or MONRE
   - Waste collection and disposal as contracted

5. Civil society plays an important role in waste management.
   Civil society, including the public, NGOs, and other associations, can contributes to improving waste management practices in many ways. For example, actors in civil society are mobilizing communities to collect and separate their wastes, to collect litter in public spaces, and to support improvements in landfills.
## TASK 5. THE IMPLEMENTATION SCHEDULE

### I. Timeline with target date

<table>
<thead>
<tr>
<th>N°</th>
<th>Task</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
<th>9th</th>
<th>10th</th>
<th>11th</th>
<th>12th</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Assessment of Legislative framework for HIV/AIDS HCWM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identification of existing legislation and regulatory framework for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HCWM and HIV/AIDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identification of existing legislation and regulatory framework for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HCWM and HIV/AIDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Review of definitions and standards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comparison with international standards and identification of gaps</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recommendations for strengthening the legislative framework</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Assessment of Institutional Framework for HIV/AIDS HCWM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Current roles of responsibilities and interactions between the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>environmental and health institutions for HIV/AIDS HCWM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identification of different staff groups and assessment of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>associated capacity (skill levels) within hospitals for HIV/AIDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>№</td>
<td>Task</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
<td>6&lt;sup&gt;th&lt;/sup&gt;</td>
<td>7&lt;sup&gt;th&lt;/sup&gt;</td>
<td>8&lt;sup&gt;th&lt;/sup&gt;</td>
<td>9&lt;sup&gt;th&lt;/sup&gt;</td>
<td>10&lt;sup&gt;th&lt;/sup&gt;</td>
<td>11&lt;sup&gt;th&lt;/sup&gt;</td>
<td>12&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Remark</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------------</td>
<td>----------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>----------------</td>
<td>--------------</td>
<td>--------------</td>
<td>---------</td>
</tr>
<tr>
<td>7</td>
<td>Identification of different groups and assessment of capacity in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>community for HIV/AIDS HCWM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Identification and assessment of relevant NGOs. Determine areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>for involvement in this project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Identification of all stakeholders and present avenues of both</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>information flow and decision-making processes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Assessment of HIV/AIDS HCWM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At hospitals and clinics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Current HCWM practices at project hospitals and clinics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Identification of risk associated with the current HCWM practices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At non-hospitals/clinic setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Current waste management practices at non-hospital/clinic settings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Identification of risk associated with the current HIV/AIDS HCWM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>Development of an Action Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Assemble the following components</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Include an implementation schedule cost estimates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Legal framework</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Institutional Framework</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>№</td>
<td>Task</td>
<td>1st</td>
<td>2nd</td>
<td>3rd</td>
<td>4th</td>
<td>5th</td>
<td>6th</td>
<td>7th</td>
<td>8th</td>
<td>9th</td>
<td>10th</td>
<td>11th</td>
<td>12th</td>
<td>Remark</td>
</tr>
<tr>
<td>----</td>
<td>-------------------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>--------</td>
</tr>
<tr>
<td>17</td>
<td>Waste segregation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Pollution prevention and waste reduction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Sharps management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Hazardous materials management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Healthcare waste treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Transportation and disposal of healthcare wastes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Personnel training and consultation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Develop of an action plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

II. Identify short-term, medium-and long-term measures.

<table>
<thead>
<tr>
<th>№</th>
<th>Task</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
<th>9th</th>
<th>10th</th>
<th>11th</th>
<th>12th</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Short-term measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>mid-term measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Long-term measures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References: