



*Empowered lives.
Resilient nations.*



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

GLOBAL HEALTHCARE WASTE PROJECT

2012
HEALTHCARE WASTE
MANAGEMENT TRAINING
MASTER CURRICULUM AND INSTRUCTOR MANUAL

ACKNOWLEDGEMENTS

The training modules developed for this course are part of the United Nations Development Programme-supported, Global Environment Facility-funded Project on Healthcare Waste, in cooperation with the World Health Organization and Health Care Without Harm. The modules were completed in 2012 by Preethi Pratap, PhD, and graduate students - Matthew Hornyak, Olasunkanmi Alabi, and Matthew Tobin, of the University of Illinois at Chicago School of Public Health; Leslie Nickel, PhD, Office of Global Collaborations, National Institute for Occupational Safety and Health; and Jorge Emmanuel, PhD, Chief Technical Advisor of the UNDP GEF Project, with input from Yves Chartier (WHO), Mohammad-Ali Hamandi, MPH, Ashley Iwanaga, MPH, Glenn McRae, PhD, Megha Rathi, PhD, Ruth Stringer (Health Care Without Harm), and Emily Warren, MSES MPA.

The modules may be used as a resource to improve healthcare waste management. The modules are copyrighted but may be reproduced in their original unaltered form without permission for advocacy, campaigning and teaching purposes. Reproduction and distribution for commercial resale is strictly prohibited. UNDP GEF does not warrant that the information contained in this document is complete and correct and shall not be liable for any damages incurred as a result of its use.

TABLE OF CONTENTS

Acknowledgements	1
I. Introduction	1
II. The Aim	1
III. Using the Materials.....	2
IV. Educational Methods	4
1. Skills Training.....	4
2. Lectures and presentations	5
3. Problem-Solving Approaches.....	5
4. Small group activity method	6
V. Target Audiences	8
VI. Modules.....	9
VII. Constructing a Program	11
1. Needs Assessment	11
2. Training of Trainers (TOT):	12
3. Evaluation	14
VIII. Administration of Modules and Resources	18
1. Instructor Guides	18
2. Student Guides	18
3. De-brief.....	19
Appendix 1: UNDP GEF HCWM Sample Trainee Pre/Post Evaluation Form.....	20
Appendix 2: UNDP GEF HCWM Sample Instructor and Course Evaluation Form	50
Appendix 3: UNDP GEF HCWM Sample Program Planning Activity Tool.....	63
Appendix 4: UNDP GEF HCWM Sample Student Manual	65

I. INTRODUCTION

The purpose of the training materials is to provide information, strategies, and activities for the development, implementation, and evaluation of waste management programs in health care settings. This educational program is designed for implementation by experienced trainers (facilitators, tutors, and teachers) familiar with hospital waste management, occupational health and safety and public health principles, and the principles of participatory, student-centered educational methods.

II. THE AIM

The aim of training materials is to provide a basic but comprehensive introduction to hazardous waste in healthcare settings and how to deal with them. The materials are designed around the following principles:

- Patients, workers, and communities are entitled to a healthy and safe environment
- Knowledge of safe management of waste from healthcare activities is essential for reducing adverse health outcomes
- Risk evaluation requires a systematic approach that is essential for managing wastes from healthcare facilities

III. USING THE MATERIALS

The training materials are divided into 25 modules that are organized as one to three hour sessions. The modules cover the basics of healthcare waste management:

- Waste classification
- Waste segregation
- Waste minimization
- Handling and collection
- On-site transport and storage
- Treatment and disposal

Additional modules cover the characterization, health effects, policy, management planning, economics of waste management, worker health and safety, infection control, training, and emergencies. Special modules on mercury waste and non-mercury alternatives in health care are also included.

Each module is accompanied by an instructor guide, student guide, and participant materials/exercises/activities which complement the World Health Organization (WHO) publication *Safe Management of wastes from health-care activities* (Blue Book, 2nd Edition, 2013). The entire training draws upon the Blue Book (2013), and participants actively use this resource during the course. The participant materials also become a resource for participants when they return to their places of work. The materials are in Microsoft Word (instructor manual, activities, and guides), PowerPoint (photos and lecture materials),

Adobe Acrobat (pdf), and jpg files (documents). In order to assist in the process, approximate time requirements are given for the modules and exercises. *The materials may be copied, altered, and re-arranged to fit the needs of the country and participant audience. Trainers are encouraged to adapt and enhance the content by providing specific examples—readings and presentations—from their countries and organizations.*

The provision of information resources is an essential part of this program. The Blue Book (2013) is used throughout the course and the trainer should be familiar and comfortable with the information contained in book. The Blue Book (2013) systematically addresses safe management of wastes from health care activities. Many of the exercises will be enhanced primarily by the use of the Blue Book (2013) and other accompanying readings, but may also be enhanced by local or national documents, texts, and factsheets. Trainers should look for opportunities to supplement the material in the manual with other relevant information. Local or national information on standards, regulations, and worker rights will need to be assembled and introduced by the trainer. Films and videos are not used in this curriculum (although a few suggestions have been made) but may be useful supplementary materials to introduce topics and provide for local relevance. However, care should be taken to select material that reflects the basic principles of the manual and is consistent with good teaching practice.

IV. EDUCATIONAL METHODS

The curriculum is designed to be delivered using a variety of teaching methods that will create an interactive learning environment, and builds on:

- Concrete experience- problem solving, discussing and researching real life problems
- Reflective observation – discussing problems and developing strategies for solution
- Abstract conceptualization - applying principles to other situations
- Active experimentation - hands-on problem solving, implementing ideas

The term “instructor/trainer” has been used to describe the facilitator, teacher, or tutor and “participant/student” to describe the people attending. Although some of the material is designed for a presentation-discussion format, much is designed so that the participants will become self-sufficient in learning more about safe management of healthcare hazardous wastes. The goal is to give the participants knowledge, skills and tools to continue working in this area after the course has ended. In almost every training situation, there will be a diverse group of people with different educational backgrounds and varying needs.

1. SKILLS TRAINING

A major aim of this curriculum is to provide the participants with skills to address safe management of wastes from healthcare activities. A number of hands-on activities have been built into the curriculum to increase knowledge of the content material, and develop

skills in using key resources developed as part of the UNDP GEF Project and the WHO (such as the Rapid Assessment Tool, Costing Tool, etc.)

2. LECTURES AND PRESENTATIONS

PowerPoint slides have been provided for each topic. Lectures and discussion are methods that can be effective for providing information to large groups of participants in a short amount of time. For this curriculum the slide presentations are used to orient participants to the subject matter, stimulate thinking about how the subject matter relates to their facilities, and prepare participants to complete problem solving activities. The lectures and presentations harmonize with the WHO Blue Book (2013).

3. PROBLEM-SOLVING APPROACHES

While every module includes a presentation to orient participants to the subject matter the modules also include practical problem-solving activities. The problem-solving activities are an essential part of the curriculum as it gives participants a chance to practice what they learned during the presentation. Through the problem-solving activities students practice asking questions, apply information covered during the presentation, use resources to fill in gaps in knowledge, and produce a model which can be used when they return to their places of work. Problem-solving activities also give the instructor/trainer an opportunity to assess the participant's grasp of the material and how well they will be able to apply the knowledge in practice.

The problems represent real issues. The trainer may develop some of the problems based on participant questions or from information generated through some of the activities.

Participants should be encouraged to develop solutions which address the situation in the problem, each solution maybe unique to the particulars of the problem.

4. SMALL GROUP ACTIVITY METHOD

The Small Group Activity Method puts the learner at the center of the workshop.

Participants solve problems by calling upon their own skills and experiences. Participatory learning, using Small Group Activities, is particularly suited for leadership development and organizing training. By encouraging people to learn from their own experiences, the method takes into account the wide variety of cultural and education backgrounds people bring to training sessions. Here is the basic structure:

1. *SMALL GROUP TASK*: People work in groups, preferably at tables. Each activity has one or more *tasks* for the group. Very often there are no right answers, rather the tasks require people to use their own experiences to tackle problems and make judgments on key issues. The task may include using their notes or the slides from the presentation, looking at fact-sheets, and reading short handouts. In each case, it is important that the task be read out loud to the whole group so that everyone understands what is to be done. These tasks often include discussing questions which help clarify the direction of the problem.
2. *THE REPORT-BACK*: For each task, the group selects a *scribe* who takes notes on the small group discussion and reports back to the workshop as a whole. In reporting back, the scribe informs the entire workshop on how his or her group tackled the particular problem. For example, for the activity in Module 12 the scribe or group leader for each group will present the ideal floor plan to the class. The trainer

records each small group's report-back on large pads of paper, overhead transparency or projected word document in front of the workshop so all can refer to it. After the scribes report, the workshop is thrown open to general discussion about the problem at hand.

3. *THE SUMMARY:* Before the discussion drifts too far and wide, the trainer brings it all together in a de-brief or summary. Here, the trainer highlights the key points and brings up any problems and points that may have been overlooked in the Report-back.

V. TARGET AUDIENCES

Each module targets a set of competencies. Consequently, the applicability of the modules may be based on the target audience and depend on the defined competencies for the specified job function. We encourage all trainers to conduct a needs assessment at the concerned facility to identify the audiences and training needs.

Category ¹		Job Function
1	Administrative personnel	<ul style="list-style-type: none"> ▶ Hospital directors or administrators ▶ Chief executive officers ▶ Members of the board of trustees ▶ Treasurers or chief financial officers ▶ Legal counsels ▶ Other individuals responsible for making policies and major financial decisions, and ensuring compliance with laws and regulations
2	HCWM coordinator	<ul style="list-style-type: none"> ▶ HCWM Coordinators ▶ HCWM Manager ▶ HCWM Officer ▶ Or the person responsible for the day-to-day operation and monitoring of the overall healthcare waste management system
3	Facility managers	<ul style="list-style-type: none"> ▶ Chief medical officer or medical director ▶ Department heads ▶ Matron or chief nursing officer ▶ Shift supervisors ▶ Head of environmental services or housekeeping staff ▶ Head of central sterile supply ▶ Infection control officer ▶ Safety or environmental compliance officer ▶ Chief pharmacist ▶ Clinical laboratory manager ▶ Radiation officer ▶ Other managers whose departments, units, or services deal with healthcare waste
4	Healthcare professionals	These are individuals trained and licensed to identify, prevent, or treat illnesses and disabilities, or individuals trained in an allied health profession to support the work of healthcare providers. These include: Doctors ,Physician assistants ,Nurses, Nursing assistants ,Dentists, Dental hygienists ,Pharmacists , Phlebotomists, Therapy technicians, Paramedical personnel, Medical or clinical laboratory technologists and Other health professionals that generate infectious waste in the performance of their tasks
5	Healthcare waste workers	Personnel tasked with collecting, handling, transporting, storing, and disposing of healthcare waste in a healthcare facility
6	Facility support staff	Other support staff that generally do not come in contact with infectious waste such as: Facility engineers , Clerical or office staff , Maintenance technicians , Housekeeping or cleaning staff , Central supply staff , Laundry staff , Kitchen staff , Security guards , Gardeners.

¹ The categories as specified in “UNDP- GEF Global Healthcare project :Core competencies related to HCWM – September 2009”

VI. MODULES

TOPIC	DURATION	
	Lecture	Activity
Module 1 Definition, Sources, and Characteristics of Healthcare Waste	30 minutes	45 minutes
Module 2 Health and Environmental Impacts of Healthcare Wastes	45 minutes	45 minutes
Module 3 International and National HCWM Laws	45 minutes	1 hour
Module 4 National Healthcare Waste Management Planning	1 hour	3 hours
Module 5 HCWM Planning in a Healthcare Facility	1 hour	1 hour
Module 6 Occupational Health and Safety	1 hour	45 minutes
Module 7 Walkthrough of a Healthcare Facility	5-6 hours (lecture, walkthrough and de-brief) * does not include travel time	
Module 8 Walkthrough a Healthcare Waste Treatment Facility	5-6 hours (lecture, walkthrough and de-brief) * does not include travel time	
Module 9 Classification of Healthcare Waste	45 minutes	2 hours (to be completed after modules 9 and 10)
Module 10 Segregation of Healthcare Waste	1 hour and 15 minutes	
Module 11 Healthcare Waste Minimization	1hour	45 minutes
Module 12 Labeling, Handling, and Collection of Healthcare Waste	45 minutes	1 hour
Module 13 Onsite Transport and Storage of Healthcare Waste	1 hour	1 hour
Module 14 Offsite Transport and Storage of Healthcare Waste	45 minutes	
Module 15 Non-Incineration Treatment and Disposal	1 hour 30 minutes	
Module 16 Incineration of Healthcare Waste and the Stockholm Convention Guidelines	1 hour 30 minutes	
Module 17 Management of Specific Infectious Wastes	1 hour	1 hour
Module 18 Management of Chemical Cytotoxic Pharmaceutical and Radioactive Wastes	1 hour	1 hour
Module 19 Rationale for Mercury Free Health Care	45 minutes	1 hour (you may

Module 20 Management and Storage of Mercury Waste	1 hour	use the exercise from module 18)
Module 21 Non-Mercury Alternatives	45 minutes	
Module 22 Contingency Planning and Emergency Response to Healthcare Waste Spills	30 minutes	1 hour
Module 23 Management of Healthcare Wastewater	30 minutes	30 minutes
Module 24 Institutionalization of HCWM – Organization, Training, Financing and Quality Improvement	2 hours	3 hours
Module 25 Hospital Hygiene, Infection Control and Healthcare Waste Management	1 hour	
Program planning activity**	1 hour	
Evaluation	30 minutes	
Mini –presentations (if used as a TOT)***	5-10 minutes each	

Please note: All activities include time for the group exercise and debriefing.

*The field visit/walkthrough survey does not include travel time to the facility and may be conducted as a full day activity.

**Program planning activity may be conducted for the facility or individual.

***Mini presentations by individual trainees; each lasting about 5-10 minutes. This will also be a small group activity. This is only required if you are conducting a Training of Trainers (TOT).

VII. CONSTRUCTING A PROGRAM

1. NEEDS ASSESSMENT

Trainers are encouraged to structure the course and activities to meet their organization's needs. All trainers are encouraged to conduct a needs assessment of the healthcare facility prior to planning the training program. Factors to consider in building the agenda are:

- Facility specific needs, or requests, and goals
- Target audience- educational background, work experience and previous training
- Time available
- Resources available- space, projectors, audio-visual aids, printing services etc.

Trainers may select those portions of the training that best meet the needs of the trainees and the facility. The selected modules can then be arranged into a single 2 or 3 day course, or offered over several weeks. Presentation slides should be adjusted to fit the educational backgrounds and specific needs of the participants. Some of the exercises can stand alone (for example, cleaners and waste handlers may only participate in Exercise C of Module 22), although it is intended as an integrated curriculum. Certain modules, for example, Module 24 are meant primarily for management staff involved in the budget and decision-making process.

The trainer will need to develop the key goals and agenda for the training. The goals or objectives are to be shared with the participants and the organizers prior to the training. The agenda may include more than one instructor or trainer selected for their subject matter expertise. We recommend the main trainer share all the training

materials/activities provided with other instructors or trainers in order to design an effective course.

2. TRAINING OF TRAINERS (TOT):

This curriculum is not been designed to be implemented as a TOT program. However, the trainer may create a TOT using the training materials provided. Slides 20 to 36 of Module 24 discuss various aspects useful for TOT programs including preparation, content, modes of deliver, ideal characteristics of trainers, training tips, adult education principles, training techniques, and the TOT framework. Careful consideration should be given to the selection of master trainers who will be good role models for new trainees. In order for the TOT to be successful, trainers need to make sure that trainees being developed as trainers have a basic foundation and on-going experience in hospital waste management, occupational health and safety and public health principles, and the principles of participatory, student-centered educational methods. A good TOT program not only imparts theoretical knowledge but should also develop the trainee's competencies in planning, preparation, presentation, facilitation of discussions and other participatory training skills, professional self-development, and evaluation. The TOT should include an opportunity for trainees to practice training and apply training skills under supervision. The new trainers should be provided with resources such as training manuals, sample handouts, evaluation forms, etc. Ideally, a TOT program could also facilitate the formation of a network among new trainers and master trainers to provide long-term support and the sharing of experiences, lessons learned, and resources.

Trainers are encouraged to include the program planning and mini-presentation activity as part of their TOT. The goal of the mini presentations activity is to assess if the individual trainers are able to translate the training to their individual facility (i.e., level of comfort and effectiveness in delivering a module). This is a small group activity where each of the participants in the TOT will select a module /activity and demonstrate the delivery of this module. Each presentation may last about 5-10 minutes. Trainers are encouraged to give participants sufficient time to plan for these presentations. The following links from the WHO Protecting Healthcare Workers: Preventing needlestick injuries toolkit provide some background on adult learning and how to conduct and evaluate the mini-presentation activity.

- http://www.who.int/occupational_health/activities/1adultlpp.pdf
- http://www.who.int/occupational_health/activities/2adultlb.pdf

Trainers may use these links to prepare for the TOT and mini-presentation activity. In addition, trainers may also share this instructor manual during the TOT.

Here are a few additional resources that may be used to prepare the overall training and TOT:

- Train the Trainer- Basic Training Guidelines, Alameda County Public Health Department (www.acphd.org): <http://www.psr.org/assets/pdfs/safety-curriculum-module-2.pdf>
- Training the trainer Manual- <http://www.csu.edu/TLMP/documents/TLMPTraining-the-TrainerManual2.pdf>
- Principles of adult learning- <http://www.nhi.fhwa.dot.gov/downloads/freebies/172/PR%20Pre-course%20Reading%20Assignment.pdf>

- Better healthcare waste management: Training approaches- http://www.who.int/water_sanitation_health/medicalwaste/bhcmeng3.pdf
- Starting healthcare waste management in a medical institution- http://www.healthcarewaste.org/fileadmin/user_upload/resources/HCW_practical_Info1.pdf

3. EVALUATION

Evaluation includes both competency evaluation to assess participant success in meeting the course objectives, and participant course evaluation through which participants provide feedback to the trainers on how they experienced the course.

Competency evaluation is conducted qualitatively through observation, listening and observing students during the presentations and activities. Competency can also be evaluated through self-efficacy assessments and examinations. We recommend trainers include sufficient time in the agenda to conduct the evaluation at the end of the course.

1. *TRAINEE EVALUATION:* A sample tool to assess participant knowledge, skill, and self-efficacy changes pre/post training has been provided (see Appendix 1). Questions are aligned with the learning objectives and specific knowledge/skills gained in each module and activity. Trainers are encouraged to modify this tool, or use it as a template, to create their own assessment. In addition, trainers may develop a pre/post knowledge test based on the module content.
2. *COURSE EVALUATION:* A sample tool has been provided to rate instructor and the overall quality of the training programs (see Appendix 2). Questions cover instructor ratings for each module delivered in the course. Participant course evaluations (participant satisfaction critique) most often ask the participant to

describe what they felt was the most valuable part of the course, least valuable part of the course, how they plan on using the material and resources when they return to their workplace, and what do they think was missing from the course. The responses can be written short answers or recorded using a scale of poor to good or one to five. The responses should be summarized, shared with other trainers and be used for quality improvement of the course. Trainers are encouraged to modify the tool as needed.

3. *PROGRAM PLANNING ACTIVITY:* A sample tool has been provided to assist participants in creating an action plan for transferring this training to their workplace (see Appendix 3). The goal of this activity is to encourage participants /facilities to make a program plan to implement key learning from this training to change individual behaviors and practices, or make organizational policy, practice or product changes needed to implement a HCWM program in the hospital/facility. The secondary goal is to identify tools and resources that participants may need to implement the program activities. Trainers are encouraged to include this activity in their training agenda (including TOT) as this enables the participants to think about how they would transfer their learning to their workplace and also gives them an agenda to act on. If possible, trainers should follow-up with the participants to check on the progress of their implementation plan, or at least provide participants with the option of asking for guidance (by providing your contact information, or access to resources).

Additional considerations while designing your evaluation:

- **Demographics:** Add or delete questions based on how much information you want regarding the participants. You may choose to ask for participant names and contact information. However, we recommend you not to use this personal information while summarizing the results.
- **Pre/post knowledge and skill:** Insert questions related to the learning objectives of the modules covered. For example, if you present Module 6 on Occupational Health and Safety, then you may include a question to assess participant's pre/post knowledge of the functions/responsibilities of an occupational health and safety committee. Administer the form at the end of the training, as participants will be able to use the same frame of reference for their knowledge and skills pre and post training.
- **Create a knowledge test that focuses more on the subject matter.** For example, are participants aware of the number of tons of healthcare waste generated by hospitals in your country? Or, what are the key regulatory agencies or healthcare waste-related conventions?
- **Instructor and course ratings:** Include the module titles covered in your agenda. Administer this form at the end of the training.
- **Program planning activity:** May be used by an individual participant or a facility. Trainers may keep a copy of this form to follow-up with participants and facilities. Trainers may also provide their contact information as a resource to help in the implementation process. For example, a facility may want to invite the trainer to

conduct a training session for their healthcare waste management staff, or become a consultant for developing an occupational health and safety committee on-site.

- You may follow the suggested the steps necessary to compile and analyze the data.

VIII. ADMINISTRATION OF MODULES AND RESOURCES

1. INSTRUCTOR GUIDES

Instructor guides have been provided for each module. The goal of the guide is to direct the trainer and assist in the preparation for the module. Sample times for the module and activity have been provided. Teacher notes have been provided for each slide in the presentation. These notes are included in the notes section of the PowerPoint slides as well. A list of relevant readings and articles has been provided, apart from the Blue Book (2013) chapters corresponding to the module. In addition, instructions on how to deliver the exercises or activities have been provided. Trainers are encouraged to read the referenced materials and make copies of relevant or useful documents for the participants prior to the course. The trainer may choose to use, not use, or modify the activities. The suggested format for a module is as follows:

- Present the slides
- Conduct the small group activity in breakout sessions
- De-brief the activities, review questions and provide key summary points (use the flip charts and chalk boards whenever possible and post them around the class)

2. STUDENT GUIDES

A suggested sample for a student manual has been provided (see Appendix 4). The student manuals are to be shared with the participants prior to the course. Student manuals must include the student guides that cover some basic preparation requirements for each

module and activity. Trainers are encouraged to modify the student guides based on their needs.

3. DE-BRIEF

We recommend trainers present the overall goals/objectives of the training at the beginning of the course. Trainers may then present each module and discuss the review questions, following which they may conduct the small group activity/exercise. Trainers may then de-brief the activity/exercise by tying it in with the learning objectives for each module again.

At the end of the course, we recommend the trainer re-visit the overall course goals/objectives to ensure participants are aware of how each module and activity aligned with the objectives. This should be completed prior to the evaluation.

APPENDIX 1: UNDP GEF HCWM SAMPLE TRAINEE PRE/POST EVALUATION FORM

Note: This is only a sample form. The following questions are aligned with the learning objectives and specific knowledge/skills gained in each module. Trainers are encouraged to modify this tool, or use it as a template, to create their own assessment. In addition, you may develop a pre/post knowledge test based on the module content. We recommend you administer this form at the end of the training, as participants will be able to use the same frame of reference for their knowledge and skills pre and post training.

Trainee Demographics

1. Gender Male Female

2. Education level Primary school
 Some high school
 High school graduate,
 Bachelor’s degree
 Master’s degree
 More than a Master’s Degree
 Other: Specify_____

3. Age of trainee _____

4. Type of employer

Government (Local / District / Provincial or State / National) Private
Primary Health Station Outpatient Clinic District Hospital
General Hospital Tertiary/Referral Hospital Specialty Hospital
Biomedical Laboratory Maternity or Birthing Center Other _____

5. What is your job title? _____

6. Number of years of experience in the healthcare sector _____

7. Number of years of experience in healthcare waste management related activities (specify activities) _____

9. Previous HCWM training experience (as a student or participant) _____

10. Reason for taking this course

Required by the employer

Career development

Other: Specify _____

11. Any previous HCWM training experience as a trainer? If yes, how many years and who did you train?

Trainee HCWM related knowledge/skill self-efficacy

MODULE 1

How would you rate your knowledge of the types of healthcare wastes before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the types of healthcare wastes after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the characteristics of healthcare wastes before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the characteristics of healthcare wastes after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 2

How would you rate your knowledge of health risks due to healthcare wastes before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of health risks due to healthcare wastes after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your skill in identifying healthcare waste hazards in your workplace before the training?

Not at all skilled 1 2 3 4 5 Extremely skilled

How would you rate your skill in identifying healthcare waste hazards in your workplace after the training?

Not at all skilled 1 2 3 4 5 Extremely skilled

How would you rate your knowledge of the environmental impacts of healthcare wastes before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the environmental impacts of healthcare wastes after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 3

How would you rate your knowledge of the main international principles of healthcare waste management before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the main international principles of healthcare waste management after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the WHO guiding and core principles on healthcare waste management before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the WHO guiding and core principles on principles of healthcare waste management after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of international laws in relation to healthcare waste management before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of international laws in relation to healthcare waste management after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of national laws on healthcare waste management before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of national laws on healthcare waste management after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 4

How would you rate your knowledge of the basic steps of national healthcare waste management planning before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the basic steps of healthcare waste management planning after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the implementation of national healthcare waste management plans before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the implementation of national healthcare waste management plans after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 5

How would you rate your knowledge of the steps of developing a healthcare waste management plan before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the steps of developing a healthcare waste management plan after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your skill and knowledge in conducting a healthcare waste assessment before the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled

How would you rate your skill and knowledge in conducting a healthcare waste assessment after the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled

MODULE 6

How would you rate your skill in identifying occupational hazards related to healthcare wastes in your facility before the training?

Not at all skilled 1 2 3 4 5 Extremely skilled

How would you rate your skill in identifying occupational hazards related to healthcare wastes in your facility after the training?

Not at all skilled 1 2 3 4 5 Extremely skilled

MODULE 7 & 8

How would you rate your skill in observational assessment and identifying areas for improvement related to healthcare waste management in your workplace before the training?

Not at all skilled 1 2 3 4 5 Extremely skilled

How would you rate your skill in observational assessment and identifying areas for improvement related to healthcare waste management in your workplace after the training?

Not at all skilled 1 2 3 4 5 Extremely skilled

MODULE 9

How would you rate your knowledge of healthcare waste classification before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of healthcare waste classification after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 10

How would you rate your skill in segregating healthcare wastes in your workplace before the training?

Not at all skilled 1 2 3 4 5 Extremely skilled

How would you rate your skill in segregating healthcare wastes in your workplace after the training?

Not at all skilled 1 2 3 4 5 Extremely skilled

How would you rate your knowledge of healthcare waste color coding before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of healthcare waste color coding after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 11

How would you rate your knowledge of waste minimization techniques before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of waste minimization techniques after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 12

How would you rate your skills and knowledge in waste handling and collection in your workplace before the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate your skills and knowledge in waste handling and collection in your workplace after the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

MODULE 13

How would you rate your skills and knowledge in transporting and storing waste within your workplace before the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate your skills and knowledge in transporting and storing waste within your workplace after the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

MODULE 14

How would you rate your knowledge of requirements for storing and transporting healthcare waste outside a healthcare facility before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of requirements for storing and transporting healthcare waste outside a healthcare facility after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 15

How would you rate your knowledge of factors to consider when selecting waste treatment methods before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of factors to consider when selecting waste treatment methods after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of non-incineration technologies for healthcare waste treatment before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of non-incineration technologies for healthcare waste treatment after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 16

How would you rate your knowledge of environmental requirements related to incineration before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of environmental requirements related to incineration after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your skill and knowledge regarding the maintenance and troubleshooting of incinerators before the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate your skill and knowledge regarding the maintenance and troubleshooting of incinerators after the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

MODULE 17

How would you rate your knowledge of specific controls to prevent needle stick injuries before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of specific controls to prevent needle stick injuries after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your skill and knowledge regarding sharps waste management in your workplace before the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate your skill and knowledge regarding sharps waste management in your workplace after the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate your skill and knowledge regarding the management of blood/body fluids, cultures/stocks, and pathological waste in your workplace before the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate your skill and knowledge regarding the management of blood/body fluids, cultures/stocks, and pathological waste in your workplace after the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

MODULE 18

How would you rate your skill and knowledge regarding the management of chemical, cytotoxic, pharmaceutical, and radioactive wastes in your workplace before the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate skill and knowledge regarding the management of chemical, cytotoxic, pharmaceutical, and radioactive wastes in your workplace after the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

MODULE 19

How would you rate your knowledge of the health and environmental impacts of mercury in your facility before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the health and environmental impacts of mercury in your facility after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the WHO policy on mercury before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of the WHO policy on mercury after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 20

How would you rate your skill and knowledge in cleaning up a mercury spill in your workplace before the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate your skill and knowledge in cleaning up a mercury spill in your workplace after the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate your knowledge of mercury management and phase out before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of mercury management and phase out after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 21

How would you rate your knowledge of non-mercury devices before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of non-mercury devices after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 22

How would you rate your skill in responding to a needle stick injury/or emergency spill at your workplace before the training?

Not at all skilled 1 2 3 4 5 Extremely skilled

How would you rate your skill in responding to a needle stick injury/or emergency spill at your workplace after the training?

Not at all skilled 1 2 3 4 5 Extremely skilled

MODULE 23

How would you rate your knowledge of healthcare wastewater management before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of healthcare wastewater management after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 24

How would you rate your knowledge of healthcare waste management organization before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of healthcare waste management organization after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your skill and knowledge in healthcare waste training before the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate your skill and knowledge in healthcare waste training after the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate your knowledge of healthcare waste management financing before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of healthcare waste management financing after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

MODULE 25

How would you rate your knowledge of basic infection control practices before the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your knowledge of basic infection control practices after the training?

Not at all knowledgeable 1 2 3 4 5 Extremely knowledgeable

How would you rate your skill and knowledge in hand hygiene before the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

How would you rate your skill and knowledge in hand hygiene after the training?

Not at all skilled/knowledgeable 1 2 3 4 5 Extremely skilled/knowledgeable

Now that you have completed the training please indicate how confident you think you were doing the following tasks **BEFORE** this training (circle the appropriate number):

Tasks	How Confident Are You?					
	Not at all Confident			Very Confident		
	0	1	2	3	4	5
a. Differentiating between infectious, chemical, non-infectious wastes in your workplace?	0	1	2	3	4	5
b. Implementing a newly learned “best practice for segregating waste” in your workplace	0	1	2	3	4	5
c. Recommending strategies for minimizing waste in your workplace	0	1	2	3	4	5
d. Identifying problems in waste handling, collection, transport and storage	0	1	2	3	4	5
e. Identifying issues related to healthcare waste treatment	0	1	2	3	4	5
f. Implementing a safe and effective sharps waste management system in your workplace	0	1	2	3	4	5
g. Implementing a mercury management program in your workplace	0	1	2	3	4	5
h. Forming, leading or participating in a HCWM committee in your workplace	0	1	2	3	4	5
i. Recommending improvements to healthcare waste management practices in your workplace	0	1	2	3	4	5
j. Recommending intervention strategies for reducing occupational exposures to healthcare hazards?	0	1	2	3	4	5

k. Responding to needle-stick injuries and waste spills in your workplace	0	1	2	3	4	5
l. Changing your own behavior to work more safely?	0	1	2	3	4	5
m. Helping your co-workers to work more safely?	0	1	2	3	4	5
n. Using the training tools provided in this course?	0	1	2	3	4	5
o. Training others in your workplace? Specifically using the tools we have provided.	0	1	2	3	4	5
p. Incorporating basic infection control practices into healthcare waste management	0	1	2	3	4	5

Now that you have completed the training please indicate how confident you think you are in doing the following tasks **AFTER** this training (circle the appropriate number):

Tasks	How Confident Are You?					
	Not at all Confident			Very Confident		
	0	1	2	3	4	5
a. Differentiating between infectious, chemical, non-infectious wastes in your workplace?	0	1	2	3	4	5
b. Implementing a newly learned “best practice for segregating waste” in your workplace	0	1	2	3	4	5
c. Recommending strategies for minimizing waste in your workplace	0	1	2	3	4	5
d. Identifying problems in waste handling, collection, transport and storage	0	1	2	3	4	5
e. Identifying issues related to healthcare waste treatment	0	1	2	3	4	5
f. Implementing a safe and effective sharps waste management system in your workplace	0	1	2	3	4	5
g. Implementing a mercury management program in your workplace	0	1	2	3	4	5
h. Forming, leading or participating in a HCWM committee in your workplace	0	1	2	3	4	5
i. Recommending improvements to healthcare waste management practices in your workplace	0	1	2	3	4	5
j. Recommending intervention strategies for reducing occupational exposures to healthcare hazards?	0	1	2	3	4	5

k. Responding to needle-stick injuries and waste spills in your workplace	0	1	2	3	4	5
l. Changing your own behavior to work more safely?	0	1	2	3	4	5
m. Helping your co-workers to work more safely?	0	1	2	3	4	5
n. Using the training tools provided in this course?	0	1	2	3	4	5
o. Training others in your workplace? Specifically using the tools we have provided.	0	1	2	3	4	5
p. Incorporating basic infection control practices into healthcare waste management	0	1	2	3	4	5

Suggested Data Analysis

- Tabulate the responses of all participants for each question and calculate the mean scores for each question. For a large number of participants, using a spreadsheet software such as Excel facilitates the analysis. An example is given below for 12 participants and their pre-training responses to five questions:

Pre-training data

Participant	Question 1	Question 2	Question 3	Question 4	Question 5
1	1	4	3	1	5
2	2	5	2	2	5
3	2	4	2	1	4
4	1	4	3	2	5
5	1	3	2	1	4
6	2	3	1	2	4
7	2	4	3	1	5
8	1	5	4	1	4
9	1	5	3	3	5
10	3	4	3	1	5
11	2	5	3	1	5
12	1	5	2	1	5
Mean	1.58	4.25	2.58	1.42	4.67

The data above indicates that before the training, the participants on average had little knowledge/skill or lacked confidence in relation to Questions 1 and 4 but were fairly knowledgeable/skilled or confident in relation to Questions 2 and 5.

- Do the same for post-training data. An example is shown below for the 12 participants.

Post-training data

Participant	Question 1	Question 2	Question 3	Question 4	Question 5
1	4	5	5	1	5
2	4	5	4	2	5
3	4	5	5	1	5
4	3	5	5	3	5
5	5	4	4	2	5
6	4	4	4	3	5
7	5	4	5	2	5
8	5	5	4	2	4
9	4	5	5	4	5
10	3	5	4	2	5
11	4	5	5	3	5
12	5	5	5	2	5
Mean	4.17	4.75	4.58	2.25	4.92

- Calculate the change in scores between the pre and post training data. An illustration is given below for the above example.

	Question 1	Question 2	Question 3	Question 4	Question 5
Pre/mean	1.58	4.25	2.58	1.42	4.67
Post/mean	4.17	4.75	4.58	2.25	4.92
Change	2.58	0.50	2.00	0.83	0.25

The data above indicates that on average, the participants increased by 2 or more rating points for Questions 1 and 3 (suggesting an improvement). On the other hand, the participants on average showed very little increase in ratings (suggesting little improvement) for Questions 2 and 5 in which the participants were already very knowledgeable/skilled or confident.

- Test the statistical significance of the change in scores for each question. One method is to use the statistical t-test for paired samples with two tails (repeated measures t-test). The resulting p-value estimates the reliability of the assumption that the changes in the average scores between pre and post training are statistically significant and not just due to chance. (Note: The p-value is the outcome of a statistical test and is a probability that reflects the measure of evidence against the null hypothesis. Readers unfamiliar

with this concept can find descriptions in a standard textbook on statistics.) Small p-values correspond to strong evidence. A p-value of 0.1 or less indicates that there is a 90% or higher confidence that the difference in average scores for each question is significant.

The example below was computed using the T.TEST function in Excel 2010 (TTEST function in Excel 2007) for a paired type test and two-tail distribution. The results for the above example show that the improvements (as manifested in the increase in the average rating scores) are significant at a $p < 0.1$ level.

Participant	Pre Q1	Post Q1	Pre Q2	Post Q2	Pre Q3	Post Q3	Pre Q4	Post Q4	Pre Q5	Post Q5
1	1	4	4	5	3	5	1	1	5	5
2	2	4	5	5	2	4	2	2	5	5
3	2	4	4	5	2	5	1	1	4	5
4	1	3	4	5	3	5	2	3	5	5
5	1	5	3	4	2	4	1	2	4	5
6	2	4	3	4	1	4	2	3	4	5
7	2	5	4	4	3	5	1	2	5	5
8	1	5	5	5	4	4	1	2	4	4
9	1	4	5	5	3	5	3	4	5	5
10	3	3	4	5	3	4	1	2	5	5
11	2	4	5	5	3	5	1	3	5	5
12	1	5	5	5	2	5	1	2	5	5
Mean	1.58	4.17	4.25	4.75	2.58	4.58	1.42	2.25	4.67	4.92
Change		2.58		0.50		2.00		0.83		0.25
p-value		9.553E-06		6.872E-03		5.642E-06		4.025E-04		8.186E-02

- Create an overall pre/post knowledge/skill score and an overall pre/post confidence score for the tasks.
- Create an overall pre/post knowledge test score at the end of the training (if you administer a separate knowledge test).
- The following link gives you step-by-step instructions on how to analyze pre and post evaluation data. You may use this to guide you while comparing your data. Please copy and paste the links:
- <http://www.human.cornell.edu/pam/outreach/parenting/research/upload/Measuring-20Evaluation-20Results-20with-20Microsoft-20Excel.pdf>
- <http://www.microsoft.com/mac/how-to/training/excel> (This is a Microsoft Excel Tutorial sit

APPENDIX 2: UNDP GEF HCWM SAMPLE INSTRUCTOR AND COURSE EVALUATION FORM

Note: This is only a sample tool. Questions cover instructor ratings for each module delivered in the course. Participant course evaluations (participant satisfaction critique) ask the participant to describe what they felt was the most valuable part of the course, least valuable part of the course, how they plan on using the material and resources when they return to their workplace, and what do they think was missing from the course. Trainers are encouraged to modify the tool as needed. You may add more questions based on how many modules you use in your course. Administer this form at the end of the training.

Instructor and Session Evaluation

1. Participants please rate each of the sessions for content and presentation.
 - a. Module 1: Definition, Sources, and Characteristics of Healthcare Waste (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

Presented the module or material in a clear and systematic manner.	1	2	3	4	NA
Described the objectives	1	2	3	4	NA
Reviewed and summarized key points	1	2	3	4	NA
Explained how the module applied to your job	1	2	3	4	NA
Gave helpful feedback and answered questions	1	2	3	4	NA
Identified important resources that you can use in your facility	1	2	3	4	NA
Dedicated enough time for the module and activity	1	2	3	4	NA

Any suggestions on what the instructors can do to make the module more interesting?

b. Module 2: Health and Environmental Impacts Healthcare Waste (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

Presented the module or material in a clear and systematic manner.	1	2	3	4	NA
Described the objectives	1	2	3	4	NA
Reviewed and summarized key points	1	2	3	4	NA
Explained how the module applied to your job	1	2	3	4	NA
Gave helpful feedback and answered questions	1	2	3	4	NA
Identified important resources that you can use in your facility	1	2	3	4	NA
Dedicated enough time for the module and activity	1	2	3	4	NA

Any suggestions on what the instructors can do to make the module more interesting?

c. Module 3: International and National HCWM Laws – Legislative, Regulatory, and Policy Aspects (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

Presented the module or material in a clear and systematic manner.	1	2	3	4	NA
Described the objectives	1	2	3	4	NA
Reviewed and summarized key points	1	2	3	4	NA
Explained how the module applied to your job	1	2	3	4	NA
Gave helpful feedback and answered questions	1	2	3	4	NA
Identified important resources that you can use in your facility	1	2	3	4	NA
Dedicated enough time for the module and activity	1	2	3	4	NA

Any suggestions on what the instructors can do to make the module more interesting?

d. Module 4: National Healthcare Waste Management Planning (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

Presented the module or material in a clear and systematic manner.	1	2	3	4	NA
Described the objectives	1	2	3	4	NA
Reviewed and summarized key points	1	2	3	4	NA
Explained how the module applied to your job	1	2	3	4	NA
Gave helpful feedback and answered questions	1	2	3	4	NA
Identified important resources that you can use in your facility	1	2	3	4	NA
Dedicated enough time for the module and activity	1	2	3	4	NA

Any suggestions on what the instructors can do to make the module more interesting?

e. Module 6: Occupational Health and Safety (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

Presented the module or material in a clear and systematic manner.	1	2	3	4	NA
Described the objectives	1	2	3	4	NA
Reviewed and summarized key points	1	2	3	4	NA
Explained how the module applied to your job	1	2	3	4	NA
Gave helpful feedback and answered questions	1	2	3	4	NA
Identified important resources that you can use in your facility	1	2	3	4	NA
Dedicated enough time for the module and activity	1	2	3	4	NA

Any suggestions on what the instructors can do to make the module more interesting?

f. Module 7 and 8: Field trip/Walkthrough survey (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

Presented the module or material in a clear and systematic manner.	1	2	3	4	NA
Described the objectives	1	2	3	4	NA
Reviewed and summarized key points	1	2	3	4	NA
Explained how the module applied to your job	1	2	3	4	NA
Gave helpful feedback and answered questions	1	2	3	4	NA
Identified important resources that you can use in your facility	1	2	3	4	NA
Dedicated enough time for the module and activity	1	2	3	4	NA

Any suggestions on what the instructors can do to make the module more interesting?

g. Module 9 and 10: Classification of Healthcare Waste /Segregation of Healthcare Waste (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

Presented the module or material in a clear and systematic manner.	1	2	3	4	NA
Described the objectives	1	2	3	4	NA
Reviewed and summarized key points	1	2	3	4	NA
Explained how the module applied to your job	1	2	3	4	NA
Gave helpful feedback and answered questions	1	2	3	4	NA
Identified important resources that you can use in your facility	1	2	3	4	NA
Dedicated enough time for the module and activity	1	2	3	4	NA

Any suggestions on what the instructors can do to make the module more interesting?

h. Module 11: Healthcare Waste Minimization (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

Presented the module or material in a clear and systematic manner.	1	2	3	4	NA
Described the objectives	1	2	3	4	NA
Reviewed and summarized key points	1	2	3	4	NA
Explained how the module applied to your job	1	2	3	4	NA
Gave helpful feedback and answered questions	1	2	3	4	NA
Identified important resources that you can use in your facility	1	2	3	4	NA
Dedicated enough time for the module and activity	1	2	3	4	NA

Any suggestions on what the instructors can do to make the module more interesting?

i. Module 12: Labeling, Handling, and Collection of Healthcare Waste (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

Presented the module or material in a clear and systematic manner.	1	2	3	4	NA
Described the objectives	1	2	3	4	NA
Reviewed and summarized key points	1	2	3	4	NA
Explained how the module applied to your job	1	2	3	4	NA
Gave helpful feedback and answered questions	1	2	3	4	NA
Identified important resources that you can use in your facility	1	2	3	4	NA
Dedicated enough time for the module and activity	1	2	3	4	NA
Dedicated enough time for the module and activity	1	2	3	4	NA

Any suggestions on what the instructors can do to make the module more interesting?

j. Module 25: Hospital Hygiene, Infection Control and Healthcare Waste Management (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

Presented the module or material in a clear and systematic manner.	1	2	3	4	NA
Described the objectives	1	2	3	4	NA
Reviewed and summarized key points	1	2	3	4	NA
Explained how the module applied to your job	1	2	3	4	NA
Gave helpful feedback and answered questions	1	2	3	4	NA
Identified important resources that you can use in your facility	1	2	3	4	NA
Dedicated enough time for the module and activity	1	2	3	4	NA

Any suggestions on what the instructors can do to make the module more interesting?

Overall Training Evaluation

2a. Would you say the course met the objectives of this training? (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

1 2 3 4

You may use the space below to discuss different modules:

2b. Would you say the training elicits thoughts about real problems that could happen in your facility? (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

1 2 3 4

2c. Did the training provide useful tools that you can use in your workplace? (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

1 2 3 4

2d. Did you think the time provided for this overall course was sufficient? (4 point scale: 1= Rarely or never/Poor to 4= Almost always/Excellent)

1 2 3 4

3a. What do you think is the least useful part of the training and needs to be deleted from future sessions?

3b. Which modules do you think will help you the most in your work place?

3c. Do you think the training met your expectations, based on what you wanted to learn from this course?

Yes No Don't Know Refuse to answer

3d. What else would you like us to include in this course?

3e. Which modules or activities would you want more time dedicated to?

4. Which of the following activities were the most helpful to you and should be used in future trainings? Also think about how you can use any of these activities in your work or to train others in your facility.

[Note to instructor: Select the activities below that were used during your training and delete the others from this table before administering the form to the participants.]

Activity	Helpful to you (Yes/No)	Easy to implement or use (Yes/No)	Any comments
Module 1: Characterizing healthcare wastes			
Module 2: Health and Environmental Impacts of Healthcare Waste			
Module 3: International and National HCWM Laws			
Module 4: Implementing a national HCWM program			
Module 5: HCWM Program and Team			
Module 6: Identifying Worker Health and Safety Needs			
Modules 7 & 8: Walkthrough			
Modules 9 & 10: Classification Matrix			
Modules 9 & 10: Segregation Activity			

Modules 9 & 10: Segregation Posters			
Module 11: Waste Minimization opportunities and barriers			
Module 12: Ideal Floor Plan (placement of containers, color coding, etc.)			
Module 13: Internal Waste Transport Plan			
Module 17: Specific Infectious Wastes			
Module 18: MSDS/CIS exercise on chemicals and mercury			
Module 22: Investigating an exposure or needle- stick incident			
Module 22: Evaluating emergency response procedures			
Module 22: Role Play of spill clean-up procedure			
Module 23: Management of Wastewater			
Module 24: Institutionalizing and Sustaining HCWM			
Module 24: Training			
Module 24: HCWM Budgeting			

5. Which of the following tools were the most helpful and should be used in future trainings? Think about how you can use any of these tools in your work or to train others in your facility.

[Note to instructor: Select the tools and activities below that were used during your training and delete the others from this table before administering the form to the participants.]

Tool	Easy to understand (Yes/No)	Easy to implement or use (Yes/No)	Any comments
Module 4: WHO Rapid Assessment Tool			
Modules 4, 7 & 8: UNDP GEF Individualized Rapid Assessment Tool (I-RAT)			
Module 4: WHO Expanded Cost Analysis Tool (E-CAT)			
Module 5: UNDP GEF Guidance on Conducting a Baseline Assessment			
Module 5: Elements of a Model Facility Policy on HCWM			
Module 19 & 20: Bowling Green State University mercury vapor video			

6. Which of the modules, exercises, or activities are you most likely to use in your workplace in the next 6 months?

Suggested Data Analysis

- Create an instructor score for each module. The mean of all the scores will be your overall instructor score.
- Create the mean overall training score using questions 2 a-d.
- Use the responses to make necessary changes to the modules, training delivery, tools, activities, duration of training, etc.

APPENDIX 3: UNDP GEF HCWM SAMPLE PROGRAM PLANNING ACTIVITY TOOL

Objectives:

- The goal of this activity is to make a program plan to implement key learning from this training to change your own behaviors and practices, your organization policy, practices or products needed to implement a HCWM program in your hospital/facility?
- The secondary goal is to identify tools and resources that participants may need to implement the program activities.

Instructor: This activity can be done in small groups, with one facilitator each, or each facility can create a program plan. Participants will need to identify one key action item to implement in their workplace. The action item can be as simple as reading the global and national guidelines for implementing a HCWM program, forming a working group to address occupational health and safety exposures related to healthcare hazards, or electing a Waste Management Officer/Infection Control Officer, replacing equipment or colored bins for disposing wastes, or conducting training of nurses and waste handlers. Surveys and awareness campaigns can be good places to start. Participants/facilities will list their items in their group and discuss this with the moderator. This enables participants from different organizations to help each other. Participants may share ideas with other groups/facilities. Instructor may keep a copy of this form to follow-up with participants.

Instructions: Each participant/facility will need to-

1. Select at least one or two key ideas and discuss an implementation plan (immediate, 6 months, and at 12-18 months), barriers, facilitators. The action items may be personal changes or organizational changes.
2. List action items by the time line in the table provided, and then identify barriers and facilitators to implementing this item in your facility.
3. List resources or support they may need? (instructor or participants from other facilities may be very useful resources too)
4. List any specific tools or modules you would like more information on. Who should they contact? Please include your email and contact information.

Name:

Email ID:

Phone:

Address:

Fax:

Immediate action	6 month action	12-18 month action
Item:	Item:	Item:
Barriers:	Barriers:	Barriers:
Facilitators:	Facilitators:	Facilitators:

APPENDIX 4: UNDP GEF HCWM SAMPLE STUDENT MANUAL

- Program goals/course objectives
- Acknowledgements
 - Please acknowledge the United Nations Development Programme-supported, Global Environment Facility-funded Project on Healthcare Waste, in cooperation with the World Health Organization and Health Care Without Harm (as noted in the instructor manual)
 - Country, or facility specific acknowledgements of sponsors, organizers
- Agenda
 - Timetable
 - Information about the field visit- agenda, transport, facility specific details
 - Instructions for evaluation
- Student guides for each module in the agenda
 - Insert PowerPoint handouts of the slides for each module (recommended: four slides per page)
 - Insert activities
 - Insert any references or readings, and provide copies of any documents suggested in the instructor guides- country laws, regulations, guidelines, homework etc.
 - Insert CD with the tools (e.g., Individualized Rapid Assessment Tool) or list website from where the tools can be downloaded