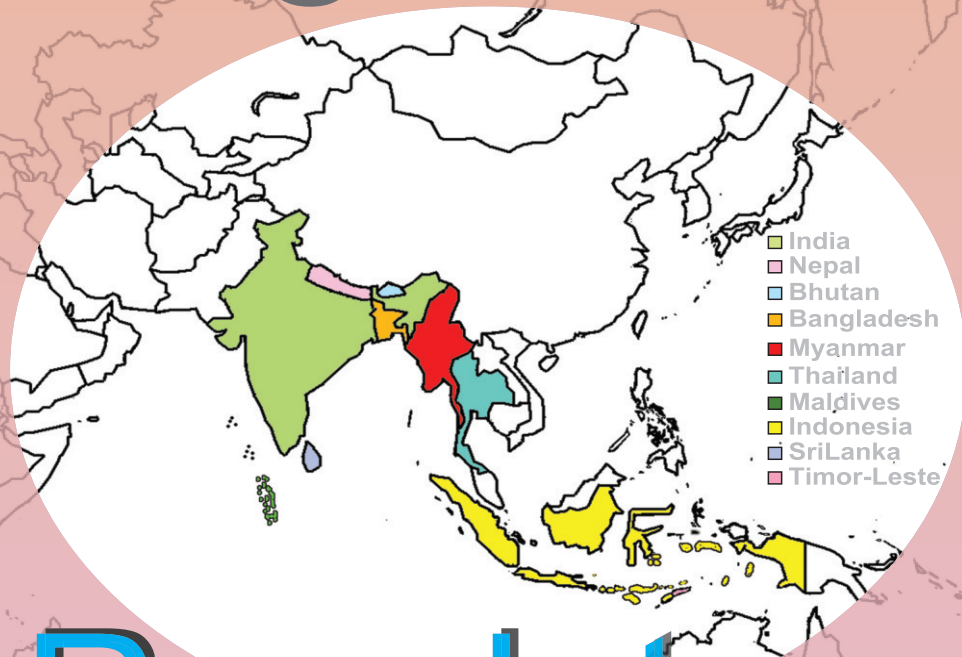


BHME-103 : CURRENT STATUS OF HEALTH CARE WASTE MANAGEMENT AND LEGISLATION IN THE REGIONAL COUNTRIES

Legislation



Regulatory Mechanism

“Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances.”

—Indira Gandhi

“शिक्षा मानव को बन्धनों से मुक्त करती है और आज के युग में तो यह लोकतंत्र की भावना का आधार भी है। जन्म तथा अन्य कारणों से उत्पन्न जाति एवं वर्गगत विषमताओं को दूर करते हुए मनुष्य को इन सबसे ऊपर उठाती है।”

—इन्दिरा गांधी

BHME-103

Health Care Waste Management : Concepts, Technologies and Training

Block

1

HEALTH CARE WASTE MANAGEMENT AND EMERGING ISSUES

UNIT 1

**Legislation and Regulatory Mechanism on Health Care Waste
Management in Countries in WHO South-East Asia Region** **5**

UNIT 2

**Current Status of Health Care Waste Management in Countries
in WHO South-East Asia Region** **29**

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BLOCK INTRODUCTION

You have already learnt about the Current Status of Health Care Waste Management and Legislation in India in BHM-101 Block 4. You have also read in brief regarding Legislation and Regulatory Mechanisms with respect to health care waste management in the SEAR Countries in this block.

In **Unit 1** of this course, the Legislation and Regulatory Mechanism in the countries of South-East Asia Region of WHO have been given in detail. The awareness regarding the safe management of the health care waste exists in almost all the countries of the SEAR Region. However, the legislation and regulatory mechanisms are in the different stages of development in these countries. In this unit, you will learn about the development of legislations and those in place of individual countries of SEAR Region. You will also read about the various regulatory mechanisms in these countries.

In **Unit 2**, you will learn about the current waste management practices in the different countries of the SEAR Region. Case studies have also been provided in this unit for better understanding of the health care waste management in these countries.

UNIT 1

LEGISLATION AND REGULATORY MECHANISM ON HEALTH CARE WASTE MANAGEMENT IN COUNTRIES IN WHO SOUTH-EAST ASIA REGION

Structure

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1.0 OBJECTIVES

After studying this unit, you should be able to:

discuss the health care waste management rules and policies in South-East Asian countries

describe the roles of various agencies in health care waste management

1.1 INTRODUCTION

With the increasing number of health care facilities, the amount of wastes generated is increasing by the year and there are huge concerns for safe management of this wastes. Unlike in developed countries, the concept of health care waste management is still evolving in developing countries. The awareness on safe management is improving in all the countries of the South-East Asia region and they have initiated actions on waste management. This is evident from the fact that several countries have dedicated policies, rules and guidelines on health care wastes. Others have initiated drafting of policies. The unit will review the status of policies and rules and role of different regulatory bodies on HCWM in South-East Asia region.

Did you know?

Persistent Organic Pollutants (POPs) released during medical waste incineration (one of the source) has become so important that UN agencies including “Global Environmental Facility” (GEF) are seeking to promote non-burn technologies and look forward to projects demonstrating decreased emission of POPs.

1.2 HEALTH CARE WASTE MANAGEMENT POLICIES AND RULES IN SOUTH-EAST ASIA

The countries in the South-East Asia region are in different stages of development of policies and other relevant legal documents on health care waste management. Let us learn more about the status of these policies and rules in the different countries of South-East Asia.

Data collected from 10 member states of the WHO South-East Asia region show that six countries have a dedicated policy on health care waste management while the rest have guidelines or are in the process of developing policies. Bhutan, Indonesia, Myanmar, and Nepal have issued guidelines for the management of health care waste. Timor-Leste has still to devise a national policy for health care waste (HCW). However, the country has already initiated training on HCWM for hospitals and few hospitals have started basic segregation. Sri Lanka seems to be doing fairly good on the ground but their policy and guideline documents needs to be revised and finalised (the draft was issued in 2001). India released the revised Bio-Medical Waste management Rules in 2016 and the Bio-Medical Waste Management (amendment) Rules 2018 on 15 March 2018. Maldives has formulated a policy and made a very progressive action plan for taking the issue forward.

Status of availability of policies and rules are summarised in the following table:

COUNTRY- BANGLADESH

Policies and rules on HCWM

Medical Waste
(Management and
Processing) Rules, 2008

National Guideline for
Medical Waste
Management (Revised-
2016)

Other related legal documents

National Environmental
Policy 1992

The Environment
Conservation Act 1995
amended 2002

Environment Conservation
Rules (ECR) 1997
amended 2003

Environment Court Act,
2000

The Private Hospitals and
Laboratories (Regulation)
Ordinance 1982

COUNTRY- BHUTAN

Policies and rules on HCWM

Waste prevention and management Act, 2009

Waste Prevention and Management Regulation, 2012

National infection prevention and medical waste policy and strategic
plan, 2015

COUNTRY- INDIA

Policies and rules on HCWM

Bio-medical Waste
Management Rules, 2016

Bio-medical Waste
Management
(Amendment) Rules, 2018

Guidelines for
Management of Bio-
Medical Waste
Management, 1998 (under
revision)

Guidelines for Common
Bio-Medical Waste
Treatment Facility
(CBMWTF)

Other related legal documents

Design and Construction
of BMW incinerator

Disposal of BMW
generated during Universal
Immunisation Programme

Environmentally sound
management of mercury
waste generated from
health-care facilities.

COUNTRY- INDONESIA

Policies and rules on HCWM

Health Minister Decree number 1204, 2004, on Hospital Environmental Health Requirement

Minister of Environment and Forestry Regulation number P.56 year 2015 on Technical Guideline and Requirement of Hazardous Health-care Waste Management

Other related legal documents

Government Regulation number 74, 2001, on Management of Hazardous Substances

Government Regulation number 101, 2014, on Hazardous Waste Management

COUNTRY-MALDIVES

Policies and rules on HCWM

The country has a National Health-care Waste Management Policy notified in April 2016.

National Strategy on Health-care Waste Management (2016–2021) – Draft

Minimum Standards on HCWM, 2008

Other related legal documents

Public Health Protection Act, Law 7/2012 (includes general waste management)

National Infectious Control Guideline in Health Facilities, 2008

National Standard on Clinical Laboratories, 2013

COUNTRY-MYANMAR

Policies and rules on HCWM

The Hospital Infection Control Guideline and the Hospital Management Manual (2011)

Other related legal documents

1972 Public Health Law

1993 National Health Policy

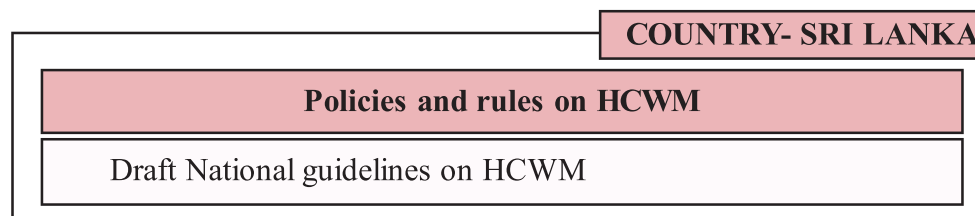
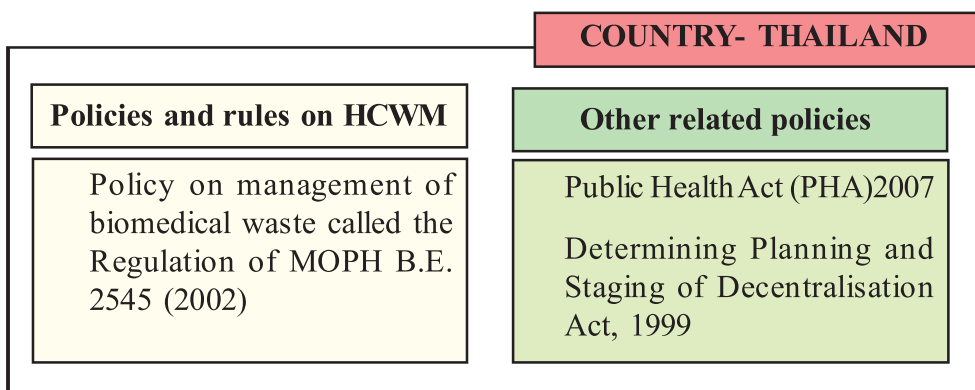
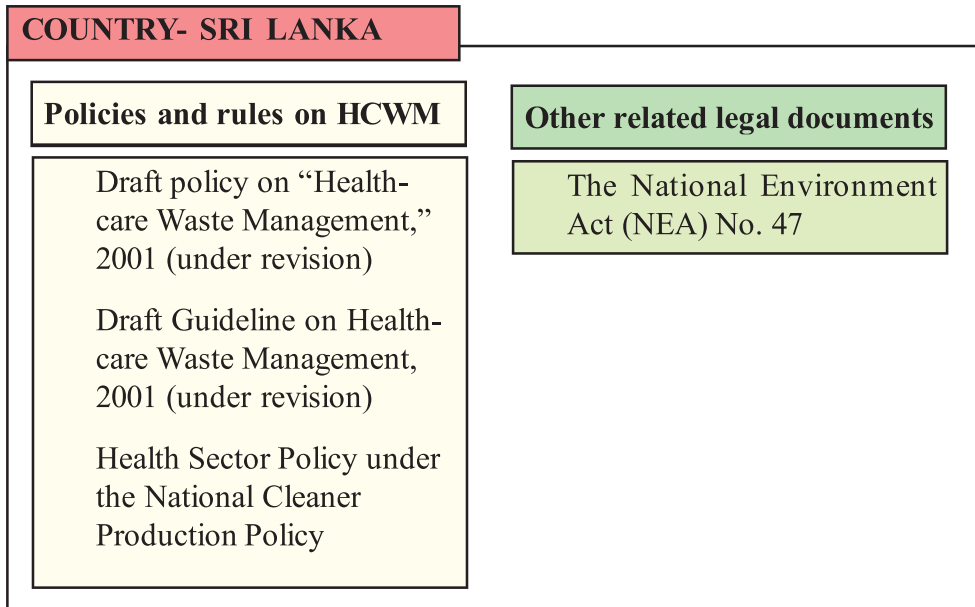
COUNTRY- NEPAL

Policies and rules on HCWM

Health-care Waste Management Guideline, 2014

Other related policy

National Immunisation Injection Safety Policy (MoH, 2003)



Let us learn more about the legislations and the regulatory mechanisms in the various countries of the SEAR region.

1.3 BANGLADESH

Let us learn more about the legislation and regulatory mechanism.

1.3.1 Legislation

Bangladesh has ratified the Stockholm Convention on persistent organic pollutants in 2007, Basel convention in 1993 and signed Minamata Convention on mercury in 2013.

In exercise of the powers conferred by Section 20 of the Bangladesh Environment Conservation Act, 1995 (Act No. 1 of 1995) and in recognising that some health care wastes are too hazardous for public health and environment, the Ministry of Environment and Forest of the Government of Bangladesh has formulated the Hazardous Health Care Waste Management Rules 2003, which are almost similar in structure and function to the Bio-Medical Waste (Management and Handling) Rules promulgated by India in the year 1998.

After deliberations with the Ministry of Health & Family Welfare (MOHFW), Ministry of Labour (MOL) and Ministry of Environment & Forests (MOEF) the Government of Bangladesh amended the existing Rules and notified Medical Waste (Management and Processing) Rules, 2008. The shortcomings of the old rules have been addressed by the new Medical Waste Rules, 2008.

Broadly the rule has classified the medical waste (Schedule-I) with examples and environment-friendly technologies of management. Other features of the New Medical Waste Rules, 2008 are summarised in the **Box 1.1**.

a. Suggestions for use of different color bins (Schedule-III)
b. Suggestions for segregation of medical-waste at source and symbol to be used on the packaging of medical-waste (schedule-IV) for transporting. The regulation specified for different (6 nos.) colour bins to be used for segregation of different MW along with specification of container, standard for operation of equipment, effluent and emission standards.
c. In Schedule-VI the rule specifies the standards for - Incineration, Autoclaving, liquid waste with permissible limits, microwaving, deep burial and standard for radioactive waste treatment and disposal along with other issues related to Medical Waste Management (MWM).

Box 1.1: Features of the New Medical Waste Rules, 2008

The waste management system in place in Bangladesh can be summarised in the flow chart in **Fig 1.1**, however not all health facilities follow the approach.

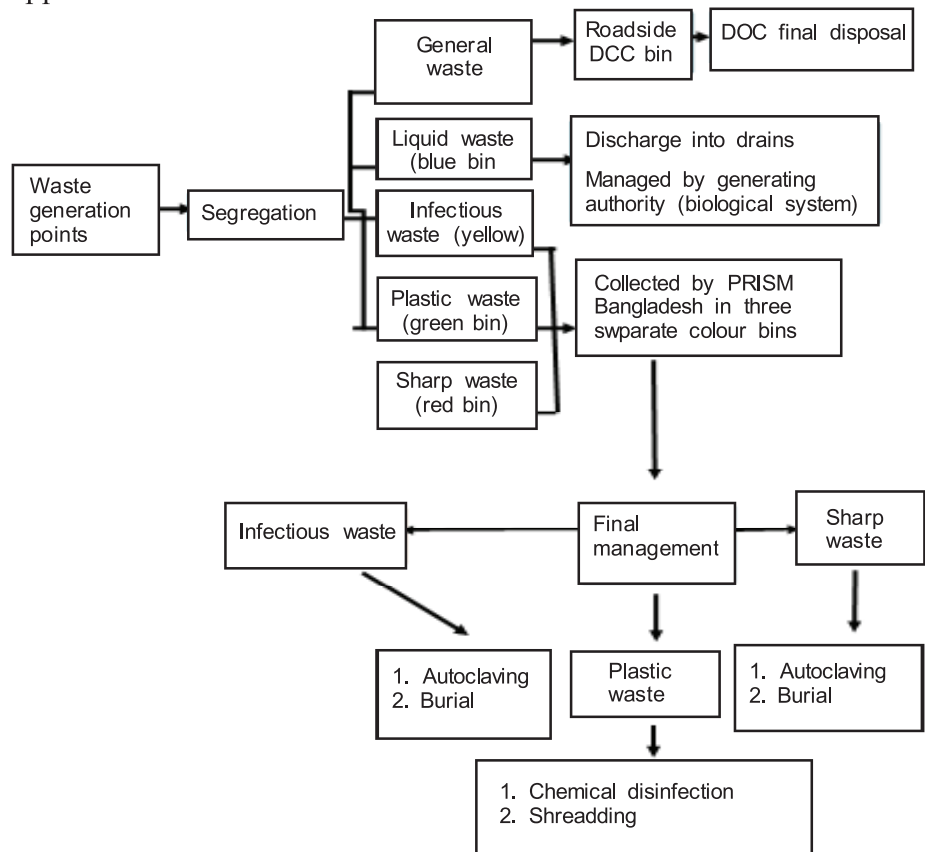


Fig. 1.1: Waste management flow chart for Bangladesh

The new medical waste rule has urged for ‘formation of authority’ within 3 months of proclamation which will be in charge of all activities related to MWM of their area.

1.3.2 Regulatory Mechanisms

In conformity to the rules, the Government of Bangladesh has identified a prescribed authority to be framed as explained in **Box 1.2**.

a.	The Government shall establish a prescribed authority/committee with such members as may be specified for granting authorisation and implementing these rules. The prescribed authority/committee may comprise representatives of Dept. of Environment, Pourashavas, Development Authorities, and Directorate General of Health Services, Bangladesh Medical Association and NGOs.
b.	The prescribed authority/committee for different Divisions/Districts shall be appointed within three months of the coming into force of these rules.
c.	The prescribed authority/committee shall function under the supervision and control of the Department of Environment/Ministry of Environment and Forests.
d.	Penalty for Contravention of Rules: Whoever contravenes any of the provisions of the rules or fails to comply with a direction, shall be punished with fine, which may extend up to a maximum of taka one lakh and not less than taka ten thousand.

Box 1.2: Prescribed Authority for Medical Waste (Management and processing) Rules, 2008

1.4 BHUTAN

Bhutan has ratified the Basel Convention in 2002. Let us learn more about the legislation and regulatory mechanisms existing in the country.

1.4.1 Legislation

The country has enacted several acts and rules related to waste management as depicted in the **Fig. 1.2**.

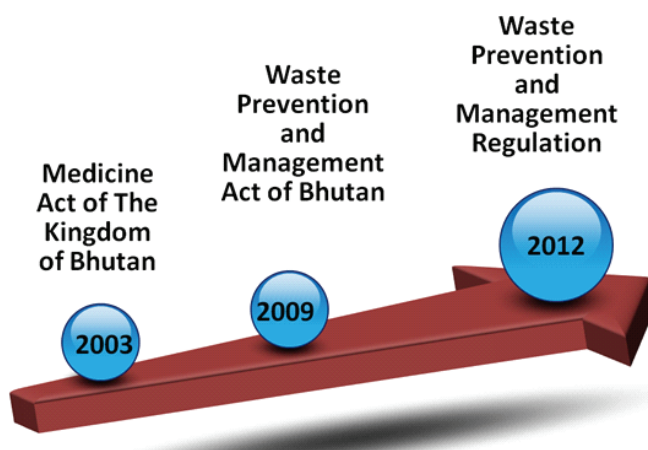


Fig. 1.2: Acts and Rules related to waste management

There is no separate legislation on bio-medical waste management. The features of the Waste Prevention and Management Act, 2009 are explained in the **Box 1.3**.

- | |
|---|
| a. The Waste Prevention and Management Act extends to all forms of waste whether solid, liquid, gaseous, hazardous, non-hazardous, organic, inorganic, from residential, agricultural, commercial, medical or industrial sources, produced by any person, including materials being stored for recycling or in the process of recycling, including the transportation of waste in any form, and import and export of waste in Bhutan. |
| b. The key goal of the act is to protect and sustain human health through protection of the environment. |

Box 1.3: Features of Waste Prevention and Management Act, 2009

The Waste Prevention and Management Regulations, 2012

The 2012 Regulation establishes procedures to implement the purpose of the Waste Prevention and Management Act, 2009.

The regulation which came into effect from 18 April 2012 is a comprehensive regulation. Salient features of the Act are summarised in **Box 1.4**.

- | |
|--|
| a. It emphasises duty of the implementing and monitoring authority to provide its community a safe and healthy environment at all times; and waste minimisation. It also suggests strong measure to deal with the existing bad scenario of waste disposal and management in Bhutan. |
| b. The Waste Prevention and Management Regulation is applied to all point sources and/or point of origin of different types of waste and their management. Medical waste is defined as ‘waste stemming from medical procedures and treatments in hospital, basic health units, clinics, animal husbandries, veterinary hospitals and other clinical laboratory. |
| c. This regulation has laid down provisions for handling and management of hazardous or infectious waste which are to be followed by implementing agency such as to have in place a system for safe storage, handling and disposal of hazardous wastes, providing personal protective equipment, labelling of containers having hazardous contents and maintaining detail records regarding incidents of injuries, accidents and non-compliance to the regulation. |

Box 1.4: Waste Prevention and Management Regulation, 2012

These rules classify the wastes into four categories i.e., (i) Medical Waste; (ii) Municipal Waste; (iii) Industrial Waste; and (iv) E-Waste. Medical waste is further, categorised into eight sub-categories.

Wastes are segregated using colour coded bins and transported to the treatment site in designated trolleys. Main treatment options followed are autoclaving and chemical disinfection (bleaching solution).

1.4.2 Regulatory Mechanisms

The National Environment Commission is designated as the apex body to monitor the compliance and performance of the implementing agencies and monitoring authorities under this Regulation. The rules also details out the implementing agencies, and requirements for reporting.

The regulation prescribes segregation of wastes in risks and non-risks waste in various categories. It promotes reuse and recycling wherever applicable.

The Roles and Responsibilities of different implementing organisations

The Roles and Responsibilities of different implementing organisations have been depicted in the **Fig. 1.3**.



Fig. 1.3: Different implementing organisations

a. Responsibilities of the Ministry of Health

The Ministry for Health shall be responsible for various actions enumerated in **Box 1.5**.

a.	monitor implementing agencies in effective management of medical waste;
b.	ensure the availability of funds to develop appropriate and adequate infrastructure, facilities and, capacity in health care institutions to institute effective and efficient collection, treatment, segregation and disposal system of medical wastes, in particular the hazardous wastes;
c.	provide waste management trainings to the health workers including collection, transport, processing and disposal of medical wastes;
d.	provide guidelines on prevention and management of medical wastes starting from Outreach Clinics, Basic Health Units and hospitals in the districts;
e.	ensure effective treatment of infectious and hazardous medical wastes before disposing of along with other municipal wastes and, where treatment is not feasible, provide an alternative method that has minimal adverse impact on the human health and environment;

f.	develop national capacity and mechanism for treatment and proper disposal of the pharmaceutical and radioactive wastes. If this is not feasible, develop international and regional linkages and collaboration for management of chemical and radioactive wastes;
g.	ensure appropriate, adequate and regular supply of personal protective equipment to the personnel handling hazardous and infectious wastes; and
h.	develop procurement procedures and mechanism with suppliers to manage wastes stemming from their supplies such as chemical and radioactive materials which the country has no capacity to manage.

Box 1.5: Responsibilities of Ministry of Health

b. Responsibilities of Ministry of Health and Ministry of Agriculture and Forests

Ministry of Health and Ministry of Agriculture and Forests shall ensure that related infrastructure or facilities for collection, segregation, treatment, and proper disposal of medical wastes are established and implemented effectively.

c. Responsibilities of Associated Institutions

An associated institution shall have the responsibilities as enumerated in **Box 1.6**.

a.	ensure waste prevention and management of medical wastes which includes segregation, collection, treatment, storage and disposal in the respective health facility as per the guidelines;
b.	provide guidance on prevention and management of rural waste including human wastes;
c.	take necessary measures to ensure compliance with the guidelines and code of best practices issued under this Regulation;
d.	ensure usage of personal protective equipment by the personnel handling hazardous and infectious wastes;
e.	develop institutional capacity for segregation, collection, treatment and disposal of medical wastes;
f.	ensure that Dzongkhag Health Officers monitor the implementation of waste prevention and management in the health facilities including rural wastes; and
g.	render full support and cooperation in implementing this regulation.

Box 1.6: Responsibilities of Associated Institutions

d. Drug Regulatory Authority

The Drug Regulatory Authority shall be responsible to monitor and issue guidelines for the prevention and management of wastes stemming from medicinal products and their sale.

e. Bhutan Narcotic Control Agency

Bhutan Narcotic Control Agency shall be responsible to monitor and issue guidelines for prevention, management and disposal of wastes stemming from pharmaceutical preparations containing narcotic drug, psychotropic substances and precursor chemicals listed under the Schedule I, II, III, IV and V of Narcotic Drugs, Psychotropic substances and Substance Abuse Act and tobacco products listed in the Tobacco Control Act.

Bhutan also has an Infection Control and Medical Waste Management Programme and Guidelines in place. Details of these are provided in **Box 1.7**.

a. Infection Control and Medical Waste Management programme was established in 1994.
b. Infection control and medical waste management committee are established at all levels of health care facility.
c. A system for annual waste reporting is in place.
d. The 1st edition of Infection Control and Health care waste management guidelines was developed in 1994 and the 4 th revision was done in 2014.

Box 1.7: Infection Control and Medical Waste Management Programme and Guidelines

1.5 INDIA

India has ratified Stockholm convention on persistent organic pollutants in 2006 and Basel Convention in 1992. It signed the Minamata Convention in 2014 and in 2018 the government approved ratification. The first Bio-Medical Waste (Management and Handling) Rules were published in 1998 and later revised and published in 2016 as the Bio-Medical Waste Management Rules, 2016 and the Bio-Medical Waste Management (Amendment) Rules, 2018. Features of the Bio-Medical Waste Management Rules, 2016 are listed in **Box 1.8**.

a. The Rules defines responsibility of management of bio-medical to occupier (means a person having administrative control over the institution and the premises generating bio-medical waste, which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank, health care facility and clinical establishment, irrespective of their system of medicine and by whatever name they are called).
b. An operator (means a person who owns or controls a Common Bio-medical Waste Treatment Facility (CBWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste.
c. The prescribed authority (means the State Pollution Control Board in respect of a State and Pollution Control Committees in respect of a Union Territory).

d.	Every occupier or operator handling bio-medical waste, irrespective of the quantity must obtain authorisation from the prescribed authority.
e.	The Ministry of Environment, Forest and Climate Change shall review the implementation of the rules in the country once in a year through the State Health Secretaries and Chairmen or Member Secretary of State Pollution Control Boards and Central Pollution Control Board.
f.	The Rules also provide guidance on segregation, collection, treatment, processing and disposal options for various categories of bio-medical wastes.

Box 1.8: Features of the Bio-Medical Waste Management Rules, 2016

You have already read in details the legislation and the regulatory mechanisms in the units of the Block 4, BHM-101.

1.6 INDONESIA

Let us learn more about the legislation and the regulatory mechanisms.

1.6.1 Legislation

The country has ratified Stockholm Convention on Persistent Organic Pollutants (POPs) in 2009, Basel Convention on hazardous waste and other waste in 1993 and the Minamata convention on mercury in 2017.

Waste Management in Indonesia is regulated mainly by two Laws i.e. Law No. 32/2009 for Industrial Waste and Law No. 18/2008 for Municipal Solid Waste (MSW). Various laws relating to waste management in Indonesia are as placed in **Box 1.9**.

a.	The Hazardous and Toxic Waste Management Act, 1994
b.	The Environmental Management Law, 1997
c.	The Management of the Waste of Hazardous and Toxic Materials 1999
d.	The Environmental Protection and Management Law, 2009

Box 1.9: Laws relating to waste management

Although there is no separate Rule on bio-medical waste management, there are guidelines of Ministry of Health to deal with this waste.

1.6.2 Regulatory Mechanisms

The agencies dealing with hazardous and bio-medical waste management in Indonesia are:

e.	Ministry of Environment
f.	Ministry of Health
g.	Local authorities

Government regulation number 6 issued in 2013 requires all hospitals to be assessed with a rating system ranging from black, red, blue, green and gold. The different colours and what they stand for are given in the **Box 1.10**.

Black - no efforts taken to manage Health care waste
Red - environmental management efforts are not implemented in accordance to the law
Blue - implementation of environmental management efforts are in accordance with the law
Green and gold - beyond criteria/or compliance is more than what is required.

Box 1.10: Different colours and what they stand for

A total of 121 hospitals were monitored against the criteria and the ratings were – black 8, red 70 and blue 43, which means that most hospitals were not implementing the government rules and regulations. However, such monitoring will help hospitals to improve in future.

The environmental management body in each city has started taking punitive actions against the health care facilities, not managing the waste properly. As a first step, the hospitals are issued with warning to improve their waste treatment facilities. If the situation does not improve, then more stringent punitive actions are planned.

Penalty for Non-conformity

The country has stringent rules for management of the waste generated by the health care institutions of the country. The penalty has been addressed in **Box 1.11**.

a. According to Article 41 of Law No. 23/ 1997 on the environment, those damaging the environment can receive a maximum sentence of 10 years in jail and a maximum fine of US \$ 60,240 (Rp 500 million in the local currency).
b. However, if the damage leads to death the maximum sentence is 15 years in jail and enhanced fine.

Box 1.11: Penalties for Non-conformity

1.7 MALDIVES

Let us learn more about the legislation and the regulatory mechanisms.

1.7.1 Legislation

The country has ratified Basel Convention in 1997 and the Stockholm Convention on Persistent Organic Pollutants in 2006. It has not yet signed or ratified the Minamata Convention on Mercury. The country has a

National Health Care Waste Management Policy notified in April, 2016. The policy entails responsibilities of each authority, mentioned in **Box 1.12**.

- | |
|--|
| <ul style="list-style-type: none"> a. Ministry of Health, b. Ministry of Environment, c. Environment Protection Agency, d. Local Councils etc. |
|--|

Box 1.12: Authorities responsible for the National Health Care Waste Management Policy

Various guidelines and policies have to be framed in accordance with this policy (**Box 1.13**).

- | |
|---|
| Health Care Waste Management Guidelines |
| National Implementation Strategy including an implementation plan and a comprehensive set of Safety Operation Procedures. |

Box 1.13: Guidelines and policies framed under the National Health Care Waste Management Policy

The country also has a draft National Strategy on Health care Waste Management (2016-2021).

The purpose of this strategy is to enforce the following by establishing a countrywide integrated Health care waste management system (which is managed without adverse effects on human health and environment and is environmentally and economically sustainable -

- a. National Health Care Waste Management Policy
- b. National Health Master Plan

1.7.2 Regulatory Authorities in Maldives

Waste Management in general is under the overall mandate of the Waste Management Corporation Limited (WMCL).

The Ministry of Environment and Energy (MoEE) and the Environmental Protection Agency (EPA) are planning, implementing and monitoring the waste management in the Maldives. The responsibilities of MoEE are enumerated in **Box 1.14**.

- | |
|---|
| a. development of the legal framework for waste management |
| b. developing projects |
| c. conducting research |
| d. providing capacity building and is furthermore responsible for the provision of waste infrastructure and equipment on all islands. |

Box 1.14: Responsibilities of MoEE

The EPA is approving Waste Management Plans, providing permits for waste companies including waste transport companies (road and sea) and is monitoring these entities.

The responsibility for the management of waste generated in public and private health care facilities/institutions is directed to the Ministry of Health (MoH) through the National Waste Policy. The MoH is responsible to formulate health policies and plans as well as regulating, monitoring and evaluating the health situation.

Following up this Mission different agencies, divisions and authorities under the MoH are responsible for the development of the legal background, development and conduct capacity building and public awareness regarding health care waste management, registering of health facilities, implementation of the legal requirements, monitoring, providing of equipment, infrastructure for waste management in the hospitals, management and supervision of pharmaceutical waste documentation and treatment.

Budget needed for the management of waste generated in health care facilities is identified by the health facilities and further processed by the Regional and Atoll Health Service Division/MoH.

The Atoll Council is the monitoring body at the atoll level and the Island Councils are responsible for managing the waste on the islands. In accordance to the Waste Regulation (2013) the councils are responsible to prepare and implement waste management plans for the islands and submit it to the implementing agency, Environment Protection Agency (EPA).

The managerial levels of the private and public health care facilities and institutions have the overall responsibility for the management of waste inside the premises and to implement the policies, laws and regulations provided by the government. Based on the National Waste Policy the hospitals, health centres and clinics should manage waste produced by giving necessary support and cooperation to the councils.

1.8 MYANMAR

Let us learn about the legislation and the regulatory mechanisms in Myanmar.

1.8.1 Legislation

Myanmar ratified Basel Convention in 2015 and Stockholm Convention in 2004. It has not yet ratified Minamata Convention. The country has laws and policies such as the 1972 Public Health Law and the 1993 National Health Policy in place wherein health and environmental protection are explicitly mentioned. However, there is no separate legislation or policy on health-care waste management. There is a plan to develop them in future.

There are two existing general policies by the Department of Medical Services, namely–

The Hospital Infection Control Guideline and the Hospital Management Manual (2011).

As these two documents are not very specific to waste management, the Department of Public Health (DoPH) is in the process of developing SOPs and guidelines for health-care waste management.

1.8.2 Regulatory Mechanism

The Ministry of Health Sciences (MoHS) is responsible for framing the guidelines.

In general, regulatory mechanism for health care waste management is in nascent stage with just dissemination of some guidance as part of the hospital guidelines. There is no provision of submission of an annual report for health care wastes. There are ongoing efforts to strengthen the existing guidelines to make them comprehensive and in line with good practices, and to improve compliance.

1.9 NEPAL

Let us learn about the legislation and the regulatory mechanisms in Nepal.

1.9.1 Legislation

Nepal has ratified Basel Convention in 1996 and Stockholm Convention for persistent organic pollutants in 2007 and signed the Minamata Convention on mercury in 2013. The legislations related to HCWM are summarised in the **Box 1.15**.

a. The Solid Waste Management Act, 2011 provides legal basis and regulation for HCWM. Till date there is no specific institutional setup for Health Care Waste Management.
b. Recently a new unit called Disease control, climate change and environmental health was established. This unit will be also responsible for HCWM.
c. Department of Environment (Ministry of Population and Environment) is responsible for monitoring overall environmental issues including HCWM in the country.
d. Department of Health Services, Regional Health Directorate and district level public/Health Offices monitor health activities including HCWM.

Box 1.15: Legislations related to HCWM

Considering that waste producers, Health care facilities (HCFs) have a legal and financial responsibility (“polluter pays principle”) for managing HCW safely (“duty of care principle”), taking all necessary measures to minimise risks (“precautionary principle”), Nepal has endorsed policy, acts, rules and regulations, some of them which help to achieve these goals in the most cost effective and sustainable way as possible are described in the **Box 1.16**.

a. The country has a national policy called the ‘Health-care Waste Management Guideline 2014’. It provides instruction for all level of health-care facilities ranging from immunisation camp to large teaching hospitals on implementing a safe health-care waste management system.

- b. The Ministry of Population and Environment (MoPE), Ministry of Health and Ministry of Federal Affairs and Local Development in Nepal are together responsible for framing these policies. These Ministries are responsible for the overall implementation of the rules. At the regional/district level, the Regional Health Directorate and District Public/Health Office are responsible respectively. The municipality and the village development committee (VDC) are responsible at the local level.

Box 1.16: Policies related to health care waste management

1.9.2 Regulatory Mechanisms

These acts are implemented through the following institutional framework in Nepal.

Ministry of Health

The Ministry of Health has the overall responsibility for providing the people of Nepal with basic health care. For this purpose the Ministry has established a system with small and large health care facilities all over the country, administrated by the Department of Health Services.

Ministry of Population and Environment

The ministry of Population and Environment has developed the Environmental Protection Act and the Environmental Protection Regulation (1996-1997), which includes procedure for EIA (Environmental Impact Assessment) in the country. The activities with relation to HCWM which require an EIA are listed in **Box 1.17**.

- a. Hazardous waste treatment plants, no matter how much waste is treated.
- b. Landfilling of hazardous waste, no matter how much waste is landfilled.
- c. Handling and disposal of radioactive waste. Health Care Facilities with more than 25 beds need to undertake an EIA before they are constructed.

Box 1.17: Activities with relation to HCWM requiring an EIA

Ministry of Local Development

It is the responsibility of the Ministry of Local Development to plan for and to provide landfills for disposal of waste.

Municipality of Kathmandu

The Municipality of Kathmandu has conducted surveys in the past on the generation of health care waste in Kathmandu, on the basis of which a health care waste treatment plant was proposed for the city. Similar surveys in the future will further help in improving the situation of health care waste management in the region.

Nepal Health Research Council (NHRC)

Nepal Health Research Council has been a catalyst in creating awareness about health care waste management and related issues in the country by

conducting surveys and publishing publications in cooperation with World Health Organisation (WHO).

Royal Nepal Academy of Science and Technology

Royal Nepal Academy of Science and Technology (RONAST) is an independent institution for promoting science and technology in Nepal. It will help in experimenting new technologies for health care waste management and monitoring them.

Non Governmental Organisations

These organisations like Environment & Public Health Organisation (ENPHO) and Save the Environment Foundation (SEF) help in conducting surveys and studies on the status of health care waste management in the country.

1.10 Sri Lanka

Let us learn about the legislation and the regulatory mechanisms in Sri Lanka.

1.10.1 Legislation

Sri Lanka has ratified Basel Convention in 1992, the Stockholm Convention on persistent organic pollutant in 2005 and the Minamata Convention on mercury in 2017.

In Sri Lanka the National Environmental Act (NEA) No 47 of 1980 and its amendments (No 56 1988 and No 53 of 2000) are the basic legal documents that regulate hazardous waste and consequently HCWM in the country.

Sri Lanka has a draft policy on “Health Care Waste Management” 2001 and Health Sector Policy under National Cleaner Production Policy. This policy focuses on efficient use of resources, minimising wastage of resource and making all processes more environmental friendly (covering-Administration, waste management, laundry, food supply, disinfection, patient care, water & power usage). This policy is the key to Green Hospitals.

Bio-medical waste management is a legal requirement under the legislation of Central Environmental Authority (EPL effective from 01.02.2008). National Policy & Guidelines mandates all health institutions responsible for proper Health Care Waste Management (HCWM) plan is considered as an integral part of the health care system.

Legislation of 2008 has been framed by the Ministry of Environment (Central Environmental Authority) and the implementation is looked after by the Ministry of Health.

According to the Legislation, 2008, the facilities are required to obtain two licenses – EPL (Environmental Protection License) and SWL (Scheduled Waste License. It deals mainly with Infectious waste and other categories of hazardous waste within health institutions). Health institutions functioning without these licenses are considered to be violating the law.

The national policy provides clear guidance on colour coding system for segregation, on waste transportation, treatment and disposal. It also provides guidance on wastewater treatment and safe disposal and occupation safety

of waste handlers. Health care waste management is included in university curricula. The Ministry of Health coordinates and provides training on health care waste management. Monitoring is done at all levels starting from national through a national steering committee, provinces and at the Health care facility level. Awards for best performing and Green hospitals have been instituted.

1.10.2 Regulatory Mechanisms

According to the National Environment Act (NEA) of 1980 (along with its amendments), the regulatory mechanisms in place are listed in the **Box 1.18**.

a.	All facilities should receive a license from the Central Environment Authority (CEA) to be allowed to undertake activities that result in discharging, depositing or emitting waste into the environment causing pollution.
b.	The licensee has the obligation to clearly identify the waste stream, maintain records, train and protect the staff involved in the waste management and have regularly updated emergency action plans in case of spillage or accidents.
c.	A list of activities for which environment protection is required is provided. It includes all kinds of incinerators and crematoriums and all kinds of hazardous waste disposal sites.

Box 1.18: Regulatory mechanisms

1.11 Thailand

Let us learn about the legislation and the regulatory mechanisms in Thailand.

1.11.1 Legislation

Thailand has ratified Basel Convention in 1997, Stockholm Convention on persistent organic pollutants in 2005 and Minamata Convention on mercury in 2017. The Policy on management of bio-medical waste called the Regulation of MOPH B.E. 2545 (2002), Public Health Act (PHA) 2007 and Determining Planning and Staging of Decentralisation Act, 1999, guide implementation of health care waste management in Thailand.

These policies specify local administrative organisation's (LAO) responsibilities to provide proper waste management services for infectious and household hazardous waste and set up emission standard for infectious waste incinerator as a pollution point source.

The MoPH, LAO and Ministry of Natural Resources and Environment are responsible for developing the policies and guidelines.

The Government has undertaken key actions pursuant to the Roadmap on Waste and Hazardous Waste Management approved by the National Council for Peace and Order (NCPO) on 26 August 2014. Under this, communities and municipal authorities are encouraged to reduce waste, implement waste sorting at source and dispose of waste in an appropriate manner and promote discipline in waste management among the public. Rules and regulations regarding solid waste and hazardous waste management and the National Waste Management Master Plan has been drafted.

You have already read that, the waste generated or used in medical diagnosis or remediation, disease immunisation or experiments, autopsy or examination of animal carcasses including in research, are deemed infectious waste. In Thailand, also the waste is segregated into colour coded bins and transported to storage rooms and finally disposed of in offsite waste treatment centres.

1.11.2 Regulatory Mechanisms

According to the Enhancement and Conservation of the National Environmental Quality Act (NEQA) B.E.2535 (1992), the National Environment Board was given the responsibility to draw up a plan and policy to promote and maintain the national environment. The Public Health Act (PHA) B.E. 2535 (1992) designates sewage and solid waste management is the responsibility of ‘local authority’, in accordance with NEQA. The Factories Act B.E. 2535 (1992) stipulates that the ‘Ministry of Industry’ can publish the Ministerial Regulation about the disposal of solid waste, night soil and garbage, to forbid wastewater discharge and emission from factories, and the guideline for having treatment facility, and also to establish noise level not to exceed the EPA standard. The Hazardous Substances Act B.E. 2535 (1992) authorises the Ministry of Industry for classification of hazardous waste substances, control criteria for import, production, transportation, consumption, disposal and export not to influence and danger to humans, animals, plants, properties or environment.

At the central government level, the agencies that play the key role in support and encouraging proper waste management in Thailand which have been explained in **Box 1.19**.

a. The Department of Environmental Quality Promotion (DEQP) plays supporting role to solve the problems, lay down standards and also involves in guideline preparation.
b. The Pollution Control Department (PCD), prescribes Guideline for solid waste management and Guidelines for Waste Management in Hospital.
c. The Department of Health (DH), Ministry of Public Health reviews the policies and also presently has undertaken drafting of the regulations for management of health care waste and is in the process of its finalisation.
d. The Local Administrative Organisations (Eg., Bangkok Metropolitan Administration (BMA) are responsible for collection, storage, transport and disposal of infectious waste.

Box 1.19: Agencies that play the key role on support and encouraging proper waste management in Thailand

The health care waste management system in Thailand is now rapidly evolving, with thrust being on laying down of National Guidelines for effective health care waste management policies, implementation, monitoring and evaluation.

1.12 TIMOR-LESTE

Let us learn more about the legislation and regulatory mechanism.

1.12.1 Legislation

Timor-Leste being a new country has not signed or ratified any of the international conventions related to Health care waste management.

The Health sector national strategic plan (2011-2030) has an exclusive indicator on Health care waste management. The Environment Health strategy has 8 components and one of them is on Health care waste management focusing on minimising impact of medical waste to the environment and health of people. There is no national policy in place for health care waste management. However, even then, most of the hospitals state that they are segregating waste as “Sharps, glass, infections waste, injections, discarded medicine, needles, syringes, catheters, X-ray, paper or tissue, blood, bandages, gauze, cotton or any other objects in contact with body fluids, human body parts, placentas, tubings IV bottles, etc.” Most of the hospitals do not seem to have many bins for segregation.

Other relevant legal documents:

- a. Environmental Policy of the Government of Timor-Leste
- b. Environmental licensing that cover pollution control law and Environmental Impact Assessment Law

1.12.2 Regulatory Mechanisms

The Environment Health Department under the Directorate of Public Health, Ministry of Health is responsible for health care waste management.

1.13 SUMMARY OF THE RULES/POLICIES

The rules and policies require Health care wastes to be segregated at the source of generation in different colour-coded bins, mainly to ensure infectious and hazardous wastes are not mixed with general wastes and to minimise quantity of infectious wastes. The colour coding differs in countries. The requirement then is to sanitise infectious wastes, proper temporary storage and final disposal by various means. The summary of the rules and policies are provided in **Box 1.20**.

- a. **Segregation** – Despite having good policies and rules on segregation, segregation in countries ranges from 30% to 100%. Government data from Indonesia and Myanmar report the highest rate of segregation at 97% and 100% respectively. But secondary literature review reflects poor compliance in both countries. Nepal and Sri Lanka also claim 70% segregation. About 30% of the facilities in Bhutan and India are following segregation. In Bangladesh, waste is collected without segregation and dumped along with municipal waste. Health care facilities in Timor-Leste are trying to segregate waste but bins are not available in most places. In Thailand, infectious waste is segregated only in two categories – sharp and non-sharp. This practice would create a problem of mixing up pathological and other recyclable waste. This mix would make it difficult to treat and dispose of the waste. Sub-categorisation of waste according to type of material is necessary.

<p>b. Waste management committee - Most of the countries have a requirement to form a waste management committee at the health-care facility (HCF), state and national levels. This committee is responsible for supervising the work related to health-care waste management. Indonesia has a requirement of having a unit looking into environmental health including waste management. Even though Timor-Leste does not have a policy yet, 24% of the health-care establishments (HCEs) had a nodal person for waste management. Some countries such as Bhutan and Maldives have the requirement of forming a committee in their guidelines/policy, but they are hardly being implemented. India, Myanmar and Sri Lanka have a waste management committee in 90% of their facilities.</p>
<p>c. Collection and transportation - Collection and transportation of waste remains a serious concern in most of the countries. In Indonesia, Nepal and Thailand, municipal authorities are authorised to pick up general waste from hospitals. But hospitals have to fend themselves for the transport of health-care waste. This leads to substantial mixing of health-care waste into general waste. The hospitals find it tedious and unaffordable to transport their waste through private contractors and find it easier to dump the waste in municipal dumps. In Bangladesh, waste is collected without segregation and dumped along with municipal waste in city corporation bins. In India, most of the health-care facilities are tied to a centralised facility but still open dumping by HCEs, and dumping (on roadside while transportation) by the centralised treatment facilities has also been reported. In Maldives, there are no treatment facilities for health-care waste; thus it is mostly burnt onsite in small incinerators/burners (general waste is transported by municipal authorities).</p>
<p>d. Storage - Most of the countries have requirements (in their guidelines/rules) of a proper storage room with good ventilation. The requirements include: washable surface, lockable room (to avoid pilferage and entry of any pests/vectors), etc. But, most of the health-care facilities have yet to develop such rooms in their facilities. Open dumping is common in many countries.</p>
<p>e. Treatment and disposal - Many countries have reported use of open burning and single-chambered incinerators as the major way of waste treatment. (Though India required double-chambered incinerators and Indonesia has some rotary kiln Incinerators.)</p>

Box 1.20: Summary of the rules/policies

Check Your Progress 1

1. How many countries that have dedicated policy on health care waste management.

.....

2. What are the common principles of waste management in all countries?

.....
.....
.....

3. Which country segregates infectious wastes into two categories only?

.....
.....
.....

4. Which country has not ratified or signed any of the international agreements (Basel convention, Stockholm convention and Minamata convention)?

.....
.....
.....

5. What is the rate of segregation at source in countries?

.....
.....
.....

1.14 LET US SUM UP

In this unit, you have learnt about the overview of legislation, policies and practices on health care waste management in ten SEAR (WHO) countries, namely, Bangladesh, Bhutan, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste.

Most countries have policies and guidelines in place however, the implementation of these varies due to several challenges faced by countries such as lack of funds, capacity, competing priorities of the government etc. Despite these challenges, there are many initiatives taken by these countries and progress is made in a slow and steady manner.

1.15 GLOSSARY

- BHU** : Basic Health Unit
BMW : Bio-Medical Waste
CBWTF : Common Bio-Medical Waste Treatment Facility
DOPH : Department of Public Health
ECR : Environment Conservation Rules
HCE : Health Care Establishments
HCF : Health Care Facilities

HCWM	: Health Care Waste Management
LAO	: Local Administrative Organisation
MoHFW	: Ministry of Health and Family Welfare
MoHS	: Ministry of Health and Sports
MoEF	: Ministry of Environment and Forests
MoPE	: Ministry of Population and Environment
MOPH	: Ministry of Public Health
MWM	: Medical Waste Management
NEA	: National Environmental Act
PHA	: Public Health Act
SEAR	: South-East Asia Region
VDC	: Village Development Committee

1.16 ANSWERS TO CHECK YOUR PROGRESS

1. six countries
2. Segregation at source
3. Thailand
4. Timor-Leste
5. Varies between 30-10 percent

1.17 REFERENCE FURTHER READINGS

1. WHO/SEARO, 2016. Report on Regional workshop on health-care waste management, Nepal, November, 2016.



https://www.washinhcf.org/fileadmin/user_upload/documents/HCWM-workshop-report.pdf

2. WHO/SEARO, 2017. Report on health-care waste management status in countries of the South-East Asia Region.



<http://apps.who.int/iris/bitstream/handle/10665/258761/sea-eh593.pdf;jsessionid=1567E1D824CF4A043EE542B8354EEF93?sequence=1>

UNIT 2

CURRENT STATUS OF HEALTH CARE WASTE MANAGEMENT IN COUNTRIES IN WHO SOUTH-EAST ASIA REGION

Structure

2.0 Objectives

2.1 Introduction

2.2 Health Care Waste Management System in South-East Asia

- 2.2.1 Current Waste Management Practices in Bangladesh
- 2.2.2 Current Waste Management Practices in Bhutan
- 2.2.3 Current Waste Management Practices in India
- 2.2.4 Current Waste Management Practices in Indonesia
- 2.2.5 Current Waste Management Practices in Maldives
- 2.2.6 Current Waste Management Practices in Myanmar

- 2.2.7 Current Waste Management Practices in Nepal
- 2.2.8 Current Waste Management Practices in Sri Lanka
- 2.2.9 Current Waste Management Practices in Thailand
- 2.2.10 Current Waste Management Practices in Timor-Leste

2.3 Let Us Sum Up

2.4 Glossary

2.5 Answers to Check Your Progress

2.6 References and Further Readings

2.0 OBJECTIVES

After studying this unit, you should be able to:

- describe the various waste management practices in South East Asia region
- discuss innovative ideas for management of health care waste

2.1 INTRODUCTION

With the increasing number of health care facilities, the amount of wastes produced are increasing by the year and there are huge concerns for safe management of this wastes. Unlike in developed countries the concept of health care waste management is still evolving in developing countries. The awareness on safe management is improving in all the countries of the South-East Asia region and have initiated actions on waste management. This is evident from the fact that several countries have dedicated policies, rules and guidelines on health care wastes. Rest either have initiated drafting of policies or in the process of finalising the same.

The unit will review and explain exemplary current health care waste management practices in 10 countries of the WHO South-East Asia Region. Case studies are provided to give a clearer picture on how wastes are managed in health care facilities.

Let us explore the current status of waste management in different countries of South-East Asia Region.

2.2 HEALTH CARE WASTE MANAGEMENT SYSTEM IN SOUTH-EAST ASIA

2.2.1 Current Waste Management Practices in Bangladesh

The country has around 610 government hospitals, 4596 private hospitals and clinics, and 9741 diagnostic centres. The Directorate General of Health Services (DGHS) is the focal department for health-care facilities and is responsible for providing guidance on health-care waste management to these facilities. The Directorate also liaises with the Department of the Environment (DoE), the City Corporation or municipality and private partners. The health care infrastructure is depicted in the **Fig. 2.1**.

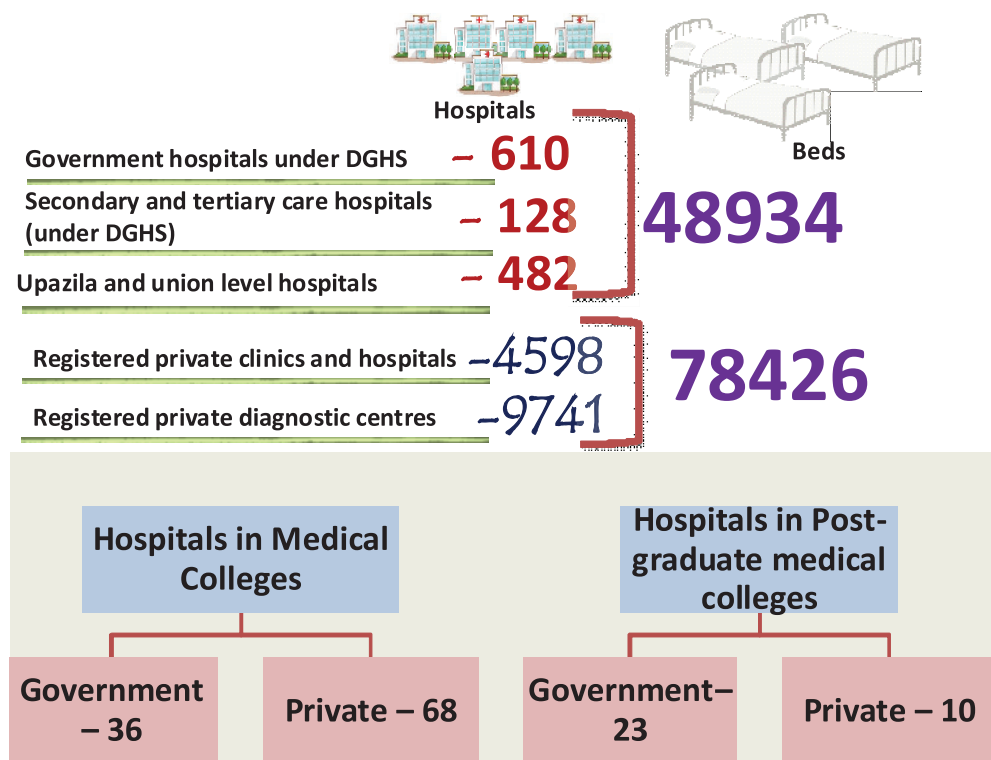


Fig. 2.1: Health Care Infrastructure in Bangladesh

Source: Health Bulletin 2016, Management Information System, Directorate General of Health Services, Dhaka, Bangladesh

An estimated 0.28-1.9 kg/bed/day medical waste is produced in the country. The country has rules to manage its medical waste that requires hospitals to segregate it in a number of categories. NGO initiatives have led to training and establishment of waste management practices in some hospitals.

Health, Population and Nutrition Sector Development Programme (HPNSDP)

Establishment of hospital waste management in public and private hospitals is one of the key measures to be achieved under the health, Population and Nutrition Sector Development Programme (HPNSDP) by the Ministry of Health and Family Welfare (MoHFW). Under this programme, an environmental assessment and action plan was made for the medical waste management in Bangladesh. The efforts of managing medical waste started in 2005. Standard in-house medical waste management was introduced in 6 medical college hospitals (MCHs), 7 specialised hospitals and 8 district hospitals (DHs) by MoHFW in 2013.

Source: *Health Bulletin 2013, Management Information System, Directorate General of Health Services, Dhaka, Bangladesh*

The MoHFW started addressing Medical Waste Management (MWM) as one of the priority programmes by including it among the identified six critical areas under the health, nutrition and population sector programme. The recent development of formation of the national HCWM committee and also committees for the city corporation, district and upazila to handle the out-house management of HCW will be regarded as a major breakthrough for determining the roles and responsibilities in relation to the MWM. MWM Committees at various levels are designated responsibility for implementation and monitoring. An action plan has been made to implement MWM in the country for segregating and treating wastes respectively.

Source: http://www.mohfw.gov.bd/index.php?option=com_content&view=article&id=166&Itemid=150&lang=en

Recent developments in medical waste treatment

Until 2004, there was no facility for treating medical waste in Bangladesh. A project PRISM was the first initiative in this direction.

Project PRISM

The Project in Agriculture, Rural Industry, Science and Medicine (PRISM) established a medical waste treatment plant at Matuail, in the outskirts of Dhaka in 2004. The programme started with 17 HCFs initially and now it is coordinating with 727 HCFs.

In July 2013, another programme started with 25 HCFs in Savar Pouroshova. PRISM received financial support from the Canadian International Developmental Agency (CIDA) for the development of a low-cost medical waste management facility, and Dhaka City Corporation allocated one acre of land for the MWM. Until 2008, PRISM had done capacity-building in about 185 health-care establishments. The Ministry of Health and Family Planning (MoHFP) has been conducting capacity-building of health care professionals since 2005, and had covered 328 HCFs until 2010.

The developments in the medical waste treatment thereafter have been outlined in **Box 2.1**.



http://www.mohfw.gov.bd/index.php?option=com_content&view=article&id=166&Itemid=150&lang=en

Did you know?

The country has a national policy called the 'Medical Waste (Management & Processing) Rules 2008', which came into force on 5 November 2008.

Until June 2015, 14 MCHs, 15 district hospitals (DHs) and 8 specialist hospitals introduced standard in-house medical waste management.

All the public and private HCFs of Dhaka, Comilla and private health-care facilities of Chittagong city are now under the MWM scheme of non-governmental organizations (NGOs) such as PRISM and INNOVATION.

An NGO named SHOPNO was contracted to take care of the MWM of all the HCFs of Bagura, Rangpur and Dinajpur. For the rest of the country, no out-house medical waste management operations was found.

Bangladesh Health Sector Support Program (HSSP), Environmental Management Framework, (March, 2017), Ministry of Health and Family Welfare, Government of the People’s Republic of Bangladesh

Box 2.1: Developments in the medical waste treatments 2004-2015

As per the action plan prepared by HPNSDP, by 2015–2016, medical waste management should be implemented in health care establishments. But, it was not efficiently implemented due to lack of funds, effective training, etc.

Source: Report on Implementation of MWM under HPNSDP – July, 2016

2.2.2 Current Waste Management Practices in Bhutan

The Royal Government of Bhutan provides free health-care services to all people through a network of about 31 hospitals, 14 grade I basic health units (BHUs), 178 grade II BHUs and 550 outreach clinics. The increase in these facilities has led to a steady rise in the quantity of health-care waste generated in the country.

Source: Report on Implementation of MWM under HPNSDP – July 2016

Public sector hospitals are categorised as national, regional and district hospitals. The country also has BHUs-I and II as well as outreach clinics. BHU-II is 5 bedded and it provides 70% preventive/immunisation services and 30% curative services. There is no private health care set up in the country. The health care infrastructure has been depicted in Fig. 2.2.

Did you know?
 Bhutan generates a total of 358 tonnes of medical waste per year with an average of 0.2kg/day/patient.

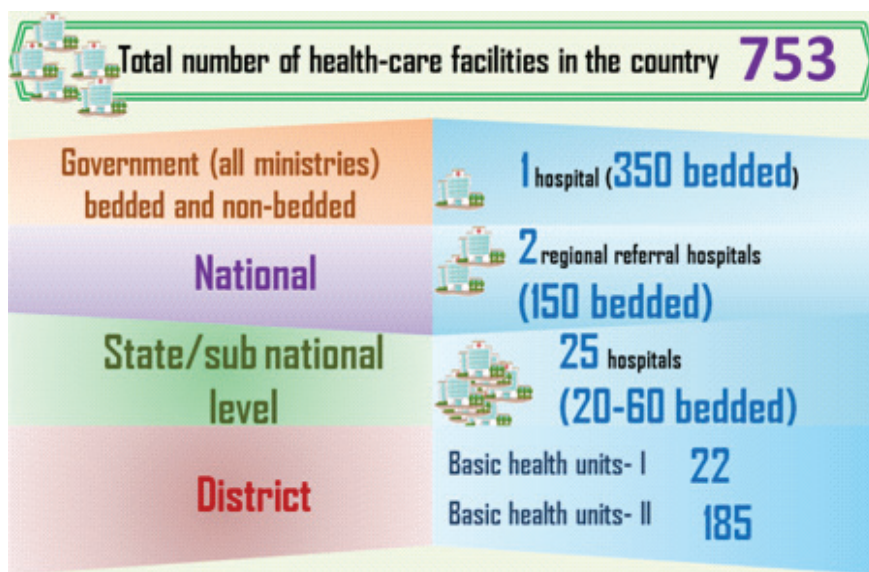


Fig. 2.2: Health care infrastructure in Bhutan

Source: WHO, 2017. Report on health-care waste management status in countries of the South-East Asia Region

National policy requires the formation of a committee at the health-care facility level, which is responsible for cleanliness of the facilities. The focal person for infection control also looks after waste management. But only 5% of the health-care facilities have reported having this committee. The guideline as well as the strategic plan requires hospitals to segregate their waste into a number of categories and treat their waste onsite before sending it for deep burial or landfill.

Open burning has been reported in one hospital, though most of the hospitals depend on deep burial. Almost 99% of HCFs are aware of the risks associated with medical waste mismanagement, yet only 10% are following best waste management practices. Since there are only two autoclaves present in the whole country, most of the waste goes untreated or is treated chemically. The country lacks infrastructure to deal with its medical waste.

Improper segregation leads to the increased proportion of hazardous waste. Lack of infrastructure, insufficient financial and human resources, and low priority given to the issue are the most common problems in the country.

Milestones in infection control and waste management is depicted in the **Fig. 2.3**.

1994	1994, 2014	2012	2016
<ul style="list-style-type: none"> The Infection Control and Medical Waste Management programme was established in 1994. 	<ul style="list-style-type: none"> The 1st edition of the Infection Control and Health-care Waste Management guidelines was developed in 1994, and the 4th revision was made in 2014. 	<ul style="list-style-type: none"> Health-care associated surveillance started in 2012, but the main challenge faced is effective recording and reporting of health-care acquired infection (HAI). 	<ul style="list-style-type: none"> Report on Regional workshop on health-care waste management, Nepal, November 2016

Fig. 2.3: Milestones in infection control and waste management

A case study of the Phuentsholing General Hospital, which is a pilot hospital for the model waste management has been provided for your understanding.

Case Study: Phuentsholing General Hospital: a pilot hospital for model health care waste management

Phuentsholing Hospital is a 50-bedded hospital with a running capacity of 65 inpatient beds. It is run by 144 staff including all categories of personnel. It serves as a referral centre for other nearby health facilities and districts. In addition to curative services, the hospital also provides diagnostic and preventive services.

The hospital administration and management transformation committee is identified as the infection control and waste management committee. The focal point for HCWM is the nursing head. All units in charge are members of the infection control and medical waste management Committee Training has been conducted on infection control, waste management and patient safety for all categories of staff.

Waste storage and a treatment house and a deep burial pit have been constructed. A waste autoclave has been procured and is under installation. Mercury-based equipment is being replaced with digital and mercury-free devices. Waste bin stands and waste transportation trolleys have been fabricated on-site.

Risks wastes are segregated at the source and treated in an autoclave and then sent to a municipal landfill. Pathological waste and sharps are disposed in deep burial pits. Chemical waste is flushed down the drain after dilution. Burning is strictly prohibited by the National Environment Commission due to environmental concerns. General waste is sold to recyclers. The hospital plans to make it into a model hospital for HCWM in the future.

2.2.3 Current Waste Management Practices in India

In India, the health-care sector is growing at a tremendous rate due to its strengthened coverage, services and increasing expenditure by public as well as private players. Some of the important statistics that have a bearing on the waste production and management in India have been highlighted in the Fig. 2.4.



Fig. 2.4: Statistics that have a bearing on the waste production and management in India

Data on medical waste generated in the country is reported annually. All health-care facilities submit these data annually to the State Pollution Control Boards (SPCBs)/Pollution Control Committees of the respective State/Union Territory. The data from states are then compiled by the Central Pollution Control Board (CPCB). They are updated every year and were last updated in 2015. These data are available in the public domain on the CPCB’s website.

In 2017, it was estimated that India generates a total of 501 Tonnes of medical waste per day. The country has Bio-Medical Waste Management Rules, 2016 which has been amended in March 2018. Hospitals segregate

their waste into the required colour coding categories and then send the waste for off-site treatment. There are several model hospitals in the country. Various institutions in the country have developed good training resources.

Although the country has 203 operational off-site common bio-medical waste treatment facilities (CBMWTFs), few states have yet to develop off-site CBMWTFs in adequate number.

Audit reports have identified the presence of unauthorised HCFs, unavailability of pre-treatment facilities, inefficient segregation of waste at the source, improper disposal of untreated medical waste, , dumping and mixing of bio-medical waste with municipal solid waste, illegal selling of infected plastic wastes to unauthorised recyclers, and improper working of CBWTFs as major issues in most of the States.

Lack of staff and infrastructure is also a major constraint in ensuring effective implementation of the rules. The country needs stringent monitoring and evaluation network to ensure compliance. Guidelines issued by Government of India is mentioned in **Box 2.2**.

Government of India has issued various guidelines which include:

- i. Guidelines for Common Bio-Medical Waste Treatment Facilities
- ii. Guidelines for Bar Code system for effective implementation of the Bio-medical Waste Management Rules, 2016
- iii. Guidelines for Bio-Medical Waste Incinerators and Plasma Pyrolysis
- iv. Guidelines for Waste Generated from Immunisation Programmes
- v. Guidelines for Environmentally Sound Management of Mercury Waste Generated from health care facilities
- vi. Implementation guidelines for waste management by the health care facilities
- vii. Tool Kit for Bio-Medical Waste Management etc.

Box 2.2: Guidelines issued by Government of India

Source: <https://www.envfor.nic.in> and <https://www.cpcb.nic.in>

2.2.4 Current Waste Management Practices in Indonesia

Indonesia is the world's third most populous democracy and the world's largest archipelagic state (island country) with approximately 13466 islands. About 53.7% of the total population lives in the urban and the rest in the rural areas. The urban areas have specialised hospitals with more physicians and central government funding. Community health services are organised in a three-tier system with community health centres – CHCs (Puskesmas) being first in the hierarchy.

Public sector hospitals are categorised as national, provincial and district hospitals and community health centres. Other than these, there are non-profit hospitals and private (Persero) hospitals. According to the specialty, hospitals are categorised as Class A, Class B and Class C.



<https://www.envfor.nic.in>



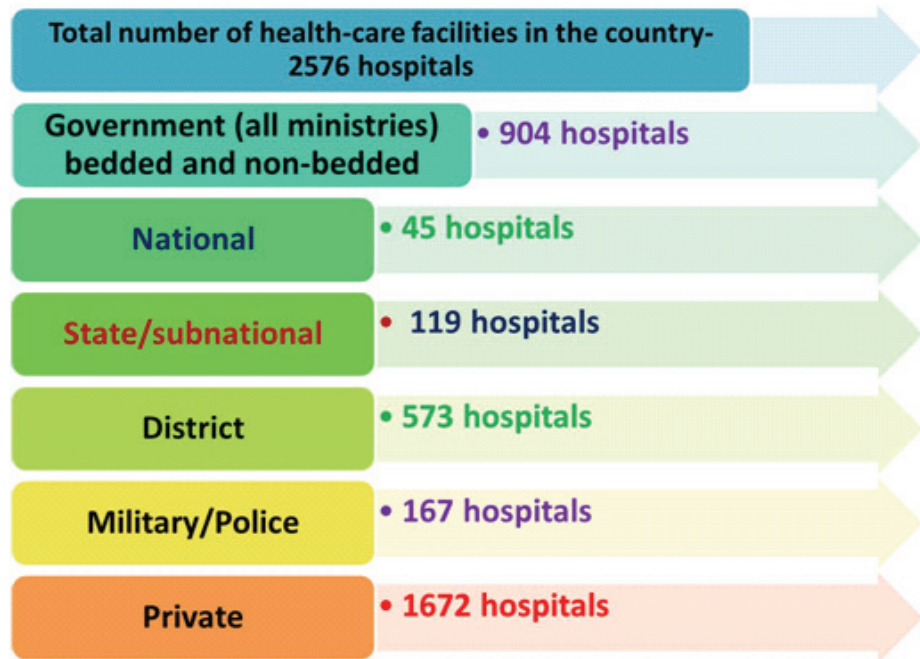
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<https://www.cia.gov/library/publications/the-world-factbook/geos/id.html>



Box 2.3: Health Care Facilities Statistics in Indonesia

Source: WHO, 2016 . Report on Regional workshop on health-care waste management, Nepal, November, 2016.

In 2017, it was estimated that Indonesia generates a total of 225 Tonnes of medical waste per year with an average of 0.68 kg/bed/day. The country has a decree on Hospital Environmental Health Requirement, 2004, and Technical Guidelines and Requirement of Hazardous Health-Care Waste Management. The statistics related to the health care waste management is summarised in the **Box. 2.4**.

Source: WHO, 2017. Report on health-care waste management status in countries of the South-East Asia Region

a.	The country data say that 97% of HCFs are segregating their waste as per the national policy categorisation. But the primary assessment states that hospitals do not follow uniform colour coding for waste segregation.
b.	Studies also indicated that HCFs segregate their waste only in two categories and mix sharps waste with infectious waste.
c.	Hospitals use both incineration and non-incineration technologies for the treatment of their medical waste. For on-site treatment of waste, HCFs majorly uses incineration. Studies indicate that some facilities openly burn their medical waste due to lack of awareness.
d.	The country has only six off-site treatment facilities that are insufficient to treat such a large quantity of waste.
e.	The primary survey indicates that hospitals dispose of their infectious waste in municipal dumps without pretreating it.
f.	Overall compliance is found to be low especially in the remote areas. According to the government, 68% of total waste is collected, treated and disposed as per the regulation.

Box 2.4: Statistics related to the health care waste management

2.2.5 Current Waste Management Practices in Maldives

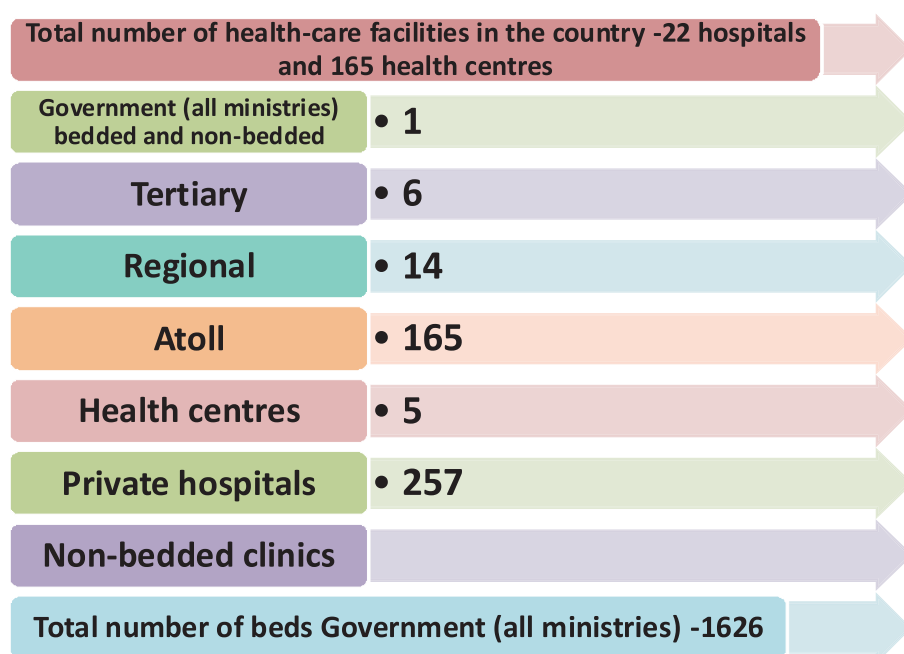
Maldives is a South–East Asian Island country, situated in the south-west of Sri Lanka, on the equator. The Maldives economy is growing at an average of over 10% since the past two decades. Tourism is the main industry, contributing almost 20% to GDP.

The Decentralisation Act 2010 states that the administrative divisions of the Maldives consist of cities, atolls and islands; each is administered by its own local council. Administratively, the islands are grouped into 20 atolls and at present, 187 islands are officially declared as inhabited islands.

Source: National Health-care Waste Management Policy, Maldives, 2016.

The Indira Gandhi Memorial Hospital (IGMH) and ADK Hospital are the only tertiary hospitals in the Maldives located in Malé. Regional hospitals and atoll hospitals provide curative services with major specialties, including obstetric, medical and surgical for both routine and emergencies supported by laboratory and radiological investigations. Health centres located on islands offer general medical services and preventive and health promotion services.

There are mainly two different health-care providers that are generating health-care waste – public and private. The health system consists of hospitals (tertiary, regional, atoll, private, specialised), health centres and private health clinics.



Box 2.5: Health Care Facilities Statistics in Maldives

Source: Report on Regional workshop on health-care waste management, Nepal, November, 2016.

The country has endorsed the National Health-care Waste Management Policy in 2016. It requires hospitals to segregate infectious and general waste at the point of generation; however, studies indicate that when waste is taken out of hospitals, these are mixed into one bin. In most of the hospitals, There is no provision of treating the waste either on-site or off-site; the majority of hospitals openly burn their medical waste or in some cases use handmade

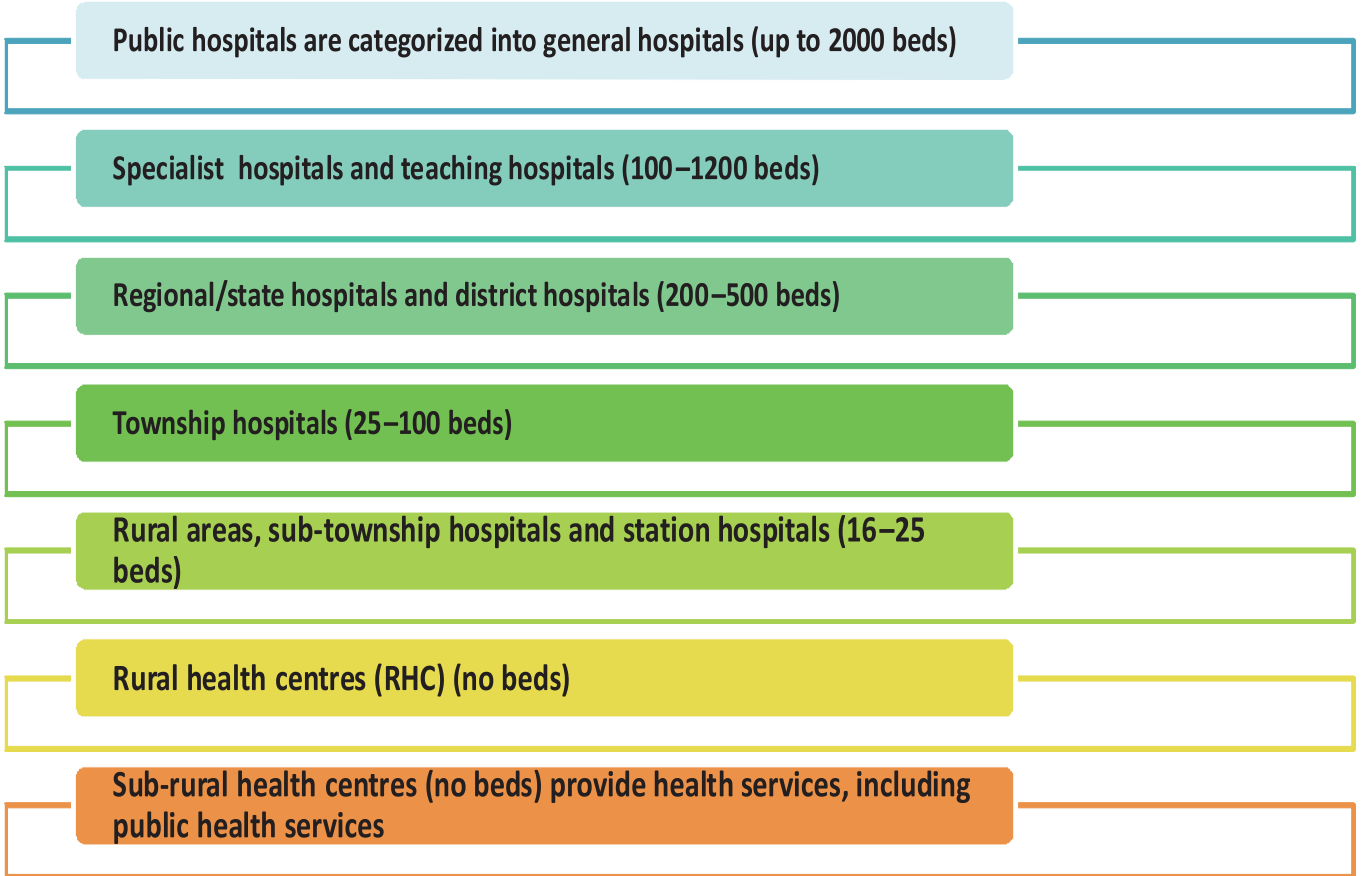
burners. Few hospitals treat waste by autoclaving before disposal. The country lacks infrastructure and funds to manage its medical waste. There is a need for a proper monitoring and evaluation system to be established.

Segregated waste is collected by the hospital’s staff and is transported to an identified site and stored until final disposal. The facilities majorly use gloves and face mask as PPE.



2.2.6 Current Waste Management Practices in Myanmar

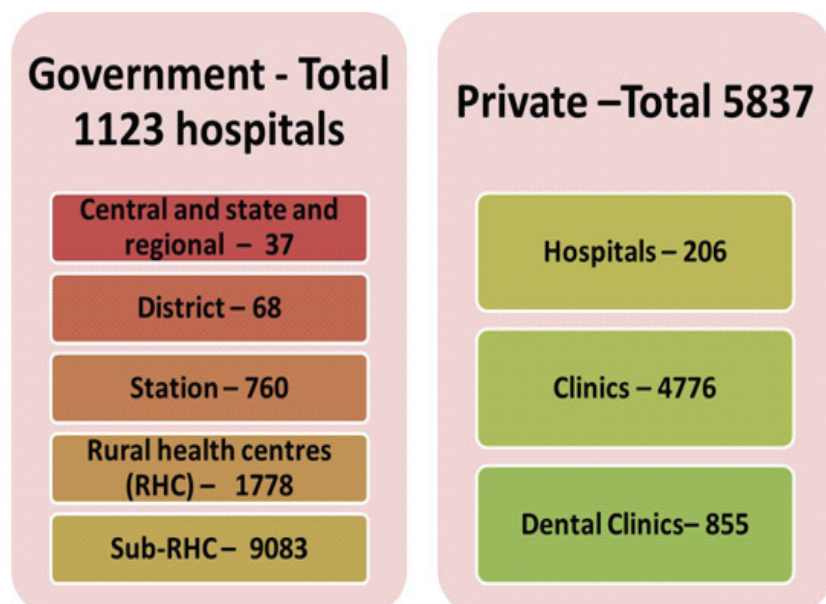
Myanmar is officially the Republic of the Union of Myanmar and also known as Burma. It is a sovereign state in South-East Asia bordered by Bangladesh, China, India, Laos and Thailand.



Box 2.6: Health infrastructure in Myanmar

Source: Health-care in Myanmar, Su Myat Cho et al, Nagoya J. Med. Sci. 78. 123 ~ 134, 2016.

Health-care facilities are categorised in the country by establishment status, i.e. national/state/district level, and based on public or private ownership.



Box 2.7 : Health Care Facilities Statistics in Myanmar

Source: WHO, 2017. Report on Regional workshop on Health care waste management, Nepal, November, 2016

The country generates medical waste in the range of 0.6-1.5 tonnes per week in 2017. There is no separate legislation or policy on medical waste management; however, the Hospital Infection Control Guideline and Hospital management manual are available. Some municipalities in the country have started waste management voluntarily, and some hospitals are segregating their waste. The DoPH is in the process of developing SOPs and guidelines.

Source: WHO, 2017. Report on health-care waste management status in countries of the South-East Asia Region.

This is an encouraging beginning. At present, the treatment method largely remains open burning or incineration and thus there is a need to strengthen regulations to tide over this ‘out of sight, out of mind’ approach. Current on-site and off-site treatment equipment are also not sufficient. There is basic awareness among health-care staff but there is a need for more capacity-building programmes. Health-care waste management is not very good, and regular monitoring is needed to improve it. After development of guidelines, dissemination, regulation as well as enforcement will be major concerns. More training will be needed for staff to comply with these guidelines. Therefore, more specific laws and regulations, cleaner technologies, funding as well as human resource development are the major requirements for improving waste management in Myanmar.

2.2.7 Current Waste Management Practices in Nepal

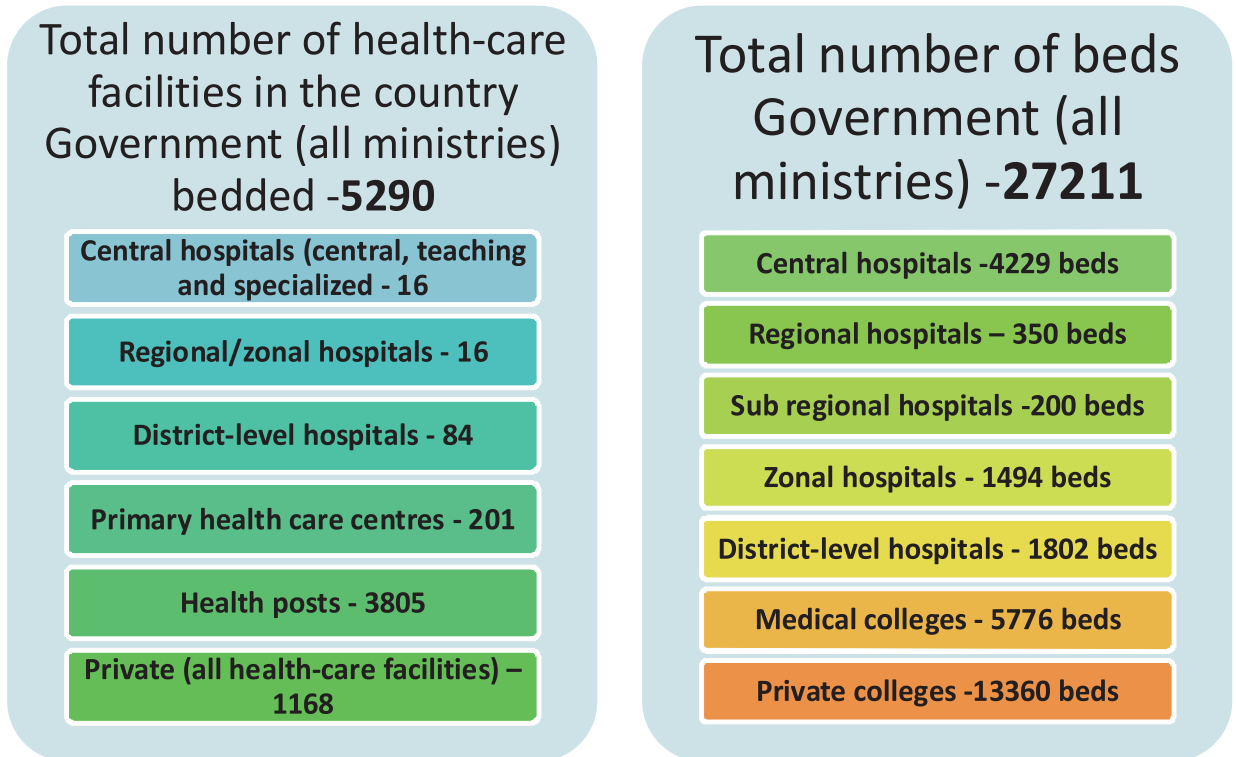
Nepal is a relatively small, land-locked country with a population of about 26.5 million. The country is greatly fragmented with mountains and terrains, making it inaccessible by modern transport and communication systems. Approximately 86% of Nepal’s population lives in rural areas. The country is divided into 5 development regions, 14 zones and 75 districts. However, the Constitution of Nepal, adopted on 20 September 2015, provides for the division of the country into 7 provinces.



Source: <http://kathmandupost.ekantipur.com/news/2017-03-15/744-new-local-units-come-into-effect.html>

The divisions, central hospitals and centres are administrated by the Ministry of Health. In rural areas at village level, there are primary health centres (PHC) and health posts (HP). The health post is the first access for getting primary treatment at the community level. At the district level, there are district hospitals with an average of about 25 beds. The hierarchy starts from tertiary care given by central and regional hospitals; secondary care is provided by zonal and district hospitals; and primary health care is delivered through PHC and HP. The Environment Protection Rules 2054(1997) state that health facilities with more than 25 beds and facilities that generate hazardous and radioactive waste have to prepare an environment impact assessment (EIA) for getting a license.

Public sector hospitals are categorised as central, regional, sub-regional, zonal, district level and medical college hospitals. Other than these, there are private hospitals.



Box 2.8: Health Care Facilities Statistics in Nepal

The country generated approximately 36735 kg of medical waste per day in 2017. Although the Health Care Waste Management Guidelines, 2014, specifically focus on adoption of non-burn technology for the proper management of HCW generated, facilities still use on-site treatments such as open burning or basic incinerators made of bricks, which leads to the release of toxic gases in the surrounding areas. The primary assessment has pointed towards inefficient segregation practices and lack of capacity-building programmes. The incinerators installed in some facilities remain inoperable due to high running costs. Hence, wastes are dumped into shallow trenches, burnt at low temperatures or dumped near rivers and ponds.

Source : WHO, 2017. Report on health-care waste management status in countries of the South-East Asia Region.

Although implementation of the guidelines is lacking, since the country has received funds from WHO and JICA, a number of NGOs (such as the Centre for Public Health and Environmental Development (CEPHED) and HECAF) are working there and producing establishing some good models on the ground.

Case study - Paropakar Maternity & Womens Hospital, Ministry of Health/ Government of Nepal, Thapathali

The hospital was established in 1959 and it is a central government referral hospital that specialises in obstetrics, gynaecology and neonatal care. This 415 bed hospital offers service to about 125,000 women and children annually. The hospital faced issues with waste management and approached HECAF for technical support. The new system was initiated by the Director and a team consisting of Nursing Director, waste management coordinator and hospital administrator and deputy administrator. Baseline assessment was done in 2012 and it showed that the hospital generated an average of 400 kg of waste per day. About 332 kg was a mixture of risk and non-risk waste hence rendering the entire waste as risky. After segregation system was introduced in the hospital, risk waste was drastically reduced to 42%.

A waste management system based on zero waste concept was first introduced in one ward. Once the system was tested and found efficient, it was then replicated in other units of the hospital. The system is now fully functional in all inpatient wards. The system comprises:

a. Waste segregation – Risk and non-risks wastes are segregated further in colour coded bins. Clear pictorial labels are put up near the bins so users can easily understand where to put in their wastes. Staffs are given proper instructions to monitor segregation of wastes and to take timely action. A separate trolley is provided in each ward for nurses and other staff to segregate waste when they go around the ward.

b. Waste treatment and storage – Earlier the hospital dumped all its waste into the municipal waste container converting all wastes into risk waste. The new system converted the municipal waste collection area into a waste treatment and storage center. Wastes from the hospital are transported by trolley to the center, treated and stored there. The center has two distinct areas for risk and non-risk wastes. The non-risks wastes are weighed by category and recorded. Items have different recycling values and thus are stored in separate compartments in the non-risk areas. Risks wastes are autoclaved and recyclable ones are sold off while rest are then sent with municipal wastes. Genotoxic wastes are stored separately and treated chemically. 5% sodium hypochlorite is used to denature genotoxic cancer drugs. After chemical treatment it is processed and sent for recycling. A biodigester is being installed to process food and placenta waste. It has the capacity to process 129 kg of food waste and 71 kg of placenta waste per day and the main product will be biogas which will be used for cooking. The hospital is also carrying out research on vermin composting of disinfected cotton and gauze wastes and sanitary pads.

c. Safe injection practice has been introduced as part of the new system whereby nurses are training and then they commit to safe injection by signing on a banner.

d. Waste tracking system is introduced where wastes from point of generation till final disposal is tracked and recorded.

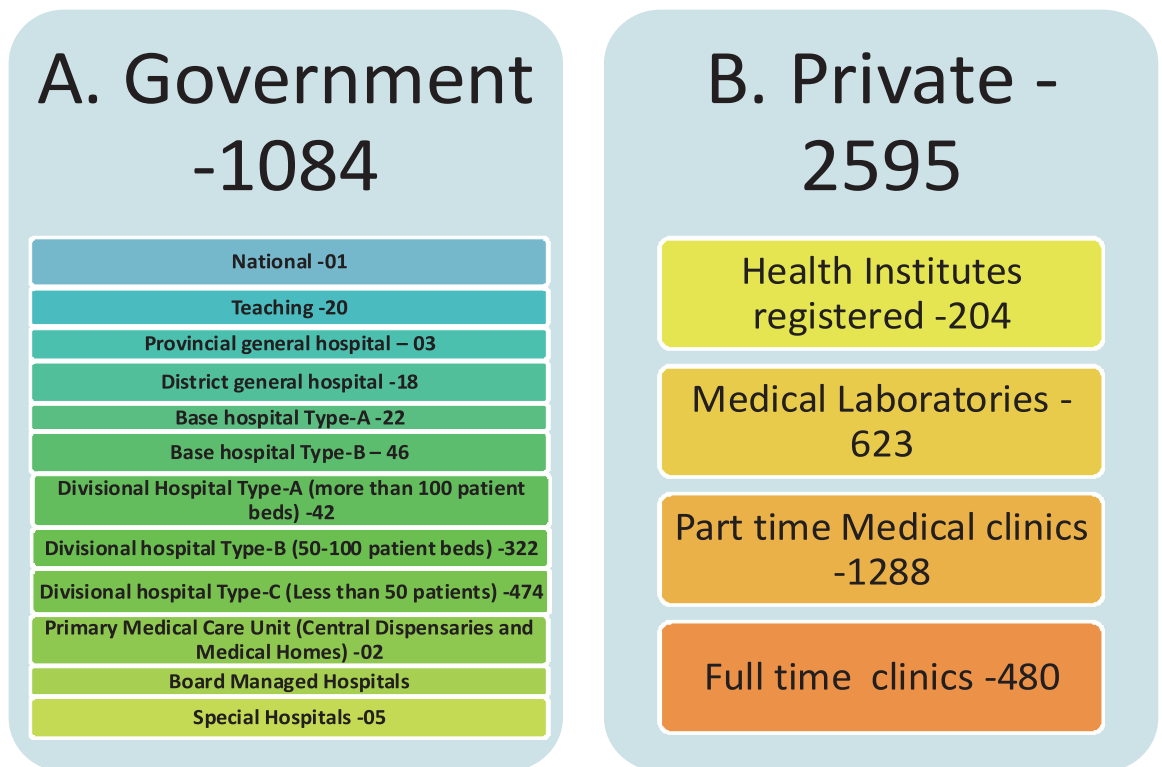
Source: HECAF, Nepal.

2.2.8 Current Waste Management Practices in Sri Lanka

Sri Lanka is an island in the South-East Asia. Sri Lanka has maritime borders with India to the north-west and Maldives to the south-west. The population is about 20 million and the land area is about 65000 sq. km.

The country’s public health sector has a history of more than 100 years and provides wide coverage that is accessible throughout the country at all levels. The health system consists of a hospital-based curative care system and a preventive community health-care system, which are administered by the Ministry of Health and the Provincial Health Services. Health care, including specialised care, is provided free of cost to all citizens.

Public sector hospitals are categorised as national, provincial and special hospitals.



Box 2.9: Health Care Facilities Statistics in Sri Lanka

Source: Environmental management framework for health-care waste & infrastructure development, Ministry of Health

Sri Lanka generated a total of 15-20 tonnes of medical waste per day in 2017. The country has a draft policy on “Health Care Waste Management,” 2001, which requires hospitals to segregate their waste at the source. The policy requires this waste to be treated onsite or off-site. The Policy and guideline are currently under revision. There is a lack of off-site treatment facilities, owing to which hospitals are either burning their waste openly or in small kiln incinerators. Studies point out that the majority of waste leaves the health-care facilities untreated.

Source: Recommendations through a Complete Study on Health-care Solid Waste Management Practices of Government Hospitals in Colombo, Sri Lanka, Bandunee C. L. Athapattu, A. P. Priyantha and Masafumi Tateda

Lack of awareness among staff regarding the hazards due to mismanagement of medical waste, lack of infrastructure, an inefficient monitoring system and lack of treatment facilities are identified as the bottlenecks in Health-care waste management. A high rate of needlestick injuries has been reported, and the country needs to focus on injection safety and PEP.

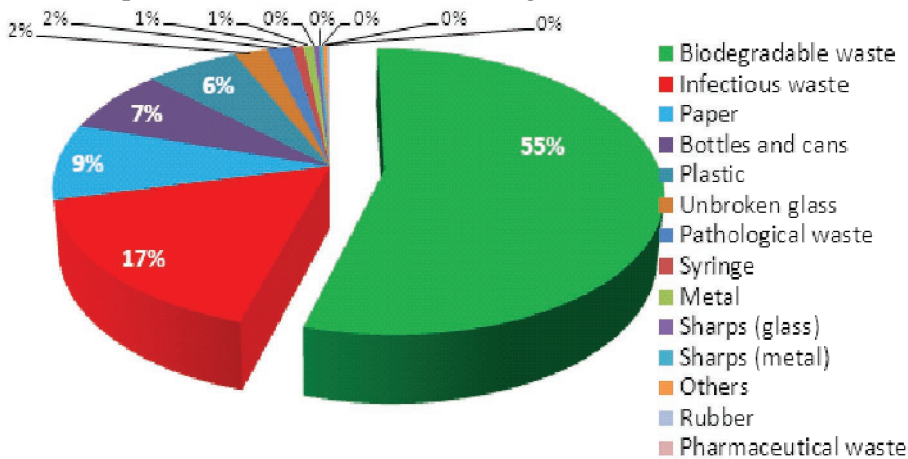
The World Bank has provided funds for health-care management in the country, and GEF has plans for providing future funds.

The compliance level of the existing policy is only 40%. The country needs formal regulations to properly implement the system. It is also moving towards the concept of green health-care by adopting non-burn technologies and has also made draft guidelines for it.

Case study

Valaichenai base hospital (VBH) is a 186 bed hospital. It has 15 wards and nine departments. It covers more than 150,000 populations from five divisional secretariat areas. VBH was disposing all its wastes with municipal wastes and since this was posing risk to waste workers and the community, the management jointly with MoH, WHO and UNOPS decided to carry out a diagnostic assessment to review current status and to plan for setting up a safe system. HECAF, Nepal carried out the assessment jointly with VBH team in March 2016.

The average waste generation rate of VBH was 1.05 kg/occupied bed/day. The risk waste generation rate and non-risk waste generation rate was 0.21 kg/occupied bed/day and 0.84 kg/occupied bed/day respectively. Types of wastes generated by VBH is shown in the pie chart. Like other hospitals more than 50% is biodegradable waste.



A self-administered questionnaire survey was conducted among a random sample of 121 doctors, nurses and support staff who handle waste as part of their duty and are at direct risk from occupational exposure.

54% reported having a needle stick injury within their last one year period of work.

About **8%** of injuries happened from sharps that pierced the disposal container

More than **71%** of wastes were not segregated, waste bins were kept in locations which were not easily accessible

About **72%** of injuries occurred while using this device during medication.

3% of injuries occurred from items left on the floor, and **3%** of injuries happened during recapping the needle.

more than **91%** of bins were found unclean and there was no proper labeling of the bins.

In 2011, the country's population was 64 million. The forecast for gross domestic product (GDP) percentage change is estimated to be 5.1 for the period from 2013 to 2017. The country has made progressive efforts in providing education and health care facilities to its population.

Wastes was collected in open area in the backyard of the hospital and then sent off with municipal waste. There was no proper timing, protocols and staff safety for storage and disposal.

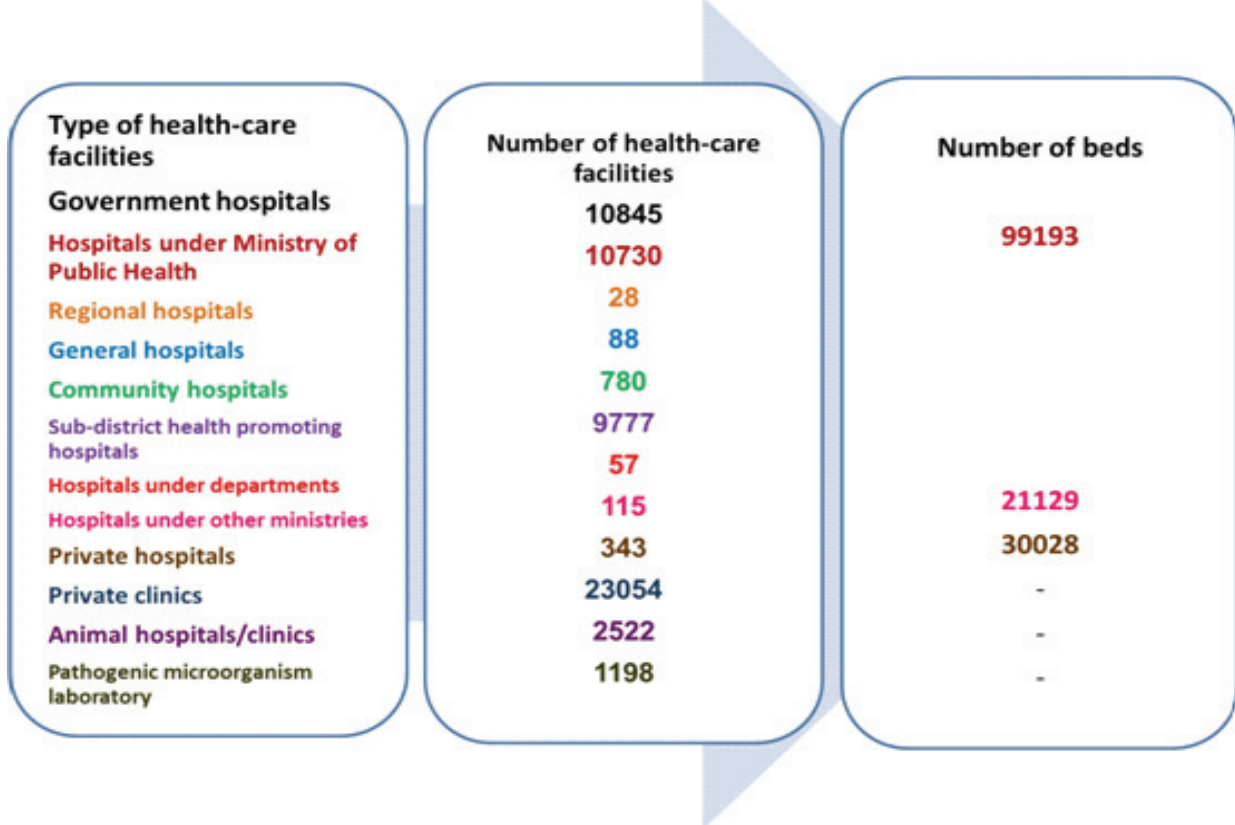
Syringes were burnt in a low temperature brick incinerator.

During the assessment, sensitisation workshops were organised for VBH staff and they were trained on the concept of safe and sustainable health-care waste management system. The findings of the assessment were presented to VBH team, MoH and WHO and UNOPS. The HCWM team is now strategising to develop a sound system.

2.2.9 Current Waste Management Practices in Thailand

Thailand is a South Asian country.

Hospitals under the Ministry of Public Health (MoPH) are categorised as regional, general, community and sub district hospitals. There are some hospitals under other ministries. Other than these, there are private hospitals.



Box 2.10: Health Care Facilities Statistics in Thailand

Source: WHO, 2016. Report on Regional workshop on health-care waste management, Nepal, 2016

The average per bed per day waste generation of the country is about 0.81 kg/bed/day.

The waste management system is similar to other countries where wastes is segregated at source using colour coded bins, then transported in separate trolleys to dedicated waste storage rooms and then sent to various off-site waste treatment centers – 10 incinerators managed by local government and six incinerators run by private companies. 37 hospitals which do not have access to these waste treatment facilities have their own incinerators and four hospitals have thermal inactivation systems to treat infectious waste.

The Ministry of Public Health had set a goal for 953 Health promotion center hospitals, General hospitals, Community hospitals and hospitals under departments to achieve standards for infectious waste management. About 880 facilities (92%) have achieved the standard.

Case study - Thailand GREEN and CLEAN Hospital for Safety 2016

The GREEN and CLEAN hospital concept promotes collaborative efforts among state health-care facilities under the Ministry of Public Health to run in a sustainable manner and reduce global warming. It encourages state health-care facilities to serve as a role model for other agencies including local authorities and communities in reducing global warming. Finally it aims to increase awareness and understanding of health personnel in reducing global warming by sustainable sanitation management.

GREEN stands for Garbage, Restroom, Energy, Environment and Nutrition – key activities to be implemented and CLEAN stands for Communication, Leadership, Effectiveness, Activities and Networking – the strategy for implementing the activities.

Garbage or solid waste management – solid waste management system in the hospitals are developed using the 3-Rs principles. Wastes are segregated into risks and non-risks wastes with provision of colour coded bins at strategic locations. Risks wastes are treated and recyclable items from treated risk wastes and non-risks wastes are recycled. Biodegradable wastes are composted.



Restrooms public restrooms or toilets in the hospitals are improved and

maintained to meet healthy, accessibility and safety (HAS) toilet standards. Few pictures are below:

Energy reduction of energy use and promote use of alternative renewable energy within the hospitals and among the staff. Awareness on putting off lights when not needed, encouraging carpooling, use of bicycle to come to work, putting solar panels, bio-digester for biogas.

Environmental improvement and healthy workplace promotion with clean environment and promotion of active participation of the staff.



Nutrition promotion focuses on food safety and the use of organic food for patients. Hospitals are encouraged to buy local products which are grown organically or less use of chemical fertiliser from neighbouring communities. Buying locally also helps to reduce carbon footprint as it requires minimum energy for transporting food.



The following strategies are used in implementing the GREEN concept in hospitals:

C: communication to create good understanding and awareness on a regular basis .

L : leadership for starting a prototype project and resolving any problems.

E : effectiveness enhancement to achieve the target.

A : activity creation to strengthen the cooperation.

N : networking of all hospitals to share and learn among themselves.

The major highlights of the programme are - documentation of success stories, tracking carbon footprint of the hospitals through a carbon footprint calculator programme, training courses conducted for staff, and there is an increasing number of hospitals taking GREEN initiatives.

Some lessons from the programme are summarised as:

The Health care sector is well-positioned to “lead by example”.

Sustainable sanitation and climate change can be linked by GREEN and CLEAN Hospital Approach.

The active role of the health sector in sustainable sanitation management can benefit health and contribute to long term goals of reducing global warming.

The capacity and awareness of health personnel need to be built continuously.

The integrated approach of GREEN activities and routine work should be encouraged among health personnel in the hospitals.

The GREEN and CLEAN Strategy can be applied and promoted in other sectors.

Increase the involvement of the hospitals and other sectors in the project.

Develop method of measurement for monitoring and evaluation the effectiveness of the project implementation.

Create and strengthen the GREEN and CLEAN Hospital network both at national and sub national level.

Promote innovation and appropriate technologies in managing sustainable sanitation in GREEN and CLEAN Hospital.



Source: <http://kathmandupost.com/news/2017-03-15/744-new-local-units-come-into-effect.html>



<http://www.dhsprogram.com/pubs/pdf/FR235/FR235.pdf>



<http://timor-leste.gov.tl/?p=547&lang=en>

2.2.10 Current Waste Management Practices in Timor-Leste

Timor-Leste is divided into 13 administrative districts, 67 sub-districts and 442 sucos/villages and 2225 aldeias/hamlets with 15007 km². The two largest urban centres are Dili and Baucau. The country gained independence from Indonesia on 20 May 2002. 70% of the country's population lives in rural areas, with the majority of people living in small, scattered villages mostly isolated with mountain terrain and poor roads.



Box 2.11: Health Care infrastructure in Timor Leste

The Environment Health Department under the National Directorate of Public Health, Ministry of Health, is responsible for health-care waste management. The Health sector national strategic plan (2011-2030) has an exclusive indicator on health-care waste management. The Environment Health strategy has 8 components and one of them is on health care waste management focusing on minimising the impact of medical waste to the environment and the health of people.

Source: WHO, 2017. Report on health-care waste management status in countries of the South-East Asia Region.



http://www.searo.who.int/timorleste/publications/national_health_sector_plan.pdf

Tertiary health care is provided overseas through neighbouring countries such as Australia, Indonesia and Singapore. Primary health care services are provided through the district health service structure with community health centres (CHCs), health posts and outreach activities.

The nearest facility-based services to the community are delivered through a network of health posts staffed with a team of one nurse and a midwife. At the sub-district level, community health centres provide a better facility than services offered by health posts. District CHCs provide inpatient and outpatient facilities with 13-14 staff, including a physician (District Medical Officer).

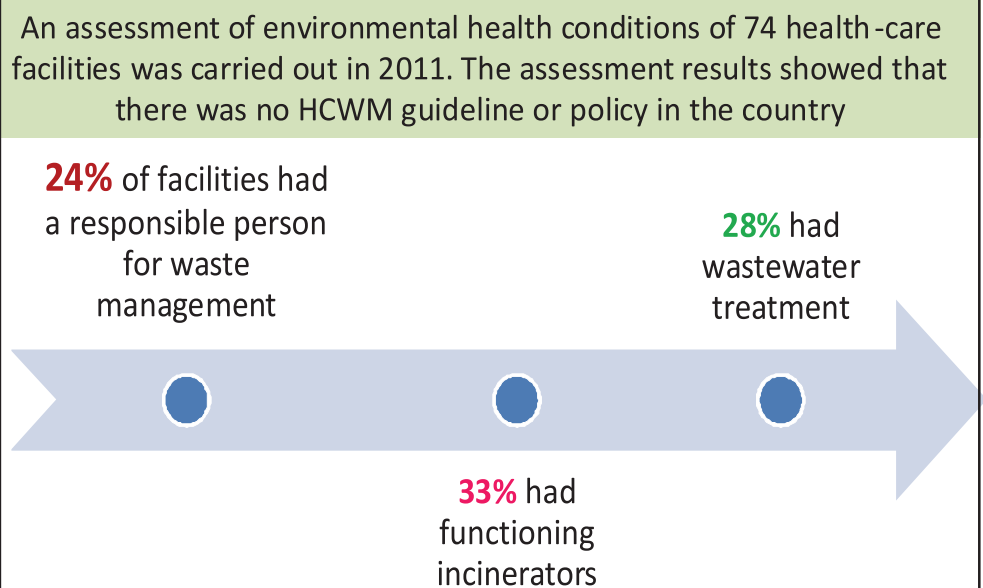
There is no national policy in place for health-care waste management. But, even then, most of the hospitals state that they are segregating waste as “Sharps, glass, infections waste, injections, discarded medicine, needles, syringes, catheters, X-ray, paper or tissue, blood, bandages, gauze, cotton or any others objects in contact with body fluids, human body parts, placentas, IV bottles, etc.” Most of the hospitals don’t seem to have many bins for segregation.

Health-care waste is either burnt in the open or incinerated. The final disposal is in the sanitary landfill, mostly without any pretreatment. PPE such as masks and gloves are used. Before transporting waste to the landfill site, it is being stored in plastic bags and containers.

Health-care staff is quite unaware of the risks associated with improper management of health-care waste. The first-ever training for the management of health-care waste was provided to a hospital and sanitary workers in March 2013 funded by WHO. Currently, there is only one health facility in Timor-Leste that has HCWM guidelines in place (i.e. Dili National Hospital Guido Valadares (HNGV)), where the HCWM training was held. Waste from many facilities are burnt in open or buried near to the facility itself. Medical waste from Dili hospitals are mainly sent to Tibar landfill site, which is located in the outskirts. Apart from that landfill, onsite diesel incinerators were provided to some of the facilities, which are expensive in the long term.



<http://www.searo.who.int/timorleste/PressReleaseonHCWMtrainingworkshop.pdf?ua=1>



Box 2.12: Report of assessment study of the environment health conditions of HCFs

The country is moving ahead with its health care waste management. A national guideline on HCWM has been drafted and being approved. Pilots have been initiated in two referral hospitals and two community health centres.

Check Your Progress 1

1. How is risk wastes managed in Phunstholing hospital in Bhutan?
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.....
2. Why is it important to carry out baseline assessment of health care wastes before setting up a system?
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3. In Paropakar maternity and women’s hospital in Nepal, how much of risk wastes was reduced after initiating the project and how was it reduced?
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4. Which country has initiated greening of hospitals? What are the key elements and strategies of this approach?
.....
.....
.....
5. What is the status of waste management in Timor-Leste?
.....
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.....

2.3 LET US SUM UP

In this unit, you have learnt about the various practices on health-care waste management in ten SEAR (WHO) countries, namely, Bangladesh, Bhutan, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste.

In SEAR Countries, most of the countries have policies and guidelines in place however, the implementation of these varies due to several challenges

faced by countries such as lack of funds, capacity, competing priorities of the government etc. Despite these challenges, there are many initiatives taken by these countries and progress is made in a slow and steady manner.

2.4 GLOSSARY

BHU	:	Basic Health Unit
BMW	:	Bio-Medical Waste
CBMWTF	:	Common Bio-Medical Waste Treatment Facility
CEPHED	:	Center for Public Health and Environmental Development
CHC	:	Community Health Centers
CPCB	:	Central Pollution Control Board
DGHS	:	Directorate General of Health Services
DOE	:	Department of Environment
DOPH	:	Department of Public Health
EIA	:	Environmental Impact Assessment
ECR	:	Environment Conservation Rules
GDP	:	Gross Domestic Product
HAI	:	Health Care Acquired Infections
HCE	:	Health Care Establishments
HCF	:	Health Care Facility
HCWM	:	Health Care Waste Management
HECAF	:	Health Care Foundation, Nepal
HP	:	Health Post
IGMH	:	Indira Gandhi Memorial Hospital
MOPH	:	Ministry of Public Health
NEA	:	National Environmental Act
PHA	:	Public Health Act
PHC	:	Primary Health Care
PPE	:	Personal Protection Equipment
RHC	:	Rural Health Center
SEAR	:	South-East Asia Region
VBH	:	Velaichenai Base Hospital

2.5 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1. Risks wastes are segregated at the source by collecting a separate colour coded bin, treated in an autoclave and then disposed with municipal wastes
2. Baseline assessment is the first step when starting a health care waste management system. This will help understand the categories and quantity of waste generated in a facility, help in better planning for segregation and monitoring purposes.
3. Risk waste was reduced to 42% and it was achieved mainly due to strict implementation of segregation at source.
4. Thailand, GREEN elements (garbage, restroom, energy, environment and nutrition), CLEAN (communication to create good understanding and awareness on a regular basis, leadership for starting a prototype project and resolving any problems, effectiveness enhancement to achieve the target, activity creation to strengthen the cooperation and networking of all hospitals to share and learn among themselves).
5. Timor-Leste does not have a policy of Health care waste, however, the country has initiated capacity building on the same and two pilots are initiated. The country has also drafted HCWM guidelines.

2.6 REFERENCES AND FURTHER READINGS

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2. http://www.mohfw.gov.bd/index.php?option=com_content&view=article&id=166&Itemid=150&lang=en
3. Health Bulletin 2013, Management Information System, Directorate General of Health Services, Dhaka, Bangladesh
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