REPUBLIC OF KENYA
MINISTRY OF HEALTH

HEALTH CARE WASTE MANAGEMENT STRATEGIC PLAN 2015–2020

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Citation

Health Care Waste management Strategic Plan 2015-2020

Ministry of Health

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Preface

Strategic planning for health care waste management (HCWM) covers not only the technical aspects related to waste management such as waste handling, storage, transportation, treatment, and disposal, but also capacity-building and awareness creation. It is prudent to note that success in waste management can occur when the staff members working in the health sector dedicate themselves to surmounting the challenges they experience in the areas mentioned.

To confront these challenges, this national strategic plan has been developed to provide viable technical options as well as a roadmap for the management of health care waste (HCW) in Kenya for the next five years.

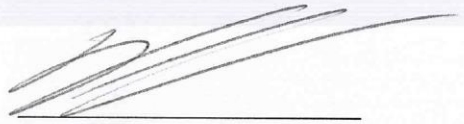
This renewed focus on HCWM in Kenya is an initiative of the Ministry of Health (MOH) together with its development partners—notably PATH, the World Health Organization (WHO), the US Centers for Disease Control and Prevention (CDC), National Environment Management Authority (NEMA) and all the forty seven county health departments. This is in a bid to domesticate the 2012 environment policy as well as ensure conformity to the new constitutional dispensation, which provides for each person's entitlement to a clean and healthy environment and a reasonable standard of sanitation. This strategic plan brings out a deliberate strategy aimed at strengthening the management of HCW within both hospitals and community settings in order to improve public health and realize a sustainable environment.

The immediate benefit of implementing this plan is to reduce the risk of transmission of infections likely to be acquired from poor HCWM, such as HIV/AIDS, hepatitis B, and other health care-associated infections as well as improve the environment for sustainable development. The plan provides feasible options of applying the best technologies and best practices for the management of HCW.

The Ministry, therefore, encourages the use of appropriate, safe, and cost-effective methods and techniques to segregate, contain, transport, treat, and dispose of HCW.

In this regard, therefore, I wish to call upon all the stakeholders to join hands with the Ministry of Health in ensuring consistent support for the successful implementation of this strategic plan.

Finally, the Ministry is grateful to its staff, strategic development partners, and other stakeholders in the area of health care waste and other wastes for their contributions either technically or financially toward the development of this plan.



James W. Macharia
Cabinet Secretary

Foreword

This Health Care Waste Management Strategic Plan 2015 - 2020 was developed as a result of the lapsing of the 2008 – 2012 Health Care Waste management Plan. Additionally, this plan came into being following the need to conform to the new dispensation as well as strategically and professionally manage healthcare waste arising from the healthcare industry in order to safeguard the health of healthcare workers from the risks and infections associated with such wastes. Management of wastes arising from health care installations is a requirement necessary for the country to attain environmental sustainability as envisioned in the Kenya's Environment Policy. The plan is therefore a derivative of the healthcare waste management policy and Guidelines as well as the infection prevention policy.

The emergence and re-emergence of diseases such as HIV/AIDS, multi-drug resistant TB, hepatitis B and hepatitis C with high per capita consumption of medical commodities and subsequent generation of hazardous waste has made the development of this strategic plan inevitable. In addition, large volumes of potentially hazardous waste can pollute the environment and consequently be injurious to health. This strategic plan will go a long way in providing guidance on ways of how to plan, budget and implement appropriate priorities in order to realize sound and professional management of healthcare waste. The plan is a forward thinking document developed in line with the Kenya's Health Sector Strategic Plan.

This strategic plan is therefore a guide and reference necessary to provide direction to the National strategic health services programs as well as the county governments in formulation of their HCWM operational plans. Among the national strategic health services programs include among others the Port health services, the national health referral services, other national health institutions or strategic programmes and the wider healthcare industry in the country. It is envisaged that it will bring prioritization and standardization in matters of health care waste at both the National and County levels. It is therefore envisioned that all partners and stakeholders plan, budget and finance to address the challenges associated with management of health care waste as well as support dissemination of this strategic plan.

Dr. Khadijah Kassachoon
Principal Secretary

Acknowledgements

The development of the National Health Care Waste Management Strategic Plan was a concerted effort that involved many individuals and partner institutions over the 2013 to 2014 financial year. The plan development was a participatory process that involved a number of tailored task force meetings and retreats as well as one consultative forum. The Ministry of Health, Division of Environmental Health acknowledges the contribution of those individuals and institutions who participated in the development of this national strategic plan, including:

- Centers for Disease Control and Prevention (CDC)
- National Environment Management Authority (NEMA)
- Kenya Medical Training College (KMTC)
- Kenya Medical Research Institute (KEMRI)
- Ministry of Health (MOH)
- Kenyatta National Hospital (KNH)
- PATH
- University of Nairobi (UON)
- World Health Organization (WHO)

Our strategic partners played an important role in providing the financial and technical resources necessary to complete this strategic plan. Indeed, the Ministry is very grateful to both individuals and organizations whose support and commitment made this strategic plan a reality. In particular, we wish to thank Dr. D. Kimani and Mercy Njeru from the CDC Kenya Country Office for the financial and technical support provided. In addition, we thank Mr. Fred Okuku, among other staff from PATH, for providing financial, material, and technical support. Furthermore, special thanks goes to Mr. Solomon Nzioka from the WHO Country Office for being the co-convener of the HCWM technical working group (TWG) and providing valuable technical support.

The Ministry greatly values the contributions of each member of the task force and its secretariat for the tireless efforts that ensured a professionally sound strategic plan. Special appreciation therefore goes to: Rose Mokaya, Samuel Okuche, Gamaliel Omondi, Michael Mwania, Jackson Muriithi, and Susan Otieno (MOH); Jemima Katama and Bernard Runyenje (KNH), Janet Shauri and Mary Kinoti (UON).

The secretariat members made up of Mr. Lolem Lokolile (MOH); Sophie Matu (KEMRI), Gladys Ng'eno (PATH); Adriane Berman (PATH-Seattle) and Charles Obiero (KMTC) provided the necessary lead technical support through the entire development process of the strategic plan and deserve special acknowledgment. Thank you all.

Special acknowledgements to Dr. Kepha Ombacho – Director of Public Health, Division of Environmental Health for steering the process developing the strategic plan.

Dr. Nicholas Muraguri
Director of Medical services
MINISTRY OF HEALTH

Acronyms

AIDS	acquired immunodeficiency syndrome
ARV	antiretroviral
CBHC	community-based health care
CDC	Centers for Disease Control and Prevention
CHEW	community health extension worker
CORP	community-owned resource person
DFRD	District Focus for Rural Development
DHMB	District Health Management Board
EMCA	Environment Management and Coordination Act of 1999
FBO	faith-based organization
FIF	facility improvement funds
HAI	health care-associated infection
HAV	hepatitis A virus
HBC	home-based care
HBV	hepatitis B virus
HCW	health care waste
HCWM	Health care waste management
HIV	human immunodeficiency virus
HMIS	health management information systems
IEC	information, education, and communication
IPC	infection prevention and control
KEBS	Kenya Bureau of Standards
KHSSP III	Kenya Health Sector Strategic Plan III 2012–2018
KMTC	Kenya Medical Training College
M&E	monitoring and evaluation
MEA	multilateral environmental agreement
MOH	Ministry of Health
NEMA	National Environment Management Authority
NGO	nongovernmental organization
PEPFAR	President's Emergency Plan for AIDs Relief

PHC	primary health care
PPE	Personal Protective Equipment
PPP	Public-Private Partnerships
OJT	on-the-job training
SOP	standard operating procedure
TOT	Training of Trainers
TWG	Technical Working Group
USAID	United States Agency for International Development
WHO	World Health Organization

Executive Summary

The National Health Care Waste Management Strategic plan is intended for use by health managers and programme officers across the health sector (including those in the private health sector) and partners as guidance in planning, implementing, and monitoring the activities of HCWM in health facilities in Kenya.

This plan describes the situation of HCWM on the basis of a desk review conducted to collate the findings of three rapid assessments on HCWM during the 2008 to 2012 plan period. The assessments were carried out by the MOH, the World Bank Health Sector Support project, the United States Agency for International Development (USAID) (on environmental compliance in HCWM in Kenya), and PATH (on HCWM financing in 2013).

The devolution of health services to counties can give a renewed impetus from the MOH and other stakeholders providing the desired opportunity of addressing the issues of HCWM. A holistic approach has been recommended to include clear delineation of responsibilities, occupational health and safety programmes, waste minimization, and segregation. This document will provide viable options to address the challenges encountered in planning for HCWM in Kenya.

The recommendations proposed are as a result of discussions and consultations with the various stakeholders and representatives from counties across the country under the leadership of the National Working Group on Health Care Waste Management covered under the following thematic areas:

1. Revise legal and regulatory framework to provide guidance to health care managers on minimum operation requirements.
2. Standardization of HCWM practices in all health care facilities in all the counties.
3. Financing for implementation of HCWM plan of action in order to reduce if not eliminate infection transmission through improper waste management practices.
4. Capacity-building of health care workers in order to bring about the envisaged uniformity in the health sector to desired policy changes; both for the national government and county government.
5. Operational research in pollution reduction through the development or adoption of environmentally friendly technologies that is appropriate for Kenya.
6. It is also the endeavor of the MOH in counties to drive a monitoring and evaluation (M&E) process that shall guide the implementation of the action plan.

It is envisaged that the implementation of this plan over the next five years will result in improvement and sustainability of HCWM in health care facilities and reduce risks and hazards associated with poor HCWM in the community. The counties and national government will develop annual work plans as appropriate to ensure the challenges of HCWM in the context of global changes in technology and practice.

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Chapter 1. Introduction

Organization of health systems in Kenya

Population	43.18 million
Number of counties	47
Total number of health facilities	306 hospitals and 191 nursing homes—public hospitals and sub-district hospitals—158, FBO/ NGO—74 and private—74 (MOH, 2006)
Number of national referral hospitals	16
Number of provincial hospitals	9
Number of district hospitals	138
Number sub-district hospitals	136
Other hospitals	242
HIV prevalence	7.1% (KAIS 2014)

E-health Kenya facilities 2011

The health sector has facilities ranging from the national referral and provincial hospitals to the district and sub-district hospitals, which provide integrated curative care, rehabilitative care, and supportive activities for peripheral facilities. Recently, the MOH has shifted toward decentralization of health services as part of the broad policy framework. In 1984, the country was transformed through the District Focus for Rural Development (DFRD) programme, which decentralized most government services including health systems management to the district level through District Health Management Boards (DHMB). These boards were created in 1992 to represent community interests in health planning, coordination, and implementation of projects in public facilities at the district level.

To make health management boards and health facility committees active, the Exchequer and Audit (Cap. 412) was amended to create a health care service fund whereby 75%of the revenue generated is utilized by the collecting facility and 25% is directed to the source districts to support primary health care activities at the community level.

Health care services in Kenya are inclusive of government-managed facilities through the Ministry of Medical Services and the Ministry of Local Government, mission- or faith-based organizations (FBOs), and privately managed organization. The vision of the MOH is to create an enabling environment for the provision of a sustainable, high-quality health care system that is acceptable, affordable, and accessible for all Kenyans. The government is a major player in health services provision; it owns slightly more than half of health facilities, while the rest belong to private organizations which are classified as for-profit or not-for-profit.

The overall mandate for the health services promotion in Kenya is vested in the MOH under the Public Health Act, Cap 242 of the Laws of Kenya.

This mandate is also placed under various subsidiary legislations dealing with specific areas through various boards and councils which regulate the performance of services and institutions and of health workers in general.

Kenya's third Health Sector Strategic Plan (KHSSP III 2012–2018) defines a new approach in the way the sector will deliver health care services to Kenyans. The KHSSP III aims to improve the health and well-being of all Kenyans, based on a lifecycle approach that ensures each age cohort receives health services according to its needs. The plan expects to achieve this goal through selective, cost-effective service package interventions for each age cohort that is likely to result in health improvement in the overall population. The proposed structure of the health services delivery system is hierarchical in nature and can therefore be discussed under lifecycle cohorts and four health-delivery tiers.

Therefore, all efforts to improve health-sector performance, irrespective of the approved provider running it, are ultimately geared towards improving people's health. Stakeholders in the health sector are many and they range from other government ministries, private-sector institutions including non-governmental organizations, professional associations, and development partners. The reorganization of health services through the KHSSP III aims at improving service efficiency and effectiveness at level one.

Management of HCW is an integral part of hospital sanitation and infection control. Infectious HCW contributes to the risk of nosocomial infections, putting the health of medical workers and the community at risk. Proper HCW practices should be strictly followed as part of a comprehensive and systematic approach to hospital sanitation and infection control. Harmonization of health systems, especially on HCWM, can be an asset if it is enforced in all health-care-providing institutions. Efforts by government institutions and development partners namely; WHO, PATH, CDC, and the World Bank, among others, are so far commendable. These partnerships have provided the required financial support to HCWM implementation, an area that has perennially been neglected. This plan reflects the integral efforts that are necessary to set up safe and environmentally sound HCWM practices acceptable by the national environmental legislations.

Rationale for HCWM strategic plan

Health care settings produce infectious waste that may lead to HAIs and HIV/AIDS for the health care workers, waste handlers, and patients. HAIs have been a major contributor to the burden of morbidity and mortality in the developing world. In Kenya, the actual burden of HAIs has not been accurately quantified, but it is projected to account for about 10% to 25% of hospital admissions in government health facilities and 2.5% of HIV infections in health care workers, 32% of hepatitis B cases and 40% of hepatitis C cases (WHO 2010). In addition, it is important to note that viral haemorrhagic fevers (e.g., Ebola) and multidrug drug resistant TB pose a great threat to health workers and the general public.

The MOH Kenya has made progress toward addressing the problem of HCWM. Despite some challenges, some of the accomplishments the MOH has achieved include:

- The development of the National Health Care Waste Management Plan 2008 to 2012.
- National Guidelines for Safe Management of Health Care Waste 2011.
- Development of the Injection Safety and Waste Management Policy.
- Development of the Injection Safety and Waste Management Policy Communication Strategy.
- The development and implementation of programmes for injection safety and medical waste management.

However, amidst these many efforts and gains, many components of HCWM such as training, M&E, waste treatment equipment, standard operating procedures (SOPs), and provision of commodities still need to be strengthened at all levels of health care service delivery.

To focus its efforts in addressing the problem of HCWM in-country, the MOH, with support from CDC - Kenya through PATH, has undertaken the development of a national strategic plan for HCWM in Kenya for the period 2015–2020 that will address priority strategies of HCWM focusing on systems strengthening in integrating HCWM to health programmes in reference to the WHO health system building blocks. The proposed strategies and activities in the strategic plan will also guide the MOH and partner programmes supporting HCWM in the country.

Development process of the national HCWM strategic plan

- In 2008, the MOH developed a five-year National Health Care Waste Management Plan (2008 to 2012) that guided the activities on HCWM in Kenya. Following the elapsing of the plan period, the national TWG on HCWM exercised its mandate and embarked on the process of reviewing this plan. A committee was formed to come up with a strategic plan to guide the country for the next five years in HCWM as per international guidelines and standards in tandem with the Kenyan Constitution. The implementation of the plan ending 2012 was extended for two years to allow for the development of a new strategic plan.
- A TWG meeting was held in September 2013, and nominated a 13-member task force drawn from TWG membership to lead the review process. The task force held meetings in October and November 2013 to draft the roadmap for the revision of the plan.
- In April 2014, the task force members held a three-day retreat at Hotel Cathy in Nakuru to review the implementation status of the 2008 to 2012 plan, draft an outline of the strategic plan, and come up with a draft 2015 to 2020 strategic plan. During this retreat, a secretariat of four persons was also nominated to collate the ideas of the meeting and consolidate inputs from members and come up with draft 1.
- From June 23 to 24, 2014, another task force meeting was held in Nakuru Midlands Hotel to review draft 1 for the strategic plan and come up with draft 2. During this meeting, key strategic areas were agreed upon and the secretariat was tasked to conduct a desk review to finalize draft 2 before sharing it with the task force members and TWG membership before presentation to the stakeholders.
- The stakeholder forum for counties and other partners was held in October 2014 to consolidate input.

Chapter 2. Legal and Policy Framework for Waste Management

Kenya has comprehensive national laws, policies, and regulations relating to environment and particularly waste management. The provisions made for Environmental Management and Coordination regulations (Waste Management Regulations) 2006 apply to biomedical waste management. Furthermore, the National Injection Safety and Medical Waste Management Policy 2007, and Infection Prevention and Control (IPC) Policy and Guidelines 2011 were among the first policy documents giving policy direction to the health sector to manage waste. Other than the constitution, there are also a number of legal statutes with provisions on waste management, including:

- The Public Health Act Cap 242.
- The Occupational Safety and Health Act 2007.
- The Environment Management and Coordination Act, 1999.
- The Food, Drugs and Chemicals Act, Cap 254.
- Relevant professional Acts.
- Other relevant Acts and international instruments, which govern the rights of the community, patients, and health care workers to ensure a safe and sustainable environment.

International agreements

Kenya is a signatory to many agreements and conventions on environmental management. These include support for the provisions of Agenda 21 amongst other declarations and statements of principle, such as the Rio Declaration in 1992 on Environment and Development. Kenya is also party to the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal 1992*, the *Minamata Convention on Mercury*, and the *Stockholm Convention* for Persistent Organic Pollutants (POP's) 1972.

Kenya Constitution 2010

The promulgation of the Kenya Constitution 2010 marked an important chapter in Kenya's environmental policy development. Hailed as a green constitution, it contains elaborate provisions with considerable implications for sustainable development. These range from environmental principles and implications of multilateral environmental agreements (MEAs) to the right to a clean, healthy environment (article 42), and the highest attainable standard of health (article 43 (i)) enshrined in the expanded Bill of Rights, chapter four. It also embodies a host of social and economic rights of an environmental character, such as the right to water, food, and shelter, among others. Article 70: (1) If a person alleges that a right to clean and healthy environment recognized and protected under Article 42 has been, is being or is likely to be, denied, violated, infringed, or threatened, the person may apply to a court for redress in addition to any other legal remedies that are available in respect to the same matter. This therefore gives the government the mandate to ensure that the rights of the Kenyan people are protected and upheld.

Existing policies on health care waste management

Sessional Paper No. 6 of 1999 on Environment and Development

In 1999, the Government of Kenya produced the Sessional Paper No. 6 on Environment and Development. The goal of the policy was to integrate environmental concerns into the national planning and management processes and provide guidelines for environmentally sustainable development. The policy paper identified areas requiring action, which included the development of a comprehensive waste management policy, guidelines, and standards.

Related policies

The environment policy of 2012, among other comprehensive legal instruments, gives a broad statement on a number of key areas that have an impact on human health. In the policy, issues of health are captured in chapters five and six. Chapter five is concerned with the issues of environmental stewardship, which include climate change, disasters, the sustainability of human settlements, **waste management including management of hazardous wastes and radioactive wastes**, energy, gender, HIV/AIDS, and youth.

The Environment Management and Coordination Act of 1999 (EMCA) is an Act of parliament that provides for the establishment of an appropriate legal and institutional framework for the management of the environment. The Act allows the minister in charge of environment to announce standards, regulations, and guidelines for the proper management, conservation, and protection of the environment.

The Environmental Management and Coordination (Waste Management) Regulations 2006 is the government's legal instrument that deals with waste management in Kenya. These waste management regulations apply to biomedical waste by virtue of their composition, which includes several of the substances listed as hazardous waste.

There is a need to put in place appropriate interventions to protect human health as well as create opportunities for employment and wealth creation in the subsector.

The interventions could be in the form of developing a comprehensive waste management strategy or amending the current waste regulations of 2006 to expand the scope of biomedical wastes.

Linkage with the Kenya Health Policy 2012 to 2030

The Constitution of Kenya 2010 through the expanded Bill of Rights has mandated the government to provide equitable, affordable, and quality health care of the highest standard to all its citizens. This is to be achieved through the implementation of appropriate policies and programmes within the health sector.

The Kenya Health Policy 2012 to 2030, developed in line with the Constitution of Kenya 2010 and the Kenya Vision 2030, highlights six policy objectives that are health-sector priorities, including:

1. Eliminating communicable diseases.

2. Reducing the burden of non-communicable diseases.
3. Reducing the burden of injuries from violence and accidents.
4. Providing essential health services.
5. Reducing the health risk exposures.
6. Strengthening health sector collaboration with other sectors.

These objectives are highly relevant to waste management. As highlighted in the National Health Policy and the KHSSP III, strengthening collaboration with health-related sectors in waste management will be vital. It is therefore crucial that collaboration with sectors like environment, urbanization, and population, land, and housing is emphasized at all levels of implementation of this strategic plan.

To achieve these objectives, the MOH has adopted the WHO's health systems approach as the core principle in guiding strategic investments into the health sector.

The six policy objectives and the health systems building blocks jointly form the policy framework within which one can view the national health system in Kenya. The national "policy intent" of providing equitable, affordable, and quality health care of the highest standard to all its citizens is thus anchored in this strategic plan.

WHO's definition of quality of care emphasizes, among other elements, the safety of both service seekers and service providers within the health service delivery settings. The profiling of and desire to eliminate communicable conditions in the national health policy and the emphasis on safer health care delivery settings within the Kenyan health system thus build a strong rationale and justification for a waste management strategy in the health sector and the general populace in the country.

Injection Safety and Medical Waste Management Policy 2007

The mission statement of this policy is to ensure the safety of health workers, patients, and the community and to maintain a safe environment through the promotion of safe injection practices and proper management of related medical waste. This is the first document of the Ministry that is explicit on the need to address HCWM problems. The policy objectives spell out the need to advocate for support and implementation of proper management of medical waste, among others.

Some of the guiding principles for the implementation of the policy include:

- Establishing organizational structures at all levels for the implementation of injection safety and related medical waste.
- Addressing the need for environmental protection through appropriate waste-disposal methods.
- Minimizing risks to patients, health workers, communities, and the environment through application of safe injection devices and sharps waste-disposal methods.
- Advocating for the strengthening of necessary human-resource capacity through training and sensitization for safe waste disposal.

One of the policy's key strategies is the need for appropriate financial mobilization and allocation of the components of injection safety and medical waste management for effective policy implementation. The provision of sustained supplies and equipment for waste management through a

strengthened logistics system addresses the need for commensurate investment in waste-handling requirements. Another unique strategy recommended by the policy is the advocacy of best waste-management practices through behaviour change communication as a key element in the strategy.

National IPC Policy

In recognizing the need to redesign and strengthen existing systems and implement evidence-based methods to tackle infectious diseases in health care settings and tackle the gradual development of drug-resistant infections, the MOH in 2010 developed the National Infection Prevention Policy. The policy was set with the purpose of preventing and managing HAIs by:

- Setting national standards for minimizing hazards that are associated with biological agents in health care settings.
- Providing guidance to health administrators, health care workers, and all stakeholders to observe these standards.

The policy was to be operationalized through the development of mid-term and short-term IPC implementation plans and the development of IPC guidelines for health care settings. This strategic plan is thus a key step in the implementation process of the national IPC policy in health care settings in Kenya.

Kenya Health Sector Strategic Plan III (KHSSP III), 2012–2018

This strategic plan is aimed at feeding into the KHSSP III (2012 to 2018) relevant strategic objectives. A key priority objective in the KHSSP III aligned to this strategic plan is priority objective five: *to minimize exposure to health risk factors*. Activities within the objective, which relates to HCWM, include *strengthening mechanisms for screening and management of conditions arising from health risk factors at all levels* and *increase collaboration with research-based organizations and institutions.*

Proper management of waste will also play a big role in working toward achieving the Ministry's priority objective one, which is *to eliminate communicable diseases*. As it is evidently known, a number of environmental factors, including poor waste disposal and poor sanitation, influence the spread of communicable diseases that may lead to epidemics. Proper management of HCW is very prudent to control and prevent the spread of a number of communicable diseases, including the disease vectors that may easily breed in poorly managed heaps of waste.

In providing the essential commodities necessary to effectively manage waste, the Ministry will also be achieving its policy priority objective number four: *providing essential health services.* This will be achieved if the strategic plan comes up with strategies to ensure sustained provision of supplies and equipment for waste management through strengthened logistics system and committed commensurate investment in waste-handling requirements.

Objective six in the KHSSP III, *strengthening collaboration with health-related sectors*, is crucial in management of waste. It aims to achieve this by adopting a "Health in all Policies" approach, which ensures the health sector interacts with and influences design implementation and monitoring

processes in all health-related sector actions. Sectors like environment, urbanization and population, and land and housing affect the choice of methods for treatment or disposal of waste, which if not carefully selected affects the health of the people, human settlement, and the overall environment integrity. As highlighted in the linkage between this strategic plan and the National Health Policy above, strengthening collaboration with health-related sectors in waste management will therefore be crucial.

To achieve these relevant objectives, the Ministry has adopted the WHO's health system approach as the core principle in guiding strategic investments into the health sector.

Chapter 3. Situation Analysis of HCWM in Kenya

The problem of health care waste

The WHO reports that HCW can cause serious harm if not managed properly. It further estimates that injections with contaminated syringes caused 21 million hepatitis B virus (HBV) infections (32% of all new infections), two million hepatitis C virus (HCV) infections (40% of all new infections) and 260,000 HIV infections (5% of all new infections). HCW contains toxic and hazardous substances that pose a threat to human health and the environment. Waste is known to cause damage to the nervous system and influences negatively the development of fetuses; promotion of various types of cancer; and air pollution, among others. In addition, health care activities generate significant amounts of hazardous waste such as mercury and expired pharmaceuticals, as well as large amounts of general waste, which is a source of risk to public health and environment.

HCW poses serious risks to human health and the environment; therefore, it becomes important to find suitable ways of handling, treating, and disposing of waste. The problem of HCW treatment and disposal is biologically focused toward minimizing the risk of disease-causing bacteria and viruses moving into the community.

Waste handlers risk getting infected by diseases such as HIV, HBV, and HCV from needle pricks while open burning produces harmful gases resulting in respiratory infections, cancer, and reproductive health problems.

The global situation

Globally, it is estimated that the amount of municipal waste generated will quadruple by year 2025. A total of 5.2 million people (including 4 million children) die each year from waste-related diseases (Akter et. al., 1999). Hospital waste, due to its content of hazardous substances, poses serious threats to environmental health (Levendis et al., 2001). The hazardous substances include pathological and infectious material, sharps, and chemical wastes (Askarian et al., 2004).

According to WHO, around 80% of HCW is nonhazardous and 15% is infectious. The remaining 5% is made up of sharps (1%), toxic chemicals, pharmaceuticals (3%), genotoxic, and radioactive waste (1%) (WHO, 2007). These traditional estimates are not consistent for many developing countries. For instance, 25% of HCW produced in Pakistan is hazardous, 26.5% in Nigeria, and 2%–10% in other sub-Saharan Africa countries (Azage and Kumie, 2010). In Kenya, due to poor segregation practices, it's common to find that up to 50% of waste in some facilities is infectious.

Developing countries have extremely limited options for safe waste disposal, especially for used and/or contaminated sharps that can cause injury and that are associated with significant risk of infection if indiscriminately disposed. Infectious waste can also include non-sharps (e.g., materials that have been in contact with blood, its derivatives, or other body fluids including bandages, swabs, or items soaked with blood). While generally less than 10% of HCW is considered infectious, many countries have poorly developed waste-segregation practices, leading to up to 50% of waste being categorized as infectious. This complicates waste management, since mixing sharps and other

infectious waste with non-infectious waste will increase the amount of waste considered infectious, which requires special handling for safe treatment and disposal.

Increasing population and technology advancement have facilitated expanded growth of health care and research institutions and resulted in increasing amounts of waste, which in turn, lead to opportunities and challenges in the management of HCW and general waste across the globe. Developed countries have various legislations and guidelines on waste management, making it a sustainable practice. Middle-income or developing countries are also on track to have relevant legislations, guidelines, and strategies necessary to manage waste and particularly HCW.

The Kenyan situation

A desk review was conducted to collate the findings of three rapid assessments on HCWM during the 2008 to 2012 plan period. The assessments were carried out by the MOH, the World Bank Health Sector Support project, USAID (on environmental compliance in HCWM in Kenya), and PATH (on HCWM financing in 2013).

In February 2013, a baseline survey report on HCWM for the World Bank-funded Health Sector Support project assessed five individual target facilities. The performance of all the facilities combined for each of the thematic areas was as follows: policies and procedures - 5.6%, management and oversight -16.2%, logistics and budget - 20%, training and occupational health -20%, and treatment and infrastructure - 9.4%. The overall average score for the level of HCWM performance was 14.24%. Based on a predetermined scoring criteria where a score of poor (0% to 49%); fair (50% to 74%) and good (above 75%), all the facilities scored poorly in all the thematic areas. The overall score for all the thematic areas combined was 14.24%.

An assessment of HCWM in 24 nongovernment health care facilities in Nairobi (Ngari W.N., University of Nairobi, 2011) found that no facility had an HCWM plan, and only 12.5% had a waste management team headed by a waste management officer. Waste segregation was found to be inadequate, as no facility had a general waste category, hence all the wastes produced within these facilities are considered hazardous and have to be treated prior to disposal. Waste storage facilities were not adequate, as they are easily accessible and not secure. Waste was transported manually in 88% of the health care facilities, putting the waste handlers at risk of injuries and infections. The only treatment method found to be in use within the facilities is incineration, and only 54% were found to have functioning incinerators. The incinerators are the De Montfort type, and there are no measures for emission control in place and can therefore be a source of air pollution, putting the community at risk of disease. Private collectors are used by two-thirds of the facilities to dispose their wastes, while the rest dispose of them within their premises by means of a landfill or open pit.

The study also found that knowledge of the health workers on HCWM was inadequate; however, their attitude was found to be positive. Three-quarters of the health workers re-cap used needles, they have low immunization rates against tetanus and HBV, and the rate of needle-stick injuries was low, at 6% in the previous month. Twenty-one facilities (88%) provide personal protective equipment (PPE) for their waste handlers, and the waste handlers had high levels of compliance in the usage of the PPE. Immunization status and needle-stick injuries among the waste handlers were also low.

Waste management in Kenya experiences monumental challenges. Systems required to safely manage medical waste from cradle-to-grave are still being formulated and marketed. Indiscriminate disposal of medical waste poses grave dangers to the service providers, the patients, and the community at large. In August of 2014, Kenya national carrier, Kenya Airways, suspended its flights to some West African countries in a preventative measure against the threat of Ebola outbreak.

Some facts:

- The Kenya Constitution 2010 guarantees every Kenyan a right to a clean and healthy environment.
- The Kenya Health Sector Strategic Plan has outlined minimization of exposure to risk factors as its policy objective No. 5.
- The MOH, with the support of partners, has developed the national IPC policy and national IPC guidelines to prevent and control nosocomial infections.
- The MOH has structured eight Inter-agency coordinating committees (ICCs) to facilitate the drive towards the Millennium Development Goals.
- Within the Sanitation ICC, there is a TWG on HCWM acting as a resource centre for the purpose of streamlining HCWM.
- Through the President's Emergency Plan for AIDS Relief (PEPFAR) project, the CDC has funded a five-year PATH/MOH project running from 2011–2015 whose goal is supporting sustainable HCWM systems. This project has activities in 59 selected health facilities in the country, which act as models for cluster facilities.
- The World Bank is further supporting five other facilities to model HCWM.

HCWM in the context of infection prevention and control

In the quest to provide quality health services, the health sector has outlined directions and standards through the national IPC policy and national IPC guidelines, along with other very useful instruments. These act as a guide to both national and county governments.

Indicators and evidence-based focus is being implemented to improve service delivery. Some of the key findings include:

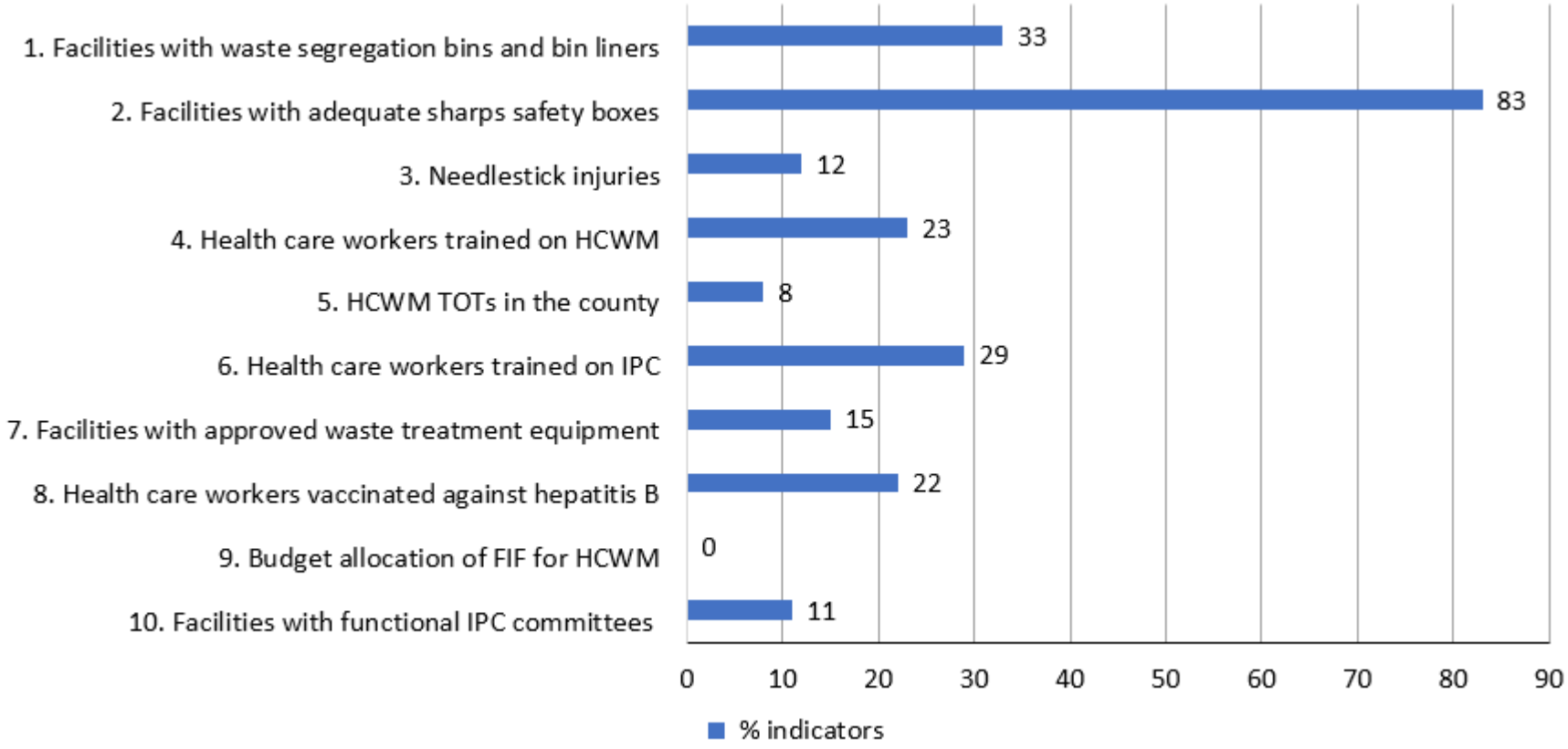
- A baseline survey conducted by MOH (World Bank HSSP) found that only 3% of the facilities sampled had standard operating procedures (SOPs) for HCW.
  - This study established that the overall average score for the level of HCWM performance was 14.24%.
- A study on environmental compliance in HCWM in GOK facilities supported by USAID found that all the 111 sampled facilities were non-compliant with regards to adherence to various GOK regulations and WHO guidelines.
  - The study found that medical waste is often comingled with general waste in an open burn area as the standard practice.
  - The study also found out that there is an existing framework for HCWM in Kenya; however, no systems are available.

- An independent study on HCWM financing by PATH found that at the national level, there was no explicit allocation of funds for HCWM and there were no explicit budget lines.
  - At facility level, this study found that the average cost of HCWM per patient was Ksh 12.6.

HCWM Baseline Indicators

The TWG held a consultative forum with the counties and compiled cumulative indicators on HCWM. The graph below summarises the indicators.

Figure 1. HCWM Baseline Indicators



Implementation status of National HCWM Plan 2008–2012 (key thematic areas)

Thematic area	Achievements	Gap
Legal and regulatory framework	• National Guidelines on Health Care Waste Management 2011 developed • Unit on waste management and pollution control formed at MOH	• HCWM policy not reviewed • Poor enforcement of the laws in health care settings
Standardization of HCWM practices	▪ Designated waste management officers in all facilities ▪ IPC committees available in district hospitals ▪ Standards for bins, PPE, and bin liners developed with Kenya Bureau of Standards (KEBS) ▪ Health facility plans developed for 52 health facilities ▪ Five pilot sites identified by MOH for modelling of HCWM practices through HSSSP – World Bank ▪ HCWM M&E tools developed- IPC checklist, HCW facility audit tool, waste-tracking tool; waste-quantification tools ▪ Facilities equipped with HCWM supplies through facility improvement funds (FIF), partners, and MOH ▪ Heath care facilities equipped with waste treatment equipment: ▪ Incinerators – 42 ▪ Macerators – 6 ▪ Autoclaves – 10 ▪ Shredders – 6	▪ Standards for HCWM commodities and PPE not disseminated ▪ M&E tools not disseminated ▪ No linkages with industry created for PPP on waste management ▪ No research on new technologies carried out
HCWM funding	▪ Stakeholders mapping for waste management done through the TWG ▪ FIF funding used for management of HCW	▪ National costing of waste management activities not done ▪ No budget line for waste management at the national level to guide county government in allocating financial

		resources ▪ No framework for development of PPPs on HCWM
Capacity-building	▪ TOT training curriculum developed ▪ On-the-job training (OJT) hand-out developed ▪ Awareness campaigns done in Nyanza and Western ▪ 302 TOTs trained in national and county levels	▪ Waste handlers not recruited in MOH as essential staff
Reduction of pollution associated with HCWM	▪ Advocacy on reduction of unnecessary injections at national programmes and county-level hospitals ▪ Pilot of non-burn technologies in progress in six facilities ▪ Incinerators with scrubbers installed in three health facilities	▪ Periodic evaluation of efficiency and emissions of HCWM incinerators not done
Monitoring and evaluation	▪ Audit, tracking, and assessment tools developed/adopted ▪ Waste recording tools developed – Waste quantification tool, burn log	▪ Integration of HCWM indicators into HMIS ▪ Baseline assessment on HCWM indicators not done ▪ Support supervision plans at all levels to ensure accountability at all levels not done ▪ Dissemination of HCWM tools not done ▪ Biannual assessment to measure improvement not done

Stakeholder Analysis

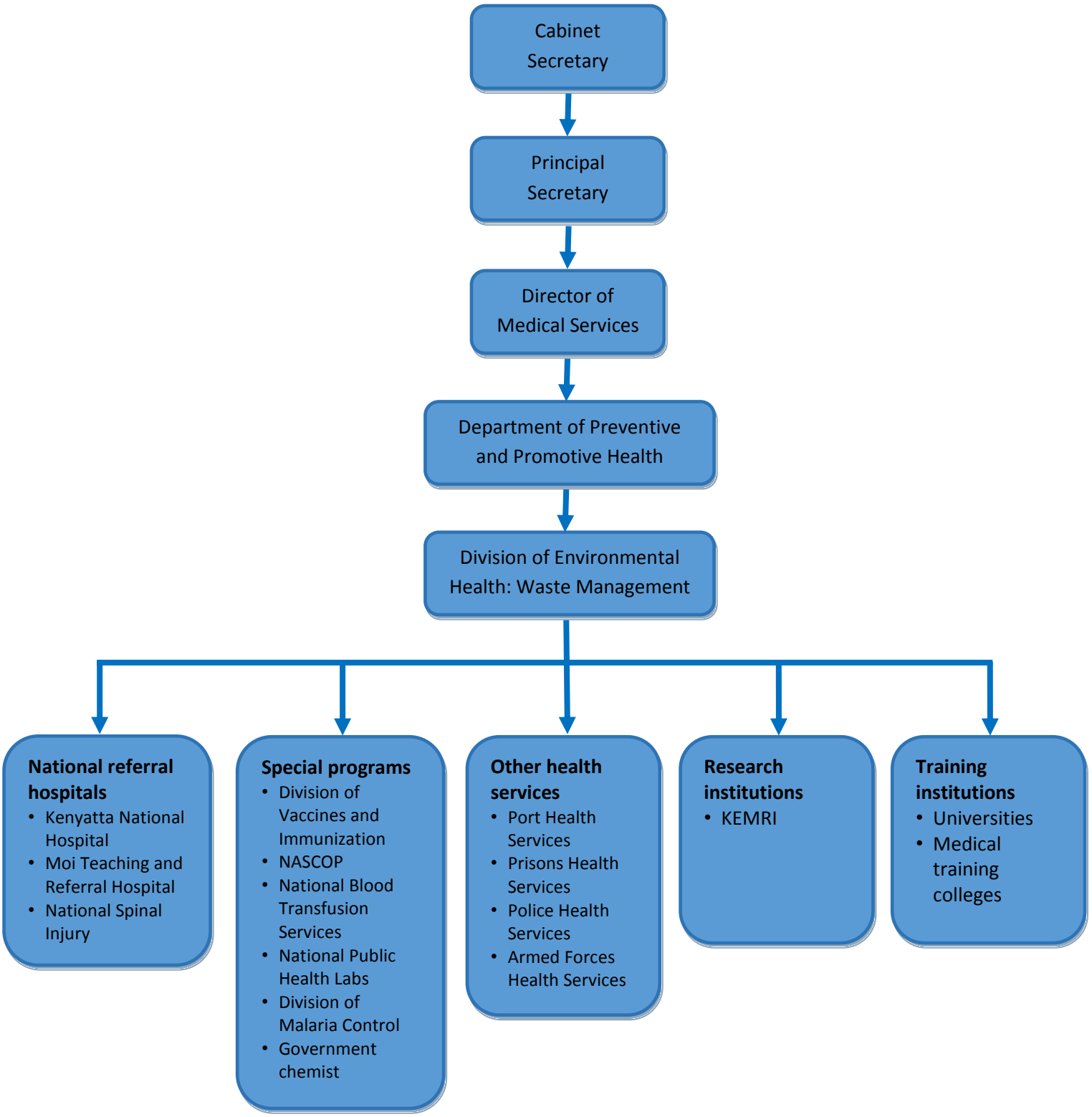
Stakeholder	Roles and Interests	Strategic Implications	Impact
GOK			
MOH	• Policy and guideline development • Training and capacity-building • Coordination • Surveillance • Resource mobilization • Implementation oversight sustainability	• Appropriate leadership for HCWM at all levels • Lobbying for resources for sustainability • Resource allocation for HCWM • Advocacy of HCWM agenda	High
Public health facilities	• Generators of waste • Implementers of the waste-management guidelines • Compliance to waste-management guidelines • Allocation of resources • Oversight of HCWM at facility level	• Exposure of HCW to the public and HCW • Environmental pollution • Safe practices in HCWM • Sustainability of supplies of HCWM commodities • Good governance and accountability of HCWM resources	High
Ministry of Environment	• Oversight role on safety of the general environment	• Appropriate stewardship on environmental protection and compliance to international and national conventions related to waste	High
County governments	• Policy and guideline implementation • Training and capacity-building • Coordination at the county level • Surveillance • Resource mobilization • Implementation oversight sustainability • Supervision of health facilities	• Appropriate leadership for HCWM at county levels • Resource allocation for HCWM • Advocacy and prioritization of HCWM agenda • Polluter pay principle • Good governance and accountability of HCWM resources	High
Ministry of Water	• Monitoring of water pollution • Protection of water sources	• Possible contamination of water bodies through seeping, leaching	Medium
Standards and regulatory bodies (NEMA, KEBS etc.)	• Regulations • Maintenance of the standards • Monitoring compliance • Enforcement of standards	• Lack of compliance • Enhanced implementation of the standards	High
Law enforcement agencies (Judiciary, police)	• Enforcement • Arbitration	• Improved compliance	Medium
Professional bodies and unions	• Advocacy • Health Care Workers' welfare	• Raising awareness	Medium
Partners			
1. Private Sectors			

Private hospitals	• Generators of waste • Implementers of the waste-management guidelines • Compliance to waste-management guidelines • Allocation of resources • Oversight of HCWM at facility level • Outsourcing/pooling of HCWM	• Exposure of HCW to the public and HCW • Environmental pollution • Safe practices in HCWM • Sustainability of supplies of HCWM commodities • Good governance and accountability of HCWM resources • Reduced environmental pollution • Enhanced efficiency and sustainability	High
Waste management companies	• Provision of waste-management services at commercial rates	• Opportunity for PPP • Risk of exposing the community to hazardous waste	Medium
Supplier/manufacturers commodities/ equipment	• Provision of waste-management commodities/equipment at commercial rates	• Opportunity for PPP • Provision of HCWM commodities/equipment that meet safety and quality standards	High
Manufacturers and suppliers of pharma-ceuticals and lab chemicals and reagents	• Provision of pharmaceuticals and lab chemicals and reagents at commercial rates	• Provision of pharmaceuticals and lab chemicals and reagents that meet safety and quality standards • Special handling and dispensing/disposal of pharmaceuticals and lab chemicals and reagents	High
2. Training and Research Institutions			
KEMRI	• Training and research • HCWM practices • Compliance and adherence	• Quality training • Provision of evidence base to guide policy • Potential to generate highly hazardous waste	High
Universities	• Training and research	• Quality training • Provision of evidence base to guide policy	Medium
KMTC	• Training and research	• Quality training • Provision of evidence base to guide policy	Medium
KEVIVAPI	• Training and research • HCWM practices • Compliance and adherence •	• Quality training • Provision of evidence base to guide policy • Potential to generate highly hazardous waste	High
ILRI	• Training and research • HCWM practices • Compliance and adherence	• Quality training • Provision of evidence base to guide policy • Potential to generate highly hazardous waste	High

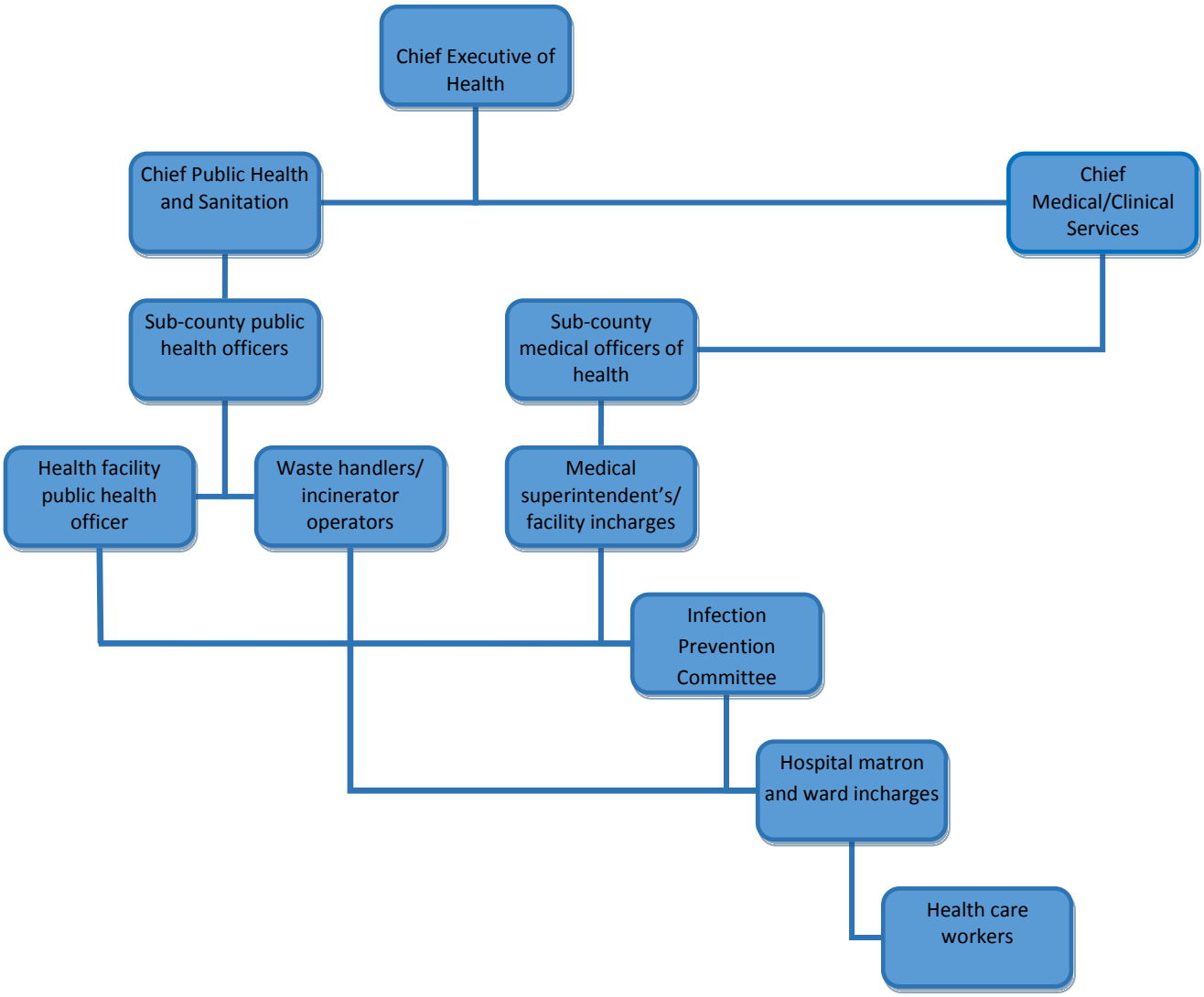
3. Development Partners			
UN agencies	• Provide technical assistance to MOH for policy and guidelines development	• Develop documents that meet international standards	High
Multi-lateral	• Provide technical assistance to MOH for policy and guidelines development • Provide financial support for health systems	• Develop documents that meet international standards • Improved HCWM systems	High
Bi-lateral	• Provide technical assistance to MOH for policy and guidelines development • Provide financial support for health systems	• Develop documents that meet international standards • Improved HCWM systems	High
NGO, FBO, and CSO	• Generators of waste (NGO/FBO) • Human rights advocacy • Whistle blowers for environmental pollutions	• Exposure of HCW to the public and HCW • Environmental pollution • Safe practices in HCWM • Sustainability of supplies of HCWM commodities • Reduced environmental pollution • Improve accountability and provision of services	Medium
Community /Public	• Quality health care services • Safe and clean environment	• Improve accountability and provision of services • Raising awareness on risks of exposure to HCW	Medium
Media	• Raising awareness on HCW and environmental pollution • Whistle blowers for environmental pollutions	• Improve accountability and provision of services • Public education on implications of HCW	Medium

Figure 2. Kenya HCWM Organizational Chart

National Level



County Level



SWOT analysis for HCWM in Kenya

Internal Environment Analysis		
Objectives	**Strengths**	**Weaknesses**
• Develop, disseminate, and review policies, guidelines, and standards on HCWM	• Framework, systems for HCWM exist • Governance structures available – HCWM unit in MOH, NEMA, TWG, and health facility • Legal and policy framework available • Standards for HCWM commodities exist • Guidelines and HCWM plan exist • Standards for small-scale incinerators approved by MOH	• Framework not operationalized • Some systems on HCWM are weak • Enforcement of the legal and policy framework • Dissemination and implementation of guidelines, standards, and HCWM plan
• To improve infrastructure, commodities, and equipment supply for HCWM	• Standards for HCWM commodities exist • Guidelines and HCWM plan exist • Standards for small-scale incinerators approved by MOH	• Dissemination and implementation of guidelines, standards, and HCWM plan • Bureaucratic procurement procedures
• Capacity-building on HCWM	• National and facility TOTs on waste management • Standardized package for training exists	• Attitude towards waste management
• Provision of adequate resources to increase efficiency of waste management		• HCWM not prioritized at all levels • Inadequate resources
• Promote best practices in waste-management processes	• Standards for HCWM commodities exist • Guidelines and HCWM plan exist • Standards for small-scale incinerators approved by MOH	• Dissemination and implementation of guidelines, standards, and HCWM plan • Inadequate resources • Attitude towards waste management
• Strengthen M&E	• DHIS exists • Data + exists • HCWM indicators have been developed	• HCWM indicators not integrated in MOH DHIS

External Factors		
Variables	**Opportunities**	**Threats**
• Develop, disseminate, and review policies, guidelines, and standards on HCWM	• Devolved government • Partners supporting HCWM • PPP's HCWM	• Planning process of devolved government • Lack of political will
• To improve infrastructure, commodities, and equipment supply for HCWM	• Partners supporting HCWM • PPP's HCWM • Integration of HCWM to all health programmes • New technologies on waste management available • Advocacy channels	• Competing priorities for resources
• Capacity-building on HCWM	• Partners supporting HCWM • Integration of HCWM to all health programmes	
• Provision of adequate resources to increase efficiency of waste management	• Devolved government • Partners supporting HCWM • Integration of HCWM to all health programmes • Advocacy channels	• Planning process of devolved government • Lack of political will • Competing priorities for resources
• Promote best practices in waste-management processes	• Partners supporting HCWM • Integration of HCWM to all health programmes • Advocacy channels	• Culture
• Strengthen M&E	• Integrating HCWM indicators in MOH DHIS	

Chapter 4. Strategic Approach

Vision

A safe and healthy environment devoid of HCW-related infections, hazards, and environmental pollution.

Mission

To promote high standards of HCWM in order to reduce the risk of exposure to infections, hazards, and environmental pollution and improve the safety of patients, clients, HCW, and the general public.

Goal

To strengthen HCWM systems in Kenya.

Strategic priorities

1. Review and revise policies, guidelines, and standards.
2. Improve infrastructure, commodities, and equipment supply.
3. Increase capacity-building, training, and awareness.
4. Ensure adequate resources to increase efficiency.
5. Promote best practices in HCWM systems.
6. Strengthen M&E and operational research.

Strategic Priority 1: Review and revise HCWM policies, guidelines, and standards

Objective 1: Strengthen policy and regulatory structures and mechanisms for HCWM

Expected Outputs

- Disseminated strategic plan on HCWM.
- Reviewed Injection Safety & HCWM Policy and the national HCWM guidelines.
- Updated legal frameworks for the implementation of HCWM at national and county levels.
- Clear organizational structures to be rolled out to the counties by the national government.

Objective 2: Strengthen the governance of HCWM activities across national and county levels

Expected Outputs

- The HCWM national and county coordination structures strengthened to continuously monitor, coordinate, and evaluate HCWM implementation.
- Partnerships between various stakeholders involved in HCWM strengthen operating in various counties.
- Strengthened leadership skills for HCWM at all levels of the waste-management systems.
- Tools to assist HCWM planning and management developed and disseminated.

Strategic Priority 2: Improve infrastructure, commodities, and equipment supply for HCWM

Objective 1: Improve infrastructure for HCWM system

Expected Outputs

- Improved HCWM equipment, supplies, and commodities.
- Technical teams to provide guidance on implementation of the HCWM strategy at different levels formed.
- Partnerships established between various levels of health care facilities for waste pooling.
- Revised future health facility plans to incorporate HCWM infrastructure in initial designs.
- Increased number of facilities with effective HCWM systems.

Objective 2: Standardize commodities and equipment for HCWM at all levels

Expected Outputs

- Specifications and standards for HCWM equipment and supplies updated and disseminated.
- Strengthened capacity at all levels to quantify HCWM commodity needs and develop annual procurement plans.

Objective3: Increase access of emerging HCWM technologies

Expected Outputs

- Linkage with researchers to identify new technologies in HCWM infrastructure created and fostered.
- Introduction of appropriate and effective technologies that reduce impact on the environment.

Strategic Priority 3: Increase capacity-building, training, and awareness of HCWM

Objective 1: Establish training/capacity-building strategies and programmes for all health care workers on HCWM

- Curriculum for HCWM including in-service and refresher training for all HCWs in line with emerging issues reviewed.
- HCWM training integrated in all levels of trainings.
- Create pool of trainers of HCWM in every county.

Objective 2: Increase advocacy, awareness, and behaviour change communication on HCWM

Expected Outputs

- HCWM integrated to MOH community strategy for health service delivery.
- HCWM job aids, information, education, and communication (IEC) materials, and media advertisements developed.
- Improved awareness on HCWM in Kenya.
- HCWM awareness-creation plan developed.

Strategic Priority 4: Ensure adequate resources to increase efficiency of waste management

Objective 1: Establish sustainable sources of funding

Expected Outputs

- HCWM budget integrated into the annual operational plan budget in the county and facility levels.
- County stakeholders' forum for HCWM created in all the counties.
- Budget code and line for HCWM created in the county level and national level.
- Consistent and adequate funding for HCWM activities.
- Kenya HCWM resource-mapping report.
- Framework for partner support in HCWM to include public-private partnerships (PPPs).

Objective 2. Allocating adequate finance and budget

Expected Outputs

- Cost of non-compliance to regulations - EIA/EA and EMCA 1999 costed.
- Budgeting for HCWM at county budgets.

- Business models for HCWM created.

Strategic Priority 5: Promote best practices in HCWM

Objective 1. Strengthen and implement HCWM guidelines, standards, and SOPs

Expected Outputs

- HCWM SOPs compiled and disseminated.
- Improved adherence to HCWM SOPs at all levels of service delivery.

Objective 2. Improve management support and oversight of HCWM

Expected Outputs

- Increased number of health facilities with outlined HCWM plan.
- Improved management of HCW.
- Develop a facility HCWM plan.
- IPC/HCWM committees established at all facilities.
- Management action to recurrent non-compliance.

Objective 3. Establish model facilities at different levels of health care delivery that demonstrate best practices of HCWM; set up and supported

Expected Outputs

- Model sites for HCWM established for learning and benchmarking in counties.
- Documented success stories on best practices and reduction of necessary injections.

Strategic Priority 6: Strengthen monitoring and evaluation for HCWM

Objective 1. Conduct a national baseline on waste management, midterm review, and end-term review for the national plan

Expected Outputs

- Baseline report on the status of HCWM in Kenya developed.
- Mid-term review on the implementation status of strategic plan conducted.
- End-term review on the elapse of the strategic plan conducted.

Objective 2. Develop M&E framework, plan, and tools for HCWM

Expected Outputs

- M&E framework for HCWM in Kenya developed and disseminated to all counties and Health records Information Officers (HRIOs).
- The Kenya HCWM M&E plan developed.
- M&E tools for HCWM developed and disseminated.

Objective 3. Integrate HCWM tools in the national HMIS

Expected Outputs

- HCWM indicators integrated into national Health Management Information System (HMIS).

Chapter 5. Strategic Plan Implementation Matrix

Kenya HCWM Strategic Plan 2015–2020								
Objectives	**Output**	**Timeline**					**Indicators**	**Responsibility**
		2015/16	**2016/17**	**2017/18**	**2018/19**	**2019/20**		
Result area 1: Review policies, guidelines, and standards on HCWM								
1. Strengthen policy and regulatory structures and mechanisms for HCWM	1. Strategy on HCWM disseminated	X	X				Number of counties reached	National Government
	2. Injection Safety & HCWM Policy, national HCWM guidelines reviewed		X	X			Revised Injection Safety and National Guidelines for safe management of HCW in Kenya	National Government
	3. Legal frameworks relevant to the implementation of HCWM at national and county levels reviewed	X	X	X			Revised legal frameworks for HCWM in Kenya	National Government County Government
2. Strengthen the governance of HCWM activities across national and county levels of government of the waste-management system	1. The HCWM national and county coordination structures strengthened to continuously monitor, coordinate, and evaluate HCWM implementation	X	X	X			Availability of National Coordination structure for HCWM Availability of County Coordination structure for HCWM	National Government County Government
	2. Partnerships between various stakeholders involved in HCWM strengthened	X	X	X	X	X	Partnerships forums created	National Government County Government
	3. Strengthen leadership skills for HCWM at all levels of the waste-management	X	X	X	X	X	HCWM natural leader's database created	National Government

Kenya HCWM Strategic Plan 2015–2020								
Objectives	**Output**	**Timeline**					**Indicators**	**Responsibility**
		2015/ 16	**2016/ 17**	**2017/ 18**	**2018/ 19**	**2019/ 20**		
	systems							County Government
Result area 2: Improve infrastructure, commodities, and equipment supply for HCWM								
1. Improve infrastructure for HCWM	1. Waste treatment and disposal system strengthened		X	X	X	X	Number of health facilities supported to improve infrastructure and waste-treatment systems	National Government County Government
	2. Pilot facilities at different levels of health care delivery that demonstrate best practices of HCWM set up and supported	X					Number of model/new facilities established	County Government
2. Standardize commodities and equipment for HCWM	1. Specifications and standards for HCWM equipment and supplies reviewed and disseminated	X	X	X			HCWM treatment equipment specifications (***incinerators, medical waste autoclaves, shredders, macerators***) developed KEBS standards for HCWM commodities disseminated	National Government County Government
	2. Number of collaborations with industry in waste recycling and alternative waste treatment	X	X	X	X	X	Number of industries involved in recycling medical waste	National Government County Government

Kenya HCWM Strategic Plan 2015–2020								
Objectives	**Output**	**Timeline**					**Indicators**	**Responsibility**
		2015/ 16	**2016/ 17**	**2017/ 18**	**2018/ 19**	**2019/ 20**		
3. Application of up-to-date HCWM technology	4. Linkage with researchers and manufacturers to identify new technologies in HCWM created and fostered	X	X	X	X	X	Research papers on HCWM treatment technologies presented in conferences	National Government County Government
	5. Application of technologies that protects patients, practitioners, and public from effects of HCW pollution/contamination utilized	X	X	X	X	X	Number of innovative technologies adopted for management of HCW	National Government County Government
Result area 3: Increase capacity-building, training and awareness-creation on HCWM								
1. Establish training/capacity building strategies and programmes for all health care workers on HCWM	1. Review the standard HCWM training curriculum for in-service, and refresher training for all HCWs in line with emerging issues	X	X				Revised standardized HCWM curriculum	National Government
	2. Partner with all professional and regulatory bodies in the country to approve HCWM practices in the curricula of all health care workers	X	X	X	X	X	Number of training curriculums approved	National Government
	3. Incorporate HCWM components into the pre-service curriculum for universities and other tertiary-level training institutions	X	X				HCWM training curriculum incorporated into pre-service trainings	National Government

Kenya HCWM Strategic Plan 2015–2020								
Objectives	**Output**	**Timeline**					**Indicators**	**Responsibility**
		2015/ 16	**2016/ 17**	**2017/ 18**	**2018/ 19**	**2019/ 20**		
	4. Number of HCWM-specific trainings conducted	X	X	X	X	X	Number of specific trainings conducted	County Government
2. Increase advocacy, awareness, and behaviour change communication on HCWM	1. Develop the awareness-creation plan	X					Awareness plan developed	County Government
	2. Develop materials for awareness creation	X					Number of IEC materials developed	National/County Government
	3. Disseminate HCWM information through IEC materials and mass-media sensitization	X	X	X	X	X	Number of sensitization forums conducted	County Government
	4. Adopt/develop job aids and SOPs on HCWM in health care settings	X	X	X	X	X	SOPs and job aids adopted/developed Best practices on waste management Improved OJT	County Government
	5. Integrate HCWM in the MOH Community Strategy for health service delivery	X	X				HCWM integrated into community strategy in the counties Number of community units practicing HCWM	County Government

Kenya HCWM Strategic Plan 2015–2020								
Objectives	**Output**	**Timeline**					**Indicators**	**Responsibility**
		2015/ 16	**2016/ 17**	**2017/ 18**	**2018/ 19**	**2019/ 20**		
Result area 4: Ensure adequate resources to increase efficiency of HCWM								
1.Establish sustainable sources of funding	1. Create a national and county budget line and code for HCWM	X					National budget and county line and code created	National Government County Government
	2. Create national stakeholders forum with linkages to counties	X	X	X	X	X	No. of counties with stakeholder fora	National Government County Government
	3. Integrate HCWM budget to annual work plan budget in the county and facility levels	X	X	X	X	X	No. of counties and facilities integrating HCWM in their Annual Workplans(AWP)	County Government
	4. Provide a framework for partner support in HCWM	X	X				PPP framework revised at national level	National Government
	5. Strengthen formation of PPPs of HCWM at national and county levels	X	X	X	X	X	Number of PPPs created at county level for HCWM management	County Government

Kenya HCWM Strategic Plan 2015–2020								
Objectives	**Output**	**Timeline**					**Indicators**	**Responsibility**
		2015/ 16	**2016/ 17**	**2017/ 18**	**2018/ 19**	**2019/ 20**		
	6. Undertake resource mapping for HCWM in all counties, health facilities, and communities	X	X				No. of resource-mapping reports from counties	County Government
Result area 5: Promote best practices in HCWM in health care service delivery points								
1. Strengthen and implement HCWM guidelines, standards, and SOPs	1. Disseminate the HCWM guidelines, policies, and SOPs to counties	X	X	X	X	X	Number of counties disseminated the HCWM guidelines and policies	National Government
2. Continuous capacity-building of the health care workers	1. Develop a training plan for orientation of new staff, interns, and annual refresher training at facility level	X	X	X	X	X	Number of counties with orientation plans for HCW	National Government County Governments
	2. Include waste handlers as essential positions within health care facilities and recruit staff for long-term employment to enhance consistency with safe operating practices	X	X	X	X	X	Number of waste handlers recruited as essential staff in the counties Number of counties that engage registered companies with trained waste handlers	National Government County Governments
	1. Availing supportive job aids to health care workers	X	X	X	X	X	Number of job aids developed Number of job aids distributed to counties and health facilities	National Government County Governments

Kenya HCWM Strategic Plan 2015–2020								
Objectives	**Output**	**Timeline**					**Indicators**	**Responsibility**
		2015/ 16	**2016/ 17**	**2017/ 18**	**2018/ 19**	**2019/ 20**		
2. Develop supportive infrastructure for HCWM	1. Establish technical teams that provide guidance on implementation of the HCWM strategy at different levels	X	X	X	X	X	Number of technical teams' capacity built	County Governments /National Government
	2. Establish partnerships between various levels of health care facilities for waste pooling		X	X	X	X	Number of counties carrying out pooled waste	County Government
	3. Preventive maintenance guidelines developed and disseminated	X	X	X	X	X	Number of health facilities undertaking preventive maintenance and periodic servicing of equipment	County Government
	4. Establish structures to ensure facilities comply with EIA/EA as per EMCA 1999	X	X	X	X	X	Number of counties with established structures for compliance with EIA/EA regulations and EMCA 1999	County Government
3. Ensure availability of adequate health care commodities and supplies	1. Disseminate the specifications for HCWM commodities	X	X				Number of counties with KEBS specifications for HCWM commodities	National Government
	2. Development of annual procurement plans for the counties	X	X	X	X	X	HCWM County Procurement Plans	County Government
3. Management support and oversight of HCWM	1. IPC/HCWM committees at county and facility levels	X	X	X	X	X	Number of counties and health facility IPC/HCWM committees created	County Government

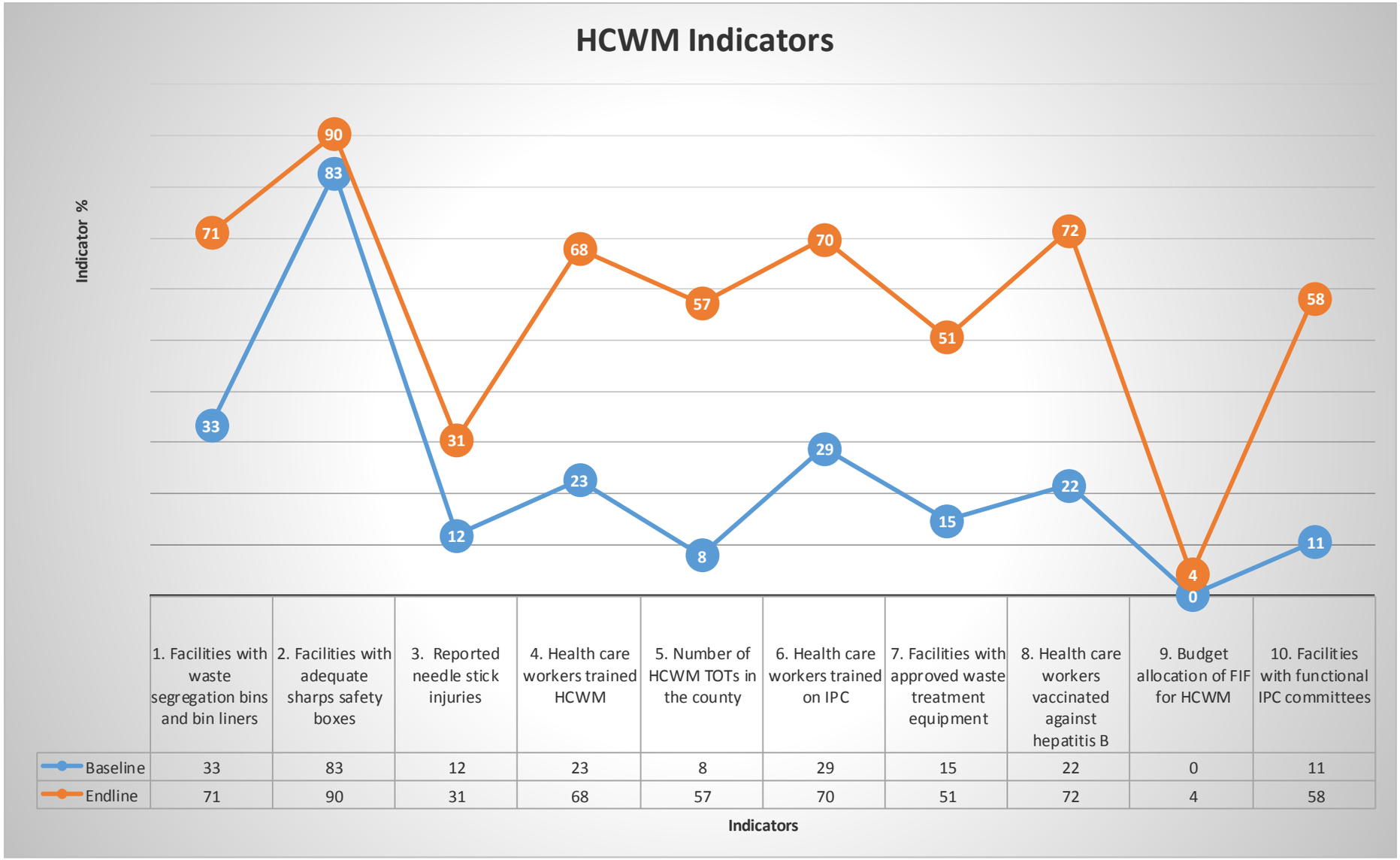
Kenya HCWM Strategic Plan 2015–2020								
Objectives	**Output**	**Timeline**					**Indicators**	**Responsibility**
		2015/ 16	**2016/ 17**	**2017/ 18**	**2018/ 19**	**2019/ 20**		
4. Improving health and safety for health care workers	2. Provide relevant vaccination for all health workers	X	X	X	X	X	Number of counties with health workers vaccination plans as recommended by national guidelines	County Government
	3. Establishment of medical surveillance systems according to OSHA	X	X	X	X	X	County medical surveillance system established	County Government
Result area 6: Strengthen M&E and operational research								
1. M&E plan for HCWM in Kenya	1. Develop and disseminate M&E plan for HCWM in Kenya	X	X	X			HCWM M&E plan developed Number of counties adopting the M&E plan	National Government
2. HCWM M&E tools	2. Develop and adopt and HCWM M&E tools	X	X	X	X	X	Number of HCWM M&E tools developed	National Government
	3. Disseminate M&E tools to the counties (tracking tools, facility audit, IPC checklist)		X	X	X	X	Number of counties where the HCWM M&E tools disseminated.	National Government
	4. Training, orientation and health workers induction on M&E tools and reporting	X	X	X	X	X	Number of HMIS and health workers trained on HCWM tools	National Government
3. Integration of HCWM tools in the national HMIS	1. Integrate HCWM indicators into national HMIS	X	X				Number of reportable HCWM indicators incorporated to HMIS	National Government
4. Availing resources for M&E activities	1. Create a budget for M&E in the HCWM budget up to 5%	X	X	X	X	X	Percentage of resources allocated to M&E	National Government

Kenya HCWM Strategic Plan 2015–2020								
Objectives	**Output**	**Timeline**					**Indicators**	**Responsibility**
		2015/ 16	**2016/ 17**	**2017/ 18**	**2018/ 19**	**2019/ 20**		
								County Government
5. Periodic M&E	1. Conduct a national baseline on waste management, midterm review, and end-term review for the strategic plan	X		X		X	HCWM baseline report Midterm review report End-term report	National Government County Government
6. Analysis and utilization of data to inform decision making	1. Review key indicators for waste management and disseminate to all the 47 counties	X	X	X	X	X	Influence policy and implementation on HCWM	National Government County Government
7. Build capacity for, and enhance operational research to improve HCWM	1. Enhancing collaboration between research institutions with other stakeholders	X	X	X	X	X	No. of collaborating research institutions and stakeholders No. of staff trained No. of forum held to identify priority areas	National Government County Government
8. Conduct operational research on HCWM	1. Baseline study on the status of HCWM in Kenya	X					Baseline report disseminated	National Government
	2. Performance evaluation on waste-management systems and equipment			X		X	Number of performance evaluations conducted for waste-treatment technologies	County Government
	3. Carry out studies on incinerator emissions			X	X		Number of treatment equipment emissions measured	County Government
	4. PPPs in HCWM	X	X	X	X	X	Number of stakeholder forums held	National Government

Kenya HCWM Strategic Plan 2015–2020								
Objectives	**Output**	**Timeline**					**Indicators**	**Responsibility**
		2015/ 16	**2016/ 17**	**2017/ 18**	**2018/ 19**	**2019/ 20**		
								County Government
	5. Establishment of pooled HCWM systems		X	X	X	X	Proportion of facilities practicing pooled HCW systems	County Government
	6. Evaluate the uptake of non-burn technologies				X	X	Feasibility studies conducted for non-burn technologies	National Government County Government

Service Delivery Data

Indicator	Baseline	Target Years 1-5					Cumulative Achievement
		1	2	3	4	5	
1. Proportion (%) of facilities with waste-segregation commodities • % with color-coded bins • % with color-coded bin liners • % of facilities practicing waste segregation	34	41	48	56	63	71	70
2. Proportion (%) of facilities using safety boxes for sharps management	83	85	85	87	89	90	90
3. Number of reported needle-stick injuries	12	15	19	23	27	31	31
4. Proportion(%) of health care workers trained on HCWM	22	33	42	51	59	68	68
5.Number of HCWM TOTs in the county	8	20	31	41	48	57	57
6. Proportion of health care workers trained on IPC	29	38	47	55	63	70	70
7. Proportion (%) of facilities with approved waste-treatment equipment	15	23	31	38	44	51	51
8. Proportion (%) of health workers vaccinated against hepatitis	22	35	45	54	63	72	72
9. Proportion (%) of budget allocation for HCWM in the county health budget	1	2	2	3	4	4	4
10. Proportion (%) of facilities with functional IPC/HCWM committees	10	20	30	40	50	58	58


HCWM Indicators
Indicator %
90
83
71
68
57
70
72
58
51
33
31
29
23
22
15
12
8
11
4
0
1. Facilities with waste segregation bins and bin liners
2. Facilities with adequate sharps safety boxes
3. Reported needle stick injuries
4. Health care workers trained HCWM
5. Number of HCWM TOTs in the county
6. Health care workers trained on IPC
7. Facilities with approved waste treatment equipment
8. Health care workers vaccinated against hepatitis B
9. Budget allocation of FIF for HCWM
10. Facilities with functional IPC committees
Baseline 33 83 12 23 8 29 15 22 0 11
Endline 71 90 31 68 57 70 51 72 4 58
Indicators

Appendix 1. Summary of Kenya's Healthcare System

Tier-One Services (Community Level)

This is the foundation of the service delivery system, with both demand creation (health-promotion services), and specified supply services that are most effectively delivered at the community level. In the essential package, all non-facility-based health and related services are classified as community services—not just the interventions provided through the Community Health Strategy as defined in NHSSP III. This strategy introduces innovative approaches for accomplishing these challenging but realizable targets. The approaches include:

- Establishing a level-1 care unit to serve a local population of 5,000 people.
- Instituting a cadre of well-trained community-owned resource persons (CORPs) who will each provide level-1 services to 20 households.
- Supporting every 25 CORPs with a Community Health Extension Worker (CHEW).
- Ensuring that the recruitment and management of CORPS is carried out by village and facility health committees.

The levels of action to support level-1 services at household, village, school, or congregation levels includes; organizational, coordination structures, entry steps to roll out the strategy, planning and management of operations, and linkages with facility-based health systems.

The activities at this level entail the following:

- Plan, implement, monitor, evaluate, and provide feedback on activities.
- Mobilize and manage resources.
- Undertake health promotion, hygiene, and lifestyle and care-seeking initiatives.

Tier-Two Services (Primary Care Level)

This is the first physical level of the health system, comprising all dispensaries, health centers, maternity / nursing homes in the country. This is the first level of care, where most clients' health needs should be addressed. Primary care levels provide the bulk of services and form the first level of contact with the community. This level should have primary health care committees with representation from local administrative levels. This level forms the main linkage between the community and the health system and they report to the location /sub-locational development committee on matters of health. The committee, in addition to the formal roles assigned to it through the various guidelines, should:

- Plan, implement, monitor, evaluate, and provide feedback on level-1 services.
- Mobilize resources for development of the health facility as well as supporting outreach and referral activities.
- Facilitate regular dialogue between the community and health service providers based on available information.
- Promote inter-sector collaboration.
- Organize the community for health action.
- Strengthen community involvement in decision-making process.

- Facilitate planning, budgeting, budget controls, and accountability, to ensure availability of all the resources needed for level-1services.
- Establish linkage between the health system and the community by helping to market the health facility to enhance its credibility based on quality of care and thus promote a culture of good health promotion at the community level.
- Use the services primary option when in need of care.
- Listen to and address complaints of clients.
- Coordinate the recruitment of CORPs and CHEWs.
- Convene monthly community health days for joint health action.

Tier-Three Services (County Level)

These are the first-level hospitals, whose services complement the primary health care level to allow for a more comprehensive package of close-to-client services.

A county health committee will be established to be responsible for health services in the county. The county committees shall be responsible for facilitating tier-two services by providing day-to-day support of health workers in their service delivery. At this level, the committee should:

- Plan, implement, monitor, evaluate, and provide feedback on activities for continuous improvement.
- Provide training and supportive supervision.
- Coordinate, collaborate, network, exchange ideas, and pool resources.

Tier-Four Services (National Level)

These are the tertiary level hospitals, whose services are highly specialized and complete the set of care available to persons in Kenya. This level has 16 referral health facilities for tier-three health institutions all over the country. There is one central administrative national level where policies, regulations, and national guidelines are formulated and reviewed in relation to the national health policy. The central level is responsible for:

- Developing strategic plans and implementation plans for lower-level action.
- Ensuring multi-sector and donor coordination in health and resource allocation.
- Ensuring equity of health services, quality assurance, and technical support.
- Building the capacity of districts in planning and action process.
- Ensuring health information is passed to the Kenyan populace.

Private and Faith-based Health Services

They provide health care services at various levels of health care service delivery, private and faith-based services to the community.

Home-based Health Care Services

Home-based care (HBC) health services in Kenya have been practiced through the primary health care / community-based health care (PHC/CBHC) since the Alma-Ata Declaration of 1978. The treatment for HIV/AIDS patients has been complicated by stigma and discrimination attached to the disease and the fact that HIV’s mode of transmission is surrounded by a lot of myths. Prolonged

hospital care for patients with HIV/AIDS puts too many constraints on the hospital budgets and compromises the resources that should be utilized on emergency cases.

Patients put on antiretroviral (ARV) drugs are not usually admitted to hospitals, but they take drugs home and therefore require adherence follow-up, nutritional support, spiritual support, and social support, among other things. Effective home-based care will help to decongest hospitals, where currently 65% of hospitals bed occupants suffer from AIDS-related illnesses. However, the community systems are faced with the challenge of coping with growing demand for care in the face of deepening poverty and dwindling resources.

In the new approach, the county health management teams will advocate for support by religious, government, and political leaders, other influential people, and nongovernmental organizations (NGOs) and CBOs for resource mobilization and allocation for tier-one services (community level).

Social mobilization through sensitizing and motivating social partners, individuals and health-related sectors, along with CBOs, NGOs, professional associations, and the private sector to work together in raising awareness and pooling resources. A clear organizational structure with well-defined roles and responsibilities of all sectors at all levels is necessary to ensure the success of level-one services.

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