

Abstract

Topic: Decarbonization in health care facilities, a case study of Kenya

Introduction:

The Ministry of Health (MOH) committed to is developing a sustainable resilient low carbon emission health system as part of country commitment in meeting emission targets of the Paris agreement. The Ministry has been implementing the non-burn technology which replaces diesel powered incinerators in country's health facilities. The Medical Waste Microwave project involves the supply and installation of a non-burn technology treatment medical waste microwave & shredder using non-burn technology medical waste treatment equipment in county health facilities. The equipment treats 250kg of waste per hour. The Technology is developed by AMB Ecostyryl Diffusion of Avenue Wilson 622-7012 Mon, Belgium. The equipment shreds the waste up to 30mm size and microwaves it for 2 to 3 minutes.

Broad objective of the project

- The project objective is to reduce exposure to health risks resulting from poor and inadequate treatment of health care wastes.

Specific objectives of the project

- To install and commission medical waste microwave equipment.
- To construct the housing units for the medical waste microwave equipment.
- To train end user technical manpower, up to the equipment operators
- To provide associated spare parts for each installed facility,
- To manage, and coordinate the implementation of the medical waste treatment system in the recipient counties.

Study Design: Implementation research

The study is adopting an Implementation research design which is a systematic approach to understanding and addressing barriers to effective and quality implementation of health interventions, strategies, and policies (WHO, TDR 2014)

During Phase two, a baseline of amount of medical waste generated in all 15 beneficiary counties will be established and also using the carbon tool developed by Aga khan university /Enebel project determine the amount of carbon emitted during the incineration of the wastes and at the end of the project calculate the amount of carbon reduction. Th project will also think of creating carbon sinks by planting trees within the hospital compound

Project implementation

The commercial contract for Phase I of the project between the then Ministry of Medical Services and AMB Ecostyryl, was signed on 28th January 2013. The Project sites included: KNH, MTRH, Nyeri, Embu, Nakuru, Mombasa, Machakos, Kisii and Kisumu and Kakamega. The project period for phase one was twenty-

four (24) months. The project commenced in October 2017. At the end of the contact period, nine (9) of the ten equipment were commissioned in May /June 2021. The equipment destined for Nyeri is yet to be commissioned as the equipment is not yet connected to main power supply.

Phase 2

Phase II was initiated by the Council of Governors through signing the Memorandum of Understanding (MOU) between the Council of Governors and the supplier (AMB Ecostyryl) on 18 October 2016.

The commercial contract for phase II between the Ministry of Health (MOH) and the supplier (AMB Ecostyryl) was signed on 18th May 2021.

The project sites for phase 2 of the project include: Mandera, Marsabit, Wajir, Trans- Nzoia, Makueni, Kitui, Meru, Bomet, Vihiga, Nyamira, Turkana, Migori, Narok, Taita-Taveta and Kericho. The project period for phase II is Thirty-six (36) months from the date of signing the contract.

Results

The daily medical waste produced from 50 health facilities amount to 125000kg approx. 125 Tonnes per day and 80 % is reduced through shredding and final end product is microwaved in 2-3 minutes.

- Waste volume reduction 80%
- To reduce spread of drug resistant micro -organisms into the environment.
- To reduce pollution through the release of pharmaceutical products i.e antibiotics and cytotoxic drugs.
- To reduce the pollution of waste water which ultimately pollutes underground water sources thereby affecting water quality.
- To reduce poisoning and pollution by toxic elements or compounds such as mercury or dioxins that are released during incineration.
- To reduce carbon emission in selected public health facilities in beneficiary counties
- To reduce air, water and soil pollution by clinical waste.

Expected project outcome:

Reduced Carbon emission on the roadmap to net zero emissions

References

References

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5. MOH – KEMRI Air Pollution Centre of Excellence
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