

**SHORT COMMUNICATION****INNOVATING SAFE AND SUSTAINABLE HEALTHCARE WASTE MANAGEMENT IN NEPAL'S HEALTH SECTOR – AN INNOVATION OF SMART AUTOCLAVE TECHNOLOGY**

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**ABSTRACT****Background**

This case study reflects innovations in healthcare waste management in two healthcare facilities in Sindhuli District, Nepal. HECAF360 has implemented this innovation under the leadership of the Ministry of Health and Population with the support of Plan International Netherlands/WASH SDG Innovation Fund, Health Care Without Harm, and Plan International Nepal. This innovation addressed the issue of improper healthcare waste management and the lack of monitoring mechanisms of waste treatment technology in Nepal.

**Methods**

This intervention focused on system implementation strategies through a participatory and learning approach, combined with creating an enabling environment that allows for transformative change and adoption of smart technology. Initially, a rapid assessment was conducted for the selection and estimation of the size of the technology, followed by the installation of a segregation system to separate infectious waste for autoclaving. This innovation includes the validated autoclave incorporating the standout feature of remote management capability and real-time technology monitoring. The logged data can be accessed via emails, memory drives, prints, and servers.

**Results**

This innovation has prevented open burning, reducing 61 kg of methane emission annually and 1500 CO<sub>2</sub>e. The amount of risk waste has decreased from 82% to 41%. Further, this technology has increased recyclables, resulting in the hospital earning 128 EURO/month at 100% occupancy, which can subsidize operating costs and pay for the care of 7 more inpatients or 73 outpatients.

**Conclusion**

The remote monitoring system has contributed to the technology's operation, monitoring, and maintenance with the goal of a safe and sustainable waste management system.

**Keywords:** Healthcare waste, Technology, smart autoclave, remote monitoring, open burning