



Exploring the Role of Religious Institutions in Collecting Pharmaceutical Waste

By: Ms. Geetika Chandwani, Development Programme Associate, *Religions for Peace*

Buddhism: As a bee gathering nectar does not harm or disturb the colour and fragrance of the flower; so do the wise move through the world (Dhammapada: Flowers, verse 49).

Healthcare and pharmaceutical waste management are a global concern. When poorly managed, all healthcare and pharmaceutical waste activities, including improper disposal of unused medicines and general waste, affect the environment, the community, and wildlife. Some industrialised countries, such as the United States and Japan, have the legal responsibility and systems to manage waste, including pharmaceutical waste¹. In recent years, police departments in south-central Pennsylvania, a state in the U.S. collected **5.51 tons of drugs** through Pharmaceutical Disposal Locations and converted them into electricity². In low and middle-income economies, pharmaceutical waste management receives little attention as this sector competes with other sectors of the economy for resources³. Since community leaders and religious institutions have been more successful in positively affecting recycling behaviour⁴ relative to municipal and education efforts, it is important and even crucial to explore the role of religious communities in supporting Pharmaceutical Disposal programmes. Faith communities act from a place of higher intentions, that allow and encourage oneness, community, love of the other, caring for each other. Encouraging pharmaceutical waste-reducing initiatives particularly in societies where religion strongly influences the socio-cultural landscape and day-to-day activities of public life will benefit the environment by lessening the need to extract resources and lower the potential for contamination.

Discarded drugs are a wasteful and costly problem. Non-adherence, death, and medication change are the leading causes of medication accumulation and consequent wastage⁵. Industrialised countries monitor the amount of hazardous waste generated and have organised structures for handling every type. However, the prevalence of unused medications is high in most countries. Non-steroidal and anti-inflammatory medications are among the most frequently wasted medications, and most of the public dispose of their expired medications in trash or toilets. An estimated **3% to 7%** of medications intended for patients go unused in the United States⁶, and such similar wastage could cost billions of dollars in other countries annually. Due to increasing quantities of waste sent to incineration, incinerators will emit more toxins and pollutants into the air making a more significant negative impact on the local air quality than a landfill would. While the government continues to search for ways to improve healthcare and waste management, it is crucial to have joint work among

¹ Miyazaki M, Une H. Infectious waste management in Japan: a revised regulation and a management process in medical institutions. *Waste Manag.* 2005;25(6):616-21. doi: 10.1016/j.wasman.2005.01.003. PMID: 15993346; PMCID: PMC7127074.

² [Discarded drugs and medicines converted into electricity - WFMJ.com](#), *21WFMJ*, March 20, 2018

³ Kwikiriza S, Stewart AG, Mutahunga B, Dobson AE, Wilkinson E. A Whole Systems Approach to Hospital Waste Management in Rural Uganda. *Front Public Health.* 2019 Jun 6;7:136. doi: 10.3389/fpubh.2019.00136. PMID: 31245343; PMCID: PMC6562563.

⁴ [Sacred Earth: Faiths for Conservation | Initiatives | WWF](#), *WWF*

⁵ [Implications of Discarded Weight-Based Drugs | National Academies](#), *National Academies*

⁶ Tchen J, Vaillancourt R, Pouliot A. Wasted medications, wasted resources. *Can Pharm J (Ott).* 2013 Jul;146(4):181-2. doi: 10.1177/1715163513490654. PMID: 23940464; PMCID: PMC3734908.



the public, healthcare providers, and various faith-based and private organisations to address medication waste adequately.

Lack of policies, public unawareness, carelessness, and/or illiteracy are other reasons for improper disposal of unused medicines that lead to adverse economic and environmental impacts. It is necessary to ascertain people's disposal practices and attitudes/beliefs concerning their recycling behaviour. Pro-recycling and pro-environmental messaging delivered by religious leaders play an essential role in their community concerning environmental conservation. For example, in Malaysia, some religious communities operate systematically, conduct recycling programmes, and use institutional structures as a conducive platform for recycling activities⁷. This brings a collective potential and helps expand such initiatives to a broader community. Religious institutions also have the advantage of their institutional structure as an established platform that can be used for Pharmaceutical Disposal programmes activities. The role of houses of worship such as mosques, temples, and churches, where worshippers of each religion congregate and where many community-based religious activities are conducted systematically, provides convenience for disposal on such platforms.

Government commitment and support are needed for universal, long-term improvement, although immediate action can be taken locally. Religious leaders can collaborate with foundations and non-profit organisations with medical waste management programmes and that are focused on educating and training proficient workers who would contribute their skills and efforts to pharmaceutical waste management. For example, PRISM Bangladesh Foundation, a non-profit voluntary development organisation, has been increasing its development activities through implementing various programmes, including medical waste management and projects sponsored with the help of UN organisations like UNDP, UNICEF, UNDRO, and national agencies and international organisations⁸. Training could be provided to poor and marginalised social groups such as waste cleaners, waste pickers, collectors, and recycling waste operators skilled in separating and collecting waste.

Pharmaceuticals are essential for human health, but they become a concern when entering the environment, which occurs when residues are excreted after consumption or when unused medications are discarded improperly. Drug residues find their way into rivers, lakes, and even drinking water and can have devastating effects on both aquatic and human health⁹. Although the risks associated with hazardous medical waste and the ways and means of managing that waste are relatively well known and described in manuals and other literature, the treatment and elimination methods require a partnership between government, environmental and healthcare scientists, and education and advocacy from health professionals and religious leaders in all stages of the pharmaceuticals' lifecycle. A long-term solution requires individual behaviour change, and faith leaders are able to influence behaviour change at multiple levels, with a greater likelihood of success.

⁷ Zeeda Mohamad, [The role of religious community in recycling: Empirical insights from Malaysia - ScienceDirect](#), *ScienceDirect*

⁸ [About Us | PRISM Bangladesh Foundation](#), *PRISM FOUNDATION*

⁹ Yazan Akkam, Derar Omari, Hassan Alhmoud, Mohammad Alajmi, Nosaibah Akkam, Islam Aljarrah, Assessment of Xenoestrogens in Jordanian Water System: Activity and Identification, *Toxics*, 11, 1, (63), (2023).



Religious organisations hold a unique position of influence within communities, and together with their supportive groups serve a vital function in society, and their encouragement towards pharmaceutical waste-reducing initiatives will benefit the environment. Each religious community has its own worldview on the relationship between human beings and the natural environment and the critical role of their community in environmental conservation¹⁰. Islam and Christianity emphasise the role of human beings as stewards of nature. Both Hinduism and Buddhism believe in the idea of Karma, where an act of goodness towards nature will sow goodness in return. Jainism is fundamentally a religion of ecology and has turned ecology into a religion. Jains believe that plants, animals, and even non-living things (like air and water) have souls, just as humans do, and they practice the strict code of non-violence against every living thing to avoid bad karma. Since religious communities' recycling/waste disposal activities are motivated primarily by a religious moral responsibility, ethics, the mandate that all religious communities are stewards of the earth, this small contribution to ensuring medical waste is properly disposed of and used for energy etc., is a part of the overall care of communities, cities, nations, the Earth itself and all sentient beings.

¹⁰ [Religions and environmental protection | UNEP - UN Environment Programme](#), *United Nations Environment Programme*



REFERENCES

[Discarded drugs and medicines converted into electricity - WFMJ.com](#), *21WFMJ*, March 20, 2018

Center for Disease Control and Prevention,

<https://www.cdc.gov/infectioncontrol/guidelines/environmental/background/medical-waste.html>

Egri, Carolyn P. "Spiritual Connections with the Natural Environment: Pathways for Global Change." *Organization & Environment* 10, no. 4 (1997): 407–31. <http://www.jstor.org/stable/26161559>.

Ferronato, Navarro, and Vincenzo Torretta. 2019. "Waste Mismanagement in Developing Countries: A Review of Global Issues" *International Journal of Environmental Research and Public Health* 16, no. 6: 1060.

Miyazaki M, Une H. Infectious waste management in Japan: a revised regulation and a management process in medical institutions. *Waste Manag.* 2005;25(6):616-21. doi: 10.1016/j.wasman.2005.01.003. PMID: 15993346; PMCID: PMC7127074.

Mohamad Zeeda, [The role of religious community in recycling: Empirical insights from Malaysia - ScienceDirect](#), *ScienceDirect*, Jan 2012

PHYS. ORG, <https://phys.org/news/2021-12-pharmaceutical-contaminates-india-main-rivers.html>, Dec 1, 2021

PRISM Bangladesh Foundation, <http://pbf.org.bd/web/home>

Shaheen Mollah, <https://www.thedailystar.net/supplements/news/living-medical-wastes-2120229>, *The Daily Star*, June 29, 2021

Shortliffe Edward, [Discarded drugs: a wasteful and costly problem that requires whole-of-government approaches](#), *STAT*, Feb 25, 2021

Tchen J, Vaillancourt R, Pouliot A. Wasted medications, wasted resources. *Can Pharm J (Ott)*. 2013 Jul;146(4):181-2. doi: 10.1177/1715163513490654. PMID: 23940464; PMCID: PMC3734908.

United States Environment Protection Agency, <https://www.epa.gov/rcra/medical-waste>

VLS Environmental Solutions, <https://www.vlses.com/2022/10/31/types-of-pharmaceutical-waste/>

Yazan Akkam, Derar Omari, Hassan Alhmoud, Mohammad Alajmi, Nosaibah Akkam, Islam Aljarrah, Assessment of Xenoestrogens in Jordanian Water System: Activity and Identification, *Toxics*, 11, 1, (63), (2023).