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Reduction of solid waste dumps in religious places during pandemic outbreak in Bengaluru

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Abstract

Both biodegradable and non-biodegradable solid wastes are found in religious or worship places. Biodegradable waste consists of fruits, flowers, leaves, prepared food items, plantations, sweets and non-biodegradable waste consists of plastic covers, plastic plates, plastic cups, metal pieces, flags and so on. These were found during festivals, functions, yatras, urus, massive gatherings, and weddings in religious places. Large gatherings led to huge dumping of solid wastes in and around the religious places. The vendors and street hawkers after selling their goods used to dump the leftover wastes near these places during the pre-pandemic period. During the pandemic outbreak from April 2020 to August 2020, the religious places were shut to the public leading to minimal or zero solid waste production. During lockdown relaxation from September 2020, these places were sanitized; people were restricted with minimal gatherings and instructed to follow COVID appropriate behaviour. Similarly during the second wave lockdown from May 2021 to August 2021, people were not allowed to visit these places which led to the reduction of solid waste production in religious places leading to reduction of air, water and soil pollution.

Keywords: COVID-19, pandemic outbreak, religious places, solid waste

Introduction

Solid wastes are unwanted, discarded materials (Singh *et al.*, 2014) ^[10], produced in tons. The solid waste dumping causes untidy and attracts rodents, microorganisms, scavenger birds like crows and eagles, street dogs and cats, produce foul odour or smell leading to allergy and other diseases. It caused huge air, water, and land pollution during the pre-pandemic period. The solid wastes occur in the solid and semi-solid forms resulting from day to day activities in the community (Mishra *et al.*, 2014) ^[7]. These consist of both biodegradable and non-biodegradable wastes including e-wastes (Verma and Prakash, 2020) ^[9]. The biodegradable means the ability to decay naturally and in a way that is not harmful to the environment and such waste consists of leftovers, paper materials, garlands and offerings like fruits, flowers, mango leaves, neem leaves, plantation leaves, wooden waste, prepared food, sweets wrapper and so on. A material which does not get decomposed through natural processes (such as action of bacteria) is called as non-biodegradable and such wastes include plastics, glass, metals, aluminium, electronic items, computer parts, batteries, medical waste, tetra packs, carbon paper, thermo coal and unwanted wirings.

Both these types of wastes were found to be dumped in large quantities in worshipping places leading to air pollution due to the production of foul odour, smell of decaying biodegradable wastes and chemical leaching from non-biodegradable wastes. Dumping of solid waste causes soil pollution and if there is a water body near the dumping place, the dumped solid waste goes into the water thereby causing water pollution, ecological imbalance and disturbance in natural aquatic and terrestrial ecosystems (Verma, 2017, 2018, 2021; Arya, 2021; Prakash, 2021) ^[12, 13, 14, 1, 9]. These waste products cause different types of diseases in animals and humans and disturb the lives of aquatic organisms. These were observed frequently during the pre-pandemic period. However, their occurrence is greatly reduced during COVID-19 pandemic following lockdown. Author attempted to study the production of solid waste during pandemic outbreak, during lock down and after relaxation of lockdown.

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Materials and methods

Observations were done before pandemic outbreak and during pandemic period in the worshipping or religious places and behaviour of the people gathering near these places and types and amount of solid waste found in the worshipping or religious places. Author saw the dumping of waste products during pre-pandemic and pandemic periods and noted the changes.

Results and discussion

Solid wastes are useless, unwanted and discarded materials resulted from day to day activities in community. These are associated with storage, collection, transfer processes and disposal (Mishra *et al.*, 2014) ^[7]. It may also be called as municipal solid waste as it consists of all garbage refuse, trash which is thrown away from home, small business outlet etc. The solid wastes are taken for anaerobic digestion, biogas production and composting (Hussein and Mona, 2018) ^[6]. Waste produced should be discarded scientifically otherwise it causes sufferings, waste borne diseases and poor waste management has impact on people livelihood, which was observed in Kinyinya city (Victoire *et al.*, 2020) ^[16].

Biodegradable wastes produced can be degraded by the microorganisms, earthworms and other soil organisms which can convert waste into useful manure and can be utilized for agriculture crops or organic farming (Deswal *et al.*, 2020; Wakale and Kulkarni, 2021) ^[2, 17]. So the biodegradable solid waste must be collected in separate containers or bins or segregated and after collection it has to be taken for biodegradation plants or gober gas plants for production of gober gas or biogas which can be utilised by the public or religious place authorities. Waste can be reduced, recycled and reused so must be segregated and collected separately. The segregation must be done where the production occurs. The public visiting to religious place must be restricted from making worshipping place dirty and instructed to put the waste properly in the allotted bins and collection places. Author suggests that each religious place must adapt solid waste management including biogas plants or vermicomposting.

It was noticed that during pre-pandemic period many religious places did not follow the cleanliness rules in their surrounding and people threw solid waste all around the religious places performing rituals, during functions in religious places flowers, fruits, garlands and food wastages were seen. When the COVID-19 pandemic outbreak occurred, these religious places were kept clean and sanitized; there was no gathering of the people to worship in the religious places leading to zero solid waste production. After relaxation of the lockdown the people started to visit the religious places but had mentally and emotionally prepared not to create filth in those places and there was no wastage of food was seen. The Karnataka Government appealed and ordered all religious places to follow the rules and regulations very strictly. These places during relaxation appealed the visitors to wear face masks, washing hands and feet and ablutions were always followed and sanitizers were offered to the visitors. Sanitization of worshipping places was followed according to norms. Offerings were restricted, number of people in the mass gatherings, weddings were restricted so these led to less amount of solid waste production. The people were very much cautious about their

health, surroundings and tried keep themselves and surroundings clean and tidy.

The higher authorities of the religious places tried their best to control the public visitations according to the norms of government. The health and hygiene were foremost considered in all religious places. Some of them were not in a position to accept new normal and were more cautious about their health started worshipping and praying at home. Many people believed in spiritualism rather than religious tradition. During pandemic so many poor people could not get two meals a day as they were jobless. The people who were capable of helping needy and vulnerable people provided food and wastage of food was very minimal. In the month of April to August 2020 there was zero food waste production and in September 2020 there was relaxation of lockdown people started visiting to these places and increased in number and started gathering and slowly increasing in dumping of solid waste till March 2021 was seen. From the month of May 2021 visitors were not allowed in the religious places led to zero solid waste productions. When the lock down was lifted from August 2021, people started visiting to these places and were made to follow strict norms by the authorities.

People have to follow practices considering protection and conserving environment with religion. Many people used to travel to the religious places using vehicles and carrying various things with them and dumping them in religious places, but during COVID-19 pandemic the people used less vehicles and visited nearby places and avoided far off places which led to reduction of air, water and soil pollution. The authorities in religious places should be aware of using water harvesting technology. Converting solid waste dumps into manure, biogas plants, tree plantation, growing green gardens, conserve surrounding environment and if possible, bird and animal sanctuaries can be set so that people can recreate and admire nature. The religious places should create awareness among the public to maintain personal hygiene, spirituality, social morality, divinity and diversity. It should be eco-friendly. Keep water bodies' clean, reduction in the emission of gaseous pollutants and follow Eco Dharma (EPI, 2018) ^[4].

All the religion and traditions teach about keeping the body and soul clean, the places and premises of worship clean, care for the other living beings. Quran says Ablution is must and should be done before going to prayers. It also says to maintain the balance in the nature and earth must be there and the consequences of imbalance may cause negative impact on the environment. It also talks of climate change, ecosystem environment (Fatima, 2020) ^[5]. Hinduism also believes in Karma-deed, Dharma- God's divine law and conduct, practice of Ahimsa being kind to people, animals and plants (The Hindu portal, 2014) ^[11]. In Hindu dharma shoucha or cleanliness of environment is important tells about Bhoomi sukta in Atharva Veda that Earth is mother and a living force and we should praise her beauty (Nithin, 2020) ^[8] Sikhs believe Guru Grant Saheb which tells Air is Guru, Water is father, Earth as mother (www.bbc.co.uk/bitesize/guides/znnv87h/revision/3). Jainism believes in Nonviolence towards all living being, believes in minimal consumption and environmental protection (Devanshi, 2012) ^[3]. Buddhism believes in right vision, right action, right effort and right mindfulness (Weera, 2007) ^[18]. Christianity believes that Earth belongs to God and human

must respect it and hand it back to God unspoiled (www.bbc.co.uk/bitesize/guides/zrsc7ty/revision/3). The people should have mind-set of not polluting the religious places as there is a saying that Cleanliness is Godliness.

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