

## Completion Report

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The COVID-19 pandemic led to a surge in face mask and medical waste, with 449.5 billion masks used globally from January 2020 to March 2021. Improper disposal poses environmental and health risks. The study highlights Japan's advanced waste management and Malaysia's challenges, especially in rural areas. It emphasizes the need for better systems and public awareness to ensure proper disposal and recycling to mitigate these impacts.

### Survey Findings:

A survey of 400 respondents from Japan and Malaysia revealed that 90% of Japanese and 80% of Malaysians recognize the importance of proper waste management. Japan's cultural values and government policies have led to high recycling rates, while Malaysia has made progress, with the recycling rate increasing from 15.7% in 2015 to 35.38% in 2024. However, Malaysia still faces challenges like inadequate infrastructure and illegal dumping.

### Interview Insights (Malaysia):

Interviews with seven local councils in Peninsular Malaysia revealed major challenges in solid waste management due to rapid population growth and inadequate infrastructure. The country generates around 38,200 tons of waste daily, mostly ending up in landfills. Public awareness and commitment to waste management are low, despite existing government policies. The COVID-19 pandemic worsened the situation, increasing clinical waste, especially from face masks. Proper mask disposal is crucial to prevent virus spread, but public understanding and practices are lacking. Recommendations include promoting recycling programs, setting clear guidelines, and enhancing public education on proper disposal methods.

### Systematic Literature Review (SLR):

A systematic literature review (SLR) of 448 papers examined the impact of the COVID-19 pandemic on waste generation and management, noting a significant increase in household and healthcare waste in Malaysia. The rise in personal protective equipment (PPE) usage created environmental challenges, with notable "PPE pollution" in both land and aquatic environments. The review suggests treating or wrapping face mask waste before disposal and emphasizes sustainable waste management practices. Mismanagement of face mask disposal is a major concern, highlighting the need for improved handling and disposal practices to safeguard public health and the environment.

### Japan's Practices and Government Efforts:

Japan's strict waste separation policies extend to face mask disposal, emphasizing proper disposal to prevent contamination. Initiatives promote the recycling of masks and PPE, along with the use of reusable masks to reduce waste. The Japanese government has implemented guidelines, public awareness campaigns, and collaborations with private companies and NGOs to enhance safe mask disposal practices.

### Role of Social Media in Japan:

Social media has been instrumental in educating and raising awareness about proper face mask waste management in Japan. Platforms like Twitter, Facebook, and Instagram disseminate guidelines, promote environmental conservation, and engage the community. Celebrities and influencers play a significant role in advocating responsible behaviors, significantly impacting public awareness and compliance.

### Comparative Analysis and Recommendations:

Japan and Malaysia both promote reusable masks and public awareness campaigns. However, Japan's advanced waste management infrastructure and cultural emphasis on cleanliness lead to higher public compliance. Malaysia faces challenges with infrastructure and enforcement, especially in rural areas. Adopting Japan's practices, such as better waste segregation infrastructure, public education, reusable masks, technology use, and stricter regulations, could improve Malaysia's face mask waste management and reduce environmental and health risks.

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Publication of the Results of Research Project:

Verbal Presentation (Date, Venue, Name of Conference, Title of Presentation, Presenter, etc.)

Date: 20 - 21 September 2022

Venue: International Islamic University Malaysia, Campus Gombak, Kuala Lumpur.

Name of Conference: Global Clean-up Congress 2022

Title of Presentation: Waste Management Awareness Through Social Media

Presenter: Ely Salwana Mat Surin

Thesis (Name of Journal and its Date, Title and Author of Thesis, etc.)

Book (Publisher and Date of the Book, Title and Author of the Book, etc.)

Publisher: UKM Press

Date of the Book: 2024 (with external reviewer)

Title: Lessons in Cleanliness: Managing Face Mask Waste - Insights from Japan

Author of the Book: Ely Salwana, Zahidah Zulkifli, Norshita Mat Nayan, Mohamad Taha Ijab, Eri Amasawa.