

Project Title

Converting Food Waste Into Non-Portable Water in CGH

Project Lead and Members

Project lead: Ms Tenny Chow

Project members:

Organisation(s) Involved

Changi General Hospital

Healthcare Family Group(s) Involved in this Project

Healthcare Administration

Applicable Specialty or Discipline

Healthcare Administrators

Project Period

Start date: Sep 2023

Completed date: Feb 2024

Aims

Food waste recycling is one of the green initiatives CGH adopts by aligning with the government efforts on on “Zero Waste” policy. The aim of this project is to:

- (a) Recycle food waste instead of disposing as general waste. This can reduce landfill usage and an effective way to minimize environmental impact.
- (b) Explore more efficient working method to reduce the manual and strenuous tasks performed by the housekeepers when handling this disposal process.

Background

Changi General Hospital (CGH) disposes a daily average of 0.6 tonne of food waste generated from the central kitchen managed by the Food Services Department. In the past, the waste bags were manually disposed into the general waste compactors by 2 housekeepers. The disposal task is ergonomic challenging and time consuming for the staff. As the compactor is cleared once daily, the food waste left inside the compactors can cause odour pollution and vermin infestations.

Methods

See poster appended/below

Results

- Reduction in the general waste output by approximately 8% daily, from 7.6 tonne to 7.0 tonne.
- Increase in the work productivity for the housekeepers. In the past, 2 housekeepers were deployed to assist in the food waste disposal with an average frequencies of 6 times daily. Each cycle took approximately 30 minutes. This equates to approximately 6 man-hours per day. With the new recycling system, only 1 housekeeper is needed to perform this task and the process has reduced to 15 minutes per cycle which works out to 1.5 hours daily. With this new system, there is a significant improvement in productivity and reduction in manpower required to perform this task.
- Environmental benefits and conservation of resources with the reduction in waste volume going to the incineration plant and lowers the carbon emissions.
- Housekeeping staff has provided positive feedback that the lifter has eased their workload and make their disposal tasks more manageable.

Conclusion

With the food digester system, the hospital is able to convert the food waste into non-portable water which can be upcycled for the housekeepers to do further washing of waste bins or cleaning the floor. This project is in line with the government recycling

and waste reduction initiatives. The food digester has also brought an increase satisfaction in the housekeeper's morale and ergonomics. Staff no longer needs to manually lift and disposed the heavy waste bags into the waste compactors.

Project Category

Care & Process Redesign

Environmental Sustainability, Food & Plastic Waste, Recycling

Organisational Leadership

Human Resource, Staff Wellbeing

Keywords

Food Waste, Food Services Department, Waste Bag, Disposal Task, Odour Pollution, Vermin Infestations, Food Digester System, Decomposition, Auto-lifter, Portable Water

Name and Email of Project Contact Person(s)

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Background

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As the compactor is cleared once daily, the food waste left inside the compactors can cause odour pollution and vermin infestations.

Objective

Food waste recycling is one of the green initiatives CGH adopts by aligning with the government efforts on on “Zero Waste” policy. The aim of this project is to :

- (a) Recycle food waste instead of disposing as general waste. This can reduce landfill usage and an effective way to minimize environmental impact;
- (b) Explore more efficient working method to reduce the manual and strenuous tasks performed by the housekeepers when handling this disposal process.

Innovation

The Environmental Services (ES) Department had procured and installed a Food Digester System to recycle the food waste instead of disposing it directly into the general waste compactors. This system can convert the food waste into non-portable water by adding enzymes to accelerate the decomposition process. The water can be safely upcycled to use for general floor cleaning or washing of waste bins.

Process

The Kitchen staff will segregate the food waste into dedicated bins. Once the bin is full, the housekeeping staff can push the bin to the auto-lifter attached to the digester system. With a push of a button, the bin is auto lifted to the equipment hopper and the food waste is loaded into the digester for recycling.

Outcome

- ✓ Reduction in the general waste output by approximately 8% daily, from 7.6 tonne to 7.0 tonne
- ✓ Increase in the work productivity for the housekeepers. In the past, 2 housekeepers were deployed to assist in the food waste disposal with an average frequencies of 6 times daily. Each cycle took approximately 30 minutes. This equates to approximately 6 man-hours per day. With the new recycling system, only 1 housekeeper is needed to perform this task and the process has reduced to 15 minutes per cycle which works out to 1.5 hours daily. With this new system, there is a significant improvement in productivity and reduction in manpower required to perform this task.
- ✓ Environmental benefits and conservation of resources with the reduction in waste volume going to the incineration plant and lowers the carbon emissions.
- ✓ Housekeeping staff has provided positive feedback that the lifter has eased their workload and make their disposal tasks more manageable.

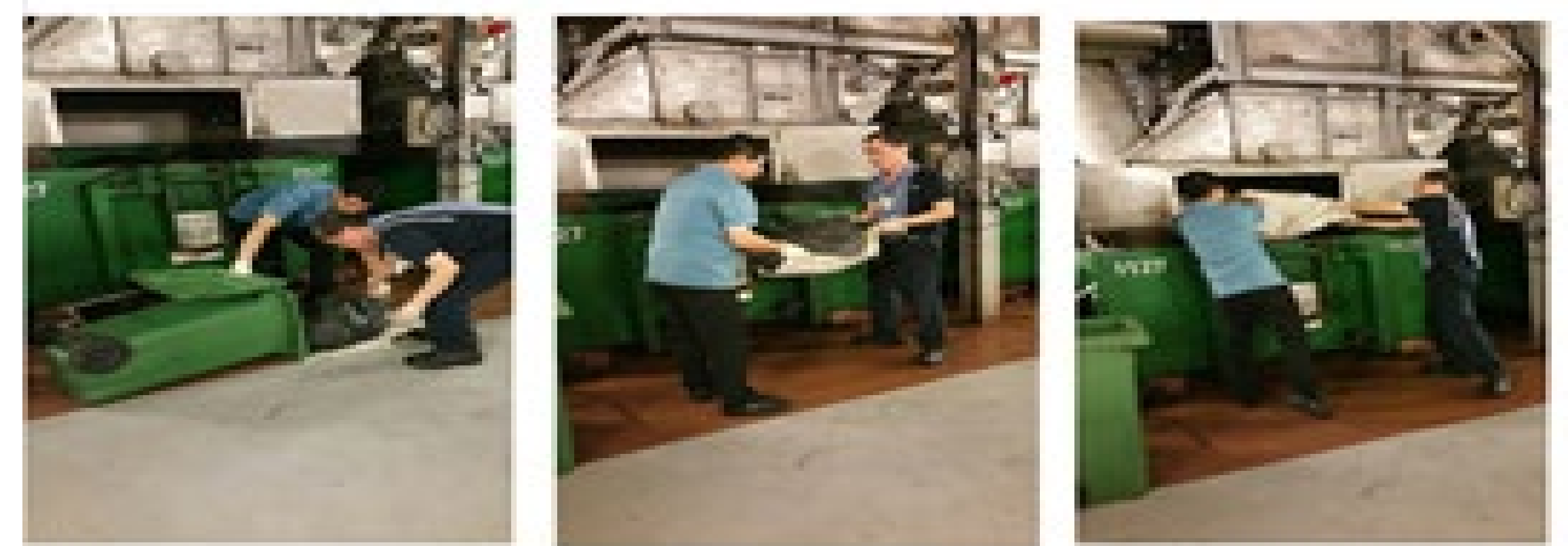
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With the food digester system, the hospital is able to convert the food waste into non-portable water which can be upcycled for the housekeepers to do further washing of waste bins or cleaning the floor. This project is in line with the government recycling and waste reduction initiatives. The food digester has also brought an increase satisfaction in the housekeeper’s morale and ergonomics. Staff no longer needs to manually lift and disposed the heavy waste bags into the waste compactors.



Previous Method of Food Waste Disposal

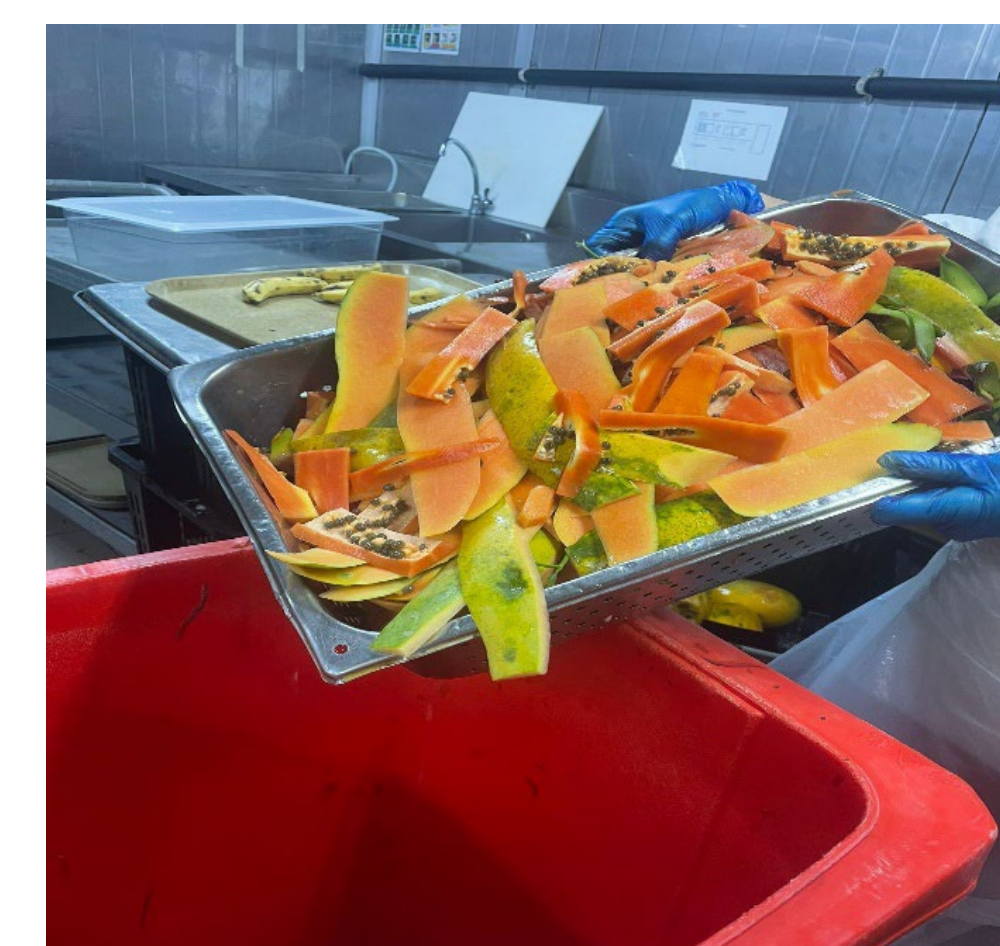
2 housekeepers need to lift the food waste bags from the bulk bin and dispose into the general waste compactor



Implementation of Food Digester System

Step 1

Kitchen staff segregate the food waste into dedicated bins for recycling



Step 2

Housekeeper transport the bin to the Digester system and load the bins on the auto-lifter



Step 3

Food waste drop directly into the Digester system for recycling and convert into non-portable water

