ne'ma نعمة

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National Food Loss and Waste Initiative

National Action at Scale for Reducing Food Waste in the Hospitality Sector

2023

National Action at Scale for Reducing Food Waste in the Hospitality Sector

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ne'ma - the National Food Loss and Waste Initiative, is a response to the call to action by the President of the United Arab Emirates, **His Highness Sheikh Mohamed bin Zayed Al Nahyan**, to reduce food waste, encourage individual and social responsibility, and promote sustainable practices across the food value chain.

The UAE is committed to achieving United Nations Sustainable Development Goals 12.3 targets by reducing food loss and waste by 50% by 2030 and beyond leading the regional movement towards change through the collaborative efforts of ne'ma.

Acknowledgements

This report marks a significant milestone and is proudly presented as a deliverable of the UAE's Behavioral Science Group (BSG), a specialized unit operating within the Office of Development Affairs, and the Behavior Insights Team (BIT). Their profound expertise in behavioral science played a crucial role in shaping the National Action at Scale for Reducing Food Waste in the Hospitality Sector.

Executive Summary

Executive Summary

Background

Food waste is a problem in the UAE.

Food waste is a substantial problem in the UAE, with almost 40% of food wasted at a cost of AED 6 billion.[1,2] To tackle the problem, ne'ma, the National Food Loss and Waste Initiative, is driving the national efforts to achieve the UAE's target of reducing Food Loss and Waste (FLW) by 50% by 2030.

The Hospitality sector has a key role to play.

According to United Nations Environment Programme (UNEP), food services account for 26% of food waste globally.[3] This represents an important issue for a nation, where 52% of residents eat out at restaurants more than once a week.[4] Considering these figures, addressing food waste behaviors in the Food Services sector is crucial in tackling the challenge.

Creating a bridge between sustainable production (food preparation) and sustainable consumption.

As per the Food Ecosystem Mapping study conducted by ne'ma across the seven Emirates, three hotspots areas- key drivers of the food waste in the food services sector were identified:

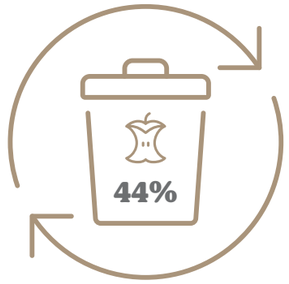
- Control of the portion size
- Food Rescue of the surpluses and
- Consumer awareness

This clearly shows that not only should food waste be addressed in the planning and preparation stage in the kitchens, but also how the food is consumed and treated by the guests.

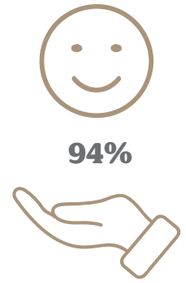
ne'ma is supporting the sector by developing and testing solutions.

In 2022, ne'ma ran two flagship trials. In the first, ne'ma partnered with the Behavioural Insights Team (BIT) and Accuro, for a pilot in 7 staff canteens that cut food waste by 29-44% using simple behavioral solutions. Building on this success, ne'ma, in partnership with the Behavioral Science Group (BSG), tested interventions with customers in 5 hotel fine dining restaurants during Ramadan, and achieved a 12-15% reduction in plated food waste. Moreover, the interventions were well-received by customers, with 94% saying that the interventions positively influenced their dining experience.

Previously ne'ma reduced food waste by **44%** in staff canteens, **94%** of consumers were happy to see the interventions around food waste in the restaurants.



Food Waste Reduction



Customer Satisfaction

Ahead of COP28, ne'ma is mobilizing the hospitality sector to take action at scale, by...

Publishing a guide for the sector.

To expand the impact and share lessons learned from these trials, ne'ma published an implementation guide for the UAE: ***'How to reduce food waste using three low-cost nudges across canteens and buffet restaurants'***. This guide is part of this national initiative and encourages the sector to take action to address the problem of food waste. [5]

Introducing Key Performance Indicators (KPIs) for tracking food waste and providing training to the sector.

ne'ma encourages the food services sector to commit to food waste reduction, rigorous food waste measurement and reporting, and implementing effective behavioral interventions to reduce food waste.

Developing a national data hub to track food waste.

To enable these initiatives, ne'ma developed a custom national data hub to collect and analyze food waste data. This tool will play a crucial role in guiding the hospitality sector towards achieving the UAE's 2030 targets, and in evaluating future interventions.

Testing behavioral interventions through a national call to action.

ne'ma has recently launched a national call to action, rallying the entire hospitality sector to collectively address food waste. When working on a national scale, solutions are introduced with light-touch guidance from intervention developers.

This national scale-up tested solutions developed in the pilot trials with 190 sites across the Emirates. This large scale evaluation was essential, as behavioral solutions that show impact in pilot studies do not always yield results at scale.

Moreover, entities chose from a menu of behavioral interventions; some chose several, while others only used messages, which can yield more modest effects.

This approach explores whether the solutions are actually low cost and simple to implement, so they can be embedded across the sector in the long-run. This evaluation demonstrates that.

ne'ma - National Action at Scale: Reducing Food Loss and Waste in the Hospitality Sector

Key findings of the national trial at scale

ne'ma, has mobilized the hospitality sector in the UAE to take action to reduce food waste in a national trial. The national trial engaged over 180 hospitality entities with more than 220 individual sites, including hotels, restaurants, and staff canteens across the Emirates.

The sector has an appetite for solutions.

One in four entities in the trial **28%** reported that they had food waste reduction targets. The vast majority **92%** plan to continue using the nudges (behavioral interventions) to reduce food waste beyond the trial. This may be linked to the ease of introducing the nudges, as **71%** of entities reported that they were easy to implement.

In five weeks, ne'ma reduced plated food waste by 8.3%, equivalent to 15.2 tonnes of food.

The trial achieved a significant reduction in food waste. ne'ma reduced plated food waste by **8.3%**, equivalent to **15.2 tonnes** (15,200KG) of food waste saved in only 5 weeks after introducing the nudges. To put this number into context, 15.2 tonnes is equivalent to around **38,000 meals**. If these behavioral interventions were maintained over the one-year period, the amount of food that would be saved could provide around **400,000 meals**.

The sector showed great collaboration with ne'ma and were mobilized to report primary food waste data.

The trial prompted entities to accurately collect and report food waste data in ne'ma's national data hub. The 75 sites included in the main analysis submitted **10,000 high-quality data points** over the 10 week trial period.

Previously piloted behavioral solutions work at scale.

This collective effort achieved a significant impact at scale. ne'ma empowered entities by providing training and resources and also enabled them to make key operational decisions. There were a wide range of results across entities, which is typical when scaling. This is due to the fact that not all entities implemented all nudges, and some did not implement nudges consistently. Yet, some high-performing entities achieved a food waste reduction of up to **50%**.

Section 01

Introduction

1.1. About ne'ma

ne'ma - the National Food Loss and Waste Initiative, is a response to the call to action by the President of the United Arab Emirates, His Highness Sheikh Mohamed bin Zayed Al Nahyan, to reduce food waste, encourage individual and social responsibility, and promote sustainable practices across the food value chain.

Established in 2022, ne'ma aims to address overproduction and overconsumption and build new standards that can contribute to the reduction of food loss and food waste, reconnecting with the country's deep-rooted traditional values of social responsibility and mindful stewardship of national resources.

The establishment of ne'ma is a major milestone in the UAE's adherence to fulfill its commitment to reducing food loss and waste, in line with the United Nations' Sustainable Development Goal (UNSDG) 12.3, as well as the UAE National Food Security Strategy 2051.

1.2. About the Behavioral Science Group

This work included a flagship partnership with the UAE's Behavioral Science Group (BSG), a specialized unit within the Office of Development Affairs. BSG combines behavioral science expertise with a deep understanding of local policy and context, to design and test practical and innovative solutions to a range of challenges.

1.3. About this report

Tackling food waste in the UAE is critical. It is a national priority as addressing this problem is essential for the environment, the economy, and our society. In the UAE, **85% of residents consider food waste an important national issue and vital for food security**.[6]

As a part of the ne'ma National Roadmap for reducing Food Loss and Waste (FLW), ne'ma works on mobilizing the food services sector to adopt the target-measure-act approach and scale up success stories and previous achievements. The national scale up trial implemented the same light-touch behavioral nudges previously applied, across the entire hospitality industry in the UAE.

To establish long-term capacity in food waste management, ne'ma introduced key KPIs for measuring and tackling food waste, and trained the industry to measure, report, and implement changes to reduce food waste.

ne'ma also built a bespoke national data hub for the entities to use for reporting and to monitor and track their food waste data for this trial. This data hub will continue to be used as a key resource in the future.

Through the engagement with 300+ industry experts and over 10,000 data points collected, the evidence produced is important in guiding future initiatives and in achieving the UAE's target to reduce FLW by 50% by 2030. This report outlines the practical approaches, best practices and a range of solutions for tackling food waste. It also showcases the UAE as leaders in this domain, sharing insights from the national scale up trial to establish a blueprint for other industries around the world to follow.

This reports refers to sites and entities, which are defined as:

Entities	Sites
Umbrella entity, such as a hotel which may contain different sites. For example, multiple entities may fall under the same hotel chain. When referring to the hotel chain as a whole, the term 'partners' would be used.	Specific sites serving food within larger entities such as the restaurant or staff canteen within an umbrella entity. For example, one single entity may have both a staff canteen and a customer facing restaurant submitting trial data. These would be two separate sites.

1.4. About the national scale up trial

Towards COP28 and beyond, the UAE has the opportunity to demonstrate its ability to create unique collaborations and deliver tangible achievements. On July 31st, ne'ma launched the national call to action to all hospitality establishments in the UAE to reduce food waste by 50% by 2030.

This trial is an important step in that direction, and was split into two phases. In **phase one**, entities started baseline data collection, by collecting food waste data and operating under *'business as usual'* during the 5-week period.

In **phase two**, entities implemented behavioral nudges and continued to collect food waste data during another 5-week parid. To measure impact, food waste per diner was compared before and after the nudges were implemented (*see 'creating impact' section for more detail*).

Figure 1 - National Action at Scale Implementation Phases

1.5. What ne'ma delivered: Trial outputs

Throughout this project, ne'ma used its '**Target-Measure-Act**' approach to engage with the hospitality sector. Consistent tracking of waste across entities was ensured by creating standard protocols for measurement. Action was taken through education, training and the implementation of strategic nudges, aimed at shaping sustainable practices. This comprehensive method lays the foundation for long-lasting behavioral changes.

Target

Set Target of 50% FLW reduction by 2030 in line with SDG 12.3

Measure

Measure, report and communicate the impact of reducing food waste

Act

Reduce preparation waste, plan better, and use behavior change as a key tool to influence behaviors for the long term

Figure 2 - ne'ma Target-Measure-Act Approach

To conduct this trial, ne'ma engaged with the entire hospitality sector across the Emirates

Phase 1. Engaging partners to measure baseline food waste levels

- 250+ participants attended a virtual launch
- 340+ industry professionals, 180+ entities, and 260+ hospitality sites registered to the ne'ma national data hub
- 110+ entities pledged to do their part in reducing food waste

Phase 2. Implement solutions and measure impact

- Over 100 entities regularly reported food waste data during the trial period
- Data collection supported the establishment of a national 'baseline food waste figure' for the food services sector
- 1000+ primary data reports were collected, which measured food waste per diner at different meals
- Behavioral nudges were scaled across the hospitality sector at large

Implementation support for partners.

Throughout the trial, ne'ma supported the hospitality sector to understand and address the causes of their food waste by:

- Designing KPIs to understand how food is wasted within businesses, in line with international standards.
- An in-person training workshop with over 140 participants.
- Delivering over 50 virtual trainings to support partners to participate in the trial.
- Activating the 'ne'ma national data hub' which provides the digital infrastructure to measure food waste nationally, and integrates data from other organizations working towards our common goal
- A choice of eight behavioral solutions (nudges) for partners to implement, with accompanying implementation resources shared on ne'ma national data hub.
- Five weekly, open 'office hours' with over 100 attendees across these sessions, which provided tailored, verbal guidance to partners
- Continuous support, with over 1000 implementation support emails sent to trial partners to resolve any site-specific questions

1.6. The value of reducing food waste

Tackling food waste in the hospitality sector has many benefits.

This effort is consistent with the global goal of more responsible consumption: **creating a culture of resourcefulness and respect for food.** This initiative not only advances the UAE's green agenda in the lead-up to COP28, but also creates a blueprint for other nations to embrace sustainable practices within their hospitality sectors at scale.

Food waste reduction contributes positively to a range of outcomes:

Environmental outcomes and climate impact

by minimizing the amount of waste directed to landfills - thereby curbing greenhouse gas emissions. If annualized the result of the national trial would bring the reduction of 400 tonnes of CO2 emissions.

Social outcomes

Through donation of any surplus food to those in need, increasing food security.

Economic outcomes

Research suggests that kitchens waste about 8-20% of their food purchases, leading to annual losses exceeding $100 billion in the hospitality and food service industry, as reported by Winnow.[7] A significant proportion of food is also wasted at the consumption phase. For example, in ne'ma's recent ***How the UAE Eats - Findings from the National Food Waste Household Survey***, 31% of citizens reported they regularly threw away food ordered at restaurants, which bear large financial implications.[8]

Section 02

The importance of measuring food waste

2.1. The size of the problem.

Food waste in the food services sector is a large and complex issue happening at different stages. Yet, understanding it is not a simple task. It requires segregation and measurement at different phases, to track different streams, such as production waste, over-production waste, plated food waste, and rescued food. ne'ma is leading efforts to create a blueprint to unpack and tackle this measurement issue in the UAE, thereby providing a roadmap for other nations globally.

To better understand how food waste happens in the food services sector, ne'ma introduced different food waste streams within the newly-created ne'ma national data hub The hub guides partners to measure and report different streams of food waste, helping them and the nation understand where to intervene to tackle food waste.

2.2. Food waste segregation and measurement.

Three key steps need to be taken to diagnose and address food waste issue

Action	Explanation
Segregation	Using ne'ma national data hub, ne'ma is guiding the sector to separate food waste from general waste and across food streams to implement more tailored reduction strategies. To address the problem, it is essential to understand whether food waste is happening in the kitchen, after being plated, or if edible food remains uneaten by diners.
Measurement	ne'ma national data hub provides guidance to obtain standardized measurements. It is important that the sector measures using the same units, divides waste across meals, and reports on key metrics such as the number of diners.
Reporting	Regular reporting creates accountability, facilitating the evaluation of initiatives and the design of tailored strategies. This will provide a clearer picture at an entity and national level. Collecting these data across the sector will help measure the national baseline for food waste, leading to the first industry-wide national report and a food services food waste index.

2.3. ne'ma designed Food Waste KPIs

These indicators were designed through active engagement with the industry to understand operational practices and identify the most effective processes that align with industry actions without creating additional burdens.

These guidelines are applicable to all industry participants, regardless of their progress in addressing food waste – from those just beginning to those already implementing solutions. These KPIs are also aligned with international standards, allowing data integration from different sources (such as technology partners) into a national baseline.

KPIs that participants reported during the trial through ne'ma national data hub included:

Kitchen food waste in kg
preparation and inedible food waste (such as vegetable peels)

Plated food waste in kg
disposed from the diners' plate, which enabled us to evaluate the impact of the diner-focused nudges

Overproduction food waste in kg
food surplus from buffets that is not repurposed, redistributed and rescue

Food rescue in kg
redistributed or repurposed food surpluses saved and diverted from landfill

Total number of diners per meal
an essential metric of number of covers to measure impact across meals, entities, and time periods

Importance of food waste segregation and measurement

Separating food waste from general waste, and measuring food waste both improve the ability to obtain a baseline measurement of food waste, allowing for better understanding of the scale of the problem

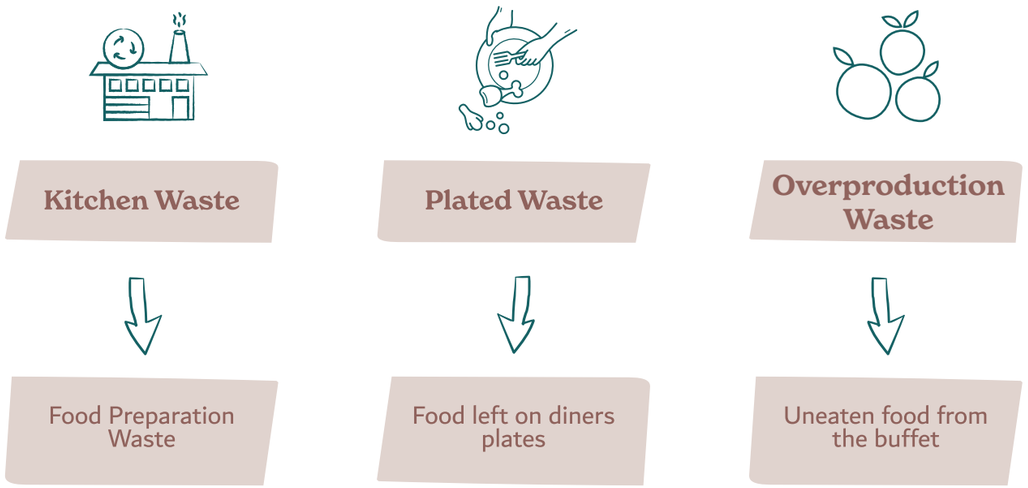


Figure 3 - Food segregation

The majority of waste occurs over two key stages:

Preparation or kitchen waste

This includes all food discarded before it reaches the customer. Factors like spoilage, excess preparation, cooking mistakes, and overproduction contribute to this waste. Key challenges involve refining inventory management, enhancing kitchen processes, boosting staff competency, and optimizing production.

Consumer or plated waste

This encompasses food left uneaten on customers' plates, forming a significant portion of total waste. Contributing factors include oversized portions, buffet setups encouraging over-service, and unpredictable consumer preferences.

Effective management of food waste therefore means targeting both sources of waste, through refining pre-consumer processes such as procurement, storage, and preparation, as well as improving consumer practices, through appropriate portion sizes and efficient buffet handling.

2.4. Understanding the sources of food waste with ne'ma's technology partner: Winnow.

Analysis done by Winnow, ne'ma's technology partner, helped understand the size of the issue and reveal the key sources of food waste in the UAE.

As seen in Graph 1 below, according to Winnow data, the majority of waste comes from overproduction (**up to 85%**) and food waste that comes from consumers' plates (**up to 30%**). The efforts of reducing food waste have to include efficient practices in the pre and post-consumer phases.

Graph 1 - Food waste statistics from Winnow

In addition, according to Winnow's global analysis, UAE diners create 35% more food waste than the global average, and almost 20% more than the MENA regional average. The UAE is known for its hospitable culture, large buffets, and tourism.

Section 03

A holistic approach to tackle food loss and waste

3.1. Implementing a close loop approach to achieve sustainable impact.

The Closed Loop Framework is a holistic approach that focuses on tackling food waste in a sustainable way, by promoting responsible consumption habits across individuals and organizations.

ne'ma introduced the **"Zero Food to Landfill"** framework at Abu Dhabi Sustainability Week 2023.

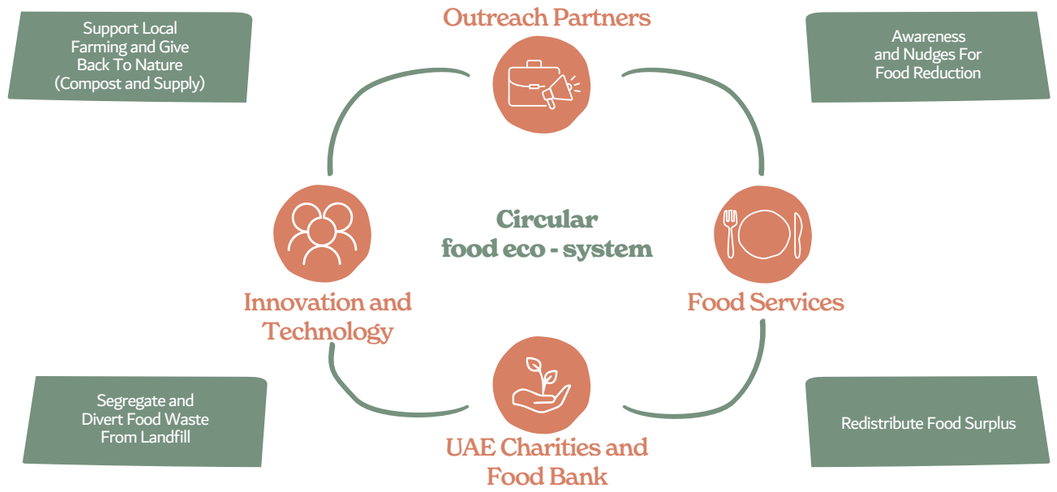


Figure 4 - ne'ma's circular "Zero food to landfill" framework

This approach reflects the 3Rs approach (*reduce, reuse, recycle*) by encouraging different stakeholders to continuously contribute and improve waste management practices. The goal is not simply better waste management, but to create a system where learnings from one stage feed into others, thereby 'closing the loop' on food waste.

ne'ma's "Zero Food to Landfill" framework

Stage	Explanation
Preventing and reducing food waste	Segregating and measuring food waste. Utilizing the technology solutions to optimize and reduce food waste in the planning and preparation stages. Educating and nudging the behavior of individuals and organizations to prevent food waste at the source.
Rescuing surplus food	Redirecting food that would otherwise be wasted to beneficial uses, such as donation to food banks.
Diverting food from landfill and returning it to nature	Ensuring any final food waste that occurs is segregated and recycled through composting or excess waste is converted into energy.

3.2. Finding solutions to measure and reduce food waste.

In the long run, automating processes such as weighing waste and collecting diner numbers through technology solutions will make these tasks easier for entities who want to take action to cut their food waste.

According to the preliminary analysis, almost **70%** of entities are still manually weighing food waste, and just over **20%** are using technology solutions (*see section on measurement in the trial results*).

ne'ma are working closely with Winnow, a food waste technology company with a long legacy and presence in the UAE, to better understand how to support entities looking to automate their waste processes. By analyzing existing data, key areas of improvement can be identified across the waste cycle: from the planning and purchasing stage to preparation and serving.

A structured approach to tackling food waste requires analyzing each type of waste and implementing targeted solutions. The list below includes a range of general solutions that can be applied to tackling the two biggest sources of food waste in the UAE, Kitchen Waste and Plated Waste. The next section of the report outlines what ne'ma implemented specifically in this trial.

Addressing Kitchen and Preparatory Waste.

Use data analytics to isolatte waste hot-spots

Use data to identify key areas of waste and implement targeted interventions, such as just-in-time ordering, in-kitchen operations and service delivery.

Reduce spoilage

Implement inventory controls and maintain proper storage temperatures.

Minimize trimmings and preparation errors

Invest in staff training for better ingredient utilization, standardize recipes, and embrace root-to-stem techniques.

Prevent overproduction

Shift to small batch cooking, adjust purchasing based on sales, and use food waste data to optimize production.

Addressing Consumer and Plated Food Waste.

Embrace data-driven measurement

Use tools such as Winnow to track plate waste and inform menu and portion size adjustments.

Make operational changes

Modify or replace high-waste menu items, such as reducing portion size or cooking in smaller batches.

Engage guests

Educate guests on sustainability initiatives through signage and staff training, and seek their feedback to identify opportunities for improvement.

Sustain post-campaign momentum

Maintain continuous training, even after a specific initiative has been implemented. Integrate sustainability into organizational culture by having dedicated teams and meetings.

Apply behavioral interventions

Use nudges such as behavioral messaging and smaller plates to make sustainability values visible and engaging.

3.3. Applying behavioral solutions to reduce food waste.

Food waste often occurs following an individual's behavioral decision, such as how much food they order or serve themselves from a buffet. Behavioral science, which studies and explains human behavior, can help us both understand why food is wasted and help people to make greener choices.

In view of this, ne'ma embarked on a long-term partnership with the BSG in the UAE's Office of Development Affairs, which supports partners in applying this innovative lens to national problems.

One way to change behavior is by using **'nudges'**, which are simple yet effective solutions to problems. Nudges provide small tweaks to the choice environment, helping us make better decisions by making these easier, more attractive, social and timely.[9]

Nudges can help us segregate waste and eat more sustainably.

One example of using nudges can be seen in the design of recycling bins. One barrier to using recycling bins correctly is distraction. A study showed that re-designing bins to have different shaped holes to signal which type of waste to place in them boosted recycling rates by 34 percentage points. As seen in the image, this design makes it harder to throw incorrect items into the thin slot designed for paper.

Nudges can also help by embedding psychology into messaging. For example, to increase the number of diners choosing vegetarian options, changing their name on the menu can be a very effective strategy. Typically, vegetarian options are described as 'meat-free'. The use of the word free suggests diners are losing out rather than gaining benefits. In a rigorous experiment, changing the name of vegetarian options to signal gains rather than losses increased orders by 18%. [11]

How renaming vegetarian options on the menu increased sales:

+ 18%
'Field grown Breakfast'

+ 12%
'Garden Breakfast'

+ 7%
'Feel Good Fry Up'

3.4. Implementing nudges to reduce plated food waste in the UAE's hospitality sector.

In the national trial at scale expanded behavioral interventions that were co-designed by ne'ma and the BSG to adapt effective interventions from around the world to the UAE's hospitality sector. After demonstrating their efficacy in pilot studies, this trial then evaluated these interventions at a national scale.

In this trial, sites had the choice to pick from a menu of eight nudges designed to reduce plated food waste.

These nudges were designed for both a hospitality staff canteen context and a customer-facing context, thereby providing solutions applicable to a range of hospitality setups.

Interverntion for reducing food waste can be implemented in all setups

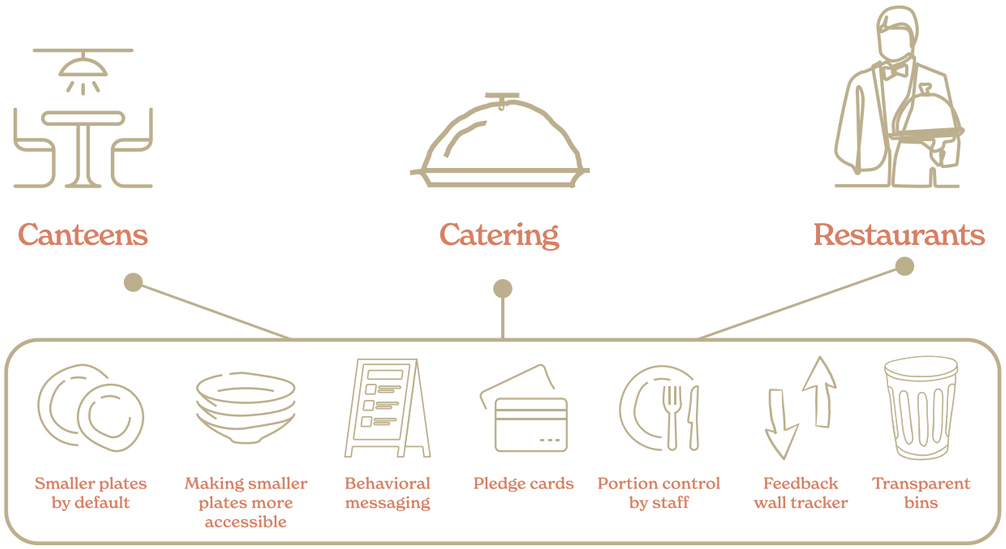


Figure 5 - Food waste interventions

Nudges for staff canteens.

Portion control by staff.

Reducing the size of portions has shown to reduce food waste. In canteens this has been particularly effective, whilst allowing diners to request a second portion if desired.

There are different ways to implement this nudge, such as:

- Using visual anchors for meal sizes
- Pre-portioning meals
- Reducing the size of pre-made portions

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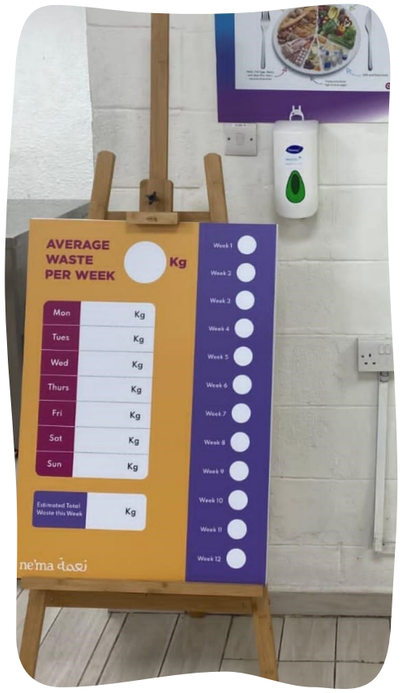
Feedback wall tracker and transparent bins.

Feedback loops are a key way of showing diners how much food is being wasted, thereby encouraging behavior change.

- The wall tracker allows staff to record daily and weekly changes in food waste, showing diners how food waste is changing across time
- Transparent bins make food waste more salient (noticeable) to diners



Nudges for customer-facing contexts.

Smaller plates by default, or making smaller plates more accessible

Evidence shows that when diners use smaller plates, they waste less food. This nudge can be applied in different ways, for example:

- Offering only small plates to diners - this is likely to be more effective
- Placing small plates closer to the buffet, and bigger plates further away

This is likely to be the most effective nudge - with large effects seen in the United State of America, United Kingdom, Norway and the UAE. Smaller plates typically reduce food waste by between 20-30%!

Behavioral messaging

ne'ma created messages using behavioral science to encourage diners to reduce their food waste. These were designed to be placed as close as possible to the food service point.

Behavioral science indicates that specific wordings can lead to significant behavior change. The messages chosen have demonstrated effectiveness in previous trials and outperformed others in a national survey of UAE households. [13]

Pledge cards

Pledge cards help diners commit to the UAE's and ne'ma's national effort to reduce food waste. This may also help diner's to consider food waste before serving themselves at a buffet.

Behavioral science has demonstrated that encouraging people to commit to their values in an explicit way, even if these are small commitments, can affect how they behave.

'Tips and tricks' leaflets

Providing people with practical tips to change their behavior is important, as often customers may want to change their behaviors but are not sure how to.

Leaflets outlining the 'top tips' to reduce food waste is one way to do this, so that people can change their food behavior habits, both within hospitality settings and other settings.

Overview of the nudges.

Nudge	Explanation	Behavioral Science Principle
Smaller plates by default	Smaller plates encourage people to serve themselves smaller portions, reducing the amount of uneaten food left on plates	**Anchoring:** People judge what a 'normal' portion is based on the size of the plate
Making smaller plates more accessible	Having smaller plates easily accessible encourages their use, further promoting smaller portions	**Make it easy:** People often pick the easiest option, so will pick smaller plates over larger ones if they are more available
Behavioral messaging	Effective messaging based on behavioral science can raise awareness about food waste and encourage individuals to waste less	**Visual cues:** People pay attention to what is notice-able in the environment around them, which affects their choices
Portion control by staff	When staff control portions, they can serve appropriate amounts to reduce the chance of leftovers	**Make it easy:** People are less likely to waste food if the portion sizes are being specifi-cally designed to reduce waste
Feedback wall tracker	Displaying a tracker on the wall provides visual feedback on waste reduction progress, motivating continued effort	**Feedback loops:** People can more easily change their behav-ior if they know the results of their actions over time
Pledge cards	Pledge cards create a personal commitment to reduce waste, enhancing accountability	**Commitments:** Once people commit to an action, they often demonstrate significant effort not to break that commitment
Transparent bins	Seeing the food waste in transparent bins raises awareness of the size of the food waste issue, encourag-ing waste reduction	**Visual cues:** People pay atten-tion to what is noticeable in the environment around them, which affects their choices
'Tips and tricks' leaflets	Providing practical advice on reducing food waste gives individuals the knowledge to change behavior going forward	**Make it easy:** People are more likely to perform a behavior if they are aware of easy ways to do it

3.5. Breaking down the task of reducing food waste.

Moving forward, hospitality entities should form dedicated teams tasked with minimizing food waste. This can help cultivate their own internal expertise and develop tailored strategies to address the issue effectively.

Each entity should define roles and responsibilities and identify the team driving change, ensuring that food waste reduction becomes an integral part of their operations. For example, this simple checklist can aid in assigning key roles:

- Identify who will weigh and record food waste after each meal
- Identify who will record diner numbers after each meal
- Identify who will make sure both happen correctly
- Identify who will work on reporting food waste to the ne'ma national data hub

Considering that each entity has a different approach to tackle food waste, ne'ma developed this checklist and a step-by-step guide to support entities that are just starting to tackle food waste, which can be found in the Implementation guide on ne'ma's website.

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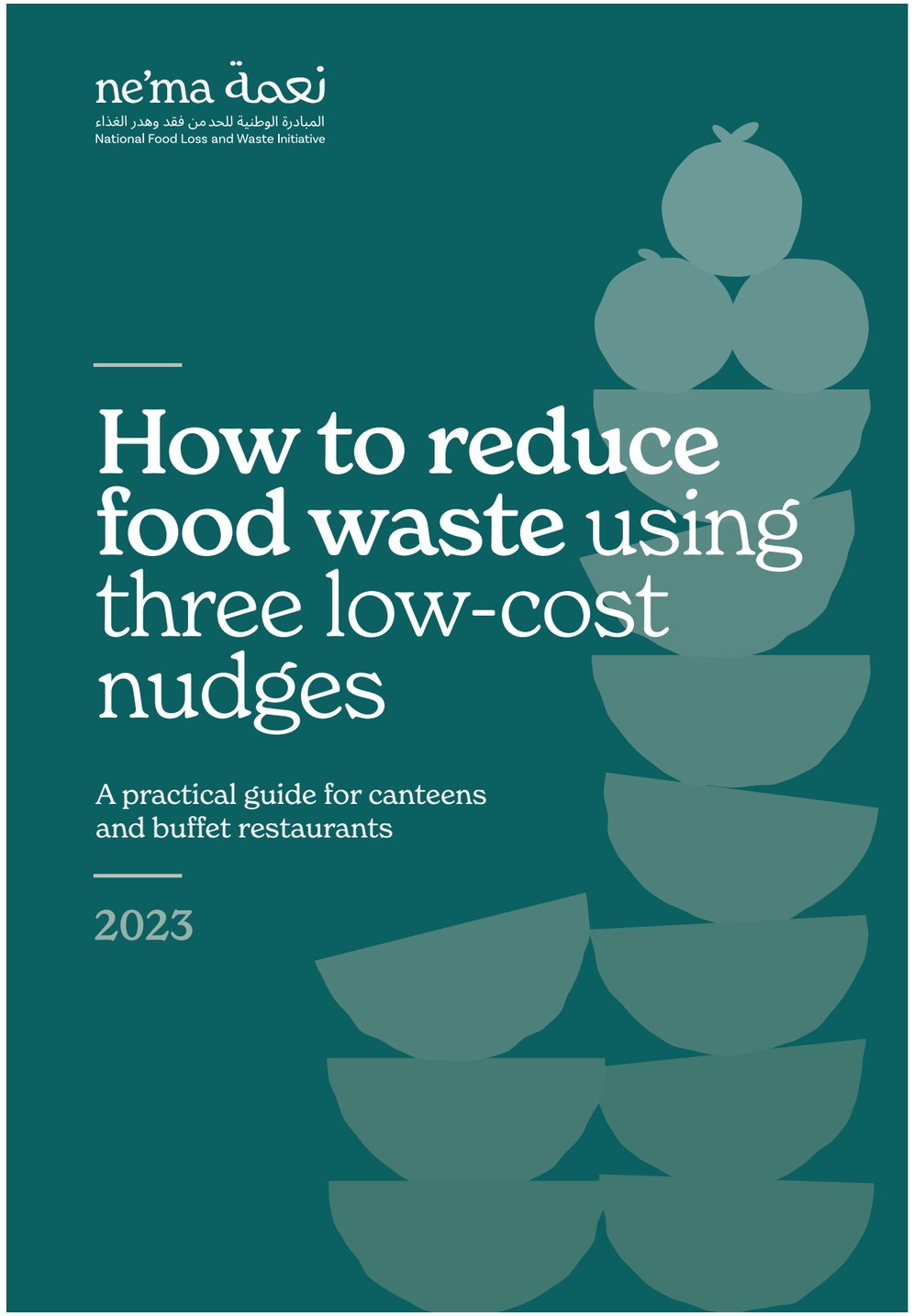


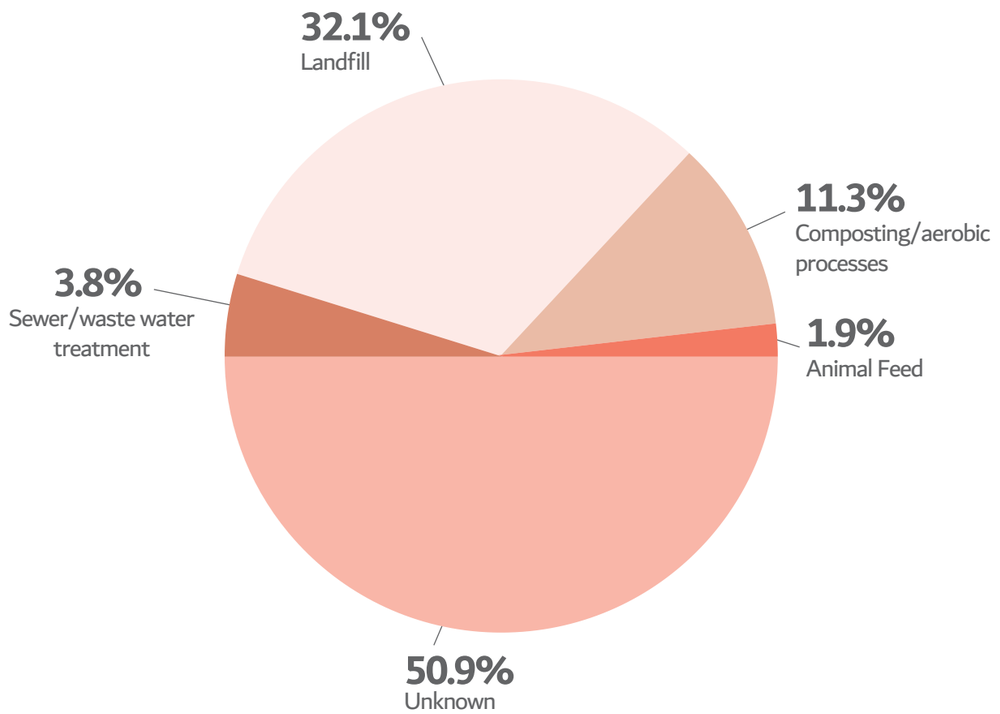
3.6. Finding solutions for rescuing surplus food.

Throughout the trial, various methods were suggested to rescue food, such as re-purposing leftovers for staff meals, and the data hub logged the final destination of food waste – representing the first comprehensive attempt to measure this across the UAE's hospitality sector.

3.7. Diverting food waste from landfill and closing the loop.

Destination is the final stages of the Closed Loop Framework, addressing the sustainable disposal of food waste.

Through the data hub, ne'ma also recorded the final destination of all food waste. This is presented below in Graph 2 for the entities that provided this information as part of the impact analysis, providing valuable information for planning future initiatives.



Graph 2 - Reported final destination for food waste (N = 45 entities)

According to the national trial analysis and reporting from the participated entities, over 80% of food waste still goes to landfill. The food waste that is mixed with the rest of the waste and taken to landfill creates important carbon emissions. According to the global estimates approximately 10% CO2 emissions come from food waste.

Food waste could be a valuable source of fertilizers and nourish the local land if segregated properly and composted. In the UAE, there are various local start-ups providing services and technology solutions to upcycle, recycle or repurpose food waste.

Some sites in the trial employed technology platforms to help with this stage, such as ReLoop. There is significant potential for wider adoption of such technologies to further improve the efficiency and impact of the Rescue and Destination stages in the food waste reduction cycle.

ne'ma's service provider: ReLoop

One of ne'ma's key partners is ReLoop. ReLoop is reshaping food waste management in the UAE's hospitality sector. Over the past 2-3 years, Reloop has revolutionized waste practices in over 75 hotels across the UAE, encompassing more than 200 restaurants and kitchens. Their approach combines circular economy principles with digital automation, targeting **35-45%** of total waste for recycling and composting, thereby significantly reducing landfill contributions.

This impact was notably visible during Ramadan 2023, where in collaboration with ne'ma Reloop diverted over **301,000 kilograms** of food waste from landfills. On average, a hotel generates 250-350 kilograms of food waste daily. By adopting Reloop's solutions, these establishments have seen an average reduction of **22%** in their food waste over two years. This initiative not only reduces waste but also supports local agriculture by recirculating compost, thereby enhancing the UAE's food security.

Section 04

Creating impact

4.1. The impact analysis of the national trial

One of the goals of the trial was to measure the impact of the interventions on plated food waste by comparing waste amounts per diner for 10 weeks. These were separated into two consecutive 5-week periods, one before the nudges were implemented – called the baseline period – and the other after.

The following indicators were monitored to track the success of this project:

- Changes in plated food waste per diner, before and after the nudges
- A measurement of customer satisfaction with the nudges implemented

Importantly, these detailed analyses of KPIs are feeding into the national food waste baseline estimate and the food service index. They will also provide valuable information that can be used when designing and planning future initiatives.

28% of entities[14] reported having an explicit food waste target in place, compared to 4% who said they do not *(information was not provided for the remaining entities)*.

190 sites submitted data. Following quality assurance processes, high quality data from 75 sites under 45 different entities was included in the analysis. This amounted to over 10,000 data points.

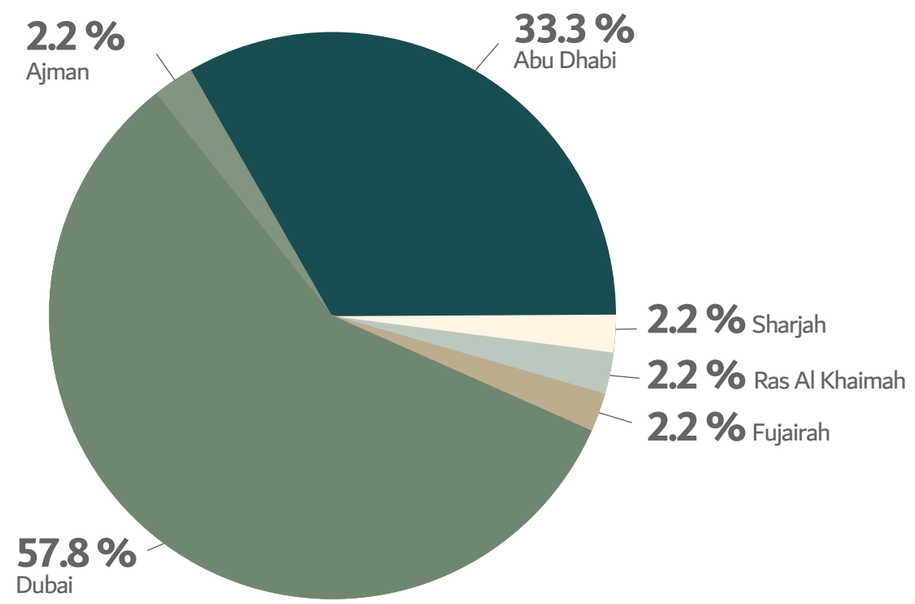
While a high volume of data were submitted by 190 sites across 82 entities, rigorous data quality assurance was conducted to ensure the results were robust. After processing the self-reported data, the impact analysis included data from a total of 75 restaurants, catering sites and canteen sites[15] from 45 separate entities across the emirates. This included over 10,000 data points across the trial period. Understanding data inputting errors of those sites that were excluded will also help better refine ne'ma national data hub to ensure high-quality data is submitted.

	Entities	Sites
Total engaged*	185	260
Total submitted data	82	190
Total submitted high quality data	45	75

*Not all entities who engaged with the trial reported specific sites.

The impact analysis included entities across the Emirates.

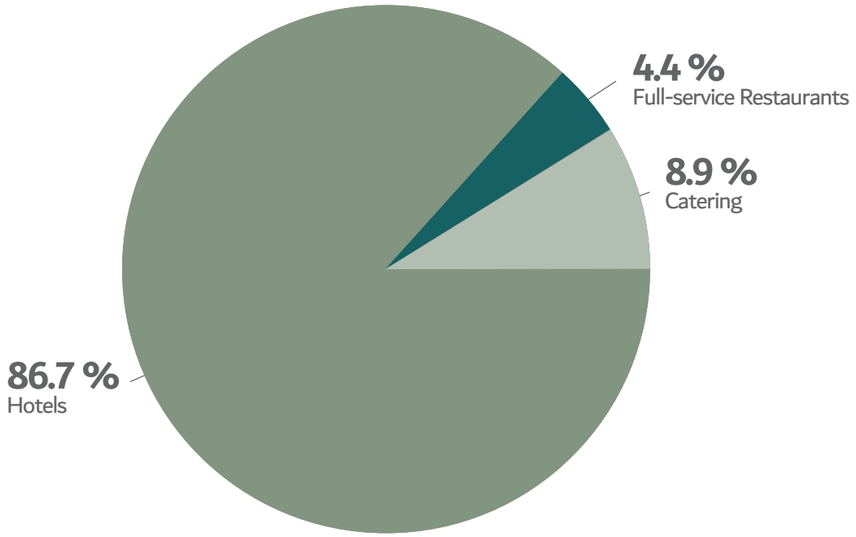
Graph 3 shows how entities across the Emirates submitted high quality food waste data over the course of the trial and hence were included in the impact analysis. Nearly **60%** of entities were from Dubai, and **33%** were from Abu Dhabi - with the remaining portion from other Emirates.



Graph 3 - Entities per emirate (N = 45)

Entities were from across different hospitality sectors: hotels, catering services and full-service restaurants.

As seen in Graph 4 the impact analysis also includes a range of entities across the sector. Of those entities who submitted high quality data, nearly **87%** were hotels, nearly **9%** were catering services and around **4%** were full service restaurants.



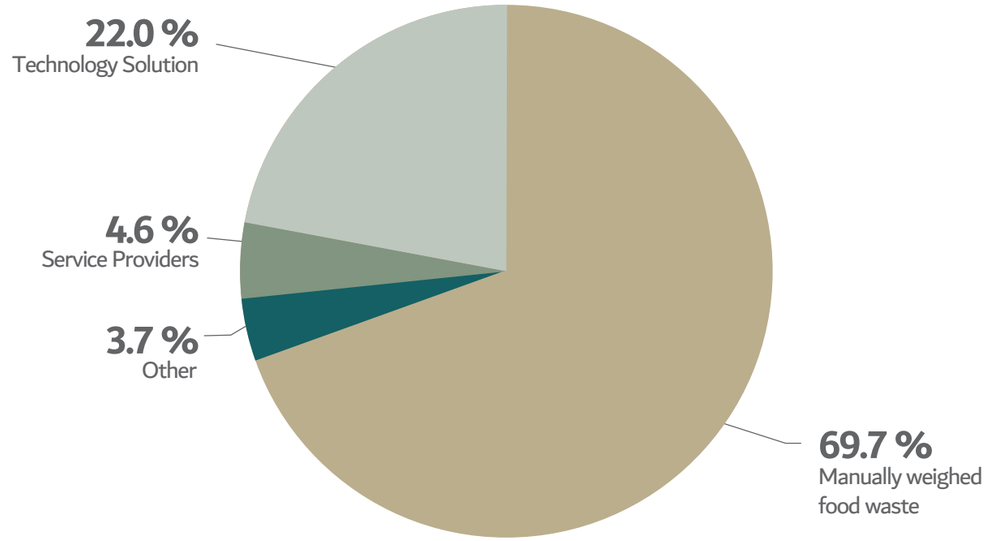
Graph 4 - Entities per sector (N = 45)

Data was collected across different meals.

Data was collected for breakfast, lunch, and dinner meals across sites. **87%** of these meals were served as a buffet, **10%** were a la carte, and **3%** included both serving options.

The majority of the participants were collecting data manually.

Almost **30%** of the participants reported that they use technology solutions (*such as Winnow*) and service providers to collect data around food waste as shown below in Graph 5.



Graph 5 - Food waste measurement approach (N = 109 entities)

Data was collected on what date the sites implemented their nudges.

Sites were asked to self-report which behavioral solutions they implemented and when they implemented them. In total, 36 of the 75 sites included in the analysis reported the date at which they implemented the nudges. For sites that did not report implementing nudges, the implementation date was estimated as 30 September 2023. This likely results in an underestimate of the impact of the nudges, because sites are likely to have implemented nudges before this date (*sites were instructed to implement nudges on 25 September 2023*), therefore some post-implementation data may be captured in the pre-implementation period.

Entities are at different stages in their journey, but we need to involve the nation to have impact at scale.

Findings from the national trial indicate that different players are at various stages in the food waste journey. Some mature entities use technology solutions to measure food, have standardized approaches to reviewing their data, and can quickly implement a range of nudges at the site level. Others still measure food manually and face operational challenges when implementing nudges.

These variances among entities explain why this trial shows more modest effects compared to previous trials, where ne'ma partnered with players who could rapidly implement interventions and measure their impact.

However, this also highlights the value of a national trial and puts the overall impact in perspective. It is crucial to involve all players, including those at earlier stages, to achieve impact at scale.

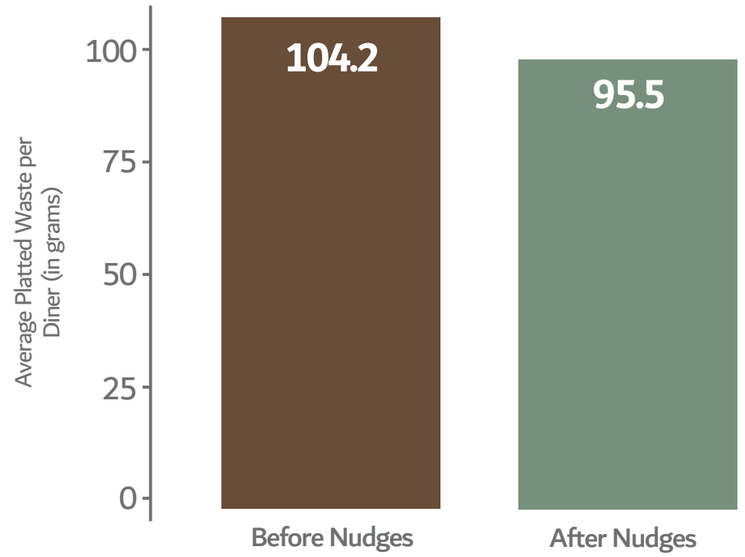
ne'ma - National Action at Scale: Reducing Food Loss and Waste in the Hospitality Sector
Creating impact

4.2. Nudges work to reduce food waste.

Across 75 sites, nudges are estimated to have reduced plated food waste by 8.3% or 8.7 grams per diner.

The reduction in food waste is illustrated in Graph 6. Plated waste per diner was the key outcome measure targeted by the nudges. Statistical analysis indicates that there is less than a 1% probability that this difference was due to random variation, strongly suggesting that the food waste reduction was caused by the introduction of the nudges.

Over the five-week measurement period, nudges are estimated to have saved 15.2 tonnes of plated food from being wasted.

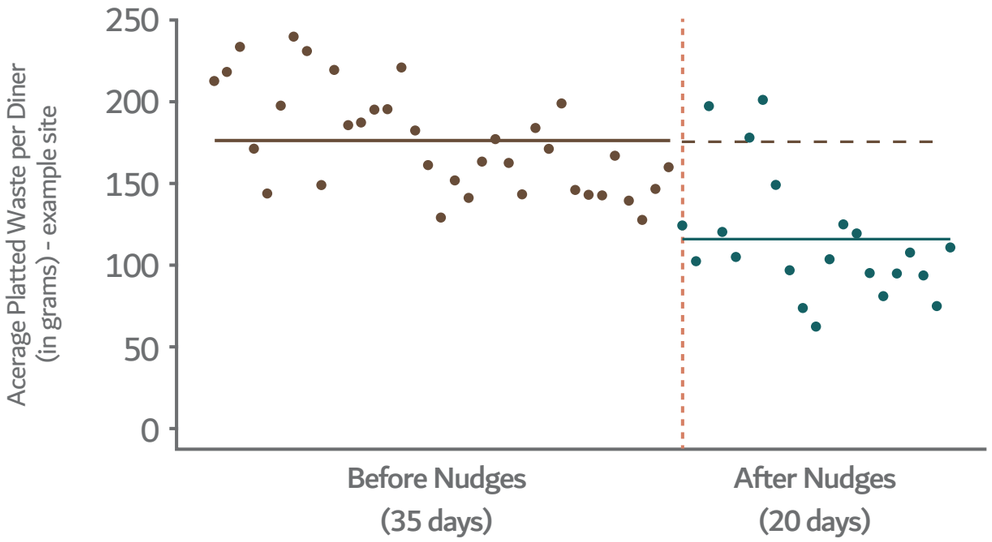


N= 10260; 75 hotel sites
Error bars are 95% confidence intervals for baseline effect vs. post- implementation periods
Exploratory analysis** p<0.01, p<0.05 + p<0.1

Graph 6 - The primary outcome of interest: effect of the nudges on average plated waste per diner

There is a clear reduction in plated food waste per diner before and after the nudges are implemented.

Graph 7 shows the average plated waste per diner in grams, during the food waste monitoring period for one site. The graph illustrates the reduction in plated food waste observed in a site which performed particularly well. Once the nudges are implemented, there is a clear decrease in plated food waste compared to the baseline period.



N = 56; 1 Hotel Sites
Dots indicate daily average data per hotel site. Lines show period averages.

Graph 7 - Average plated waste per diner during the trial period for an example site. Each dot represents average food waste per diner, per day.

4.3. This is an impressive result for a trial at scale.

The trial shows behaviour nudges are a viable route for sustainable change in the sector at scale.

This trial showed that implementing the interventions at scale led to an overall reduction of food waste. The purpose of this trial was to understand whether these interventions work when rolled out without close monitoring from the intervention designers. These nudges are designed to be simple and low-cost interventions for the hospitality sector to embed in their business practice, with minimal input from ne'ma and behavioral experts. This suggests that the nudges are compatible with the current sectors' practices, and can be implemented in the long-run without much input from policy-makers.

Partners were provided with virtual and in-person training, resources on ne'ma national data hub, and light-touch implementation support. Sites were permitted to make key operational decisions about which nudges to implement, without the same level of control as previous smaller trials. Allowing sites independence in this regard provides a greater understanding of whether these behavioral solutions are a viable route to sustainable change at scale.

Partners chose which nudges to implement.

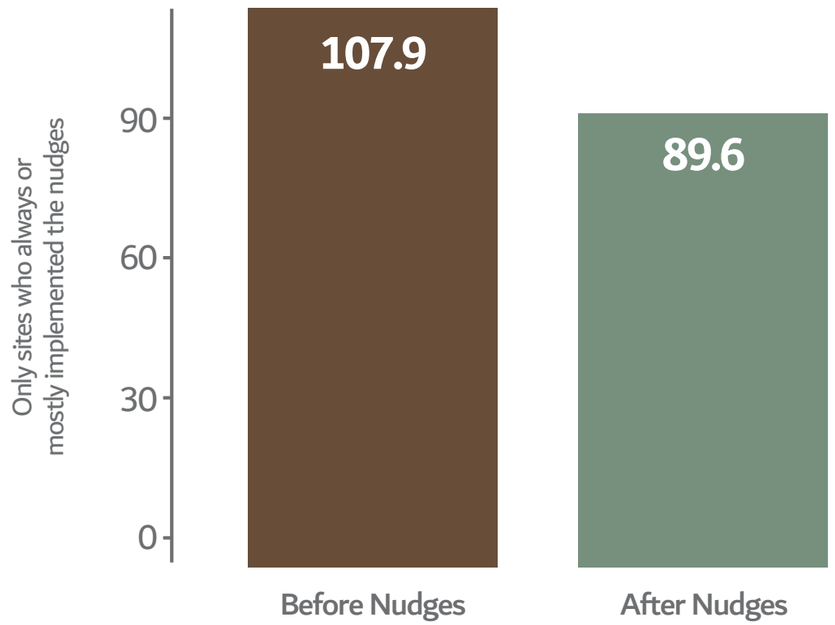
Of 110 sites [16] that reported introducing nudges, only 16 reported implementing small plates as a default (**15%**). Previous trials hypothesized that small plates were the main driver of reduced food waste. Therefore, it is important to note that the **8.3%** reduction in food waste is driven in large part by interventions such as behaviorally-informed messaging, which tend to yield more modest results.

4.4. Sites that consistently implemented nudges saved twice as much food from being wasted.

There was a food waste reduction of 17% for sites where nudges were consistently implemented.

When inspecting only data from the 27 sites who reported mostly or always implementing the nudges (*36% of the 75 sites included in the full analysis*), the effect size more than doubles to a **17%** reduction in plated waste per diner, or 18.3 grams (Graph 8). There was less than a **1%** chance this difference was due to random variation, again leading to a high degree of confidence in the results.

This larger effect is likely to be a combination of these sites consistently implementing the nudges, and a possibly higher commitment to food waste reduction. These findings are consistent with larger effects in nema's previous flagship trials, where nudge implementation was monitored closely to ensure consistency. These led to plated food waste reductions of up to **44%** in staff canteens and **15%** in customer facing restaurants.



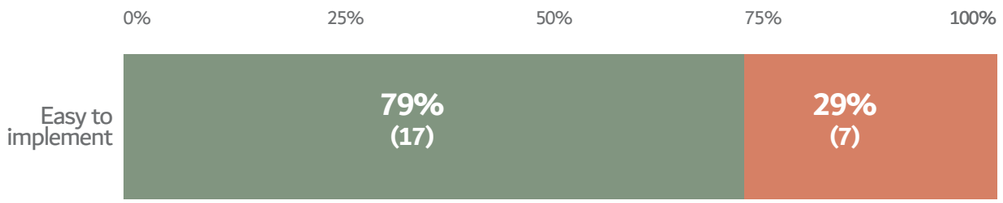
N= 4123; 27 hotel sites
Error bars are 95% confidence intervals for baseline effect vs. post- implementation periods
Exploratory analysis** p<0.01, p<0.05 + p<0.1

Graph 8 - Effect of the nudges amongst only those restaurants with consistent implementation

4.5. The nudges were seen as easy to implement and entities report being likely to use them in future.

To gather insights on the implementation process, a short survey was conducted with the entities participating in the trial. The survey was completed by 24 separate entities (*of the 82 who actively participated in the initiative*) and the key findings are summarized below.

Most entities found the nudges easy to implement (**71%**, *see Graph 9*) and stated they are likely to continue using these nudges in the future (**92%**, *see Graph 10*).



Graph 9 - How easy or difficult it was to follow the instructions for implementing the nudges (N = 24; number of entities who gave each response is in brackets)

Graph 10 - How likely entities are to continue using these nudges in the future.(N = 24; number of entities who gave each response is in brackets)

4.6. Diner's perceptions of the nudges

A short survey was conducted to understand customer satisfaction and perception of the plated food waste reduction nudges. Entities were asked to place cards displaying QR codes on tables in restaurants, which asked diners to fill out the customer satisfaction survey. Diners could choose whether or not to complete this survey.

Unfortunately, the response rate to the survey was lower than expected, and therefore strong conclusions cannot be drawn. Only 18 diners completed this survey. Their perceptions of the intervention and of the dining experience were largely positive. This gives us optimism that the nudges did not cause dissatisfaction.

This is consistent with the findings of ne'ma's previous trials. In a previous trial in customer-facing restaurants during Ramadan, one hotel's customers were surveyed in-person (n = 39) and all diners were satisfied with their dining experience. 94% of diners said the materials positively affected their dining experience and all said that they were more likely to visit again knowing that a food waste reduction initiative was in place. Similarly, in ne'ma's previous trial in staff canteens, it was found that the interventions did not affect customer satisfaction.

Section 05

Building and sharing best practices

During the trial period, ne'ma engaged with over 180 entities across the hospitality sector.

This included active engagement and commitment from:

1. **Large hotel chains, including:**
   - Hilton
   - Rotana
   - Marriott
   - Jumeirah
   - Accor
2. **Large catering companies:**
   - Capital Catering Service, ADNH Compass,
   - National Catering Company Limited Sole Proprietorship LLC,
   - Apex National Catering
3. **Stand alone restaurants, such as BOCA.**
4. **Large corporates with staff canteens, such as ADNOC.**
5. **Other hotels that with the high level of commitment:**
   - Al Diar Dana Hotel,
   - Kampinski Hotel Mall of Emirates,
   - Atlantis the Palm,
   - City Seasons,
   - Rove Expo 2020
   - Avani Palm View Dubai Hotel and Suites.

The participants in the trial were predominantly hotels, but other sub-sectors also took part, such as restaurants and catering services that serve hospitals, military personnel, schools, and the private sector. The chart below shows the split of entities who signed up for the ne'ma data hub.

The next section highlights case studies from different sectors and with distinct set-ups, to share best practices and lessons learnt from participation in the trial.

Case study 1: Hilton's Green breakfast initiative

Setting: Customer-facing restaurants in hotels. Across a range of Hilton hotels within the UAE, the nudges were applied to the buffet set-ups during breakfast meals.

Hilton's Green Breakfast aims to significantly reduce food waste across breakfast operations in 13 UAE-based hotels, effectively providing a blueprint for food waste management across the local hospitality industry.

Data from Winnow suggests Hilton achieved more than a **50% reduction in food waste** through their initiative, which started before the national trial with ne'ma. Hilton further built on this success in partnership with ne'ma.

The pilot project kicked off in August with the installation of production and plate waste systems across participating hotels, where baseline data was recorded and updated through to November 2023. Hilton, ne'ma, and Winnow are working on the ground to develop best practices for the entire industry to follow.

Breakfast provides a unique opportunity to address food waste concerns, as it is the one unifying F&B experience in all hotels that also contributes the most to food waste around the world. With Hilton serving an estimated one billion breakfasts per year – and the 13 UAE-based properties serving 1.8 million in the same period – the first meal of the day allows for the most guest interaction and education.

Challenges faced before the trial

Before the trial, sites reported that it took time to train staff to know how and where to implement the nudges. They also reported it was important to ensure the staff were fully engaged with and understood the aims of the trial, so that the nudges could be implemented as designed. Diverse and changing guest profiles also led to initial variation in food waste figures.

As Hilton had access to Winnow data, they had early insights into the areas creating high food waste. For example, they observed that

- For kitchen waste the most commonly wasted items were scrambled eggs, porridge, congee, sambar, shakshuka and baked beans.
- For plated and customer waste, the most common wasted food area across all hotels was identified as bread and pastry, followed by other categories such as fruit, vegetable/fruit peel, meat, and vegetables.
- Based on the data from Winnow, overall g/cover waste averaged 121 g/cover across all 13 hotel:
    - Average pre-consumer grams per diner waste was 53 grams per diner across all 13 hotels
    - Average post-consumer grams per diner waste was 74 grams per diner across all 13 hotels

With ne'ma advice, Hilton was supported in how to more strategically position the nudges so that they target these areas of higher waste. Advice was also given regarding portion control measures, such as cutting items in half, or creating smaller sizes for the most wasted items.

Nudges introduced

Hilton tailored its approach to each hotel, with each hotel taking part having a choice of which nudges to introduce based on operational considerations. The majority of sites implemented the following ne'ma nudges:

In addition, Hilton also integrated

- Weekly Winnow coaching sessions with hotel culinary teams.
- Daily and weekly reporting from Winnow, which helped teams understand waste trends and make adjustments to production volumes.
- Training to both back and front of house team members.
- Surplus redistribution to staff canteens.
- Batch cooking.
- Encouraging guests to take pastries in take-away bags.

Best practices and lessons learned

Overall, Hilton took a comprehensive, holistic and data-driven approach. A number of lessons have been learned, and best practices shared, from their experience with the trial. For example, sites reported that:

- Key practices such as portion reduction, surplus redistribution, and made-to-order cooking significantly reduced waste.
- Guests inquired about the pledge cards and message tents, and staff provided explanations about ne'ma's goals.
- In the future, having the materials translated into more languages (*such as Russian*) could help further tailor the nudges to all customers.
- The trial has helped the team "acquire knowledge about the necessary steps for food waste control".

Outcomes

Based on the Winnow data analysis

- Overall pre and post-consumer grams per diner food waste was reduced by **62%** to grams per diner (*4 week moving average*)
- Overall annualized savings are **422,133 meals** and **726 tonnes in CO2 emission**
- Pre-consumer waste was reduced by over **76%** down to 13 grams per diner
- Post-consumer waste was reduced by **55%** to 33 grams per diner

The detailed and thorough approach taken by Hilton created tangible results. Importantly, the effort put into staff engagement and training will also ensure future initiatives are easier to implement.

Case study 2: BOCA

Setting: Modern, boutique Spanish restaurant BOCA is a small independent restaurant and therefore differed from the majority of larger chains and hotels that took part in the trial.

Aspirations to tackle food waste

BOCA, a Spanish restaurant in Dubai, was one of the pioneering sites taking part in this trial, demonstrating actions that smaller independent restaurants can take to tackle food waste.

BOCA's aspiration to tackle food waste stems from a deep appreciation of the UAE's abundant natural resources, from the Hajar mountains to the Arabian Gulf. Committed to local sourcing and waste reduction, BOCA has appointed a Waste Officer, auditing operations, eliminating single-use plastics, and maintaining a demand-driven inventory.

The BOCA restaurant runs entirely on renewable energy, and BOCA not only measures its carbon footprint but also embraces sustainability through initiatives such as creative menu planning, cross-utilization of ingredients, and partnerships for organic waste repurposing. These steps taken illustrate their multifaceted approach to environmental responsibility.

Challenges faced before the trial

Before the trial, BOCA reported that it took time to introduce the nudges to staff and explain how and where they would be used. As they are a single, independent entity they had less opportunities for cross-site learnings. In this way, the workshops presented an opportunity for cross-sector learning, so that they could hear and benefit from the experiences shared by other sites.

Nudges introduced

Behavioral Messaging

Portion Control By Staff

Best practices and lessons learned

Through their experience in the trial, BOCA shared that:

- Introducing the nudges to their staff and to their guests through small visible posters helped further build awareness about food waste as an issue.
- Having a dedicated team, just to work with ne'ma, helped them spend more time studying, understanding and building internal capacity.

Case study 3: Capital Catering Services (part of ADNEC group)

Setting: Capital Catering Services is a catering company that supplies food to a range of sectors including the defense industry, aviation, healthcare and energy. In this trial they implemented nudges in both restaurants and staff canteens.

Aspirations to tackle food waste

ADNEC Group has firmly positioned food waste management within its ESG strategy, aspiring to achieve zero food waste to landfills by 2030. In 2022, they initiated a mechanism to measure and monitor food waste, establishing baseline figures.

Now, Capital Catering Services is actively exploring and enacting food waste reduction measures across their various operational streams across catering and the hospitality sector.

Challenges faced before the trial

Capital Catering Services faced several challenges before the trial. Firstly, segregating waste into three distinct categories meant extra bins and scales had to be ordered, which incurred an initial financial cost. Secondly, smaller plates couldn't be introduced because they could not be sourced in time. Thirdly, staff training had to be detailed and comprehensive to ensure effective customer engagement, were they to ask about the initiative.

Nudges introduced

Across the Capital Catering Services sites involved, they implemented:

- Behavioral Messaging
- Portion Control By Staff
- Feedback wall tracker
- Pledge cards

Best practices and lessons learned

Feedback from the sites involved revealed that:

- Staff engagement with new initiatives was initially challenging, but the trial demonstrated that efficient segregation can be streamlined with proper processes.
- The initiative also fostered increased interaction between front-of-house staff and customers, facilitating a valuable informational exchange on food waste and sustainability.
- In staff canteens, the fact that diners were returning for each meal meant that a longer conversation could be initiated about food waste awareness and action.

Through their experience in the trial, Capital Catering Services shared that:

"The most important observation is around the teams, we can see how this initiative has got everyone talking about food waste, from boardroom meetings to the frontliners that interact with customers. The ne'ma initiative has certainly increased the awareness amongst our employees and this lays the foundation for next steps, including taking actions."

Section 06

Conclusion and next steps

6.1. Overview of what drives impact

1. Collaboration and Readiness for food waste reduction

Importantly, there is already a great appetite for tackling food waste in the UAE:

In the Ramadan hotel restaurant trial, **94%** of diners stated that seeing the nudges impacted their experience positively.

In the first ***How the UAE Eats - Findings from the National Food Waste Household Survey***, **60%** of people stated that restaurants should be responsible for reducing food waste and **53%** said this responsibility lies with hotels.

In this national action at scale trial, **71%** of entities stated that they found the nudges easy to implement and **92%** stated they are likely to continue using these nudges in the future.

2. Building capacity through sharing practices and guidelines

This project represents a landmark achievement in reducing food waste at scale across the hospitality sector in the UAE. This process has demonstrated many lessons about what works across different types of restaurants and contexts to reduce food loss and waste.

Moving forward, it will be important to share these lessons with as many organizations as possible. ne'ma hope that these organizations can learn from the 'best practices' and in particular, through the case studies presented in this report.

3. Taking a long-term and structured approach to tackle food waste

As next steps, unified policies and guidelines can help standardize practices across the hospitality sector. Investment in both food waste training and awareness programs is crucial for fostering lasting behavioral change and embracing technology and digital solutions will help streamline data collection and automate key processes.

This strategic approach – combining policy alignment, awareness-raising initiatives, and technological adoption – will be imperative in ensuring that the UAE achieves its sustainability goals, setting an example for global food waste reduction efforts.

4. Engaging consumers

The nudges seemed to be well-received by customers.

Nudges significantly reduced food waste in both customer facing and staff settings. This is consistent with reductions in plated food waste seen in ne'ma's previous trials.

The trial reduced plated food waste by **8.3%**, equivalent to **15,200kg** (15.2 tonnes) of food waste saved in the 5 week post-implementation trial period.

Most entities found the nudges easy to introduce and will continue to use them in the future.

71% of entities stated that they found the nudges easy to implement and **92%** stated they are likely to continue using these nudges in the future. This suggests that nudges can be a sustainable solution and that they can be incorporated as part of future initiatives.

Beyond nudges

The promising results of this trial clearly demonstrate how powerful nudges can be in reducing plated food waste. However, broader policies and initiatives that target the food waste cycle are needed in order to scale this impact. This might involve pairing nudges with awareness campaigns, training of hospitality sector staff, and using measurement technology that can allow for data-driven decision making.

To help raise awareness of the issue and prompt people to action, ne'ma has already developed engaging tools and materials to boost awareness, which include simple everyday steps that everyone can take.

6.2. A menu for action for the hospitality sector.

The following section outlines key recommendations for hospitality sites that want to tackle food waste:

Assigning roles and responsibilities

- Gain support from senior leadership
- Appoint individuals to be responsible for defined roles
- If possible, form a dedicated team to tackle food waste
- Conduct regular team check-ins to measure progress and make adjustments
- Ensure all staff involved are clear on their responsibilities

Implementing lessons learnt [20]

- Start with simple steps (e.g. measuring waste over time), especially if new to food waste reduction
- At first, focus on one type of waste, like plated waste, for precise measurement
- If you have experience with food waste reduction initiatives, measure and target other types of waste (such as kitchen waste)
- Target interventions initially at the meal which causes the most waste (e.g. breakfast) and key sources of waste (e.g. pastries and bread)

Maximizing impact

- Prioritize interventions that alter choice architecture, such as smaller plates and portion control (compared to messaging and pledge cards)
- Use clear messaging to share your food waste reduction goals and methods
- Train staff in both the implementation of waste-reducing interventions and effective diner communication

6.3. Partner recognition

Strategic Partners:

UNITED ARAB EMIRATES
MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT

هيئة أبوظبي للزراعة والسلامة الغذائية
ABU DHABI AGRICULTURE AND FOOD
SAFETY AUTHORITY

Knowledge partners:

BEHAVIORAL
SCIENCE GROUP

THE
BEHAVIORAL
INSIGHTS
TEAM

Technology Partners:

winnow

Reloop

Food Rescue Partners:

UAE FOOD BANK بنك الإمارات للطعام

الهلال الأحمر الإماراتي
EMIRATES RED CRESCENT

CONRAD ABU DHABI ETIHAD TOWERS
CONRAD DUBAI
DOUBLETREE by Hilton RESORT & SPA MARJAN ISLAND
DOUBLETREE by Hilton DUBAI - BUSINESS BAY
Hilton DUBAI THE WALK
Hilton Dubai Jumeirah
Hilton Garden Inn Dubai Mall of the Emirates
Hilton ABU DHABI YAS ISLAND
Hilton AS'ALI ISWARAH BEACH RESORT
Hampton by HILTON
canopy by Hilton DUBAI | AL SEEF
Rotana
Beach Rotana Abu Dhabi
Al Maha Arjaan by Rotana Abu Dhabi
Khalidiya Palace Rayhaan By Rotana Abu Dhabi
Hili Rayhaan by Rotana Al Ain
Al Ain Rotana
Fujairah Rotana Resort & Spa – Al Aqah Beach
Al Jaddaf Rotana Suite Hotel – Dubai
Al Jaddaf Rotana Dubai
Rose Rayhaan by Rotana Dubai
Media Rotana Dubai
Towers Rotana Dubai
Jumeira Rotana Dubai
Pearl Rotana Capital Centre – Abu Dhabi
Saadiyat Rotana Resort & Villas – Abu Dhabi
Park Rotana Abu Dhabi
Amwaj Rotana Jumeirah Beach – Dubai
MARRIOTT DUBAI HARBOUR HOTEL & SUITES
MARRIOTT AL JADDAF
MARRIOTT AL FORSAN ABU DHABI
MARRIOTT DOWNTOWN ABU DHABI
Marriott DUBAI CREEK
MARRIOTT RESORT PALM JUMEIRAH DUBAI
DELTA HOTELS MARRIOTT JUMEIRAH BEACH DUBAI
Residence INN BY MARRIOTT
Residence INN BY MARRIOTT Al Jaddaf Dubai
SHERATON EST. 1937
SHERATON Jumeirah Beach Resort
SHERATON Mall of the Emirates Hotel Dubai
Sheraton Khalidiya HOTEL ABU DHABI
Jumeirah™
Jumeirah™ HOTELS & RESORTS
Jumeirah EMIRATES TOWERS
Jumeirah AL QASR
Jumeirah ZABEEL SARAY
ADNH COMPASS
Capital كابيتال CATERING • SERVICES Part of ADNEC GROUP
Al Diar Dana Hotel ABU DHABI
فندق دانة الديار
AL MAHA DESERT RESORT & SPA DUBAI
AVANI+ Palm View Dubai
NCC الوطنية
ROVE EXPO 2020
ADNOC أدنوك
BOCA
BVLGARI RESORT DUBAI
THE WB Abu Dhabi
فندق السيف التراثي al Seef heritage hotel CURIO COLLECTION by HILTON
فندق العين بالاس AL AIN PALACE HOTEL ABU DHABI CORNICHE أبوظبي الكورنيش
GRAND | HYATT ABU DHABI HOTEL & RESIDENCES EMIRATES PEARL

Centro Barsha · Dubai

Centro Al Manhal · Abu Dhabi

Courtyard by Marriott World Trade Center Abu Dhabi

City Seasons

Elsevier

Sofitel Dubai The Obelisk

aloft Hotels

aloft Dubai Creek

aloft Abu Dhabi

aloft Al Ain

DAMAC Hills 2 Hotel edge by Rotana

Ajman Saray Resort Ajman

Emirates Palace Mandarin Oriental Abu Dhabi

OXY

NCTH

APEX National Catering

Tilal Liwa Hotel

Al Raha Beach Hotel

Le Royal Meridien Beach Resort & Spa Dubai

Le Meridien Dubai Hotel & Conference Centre

Le Royal Meridien Abu Dhabi

Four Points by Sheraton

Four Points by Sheraton Sheikh Zayed Road Dubai

Four Points by Sheraton Sharjah

Four Points by Sheraton

St Regis Saadiyat Island · Abu Dhabi

St Regis Abu Dhabi

St Regis Downtown Dubai

St Regis Dubai · The Palm

The Ritz-Carlton Abu Dhabi, Grand Canal

The Ritz-Carlton Dubai International Financial Centre

The Ritz-Carlton Ras Al Khaimah, Al Wadi Desert

The Ritz-Carlton Ras Al Khaimah, Al Hamra Beach

The Dubai Edition

The Abu Dhabi Edition

Novotel Hotels & Resorts Abu Dhabi Gate Hotels

Novotel Abu Dhabi Al Bustan

Queen Elizabeth 2 Managed by ACCOR

Millennium

Mövenpick Grand Al Bustan Dubai

Novel

swissôtel Al Murooj Dubai

W Dubai The Palm

W Dubai Mina Seyahi

The Westin Dubai Mina Seyahi Beach Resort & Marina

Grosvenor House Hotel Dubai

Grand Mercure

La Ville Autograph Collection Hotels

JW Marriott Marquis Dubai

Kempinski Hotel Mall of the Emirates Dubai

Saadiyat Beach Golf Club Abu Dhabi

Royal Rose Abu Dhabi

Waldorf Astoria Dubai Palm Jumeirah

sodexo | kelvin

Atlantis Atlas Project

Reloop

Royal Catering Services LLC

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[14] Note: Sites include the specific restaurant/canteen or catering site - while entities refer to the Hotel or Restaurant as a whole.

[15] For the analysis, data was included from sites who submitted viable plated waste amounts and diner numbers for at least two weeks in the baseline period and two weeks after the nudges were implemented (minimum of 4 weeks total). These weeks did not have to be sequential.

[16] Sites were asked to report which nudges they had implemented. In total, 110 sites responded to this survey. Of the 75 sites included in the main analysis, 36 of the 75 sites reported which nudges they had implemented.

[17] At the end of the trial, sites were asked to report how consistently they were implementing their nudges. In this survey, 27 of 75 sites included in the full analysis responded to say they 'mostly' or 'always' implemented the nudges.

[18] Proportion of respondents who answered they are 'Somewhat easy' or 'Very easy' to the question 'How easy or difficult was it to follow the instructions for implementing the nudges? Very easy / Somewhat easy / Somewhat difficult / Very difficult'.

[19] Proportion of respondents who answered they are 'Somewhat likely' or 'Very likely' to the question 'How likely are you to continue using these nudges in the future? Not at all likely / A little likely / Somewhat likely / Not at all likely'.

[20] See ne'ma's report: 'How to reduce food waste using three low-cost nudges across canteens and buffet restaurants for more implementation lessons

Abbreviation

BIT - Behavioral Insights Team

BSG - Behavioral Science Group

ESG - Environment, Social and Governance

FLW - Food Loss and Waste

KPIs - Key Performance Indicators

UAE - United Arab Emirates

UNEP - United Nations Environment Programme

UNSDG - United Nations' Sustainable Development Goal

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