

How to guide

The educators' guide for green and sustainable food education



DEVELOPED UNDER THE PROJECT

” GREEN AND SUSTAINABLE FOOD EDUCATORS “



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The Takeaway message: Small Actions, Big Impact



Food waste is more than an environmental issue — it's an opportunity to empower students to make a difference.

By making learning interactive, leveraging technology, and fostering real-world engagement, educators can inspire the next generation to rethink their relationship with food.

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SECTION ONE – Why Food Waste Matters: The Role of Educators in Driving Sustainable Change

Introduction

Food waste is a global challenge with far-reaching economic, environmental, and social impacts. In an era of increasing resource scarcity, climate change, and food insecurity, reducing food waste has become a priority for governments, businesses, and consumers alike. However, addressing this issue effectively requires more than just policies and technological innovations—it demands a shift in attitudes, behaviours, and cultural norms.

Education plays a crucial role in addressing this issue. Vocational educators, as key influencers in shaping future professionals, have a unique opportunity to instill a sense of responsibility and knowledge about sustainable food practices in their students. By equipping vocational educators with the right tools and methods to teach about food waste, we ensure that future generations of food professionals, service industry workers, and consumers develop the awareness and skills necessary to make informed choices that minimize waste.

Raising awareness about food waste is a fundamental step towards achieving a more sustainable food system. As vocational educators take on the responsibility of shaping future professionals, they must be equipped with effective teaching strategies to communicate the urgency of reducing food waste. This educational material will provide educators with knowledge and tools needed to inspire students to become responsible consumers and industry leaders, making food waste reduction an integral part of their personal and professional lives.

Background



What Is Food Waste

Food waste refers to food that is discarded or lost uneaten. This can occur at various stages of the food supply chain, from production to consumption.

Sustainability involves meeting our own needs without compromising the ability of future generations to meet theirs. It encompasses environmental, economic, and social dimensions.

Food waste is a significant concern across European countries, with substantial environmental, economic, and social implications. In 2022, the European Union (EU) generated approximately 59.2 million tonnes of food waste, equating to about 132 kilograms per person.

Distribution of Food Waste by Sector

- **Households:** Responsible for 54% of the total food waste, households discarded around 32 million tonnes, averaging 72 kg per person.
- **Processing and Manufacturing:** This sector accounted for 19% of food waste, contributing slightly more than 11 million tonnes.
- **Primary Production:** Representing 8% of the total, primary production generated below 5 million tonnes of food waste.
- **Restaurants and Food Services:** Contributing 11% to the total, this sector produced below 7 million tonnes of food waste.
- **Retail and Other Distribution:** This sector was responsible for 8% of the total food waste, amounting to slightly below 5 million tonnes).

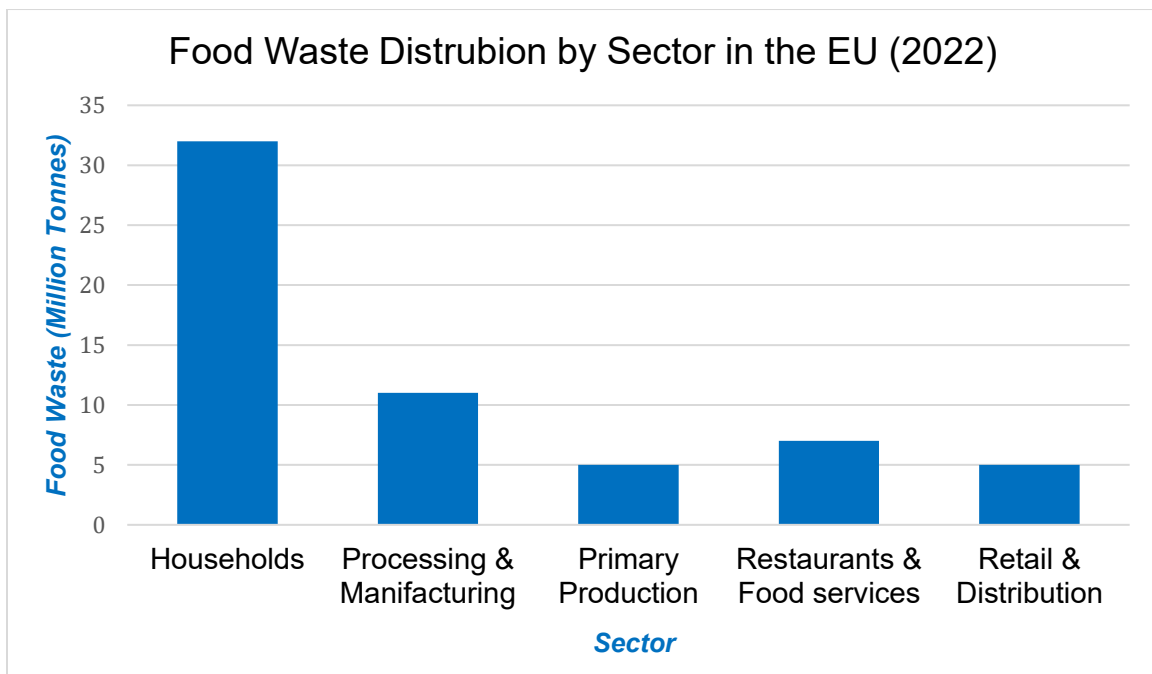


Figure 1. Distribution of food waste in Europe by sector

Per Capita Food Waste by Country

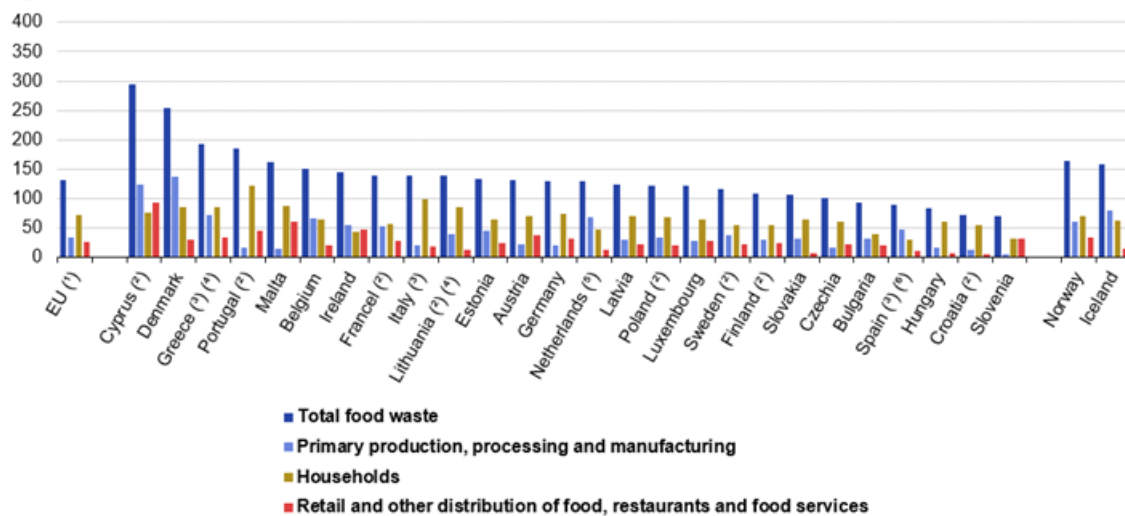
Food waste per capita varies across EU member states. In 2021, Belgium reported the highest per capita food waste at 262 kg, followed by Denmark at 230 kg, and Portugal at 181 kg. In contrast, Sweden, Croatia, and Slovenia reported lower per capita food waste, with 86 kg, 71 kg, and 68 kg respectively. However, in 2021 data was not available for Czechia, Germany, Greece, Spain, Cyprus, Malta and Romania. Figure 2 shows the magnitude of food waste per capita in different countries including also the previously non-listed countries. In 2022 Cyprus takes the crown with a whopping 300 kg of food waste per person in 2022, followed by Denmark (over 250 kg) and Greece (around 200 kg), way above the EU average of 100 kg.

In 2022, the European Union saw about 132 kg of food waste per person, with households leading the charge at 54% (that's 72 kg per person). This shows how much our daily choices at home shape the problem. Home is Where the Waste Is: In almost every EU country, households are the biggest food waste culprits. This hints that our personal routines and mindsets play a huge role.

The other 46% of food waste comes from the food supply chain—restaurants and food services add 15 kg per person (11%), while retail and distribution contribute 11 kg per person (8%).

Veggies (24%) and fruits (22%) top the list, followed by cereals (12%), meat (11%), and oil crops (10%). Fish and eggs, though minor parts of our food supply, waste a lot relative to their size (50% for fish, 31% for eggs)—likely due to how quickly they spoil and how we handle them. Foods like cereals (easy to store) waste less compared to perishables like fruits and veggies.

Food waste by sector of activities, 2022
(kg per inhabitant)



(†) Estimated data.

(‡) Estimates in some figures.

(‡) Definition differs or estimates in some figures.

(*) 2022 data not reported, 2021 data presented.

(*) Definition differs in some figures.

(*) 2021 and 2022 data not reported, 2020 data presented.

Source: Eurostat (online data code: env_wasfw)

eurostat

Figure 2: Food waste in 2022 per capita in different European countries.

Understanding the Scale of the Problem

Many people underestimate the magnitude of food waste and its impact on society. Globally, one-third of all food produced is wasted, which amounts to nearly 1.3 billion tons annually. This waste occurs at all levels of the food system, from production and distribution to retail, food service, and households. Raising awareness helps learners recognize their role in this issue and motivates them to take action.

Economic and Environmental Impacts of Food Waste

Food waste is not just about discarded food; it also represents wasted resources such as water, energy, labour, and transportation. Additionally, food waste contributes significantly to greenhouse gas emissions when it decomposes in landfills, exacerbating climate change. Educators must communicate these consequences effectively to help students grasp the broader implications of their daily decisions.



Ethical and Social Considerations of Food waste

With millions of people suffering from food insecurity worldwide, wasting food raises important ethical concerns. Raising awareness about food waste encourages more conscious consumer behaviours, emphasizing fairness and resource distribution. Teaching vocational educators to highlight these aspects can foster a greater sense of social responsibility among their students.

According to Food and Agriculture Organisation of the United Nations (FAO, 2017), one third of the food produced in the world for human consumption annually, approximately 1.3 billion tonnes, gets lost or wasted. In the meantime, there are 795 million hungry people out of 7.5 billion people living on this planet, meaning that one out of nine people in the world suffers from chronic malnutrition. (World Hunger News, 2016) The paradox here is that in the meantime, while a massive amount of food gets thrown away every day, that amount could feed the hungry of the world. This is a shocking issue; thus, food waste should be handled with a better approach.

Approximately one-third of global food production is lost or wasted, which amounts to about 1.3 billion tonnes per year. It is ecologically, socially and economically unsustainable to waste edible food rather than consume it since the environmental impacts of producing the raw materials and processing them into food are substantial.

Let's take Finland as an example: Food rates for more than one-third of the environmental impact of overall Finnish consumption and approximately one-quarter of the climate impact of consumption. Due to previous food waste studies in Finland, there were about 400 million kg of avoidable food waste in the whole food chain.

Environmental Impact of Food Waste

Food waste has profound environmental consequences, contributing significantly to greenhouse gas emissions, water depletion, land degradation, and biodiversity loss. While meat and dairy products account for less than 20% of total food waste, they are responsible for over 50% of its environmental impact in the EU. Overall, food waste represents approximately 16% of the EU food system's environmental footprint, highlighting the urgent need for intervention across all sectors of the food supply chain.

One of the most severe environmental consequences of food waste is its role in climate change. When food decomposes in landfills, it produces methane, a potent greenhouse gas that is far more effective at trapping heat in the atmosphere than carbon dioxide. The large-scale waste of food exacerbates global warming, making food waste reduction a critical component of climate action efforts. Addressing this issue requires changes at both the consumer and industrial levels, with an emphasis on improved food storage, redistribution of surplus food, and increased composting efforts.

Water wastage is another major concern linked to food waste. Food production consumes vast amounts of water, making discarded food a significant waste of this essential resource. According to the Food and Agriculture Organization (FAO), nearly 25–30% of all food produced globally is wasted, equating to approximately 250 cubic kilometers of water annually. This volume is equivalent to three times the water contained in Lake Geneva or the annual flow of the Nile River. Agriculture is already the largest consumer of water worldwide, and food waste further exacerbates water shortages, especially in regions facing water scarcity.

Land use and biodiversity loss are also closely tied to food waste. Nearly 40% of the world's habitable land is dedicated to food production, but a significant portion of this land is used to grow food that is never consumed. This inefficient use of agricultural land contributes to deforestation, habitat destruction, and soil

degradation. The expansion of agricultural land often comes at the expense of forests and other ecosystems, leading to the loss of biodiversity and increased greenhouse gas emissions from deforestation. Soil degradation has already reduced the productivity of nearly a quarter of the global land surface, negatively impacting the livelihoods of billions of people. Reducing food waste would decrease the demand for land-intensive food production, thereby helping to protect natural habitats and biodiversity.

In addition to climate and land-related consequences, food waste also leads to unnecessary energy consumption and pollution. The entire food supply chain, from farming and processing to transportation and storage, requires substantial energy inputs. When food is wasted, the energy expended at each stage of the supply chain is also wasted. Moreover, the production of food relies heavily on fertilizers and pesticides, which can contaminate soil and water sources. The excessive use of these chemicals contributes to environmental problems such as water pollution and soil degradation.



Another critical consequence of food waste is its role in eutrophication, which occurs when excessive nutrients enter water bodies, leading to harmful algal blooms and oxygen depletion. This process creates dead zones in aquatic ecosystems, where marine life struggles to survive due to a lack of oxygen. By reducing food waste, we can help limit nutrient runoff and mitigate the negative effects of eutrophication, while protecting water quality and aquatic biodiversity.

Efforts to minimize food waste must be approached from multiple angles. At the household level, individuals can take simple steps such as meal planning, proper food storage, and composting to reduce waste. Businesses and institutions can implement food waste reduction strategies, including improved inventory management, portion control, and surplus food donation programs. Additionally, education plays a crucial role in fostering long-term behavioural change. Schools and vocational training programs can integrate food sustainability education into their curricula, equipping future generations with the knowledge and skills needed to reduce waste.

Addressing food waste also aligns with global sustainability goals. The United Nations Sustainable Development Goal (SDG) 2: Zero Hunger emphasizes the importance of minimizing food waste to ensure greater food availability for those in need. Similarly, SDG 12: Responsible Consumption and Production highlights the necessity of sustainable food practices to reduce environmental impact. Businesses and educational institutions increasingly recognize their role in addressing food waste as part of corporate social responsibility efforts. By improving supply chain efficiency, donating surplus food, and educating consumers about responsible consumption, organizations can contribute to broader sustainability objectives.

By tackling food waste at all levels, from production to consumption, we can make significant strides toward a more sustainable and equitable food system. Reducing food waste is not only a matter of environmental responsibility but also a crucial step toward resource conservation, climate action, and food security for future generations.

Importance of Empowering Future Professionals

Knowledge alone is not enough to reduce food waste—behavioural change is key. By integrating awareness with practical strategies, vocational educators can help learners develop sustainable habits, such as proper food storage, meal planning, and creative use of leftovers. These small but impactful changes can significantly reduce food waste at both individual and systemic levels.

Vocational education often prepares students for careers in food-related industries, such as hospitality, catering, and retail. By educating future professionals about food waste, we empower them to implement waste-reducing practices in their workplaces. Whether through improved inventory management, portion control, or composting initiatives, these professionals can drive positive change in the industry.

Call to Action

Educators are the key to fostering a new generation of sustainability-conscious professionals. By incorporating interactive teaching methods, digital tools, real-world applications, and strong community engagement, we can drive meaningful change.

Next Steps for Educators:

- ✓ Start with small-scale activities like food waste audits.
- ✓ Engage students through technology and real-world experiences.
- ✓ Collaborate with local businesses & organizations for hands-on learning.
- ✓ Measure impact through surveys and student projects.

As vocational educators, you play a crucial role in shaping the future workforce. Addressing food waste and sustainability is essential in fostering a generation that values and practices environmental stewardship. This chapter provides strategies and tools to effectively engage and communicate these critical issues to your students.

Food waste is a growing global crisis, but the solution begins in the classroom. Imagine a learning environment where students don't just read about sustainability; they experience it firsthand. By integrating interactive learning, technology, and real-world applications, educators can inspire the next generation to take meaningful action against food waste.

Here we introduce five educational strategies with practical examples for your inspiration in the classroom!



I Making Learning Interactive: Hands-On Sustainability

Forget passive lectures; students learn best by doing. Bringing sustainability to life means getting their hands dirty (literally!) with activities that connect food waste concepts to real-world impact. Please familiarize yourself with these selected examples which you find further below:

Leftovers Cooking Challenge (Section 3.1 and Practical Exercises)

Students or teams create new dishes using leftover ingredients. The exercise engages learners in real-world sustainability, reinforces creative problem-solving, and makes food waste reduction tangible.

Food Waste Audits (Sections 3.1 and 3.4)

Students track their own food waste over time, analyze patterns, and reflect on behaviors. The exercise is experiential, reflective, and supports data-based learning about sustainability.

Home Food Storage Hacks Workshop

The exercise demonstrate and practice best storage techniques. It provides actionable skills students can apply immediately at home.

Composting at School

In this exercise educators set up a compost system with student involvement. This provides hands-on learning, environmental science, and long-term habit building.

Role-Playing Scenario: The Food Waste Debate

Students act as stakeholders (e.g. farmers, consumers, supermarkets) to explore food system challenges. The exercise includes active learning through discussion, empathy building, and systems thinking.

II Tech-Powered Sustainability: Gamifying the Lesson

Today's students are digital natives, so why not meet them where they are? Incorporate educational apps and games and virtual reality (VR) tools into teaching. Please familiarize yourself with these selected examples which you find further below:

Gamification and Challenges in Section 3.1 – *Engaging Activities*

This exercise use quizzes, competitions, or interactive games (e.g., “Zero Waste Week” challenge). The learners track and reduce their waste in a friendly competition. This approach gamifies behavior change and makes learning fun and socially engaging.

Mobile Apps for Food Tracking & Reminders in Sections 2.2, 3.2, and 3.4

This exercise use apps that track inventory, suggest recipes based on available ingredients, or send expiry alerts. The mentioned apps include those with gamified interfaces (like Too Good To Go, OLIO, or Love Food Hate Waste). The activity integrates tech into daily behavior change; reinforcing habits with nudges and interactive feedback.

Virtual Simulations & Digital Tools in Section 3.2 – *Interactive Digital Tools*

This example use virtual simulations to visualize environmental impacts of food waste. Tools like Google Slides, Prezi, Canva, or Powtoon help students *create* content as well (turning them into co-creators). The exercise builds digital literacy while connecting emotionally and cognitively with food system challenges.

Waste Reflection Diaries & Surveys (Digitized) in Sections 2.2 and 3.4

In these exercises students use apps or online tools to log and reflect on food waste. Reflection becomes part of a gamified self-assessment

process. Digitally enabled habit tracking blends introspection with data collection, helping learners self-regulate their food behaviours.

III The Power of Collaboration: Learning Together

Sustainability is a team effort, and students thrive when they can exchange ideas, challenge each other, and take ownership of their learning. These could be group discussions and debates, students doing research on practical food waste issues, etc. Please familiarize yourself with these selected examples which you can find further below from this document:

Role-Playing Scenarios: The Food Waste Debate in Section 3.1 – *Engaging Activities*

In this exercise students are assigned roles—consumers, farmers, restaurant owners, government officials, etc.—and debate real-world food waste issues. Students learn through each other’s perspectives, explore systems thinking, and co-create solutions together.

Student-Led Initiatives and Campaigns in Sections 3.3 and 3.5

Here students design and run awareness campaigns, organize school-wide waste audits, or lead composting projects and garden initiatives. The exercise promotes teamwork, leadership, and ownership over learning—students become changemakers, not just learners.

Community Workshops and Partnerships in Sections 3.3, 4.1, and 4.7

Students partner with food banks, farms, supermarkets, or local restaurants. In this exercise they learn to collaborate on food donation programs, field visits, or shared events. This activity blends learning with civic engagement and real-world partnerships. Builds teamwork beyond the classroom.

Peer Support in Social Action Projects in Section 4 – *Social Action*

Chapters

In this exercise small groups of students brainstorm and develop projects around shared sustainability goals (e.g., food donation programs, visual campaigns, clean-ups). The activity teaches teamwork together through ideation, planning, execution, and reflection. It encourages mutual support and shared responsibility.

Group-Based Waste Diaries and Reflection in Sections 2.2 and 3.4

In this activity students or teams reflect together on their own food waste patterns, compare experiences, and share solutions. The exercise makes reflection a collaborative learning tool and builds community and accountability among peers.

IV Communicating the Message: Storytelling & Visual Impact

To inspire action, students need to see, hear, and feel the urgency of food waste. This could consist of sharing stories of individuals or businesses that have cut food waste in half. Better yet, let students document their own sustainability journeys—through blogs, social media, or school-wide campaigns. Please familiarize yourself with these selected examples, which you can find further below:

Students Documenting Their Own Sustainability Journeys in Sections 2.2 and 3.1

Here students share their personal experiences via blogs, social media, or school campaigns, and learn to reflect on changes in their habits and inspire peers. This exercise is storytelling in action—real voices making the message relatable and emotionally engaging.

Visual Aids: Infographics, Posters, and Short Videos in Section 3.2 – *Using Visual Aids*

Here students create or analyze infographics and short videos on food waste. They also learn to use visual tools like Canva, Powtoon, and Animaker which are recommended. Visual storytelling helps break down complex issues into digestible content, and learners become message creators.

Success Stories and Testimonials in Section 2.2 and throughout Chapter 4

These real-world examples are used to create emotional and motivational impact. The guide mentions highlighting stories from individuals or businesses that cut food waste in half (e.g., Viking Line case study). Success stories from real life show what is possible, making the abstract real and achievable for learners.

Awareness Campaigns and Public Communication in Sections 3.3, 4.1, 4.8

The campaigns introduced in these examples include storytelling formats like street interviews, mini-documentaries, social media reels, or testimonial-based posters. Examples like Chef Carlo Cracco & Too Good To Go video campaign (in Section 4.8) leverages storytelling and visual formats to reach wider audiences and shift social norms.

“The Extraordinary Life and Times of a Strawberry” (WRAP UK) in the Section “Videos on Food Waste Awareness”

Here you can find a short, animated video telling the story of a strawberry from farm to fork—and to the bin. It uses emotional and visual storytelling to frame the waste problem in a powerful, memorable way.



V From Awareness to Action: Making Sustainability a Habit

Teaching about sustainability is one thing—embedding it into school culture is another. These could be school initiatives such as zero-waste campaigns, recycling programs or community involvement campaigns where students apply their knowledge in the real-world challenges. The chapters in this guide include several great, actionable ideas that fit this theme beautifully. Please familiarize yourself with these selected examples which you can find further below:

School-Wide Zero-Waste Campaigns in Sections 3.1, 3.3, and 4

These examples include campaigns where students audit waste, set reduction goals, and celebrate improvements. They encourage regular, visible action across the school. These types of initiatives normalize sustainable behaviour and create long-term culture change.

Composting Systems in Schools in Sections 3.1 and 3.3

In this exercise students set up compost bins, learn how to manage them, and use the compost in school gardens. These types of activities tie learning to ecosystem cycles. They support hands-on, repeatable behaviour that builds understanding, routine, and ownership.

Routine Meal Planning and Storage Practices in Sections 2.2 and 3.4

In these practical exercises students track their meals, use digital tools for shopping lists, and apply proper storage tips at home. Schools can run “Fridge Check” or “Smart Shopping” challenges. These exemplify repeatable habits that can continue beyond school and ripple out to families.

Student-Led Habit-Building Projects in Sections 3.5 and 4.5

Via these projects students pledge to adopt 3 food waste reduction habits (e.g., plan meals, use leftovers, check date labels). As the progress is reviewed, shared, and celebrated over time, habit-forming is personal and empowering. The students actively reinforce their own learning.

Integrating Food Waste Habits into Curriculum & School Canteen Practices in Sections 3.3 and Lesson Overview

These examples demonstrate how curriculum links (e.g., science, social studies) can be incorporated into sustainability themes. For example, the canteens offer smaller portions, let students return for seconds, and measure plate waste. These type of practices and exercises reinforce sustainable norms in everyday school experiences.

Weekly “Waste Reflection” Logs or Diaries in Sections 2.2 and 3.4

In this type of activity, the students can record their food waste habits and reflect on challenges and get used to setting personal goals and track progress. Reflection strengthens self-awareness, which supports lasting behaviour change.

SECTION TWO – Tools and Strategies: Practical Activities for Sustainable Food Education

Sustainable Consumption and Tips for Educators

Individuals can adopt sustainable consumer behaviour to reduce food waste and promote sustainability.

Sustainable consumption involves using products and services in ways that minimize their environmental impact while meeting the needs of present and future generations.

Here are some key aspects and strategies:

Resource Efficiency: Using resources more efficiently to reduce waste and environmental impact. This includes energy, water and raw materials.

Circular Economy: Promoting a circular economy where products and materials are reused, recycled or remanufactured to extend their lifecycle and reduce waste.

Sustainable Lifestyles: Adopting lifestyles that minimize ecological footprints while enhancing quality of life. This includes making conscious choices about what we buy, how we use products and how we dispose of them.

By planning meals in advance, individuals can avoid buying excess food and ensure that food is used efficiently. Mindful shopping, buying only what is needed and avoiding impulse purchases help individuals to reduce food waste and support a more sustainable consumption pattern. This involves making a shopping list, sticking to it, and being mindful of portion sizes and expiration dates. Storing food correctly extends its shelf life and reduces the likelihood of it being wasted. This includes using airtight containers, keeping perishable items in the refrigerator, and understanding the best storage practices for different types of food. Using leftovers creatively is another way to reduce food waste. By incorporating leftovers into new meals, individuals can make the most of the food

they have and reduce the amount of food that is thrown away. This can involve using leftovers in soups, stews, salads, and other dishes.

Purchasing locally produced and seasonal foods reduces the carbon footprint associated with transportation and supports local economies. By opting for products that are sustainably sourced, have minimal packing and are made from renewable or recycled materials we can also save the natural resources. In addition to this, the consumers should use energy – efficient appliances and lightning and adopt habits that reduce energy consumption such as turning off lights when not in use. Furthermore, consumers should implement water -saving practices like fixing leaks, using water- efficient fixtures and reducing water waste in daily activities.

The benefits of sustainable consumption can be divided into following dimensions:

Environmental Protection: Reduces pollution, conserves natural resources and mitigates climate change.

Economic Savings: Efficient use of resources can lead to cost savings for individuals and businesses.

Social Equity: Promotes fair distribution of resources and supports sustainable livelihood.

By adopting sustainable consumption practices, we can contribute to a healthier planet and a more equitable society.

As tips for educators on the theme of sustainability and food waste there are several options for adapting this theme into curriculum. Educators can integrate food waste topics into various subjects such as science, geography, social studies as well as language & cultural studies. This helps students understand the broader implications of food waste.

Through project- based learning educators can encourage students to undertake projects focused on reducing food waste. This can include research projects, developing awareness campaigns or creating innovative solutions to minimize waste.

Practical tips for educators also include teaching students about portion control, composting and food donation. In portion control educators teach students about portion control and the importance of taking only what you can eat. This can be reinforced in the school canteen by offering smaller portion sizes and allowing students to come back for seconds if they are still hungry.

Educators can teach students about composting by setting up a compost system at school for food scraps and involving students in the process using the compost in the school garden.

Food donation is another effective method for educators to use by partnering with local food banks or shelters to donate surplus food from the school cafeteria or participate on some other charity activity with students. This not only reduces waste but also supports the community.



Case studies

Case Study 1:

The Natural Resource Institute Finland (2019) conducted a study that explored food waste data. The study on food waste generation and origin in the outlets was done during 2016-2017 with an aim to develop monitoring systems by increasing the researcher's knowledge about the relevant processes and possible internal barriers.

The overproduction of food and buffet line waste was measured in schools, day-care centres and workplace and student canteens. According to the results, 17.5% of all prepared food ended up as waste, which was further divided into kitchen waste (2.2%), serving waste (11.3%) and customer leftovers (3.9%). On average, 449 g of food was prepared per portion and 78 g of this ended up as waste.

As stated in the study the staff of the institutions that participated in waste measuring see that the buffet must always look attractive otherwise customers might think it's not worth the money. To avoid that risk, restaurants tend to overproduce. They also found problems with awareness: kitchen staffs' ignorance and hurry often lead to increased amount of food waste.

Case study 2:

Pilot Project on Viking Line's M/S Mariella (Finland) cut the food waste with 40% (2019).

Efforts enacted aboard M/S Mariella succeeded in reducing the amount of food waste by an estimated 27 tonnes over a period of four months. The amount of food saved is equal to approximately 70,000 meals.

Viking Line has made a significant effort to reduce its food waste. In April 2019, the company collaborated with Winnow to undertake a project intended to reduce the food waste on M/S Mariella.

The majority of the meals served on M/S Mariella are prepared in the same kitchen. For the period of the project, the kitchen waste bins were provided with scales to measure the actual amount of waste. With the assistance of computer software, the waste is categorised, weighed and recorded for statistical purposes. The computer-generated reports allow the monitoring of plate waste, trim waste and waste due to overproduction. In practice, for example, all the discarded food from the buffet lines is measured.

"We have managed to minimize food waste per passenger by an average of 40 per cent. This reduction was especially driven by an increase of efficiency in our kitchen procedures. We pay more attention to preparation amounts. As a practical example, any potatoes boiled for lunches can also be used to prepare delicious side dishes for the dinner crowd," explains Janne Lindholm, Restaurant Manager for Viking Line.

Viking Line restaurants are also improving, among other aspects, the presentation and serving size of their dishes as a means of decreasing the plate waste. The buffet restaurant, for example, offers ready-made portions that enable passengers to choose the exact amount that they want.

"None of the changes required us to compromise on the quality, freshness or availability of our food. In fact, it's been quite the opposite. When we utilize raw

ingredients more efficiently, we avoid overproduction and there is more time left to focus on development work and customer service,” Lindholm adds.

The remaining food waste is utilized towards the production of biogas. In 2018, the biowaste collected from M/S Viking XPRS, M/S Viking Grace and M/S Mariella was utilized to produce a total of 98,550 cubic metres of biogas, which equals, in terms of energy, altogether 111,300 litres of gasoline.

The waste reduction project on M/S Mariella will carry on. Due to the positive results, a similar project is in the planning for M/S Gabriella.

Tools and methods

Incorporating lessons on food waste and sustainability into the curriculum can be done in various subjects, such as science, geography, and economics. By integrating these topics into the curriculum, students can gain a deeper understanding of the interconnectedness of these issues and the importance of reducing food waste. Organizing hands-on activities like composting projects, cooking classes using leftovers, and school gardens can provide practical experience and demonstrate the importance of reducing food waste. Arranging visits to local farms and waste management facilities provide a real-world perspective on the issue and can inspire students to act. Inviting guest speakers can also be beneficial. Experts in sustainability and food waste provide valuable insights sharing their experiences and knowledge, helping students understand how they can contribute to a more sustainable future.

Promoting awareness campaigns is another effective strategy. Encouraging students to create and participate in campaigns can help spread the message to a broader audience. This can include posters, social media campaigns, and school-wide events. By involving students in these campaigns, educators can help them develop leadership skills and a sense of responsibility for addressing this critical issue.

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Action points for educators

LESSON OVERVIEW LESSON DETAILS

<p><i>Where does food come from:</i></p>	<p>Sources; plant-based and animal-based. Production and distribution; farming, processing, transportation.</p>
<p><i>Environmental impact and ecological footprint:</i></p>	<p>Food waste has a major environmental impact and contributes to a large ecological footprint, greenhouse and gas emissions. In comparison with global aviation, food waste accounts roughly three times higher emissions than those from the global aviation.</p> <p>Resource use; water, land, energy and fertilizers.</p>
<p><i>Sustainable consumption and sustainable cooking:</i></p>	<p>Sustainable consumption and cooking are essential practices for reducing our environmental impact and promoting a healthier planet. Some key strategies for sustainable consumption are; Buy local and seasonal, reduce meat consumption, minimize packing, meal planning.</p> <p>Some essential tips sustainable cooking are use energy efficiently, reduce food waste by repurposing leftovers into new dishes, use vegetable scraps for stocks and practice portion control. Choose eco-friendly ingredients by opting for organic, sustainably sourced and ethically produced ingredients. This includes choosing seafood from sustainable fisheries and avoiding overfished species. Composting, meal prep, creative cooking by experimenting with recipes that use leftovers or less common parts of the ingredients like beet greens or broccoli stems, water conservation.</p>

Simple ways to fight food waste: **Offer classes that focus on using leftovers creatively and understanding food labels to avoid premature disposal.**

Disposing of food waste **Composting; home composting, community composting.**

Food waste recycling; municipal programs, anaerobic digestion; producing biogas, a renewable energy source and digestate, a nutrient – rich fertilizer.

Wormeries; vermicomposting; create a wormery to compost food waste using worms. This method is efficient and produces high- quality compost.

Donation: if the food is still safe to eat but you can't consume it, consider donating it to local food banks or shelters.

Community Workshops: **Organizing workshops to teach practical skills like meal planning, proper food storage and composting.**

Launch awareness campaigns using social media, local events and posters to highlight the importance of reducing food waste and practical tips to do so.

Public Campaigns: **Promote apps that help track food inventory, suggest recipes based on available ingredients and remind users of expiration dates.**

Collaborate with restaurants and grocery stores to educate customers about portion sizes, the value of “ugly” produce and donation options for surplus food.

Apps and technology:

Use games, challenges and competitions to engage people in reducing food waste. For example, a “zero waste week” challenge can motivate people to minimize their waste

Partnerships with businesses:

Interactive Activities

Behavioural Change in Consumers

This chapter highlights the psychological drivers of food waste in Europe, with households contributing 54% of the EU's 132 kg per capita in 2022 - 72 kg per person and emphasises the power of daily habits. Regional leaders and high wastage of perishables such as vegetables (24%) and fruit (22%) underline the need for action.

As sustainable food educators, you have the tools - educational campaigns, nudges, community engagement and technology - to spark change. We urge you to integrate realistic planning, promote inclusive norms and use technology thoughtfully, working with stakeholders to align with the EU's 2030 goal.

Act now to turn these findings into a sustainable movement!

The psychology behind food waste

Tip for Educators

These fun facts are your starting point! As a sustainable food educator, use them to spark curiosity about how our thoughts, habits, and choices—like overbuying or tossing “ugly” produce—drive food waste. Let’s turn these insights into action with the steps ahead!

Unpacking the mind tricks behind the waste

As a sustainable food educator, understanding the psychological triggers behind food waste is the key to helping people change their habits. Here is a breakdown of why we waste food, what triggers us, rooted in cognitive biases, habits, and social norms—along with tips to address them.

Mind trick #1: The “I’ll cook it all” trap - overbuying due to planning misconception

Ever stocked up on groceries with grand meal plans, only to toss half of it later? This is the planning myth at play—a tendency to overestimate how much food we will actually use. Our research shows that negative emotions, like frustration or guilt about food waste, surprisingly lead to more waste rather than less. Why? When faced with an immediate decision (e.g., cooking or tossing), people might avoid the discomfort by choosing the easier option i.e. throwing food away. For example, anger about waste might spark a future intention to do better, but in the moment, it can trigger avoidance.

Tip for Educators

Teach learners to break this cycle with realistic meal planning. Encourage them to start small. Plan for 2-3 days instead of a week and adjust based on what they eat. Share tools like shopping list apps to combat over-optimistic buying.

Habit hurdle #2: Label mix-ups - misreading labels and routine waste

Habits are the biggest predictor of food waste behaviour, often overriding good intentions. Misreading “best before” or “use by” dates is a common habit that leads to tossing perfectly good food. Even with knowledge about food conservation, people don’t always act on it—possibly because situational factors (like time pressure) or a disconnect between knowing and doing take over. While moral attitudes (e.g., feeling it’s wrong to waste food) drive

intentions to reduce waste, habits like reckless shopping or bulk buying can undo those efforts.

Tip for Educators

Introduce habit-breaking prompts! Suggest placing sticky notes on fridge doors with “Check Dates First” or using nudges like colourful stickers on packaging as a reminder to assess food before tossing. Encourage long-term habits like meal planning and proper storage techniques to replace old routines.

Social vibe #3: oversized portions and social pressure

Social norms are a major driver of food waste behaviour in Europe, often outshining good intentions. The push to serve and eat larger portion sizes, whether at home or dining out, stems from cultural expectations of generosity, leading to over-serving and wasted food. Research reveals that what counts as a “normal” portion size is shaped by social norms, with bigger perceived standards causing more food to be served and discarded. For example, a study shows that larger portions, whether piled on a home plate or a restaurant dish, encourage overconsumption and waste, influenced by the social expectation of a hearty serving—leaving uneaten meals or spoiled take-home leftovers behind.



Tip for Educators

Tackle the oversized portion norm with ""Portion Power"" sessions! Suggest exploring the cultural and social roots of big servings at home and restaurants, inspiring learners to rethink these habits. Offer handy tips like using portion guides at home or requesting half-portions and to-go boxes when eating out. Encourage story-sharing about negotiating smaller servings with hosts or making smart restaurant choices, building a supportive network to adopt sustainable portion sizes everywhere!

Emotional rollercoaster #4: feeling guilty and acting inconsistently

Negative emotions (e.g., guilt or anger) can boost intentions to reduce food waste in the long term, but they often lead to more waste in the short term. This inconsistency might stem from avoidance—feeling bad about waste can make us dodge the issue rather than tackle it. Alternatively, those emotions might arise after wasting food, creating a feedback loop. Our study warns against relying on intentions alone, as habits and immediate emotions often dictate behaviour.

Tip for Educators

Shift focus from guilt-driven messages to positive reinforcement. Create engaging activities, such as taste tests with “ugly” produce or savings challenges, to build confidence and new habits. Encourage reflection exercises where learners track their waste and celebrate small wins.

Value boost #5: moral values and knowledge gaps

People with strong moral beliefs against wasting food tend to shop more sensibly and learn about conservation, reducing waste indirectly. However, knowledge alone (e.g., how to store food) doesn't always translate to action, possibly due to situational barriers or a lack of practical skills. This suggests that while values shape intentions, habits and opportunities are key to behaviour change.

Tip for Educators

Connect moral values to actionable steps. Host workshops on food preservation (e.g., freezing tips) and pair them with shopping challenges. Use role-playing to practice saying no to bulk deals, linking values to real-world choices.

Tool: “Waste Reflection Exercise” where students log a day’s waste and discuss triggers.

Motivation for behavioural change

As a sustainable food educator, igniting the motivation to reduce food waste is your superpower! This section is all about inspiring your learners to embrace change with enthusiasm and purpose. Motivation transforms good intentions into lasting habits, and in the diverse landscape of European communities, tapping into what drives people, whether it’s personal pride, environmental passion, or practical benefits, can make all the difference. Let’s explore creative ways to light that fire, empowering individuals to take control of their food waste habits and contribute to a greener future, one mindful choice at a time!

Inspiring with know-how

Knowledge is a fantastic motivator when it’s paired with practical, actionable tips! Use media to educate on waste reduction, focusing on hands-on skills like meal planning, creative recipes, and clever storage techniques. This can be implemented through engaging social media posts, short how-to videos, or downloadable guides—think platforms like Instagram, YouTube, or even community newsletters. The relevance to psychological factors lies in addressing knowledge gaps, which empowers learners, while leveraging moral attitudes by connecting waste reduction to their values of responsibility and care for the environment.

Tip for Educators

Focus on creating concise, engaging content that highlights practical skills. Encourage active participation to reinforce learning. Regularly update materials to keep learners interested.

Gentle reminders that pack a punch

Sometimes, a little nudge is all it takes to turn motivation into action! Implement prompts to remind and guide behaviour change, such as stickers on fridge doors saying “Check Dates First” or apps that send notifications to use up food before it spoils. These can be introduced through partnerships with retailers or community programs, placing nudges in high-traffic areas like kitchens or stores. This strategy breaks habits and reduces avoidance by making mindful choices feel effortless, tapping into the desire for convenience.

Tip for Educators

Integrate nudges into daily routines to maximize impact. Provide clear instructions for using tools effectively. Monitor engagement to adjust prompts as needed.

Make it a team effort

Nothing motivates like feeling part of a movement! Promote waste-reducing norms through community events and peer influence, such as hosting success story gatherings or enlisting local influencers to share tips. This can be rolled out via local festivals, online forums, or school programs, drawing on Denmark’s success (link?) with date label education. It shifts social expectations and enhances perceived control, making waste reduction a collective goal that feels achievable.

Tip for Educators

Foster a collaborative environment to build trust. Highlight diverse participant voices to broaden appeal. Evaluate event feedback to improve future sessions.

Celebrating the wins!

Who doesn't love a pat on the back? Reward programs motivate by making waste reduction feel rewarding, offering discounts for smart shopping or recognition for low-waste households. These can be set up with local stores or community boards, providing tangible incentives. This taps into hedonic enjoyment and personal gain, countering avoidance by focusing on the joy of success.

Tip for Educators

Design rewards that align with learners' values. Ensure recognition is consistent and meaningful. Track participation to refine incentive programs.

Speak to the heart!

Connect with learners' values through uplifting stories that show impact, avoiding guilt with positive narratives. Use videos or testimonials to highlight environmental benefits or savings, like the Trifocal campaign's approach. This can be shared via community screens or online platforms, aligning with moral attitudes and reducing negative emotion effects by fostering pride and hope.

Tip for Educators

Craft stories that resonate with local values. Use varied formats to reach different audiences. Encourage learners to share their own positive experiences.

Building lifelong routines!

Motivation thrives when it's part of a routine! Encourage new habits with regular reminders and resources, like weekly meal planning sessions or storage tip calendars. Inspired by Love Food Hate Waste (link?), this can be introduced through community workshops or mailed guides, targeting habit strength and replacing overbuying with planning.

Tip for Educators

Set clear, achievable habit goals for learners. Provide consistent support to reinforce routines. Assess progress to identify areas for improvement.

Tools and methods for effective communication

Reducing food waste in Europe involves effective communication to inspire change. This section explores tools and methods to share the message, from digital platforms to community events, with examples from across the continent to guide educators. These tools and methods are your toolkit for making a lasting impact! By implementing them thoughtfully, you can drive behavioural change, turning food waste reduction into a way of life.

Social media platforms allow you to reach a broad audience with engaging, shareable content such as tips, videos, and challenges. By leveraging these tools, you can raise awareness about food waste and encourage participation in waste-reducing behaviours. The interactive nature fosters a sense of community, prompting individuals to adopt new habits like better meal planning or using leftovers, which directly reduces household waste.

Community workshops provide interactive learning environments where participants can develop practical skills for waste reduction, such as meal planning and food preservation. These sessions build confidence and competence, encouraging consistent application of learned techniques at home, thereby decreasing the amount of food discarded due to lack of know-how.

Printed guides and calendars serve as constant, tangible reminders of waste reduction strategies, such as proper storage and portion control. By keeping these resources accessible, they reinforce daily habits, helping individuals make mindful choices that prevent over-purchasing and spoilage, leading to a sustained reduction in food waste.

Mobile apps deliver personalized notifications and tracking features to prompt timely use of food before it spoils. By making waste reduction convenient and engaging through gamification or reminders, these tools break the cycle of habitual discarding, encouraging users to rethink their consumption patterns and minimize waste.

Community events create a collective experience that promotes waste-reducing norms through shared activities and education. By fostering a sense of responsibility and social accountability, these events motivate participants to integrate sustainable practices into their routines, reducing waste through peer influence and group commitment.

Videos and testimonials inspire action by showcasing the positive outcomes of waste reduction, such as environmental benefits or personal savings. These emotional connections motivate viewers to align their behaviour with these values, encouraging proactive steps like reusing leftovers or buying only what is needed, thus lowering overall waste.

Partnerships with retailers enhance communication by integrating waste reduction messages into shopping experiences, such as in-store prompts or promotions on near-expiry items. This creates an enabling environment that encourages consumers to make sustainable choices at the point of purchase, reducing waste through informed buying decisions.

Surveys and waste diaries engage individuals in self-monitoring and reflection on their waste habits. By raising awareness of personal waste patterns, these tools empower participants to set goals and adjust behaviour, leading to a targeted reduction in food waste as they become more conscious and intentional consumers.

The impact of technology on food waste

Technology is your exciting new ally in the fight against food waste, but it comes with a twist—it can help or hinder depending on how you use it! Technology plays a dual role in tackling food waste—it offers innovative solutions but also brings new challenges. This section explores both the benefits and drawbacks, giving educators a well-rounded view of its impact.

Technology serves as a powerful ally in reducing food waste by boosting efficiency across the food supply chain, a key area for your learners to explore. Smart packaging with sensors tracks freshness, helping extend shelf life and prevent spoilage, which you can teach as a practical skill. AI-driven demand forecasting optimises stock levels in retail and hospitality, reducing overproduction—a concept you can integrate into lessons on sustainable purchasing.

Apps designed to redistribute surplus food connect consumers with businesses, ensuring edible items are consumed rather than discarded, offering a hands-on project for your students. Precision agriculture, powered by IoT and drones, minimizes crop losses from pests or weather, while vertical farming with controlled environments reduces water and pesticide use. The topics inspire eco-conscious farming discussions.

These advancements conserve resources, cut greenhouse gas emissions (linked to 8-10% of global emissions from food waste), and yield economic benefits, with businesses seeing up to 14-fold returns on waste reduction efforts. For households, smart fridges that monitor inventory tackle the 70% of waste occurring post-farm gate, aligning with the EU's 2030 goal to halve food waste—a perfect case study for your curriculum.

However, technology can also pose challenges that you must address to support all learners effectively. Over-reliance on smart systems, such as AI misjudging demand, may lead to overproduction or underuse, particularly in resource-limited

settings, a risk you can discuss to encourage critical thinking. Additionally, tech-enhanced quality controls pushing for aesthetic perfection can perpetuate the rejection of “ugly” produce, a bias you can challenge with education on valuing all food. Critics suggest the tech-as-solution narrative oversimplifies deeper issues like consumer habits or infrastructure, urging a balanced approach that integrates non-tech methods.



Successes and pitfalls in driving behaviour change

This section highlights the triumphs and challenges faced when driving behaviour change to reduce food waste, offering insights to refine your approach as a sustainable food educator. Understanding what works and where obstacles lie will help you navigate the journey toward sustainable habits.

Successes

One of the standout successes is the power of community engagement, where collective efforts like workshops and events have fostered a shared commitment to waste reduction. These initiatives shift social norms, encouraging participants to adopt sustainable practices as part of their identity.

Another triumph is the use of technology, such as mobile apps and social media, which have effectively reached younger audiences, increasing awareness and prompting immediate action like using leftovers. Positive reinforcement through rewards has also proven successful, boosting motivation by celebrating small wins, which sustains long-term behaviour change.

Additionally, partnerships with retailers have created supportive environments, making waste-reducing choices easier at the point of purchase, demonstrating how collaboration can amplify impact.

Pitfalls

Despite successes, pitfalls can hinder progress. One common challenge is the gap between intention and action, where negative emotions like guilt may motivate future plans but lead to avoidance in the moment, resulting in more waste.

Another pitfall is the reliance on knowledge alone, as increased awareness from educational campaigns doesn't always translate into habits if practical barriers, like time constraints, persist. Inconsistent participation in community initiatives can also dilute impact, especially if engagement wanes over time.

Lastly, over-emphasising guilt-based messages can backfire, causing resistance or disinterest, underscoring the need for a balanced, positive approach to maintain momentum.

Action points for Sustainable Food educators

As a sustainable food educator, your role is pivotal in turning insights into action. Here are actionable steps to guide your efforts in reducing food waste effectively:

1. Develop engaging content by creating dynamic, skill-based materials for educational campaigns, ensuring they are accessible and regularly refreshed to maintain interest and address diverse learning needs.
2. Implement consistent nudges by introducing and monitoring behavioural prompts regularly, adjusting them based on feedback to ensure they seamlessly integrate into daily life and break habitual waste.
3. Foster community involvement by building inclusive events and forums that encourage diverse participation, using feedback to enhance future activities and strengthen social norms.
4. Design meaningful rewards by crafting reward systems that reflect learners' values and provide consistent recognition, tracking participation to optimise their motivational impact.

5. Craft positive narratives by developing uplifting stories and varied formats that connect with local values, encouraging learners to contribute their own experiences to build a supportive narrative.

6. Support habit building by setting clear goals and offer ongoing resources to reinforce new routines, regularly assessing progress to ensure habits take root and evolve.

7. Leverage partnerships by establishing reliable collaborations with retailers and policymakers, communicating benefits clearly and adapting based on stakeholder input to enhance support structures.

8. Utilize data insights by engaging learners in data collection through surveys or diaries, analysing results to tailor strategies and maintain relevance, ensuring continuous improvement.

SECTION THREE: Practical Implementation Tips for Educators

Practical implementation tips for educators

By integrating interactive lessons, visual aids, community collaborations, and evaluation strategies, educators can effectively raise awareness and inspire action against food waste. These practical tools will help educators create meaningful learning experiences that lead to lasting behavioural change.

Tools or methods that educators can apply directly

Developing Interactive Lessons and Workshops

Interactive learning fosters student engagement and knowledge retention. Here's how to design compelling lessons:

Define Clear Learning Objectives

- Establish what students should learn about food waste.
- Ensure objectives align with curriculum requirements and real-world applications.

Incorporate Hands-On Activities

- **Role-Playing Exercises:** Assign students roles such as farmers, consumers, or policymakers to explore food waste from multiple perspectives.
- **Cooking Challenges:** Use leftover ingredients creatively to highlight practical ways of reducing waste.
- **Food Waste Audits:** Have students track their food waste for a week and analyse patterns.

Encourage Student Participation

- Organize group discussions on personal experiences with food waste.
- Implement peer teaching sessions where students present findings.

Engaging Activities:

- ✓ **Food Waste Audits:** Have students or participants track and analyse their food waste for a week to understand their habits.
- ✓ **Role-Playing Scenarios:** Organize activities where participants act as different stakeholders (e.g., consumers, restaurant owners, farmers) to discuss food waste challenges and solutions.
- ✓ **Cooking Challenges:** Conduct workshops on using leftovers creatively to make delicious meals.
- ✓ **Gamification:** Introduce quizzes, competitions, or interactive games to make learning about food waste fun and memorable.

Example 1 Role-Playing Scenario: The Food Waste Debate

Objective: Help participants understand the different perspectives on food waste and encourage problem-solving through discussion.

Setup:

- Divide participants into groups and assign each group a stakeholder role:
 - ✓ **Consumers:** Concerned about the rising cost of food and want practical ways to reduce waste.
 - ✓ **Restaurant Owners:** Need to balance profitability while reducing food waste.
 - ✓ **Farmers:** Struggle with surplus food and limited distribution options.
 - ✓ **Supermarkets:** Face challenges with unsold food and customer expectations regarding freshness.
 - ✓ **Government Representatives:** Interested in policies that encourage food waste reduction.

- Provide each group with a set of questions related to their role. For example:
 - ✓ Consumers: How can households reduce food waste without extra cost or effort?
 - ✓ Restaurant Owners: What strategies can be implemented to reduce plate waste while keeping customers satisfied?
 - ✓ Farmers: How can surplus food be redirected efficiently instead of being wasted?
 - ✓ Supermarkets: How can stores prevent overstocking without affecting availability?
 - ✓ Government Representatives: What policies could incentivize businesses and consumers to waste less food?

- ✓ Hold a **debate-style discussion** where each group presents their challenges and proposed solutions.
- ✓ Conclude with a reflection session, encouraging participants to brainstorm ways all stakeholders can collaborate to tackle food waste.

Structuring an Effective Workshop:

Introduction: Explain the problem of food waste with relevant statistics and real-world examples.

Interactive Activities: Use hands-on exercises like waste tracking or food preservation demonstrations.

Group Discussions: Encourage sharing of ideas and brainstorming solutions.

Call to Action: Provide actionable steps participants can take to reduce food waste at home or in their community.

Example 2 Call to Action Activity: The Food Waste Pledge

Objective: Encourage participants to commit to specific actions that reduce food waste in their daily lives.

Setup:

- Provide a list of simple, actionable food waste reduction strategies, such as:
 - ✓ Planning meals and shopping with a list.
 - ✓ Storing food properly to extend its freshness.
 - ✓ Using leftovers creatively.
 - ✓ Understanding “best before” vs. “use by” dates.
 - ✓ Donating surplus food instead of discarding it.
- Ask participants to select at least three actions they will commit to implementing.
- Have them write their pledges on a poster or digital board.

Activity:

- Participants share their pledges with the group and explain why they chose them.
- Encourage group discussions on challenges they might face and solutions.
- Set a follow-up session to check on progress and share success stories.

Discussion Questions:

- Which actions were easiest to implement?
- What obstacles did you encounter?
- How has your perspective on food waste changed?

Using Visual Aids (Infographics, Videos, etc.)

Why Visuals Matter:

Visual tools make abstract concepts tangible and increase engagement. A well-designed infographic or video can simplify complex information and inspire action.

Recommended Visual Aids:

- **Infographics:** Create easy-to-understand visuals with key food waste statistics, practical tips, and step-by-step guides. Use graphics to illustrate the journey of food from farm to plate
- **Short Videos & Documentaries:** Use educational videos or animations that highlight food waste issues and solutions. Feature success stories from individuals or organizations combatting food waste.
- **Live Demonstrations:** Conduct real-time demonstrations of food storage techniques, composting, or creative recipe ideas.
- **Posters and Flyers:** Display awareness materials in schools, libraries, or community centres to reinforce key messages. Develop visual cues to remind students about portion control and responsible consumption.



reduce food waste WITH FROZEN FOODS

8 WAYS
Frozen Food
Helps Reduce
Food Waste!

40%

of ALL FOOD in
America is wasted.

THAT'S
NEARLY

220 LBS

of food
waste per
person!



1 **WHAT YOU NEED - WHEN YOU NEED IT**
Use frozen foods to prepare and eat only what you need.

2 **LONGER SHELF LIFE**
Frozen foods are perfectly preserved for extended shelf life.

3 **ALWAYS IN SEASON**
Frozen foods offer consistent quality all year around.

4 **RIGHT-SIZED PORTIONS**
Individual frozen meals and single-serve novelties come perfectly portioned for less food waste.

5 **CONVENIENT RECIPE INGREDIENTS**
Frozen foods add ease and flexibility when cooking at home.

6 **100% EDIBLE**
Kitchen chores like peeling, chopping and prepping are done for you; that's zero food waste while saving valuable time in the kitchen!

7 **USE IT NOW - USE IT LATER**
Use what you need; then simply toss the rest back in the freezer for another meal or snack.

8 **FROZEN FOOD PACKAGING PERKS**
Some frozen foods go from freezer—to microwave or oven—to the table, saving extra dishwashing, excess water and valuable time!



Americans
waste **25%**
of the food
they buy.



THAT'S like tossing out
1 of every **4** grocery bags!

FOOD WASTE
ADDS UP!



\$1,500/YEAR
FOR A FAMILY OF 4

WHERE DOES
HOUSEHOLD
FOOD WASTE
COME FROM?



34%
of Americans
**never take
stock** of their
groceries
**BEFORE
going to
the store.**



DID YOU KNOW?

FOOD WASTE IS THE NUMBER ONE
COMPONENT IN U.S. LANDFILLS TODAY.

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EasyHomeMeals.com

Sources: USDA, FDA, EPA

Interactive Digital Tools

- Utilize apps and online platforms that track food waste habits.
- Create virtual simulations to demonstrate the effects of waste on the environment.

Free and Easy-to-Use Tools:

- ✓ **Canva:** Create infographics and posters.
- ✓ **Powtoon or Animaker:** Develop animated videos.
- ✓ **Google Slides or Prezi:** Design engaging presentations.

Collaborations with Local Communities or Businesses

Why Collaboration Matters:

Engaging with local stakeholders can reinforce the message of food waste reduction:

Partner with Grocery Stores & Restaurants

- Organize field trips to observe food donation and redistribution efforts.
- Invite business owners to share strategies for minimizing waste.

Work with Local Farms & Food Banks

- Arrange farm visits to understand agricultural practices and surplus food management.
- Coordinate volunteer opportunities at food banks to help distribute excess food to those in need.

Student-Led Initiatives

- Encourage students to develop and implement food waste reduction campaigns.
- Establish school gardens to promote sustainable food practices.

Case Study: Reducing Food Waste in Schools

A middle school in Italy implemented a food waste awareness campaign. The initiative included:

- Conducting a school-wide waste audit.
 - Partnering with a local food bank to donate surplus food.
 - Integrating food waste reduction activities into the science curriculum.
- Results showed a 30% reduction in cafeteria waste within three months.

Evaluating the Impact of Lessons or Campaigns

Assessing the effectiveness of educational initiatives is crucial for continuous improvement:

Pre- and Post-Lesson Surveys

- Measure changes in student knowledge and attitudes toward food waste.
- Collect feedback on lesson effectiveness and areas for improvement.

Tracking Behavioural Changes

- Monitor reductions in cafeteria waste before and after implementing educational programs.
- Encourage students to maintain food diaries and reflect on their consumption habits.

Hosting Reflection Sessions

- Allow students to discuss what they've learned and propose further actions.
- Gather testimonials on how lessons have influenced their choices.

Collaboration with School Administration

- Work with school leadership to implement long-term food waste reduction policies.
- Encourage participation in national or global food waste initiatives.

Action Points for sustainable food Educators

Step-by-Step Plan for Educators:

- **Set Clear Learning Objectives:** Define what participants should know and do after the session.
- **Gather Resources:** Compile infographics, videos, and real-world examples to support lessons.
- **Plan Interactive Elements:** Incorporate hands-on activities like food waste tracking, cooking challenges, or role-playing exercises.
- **Engage the Community:** Partner with local businesses, food banks, or schools to extend outreach.
- **Use Visual Aids Effectively:** Utilize infographics, presentations, and live demonstrations to enhance understanding.
- **Encourage Action:** Provide clear and practical steps for participants to reduce food waste at home and in their community.
- **Measure Impact:** Use pre- and post-surveys, feedback forms, and food waste tracking to assess changes in knowledge and behaviour.
- **Reflect and Improve:** Continuously analyse results and adjust teaching strategies based on feedback.

Reflection Questions for Educators:

- What worked well in my lesson/workshop? Why?
- Which activities engaged participants the most?
- How can I improve the delivery of my content?

- What challenges did I face, and how can I overcome them in future sessions?
- Did participants demonstrate increased awareness or behavioural changes? How do I know?
- How can I sustain participants' commitment to reducing food waste over time?
- What local organizations can I collaborate with to enhance learning?
- What measurable changes can I implement in my school/organisation to reduce food waste?

Self-Assessment Exercise:

Activity: Educators can journal their reflections after each session, noting key successes and areas for improvement. Use a simple “Successes and Challenges” table:

Successes	Challenges	Improvements for Next Time
<i>Example:</i> <i>Participants were highly engaged in the role-playing activity.</i>	<i>Example:</i> <i>Some participants struggled with understanding date labels.</i>	<i>Example:</i> <i>Include a hands-on expiration date sorting game.</i>

By following these action points and reflection exercises, educators can continuously refine their approach to effectively raise awareness about food waste.

Conclusion and Call-to-Action

Educators are uniquely positioned to instill sustainable habits that combat food waste. By creating interactive lessons, leveraging visual aids, fostering community partnerships, and assessing the impact of their efforts, teachers can empower students to become responsible consumers.

Key Takeaways:

- Educators play a crucial role in raising awareness about food waste and inspiring action within communities.
- Effective teaching methods include interactive lessons, visual aids, collaborations, and continuous evaluation.
- Encouraging behaviour change through hands-on activities and partnerships strengthens the impact of food waste education.

Immediate Actions for Educators:

- **Start Small:** Incorporate simple activities like food waste audits or cooking challenges in lessons.
- **Leverage Visual Tools:** Use infographics and videos to reinforce key messages.
- **Engage the Community:** Connect with local businesses, food banks, or farmers for collaborative projects.
- **Encourage Students to Take Action:** Assign small, achievable tasks such as tracking their food waste for a week.
- **Measure and Improve:** Collect feedback and adjust teaching strategies to enhance effectiveness.

By taking these steps, educators can create meaningful change and help build a more sustainable future with less food waste.

Practical Exercises & Activities

Here are some **exercises, practical activities, and video recommendations** to help educators implement food waste awareness lessons effectively:

A. Leftovers Cooking Challenge

- **Objective:** Teach creative ways to use leftovers instead of throwing them away.
- **How to do it:**
 - Assign students or teams to create new dishes using leftover ingredients.
 - Host a mini “cooking show” where they present their dish and explain how they prevented waste.
 - Share recipes in a digital booklet or social media campaign.

B. Expiry Date vs. Best Before Date Awareness

- **Objective:** Clarify the difference between “Use By” and “Best Before” dates.
- **How to do it:**
 - Bring various packaged foods with different date labels.
 - Have participants sort them into two categories: still safe to eat or should be discarded.
 - Discuss common misconceptions and ways to extend food shelf life.

C. Supermarket Food Rescue Investigation

- **Objective:** Understand how supermarkets handle unsold food.
- **How to do it:**
 - Arrange a visit to a local supermarket or interview store managers.
 - Ask about policies on surplus food, donations, or discounts on near-expiry items.
 - Brainstorm solutions for better food waste management in stores.

D. Home Food Storage Hacks Workshop

- **Objective:** Teach effective food storage techniques to reduce waste.
- **How to do it:**
 - Demonstrate best ways to store different foods (e.g., freezing herbs, storing potatoes away from onions).
 - Give participants a checklist of storage tips.
 - Have them track improvements in their food storage habits over a month.

Videos on Food Waste Awareness

A. Short Educational Videos

- **"The Extraordinary Life and Times of a Strawberry" (WRAP UK)** *A fun animation showing a strawberry's journey from farm to fork, emphasizing the importance of reducing food waste.*
[🔗 Watch on YouTube](#)
- **"Food Waste: How You Can Make a Difference" (World Wildlife Fund - WWF)** *A simple breakdown of why food waste is a global issue and small actions individuals can take to prevent it.*
[🔗 Watch on YouTube](#)
- **"Just Eat It: A Food Waste Story" (Documentary Trailer)** *A deeper dive into the food waste problem, featuring shocking statistics and personal experiences.*
[🔗 Watch on YouTube](#)

B. DIY & Cooking Videos

- **"Zero-Waste Cooking Tips" (Tasty & BuzzFeed Food)** *Easy hacks on using leftover ingredients and scraps in cooking.*
[🔗 Watch on YouTube](#)
- **"How to Store Food to Reduce Waste" (BBC Good Food)** *Practical food storage tips to extend the freshness of produce, dairy, and more.*
[🔗 Watch on YouTube](#)

SECTION FOUR: Increasing awareness on a broader scale

Increasing awareness on a broader social scale

Social action projects go beyond volunteering and service-learning, where people help each other in need and learn about social issues.

A social action project is a structured initiative where young or adults individuals address issues they care about, learn about these issues, develop solutions, and take actions to create positive change. It goes beyond traditional volunteering or service-learning by focusing on addressing root causes of social problems and involving community members in the process.

Social actions can be categorized as direct, which target decision-makers to influence policies, or indirect, which focus on solving problems and creating positive impacts directly within communities 23.

Engaging youth in social actions is vital as it fosters critical skills, enhances their understanding of societal issues, and empowers them to contribute meaningfully to their communities. These activities also promote personal growth, collective efficacy, and a sense of purpose. Programs like the #iwill movement and #FridaysForFuture exemplify successful youth-led social actions that have inspired large-scale societal changes. Smaller initiatives, such as local campaigns or community improvement projects, also demonstrate the power of youth involvement in driving change.

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Creating social actions can be approached in various ways, but we suggest a basic process.

In the subsequent chapters, we will delve into each step, providing detailed explanations along with specific examples of activities and content,

Building the Group and Establishing Dynamics

When a group forms to collaborate on a project, building strong relationships and trust is crucial. This foundational phase transforms individuals into a cohesive team, fostering open communication and motivation.

Key Steps:

Icebreakers and Relationship Building:

Utilize activities (found in Annex I and II) to help members connect and build rapport.

Regularly use icebreakers, especially after breaks, to re-energize the group.

Creating Group Agreements: Establish clear guidelines for collaboration. This includes:

- Time management (punctuality, deadlines).
- Confidentiality (maintaining privacy within the group).

- Respectful communication (avoiding interruptions).
- Adapt these rules to the group's specific needs (e.g., mask-wearing, phone usage, eating).
- Involve the group in creating these rules to ensure buy-in.
- Formalize the agreements with a gesture of consent.

Process Overview: The facilitator should provide a clear overview of the project, including:

- Background information.
- Session schedule (time, duration, location).
- Any other relevant practical details.
- Use visual aids (e.g., flip charts) to enhance clarity.

Open Communication and Feedback:

- Encourage open expression of opinions, ideas, and feelings (both positive and negative).
- Allocate time for questions and comments after each activity.
- Schedule reflection periods at the end of each session or day to monitor progress and gather feedback.
- Address any initial questions or doubts by using tools such as post it notes.

Facilitator Responsibilities:

- Be adaptable to changes in group dynamics, whether it's high energy or conflict.
- Ideally, have multiple facilitators, including someone with experience.
- Monitor the group and be ready to adapt the plan when needed.



Mapping Issues for Social Action

When starting a social action project, it's vital to identify the issues the group truly cares about. This shared interest is the cornerstone of motivation, which directly influences the project's success. Investing time in collaboratively mapping these issues and finding common ground creates a strong foundation for your collective work.

Mapping issues for social action is a crucial preliminary step that involves several key components.

Purpose:

The primary goal is to identify and prioritize the social problems that a group intends to address.

Importance:

This process ensures that the social action project focuses on issues that are genuinely relevant and meaningful to the participants.

Collaborative Approach:

Mapping issues should be a collaborative effort, involving all group members to ensure diverse perspectives are considered.

Identifying Concerns:

It involves brainstorming and listing various social issues that the group members are concerned about.

Prioritization:

Once a list is generated, the group must prioritize the issues based on their relevance, urgency, and feasibility.

Stakeholder Analysis:

Identifying who is affected by the issue, and who has influence over the issue is very important.

Root Cause Analysis:

Digging deeper to find the underlying causes of the social problems, not just the symptoms.

Visual Representation:

Creating visual aids, such as maps or diagrams, can help to organize and understand the complexities of the issues.

Data Gathering:

Gathering information through methods like surveys, focus group or interviews can provide valuable insights.

Gathering (personal stories) ---> Group discussions (social issues)

As a result of the aforementioned process, a group had a list of social issues that the people in their community were concerned about. You can use this list as a starting point and ask group members to add if there were any issues missing which they are connected to.

Foundation for Action:

The mapping process lays the groundwork for developing effective strategies and action plans to address the identified social issues.

4.3 Understanding the consequences, choosing topics to address

The group has generated a list of social concerns; it's now time to concentrate on a subset for focused action. The "Problem Tree" activity aids in this process,

allowing smaller groups to investigate the root causes and consequences of chosen issues.

Instructions to the "Problem Tree" activity

- Write key topics on A4 sheets.
- Place sheets around the room; participants walk, read, and add missing topics.
- Participants choose a topic they connect with.
- Form groups of three.
- Draw a "problem tree": topic as trunk, causes as roots, consequences as branches. Brainstorm ideas.
- Groups present their trees

Ideas for Action

When the group has a tentative topic, the facilitator can provide concrete examples of social actions, highlighting the different approaches they can adopt.

It's also a good idea to ask the group about social action examples they know, either before or after the facilitator shares their own

Examples of Social Actions

- Volunteering
- Awareness raising
- Peer support
- Creative actions
- Community events

Volunteering is any unpaid action taken by an individual or group to support others or their community. It can be done in various forms, from individual acts to participation in organized movements.

To **raise awareness** about a social issue, we employ a range of strategies, such as online or in-person events, organized campaigns, and other initiatives designed to inform the public.

Peer support involves community members working together to empower a marginalized group, helping them collectively reach their objectives.

Creative actions for social change offer a wide array of options, including street performances, public art, and theatre, limited only by imagination. We find chalk to be a particularly effective and readily available tool for expressing messages and visuals in public settings.

Community events are versatile actions that can build relationships, show support, or generate resources for various causes. Activities like group hikes to reduce isolation, exploratory treasure hunts in overlooked neighbourhoods, and fundraising game marathons for educational programs demonstrate the diverse impact of these gatherings.

At the end of this chapter, you may find some successful cases related to the food sustainability and food waste prevention.

Brainstorming about action

Creating a purely visual form of an issue might reveal some new aspects or details that the group might not have thought about at first. It is important to allow every group to interact after presenting these forms for a more enriching experience.

After this we suggest brainstorming in pairs.

They can be formed based on their interests and what consequence of an issue they want to address (*mapped out in the **Problem Tree** activity before*). Each pair/group gets and fills out pre-prepared templates to present to the others. The templates contain basic information about the Social Action idea: its focal topic and the form of the action (*see **Social Action Idea example***.) Each pair can fill out up to 3 templates (*to manage time*), so they can come up with 3 different social actions for the same issue or different issues.

Social Action Idea example:

Action Title:

Aim:

Target group:

Short description:

Idea Selection and Team Building

Following the paired brainstorming, each pair presents their social action ideas to the larger group, time permitting. After all ideas are briefly shared, the group collaboratively selects the projects they will implement ((participants vote for up to three projects by placing stickers on templates displayed on the wall) and forms smaller working groups to develop them.

Issue and Action Research

Understanding the Context:

Prior to planning a social action, thorough research is essential to understand the local context and connect with the community. Engaging with various stakeholders who will be impacted by or involved in the action is crucial. We recommend direct conversations with these individuals. Consider the diverse target groups and actively seek their opinions. This ensures the project remains relevant and addresses the genuine needs of those it intends to serve.

Researching Existing Efforts:

If time allows research existing initiatives by other individuals and organizations working on similar issues or using similar action methods. Contact them to exchange information, share experiences, or explore potential collaborations. Observing how other social actions have evolved from concept to implementation provides valuable insights. This exercise helps the group understand the practical realities of social action and inspires them to create a project that is both well-designed and effective in practice.



Planning Social Action

With background research complete, the focus shifts to creating detailed action plans and assigning tasks. Providing working groups with planning templates (see **Definition of social action example**) can help them concentrate on specific, actionable steps.

Definition of social action example

Ideas for social actions that could be adopted to improve things for you and for the people around you.

- can be done by one or more people
- influences others
- is carried out in the face of a certain social situation
- has its relation to some social system in the way actors are interdependent with each other

Action Title (creative name, i.e., how you would advertise it):

What is the purpose? (What do you want to achieve? What do you want to change?): It is the aim or objective for which the action was created. Without an objective, an action is futile and unfounded.

Your target group (who would you like to reach with the social action?):

A brief description of a social action (what will happen):

Think about...

- Steps (how will you get there? How will you start?)
- What will happen:
- What do you need? (Resources, tools, skills, information, knowledge, time, etc.)
- Can it be adopted?

Risk assessment

Groups should proactively consider potential obstacles. These challenges could arise from external factors, like weather or legal issues, or from internal dynamics, such as team conflicts or excessive workloads. Creating a list of these potential problems and developing corresponding solutions is crucial. Once this risk assessment is complete, the group should revise their action plan to integrate the lessons learned.

Implementation

Now it's time for action! With solid planning, the group should have a well-defined start and finish. While the plan covers most aspects, designate someone to make immediate decisions for unexpected situations. Remember, the real-world execution of a social action is more complex than planning. Stay focused on the goal, as unforeseen distractions can occur. The designated decision-maker(s) should closely monitor the action, remaining adaptable and ready to adjust the plan as needed.

Evaluation

Evaluation is the process of determining if a project achieved its goals and whether it produced the desired outcomes. It's essential for understanding effectiveness and making improvements.

Evaluation at Different Stages:

Before (Planning):

Use SMART goals (Specific, Measurable, Achievable, Relevant, Time-bound) to ensure clear and effective objectives. This helps in setting precise goals, tracking progress, and ensuring alignment with the project's purpose.

You may use a free Gantt template

<https://templatelab.com/gantt-chart-templates/>

During (Mid-Project):

Conduct mid-term evaluations to assess progress, identify areas for improvement, and mitigate potential risks.

Use surveys or interviews to gauge team morale, identify challenges, and understand motivation.

Use the provided template for aid in this process.

Evaluation template

Do not forget to **log lessons learned throughout the process**, reviewing and documenting lessons learned continuously.

Examples: You get information from input, comments, e-mails, any thoughts that come accidentally, meetings you have...

At the end of the project, it is recommended to do some surveys about lessons learned, some feedback from your team and partners.

While writing down lessons learned you find out should you continue doing this or you should stop according to:

- Cost
- Time
- Scope
- Quality
- Process
- lessons learned

How did it go with the project? What went well? What was planned? What came to fruition?

What didn't?

Positive impact → let's continue doing that	Negative impact → let's not do this ever again

After (Completion):

Evaluate the project's success, determine what worked well, and identify areas for future improvement.

Use the evaluation results to demonstrate impact to stakeholders, inform future projects, and justify continued support.

It is a great tool for learning.

Long-Term Sustainability:

For projects intended to continue, establish clear strategic aims, decision-making processes, and logistical details (meeting frequency, location, task assignments).

Maintain participant motivation by regularly seeking feedback and fostering a strong group culture through socializing and shared experiences.

Define the positive and negative impacts, to help define what should continue, and what should be avoided.

Key Evaluation Practices:

- Regularly assess if goals are being met.
- Gather feedback from participants and stakeholders.
- Use evaluation results to inform future actions and decisions.
- Determine what you want to continue, and what you want to avoid in future projects.



Case studies of impactful large-scale campaigns

To understand the dynamics of successful social action, we'll explore case studies of impactful large-scale campaigns, examining how they leveraged social media and digital tools while effectively collaborating with influencers and stakeholders.

Food For Soul – social action example

Watch video about Food for Soul

<https://www.youtube.com/channel/UC9aHxUfKk3KkUI-8dFZqLxw>

What is Food for Soul?

video 1 <https://youtu.be/eIDt9kiKLEM>

video 2 <https://youtu.be/ANQ6tuK9dHA?feature=shared>

Explore News and stories

video 4 <https://www.foodforsoul.it/it/chi-siamo/news-storie/>

Awareness campaign example

Watch video about Chef Carlo Cracco and Too Good to Go | September 29th, International Day of Awareness of Food Loss and Waste

video 3 <https://youtu.be/okRu8Nifeuc?feature=shared>

One third of the world's food is wasted: the environmental, social and economic implications are enormous, but how to explain it in a simple and intuitive way? With the help of Chef Carlo Cracco, we tried with a small provocation towards the customers of his bistro. September 29th has been proclaimed the first International Day of Awareness of Food Loss and Waste by the United Nations and the FAO. And for this occasion, we involved some of the most important Chefs in Italian catering to further emphasize how waste should be countered in all its forms, from haute cuisine to home cooking, passing through shops, supermarkets, and companies. To celebrate this day in Italy, for example, some of the best chefs in Italy will make Chef Boxes available on the Too Good To Go app, anti-waste dishes that you can buy and pick up at their restaurants.

Discover the initiative: www.toogoodtogo.it/ilcibononsibutta

Resources

Social media campaign toolkit

www.stopfoodwasteday.com/en/get-involved/download-the-toolkit.html

TIPS for running a successful food waste reduction campaign

<https://www.shareable.net/11-tips-for-running-a-successful-food-waste-reduction-campaign/>

Leveraging social media and digital tools - Campaigns Working to Reduce Food Waste

Examples

<https://pirg.org/edfund/resources/15-anti-food-waste-social-media-accounts-to-follow/>

<https://www.nycfoodpolicy.org/10-food-waste-campaigns/>

Articles and Other resources

Leveraging Social Media to Inspire Food Waste Reduction in Hospitality for a Net Zero Future

<https://www.mdpi.com/2071-1050/16/24/11296>

- <https://www.tigurl.org/images/tiged/docs/activities/1409.pdf>
- <https://thelinkingnetwork.org.uk/what-is-social-action/>
- <https://www.grosvenor.com.au/insights-resources/public-sector-advisory/6-reasons-why-evaluation-is-a-great-opportunity-for-program-managers/>
- <https://www.atlassian.com/blog/productivity/how-to-write-smart-goals>
- https://uk.sagepub.com/sites/default/files/upm-assets/97995_book_item_97995.pdf

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