LIFE FOSTER

B1. FINAL REPORT
TRAINING OF THE TRAINERS
CONEGLIANO (ITALY)

LIFE17 GIE/IT/000579

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Training, education and communication to reduce food waste in the food service industry

Summary

1. A problem setting & solving thinking to challenge a complex issue such as food waste in the restaurant sector

The training of the trainers held in Conegliano from 11 to 15 March had the purpose to provide and transfer knowledge, awareness, skills and competences to set and solve the problem of food waste in the restaurant sector.
There is no doubt whatsoever that food waste in the restaurant sector is a complex issue, with a multitude of factors, interacting in various direction from the storage to the consumption phase as it is highlighted by the literature/projects review (Action A1.0) and the statements of the experts involved in the preliminary analysis (Action A1.1).
The strategy of LIFE FOSTER project is to find and set up the problem of the food waste in the restaurant sector as a way to reduce and disentangle its complexity and diversity of causes, as a process of selection of critical variables and their cause-effect connections to define a strategy that aims at solving the problem itself but all the while provides economic, environmental and social benefits.
Chefs and all the restaurant staff as a bridge between farm and fork can play a significant role in reducing food waste but also in creating a new awareness about the value of food at the restaurant, in our kitchens, classrooms and communities.
Beyond creating fashion and new market trends, chefs have also the potential to help to reframe food system challenges and get people to rethink their eating habits, including how they waste food.

Starting therefore from a theoretical treatment of the issues of food waste from the general to the particular, analysing the European context and in particular that of the 4 countries involved in the project (Italy, France, Malta and Spain), then progressively focusing on the specific organizational context of the restaurants and the VET centres, the training has been structured according to the following 4 steps:

1. Food waste problems recognition & definition;
2. Development of a strategy to fix the problems within the organization (problems cycle) and to gather data;
3. Adoption and implement of a solution plan by assessing the resources at the user's disposal;
4. Progresses & results' monitoring.

2. The training of the trainers' content, didactical techniques & overall structure

The contents were therefore organized according to several levels that retraces these 4 steps and that, according to a deductive reasoning, move gradually from the data, causes, consequences, contradictions about food waste across the food system to focus on strategies to prevent and minimize food waste in the specific context of the restaurant sector (Figure I). Each level was articulated in modules, and each module in sub-themes (Table I) the theoretical part (Picture I) has been combined with a more practical-experiential one (Picture II). In the practical-experiential part, unlike the theoretical part, a bottom-up approach was favored through the use of exercises/simulation based on special situations, but recurrent in a restaurant /VET center.

Picture I: A moment of the lesson of C. Scaffidi about the "Communication & narration of the sustainability of a plate"

Picture II: A moment during the simulation in the kitchen of the VET centre of ENAIP in Conegliano

Figure I: Schema of the modules of the training of the trainers in Conegliano

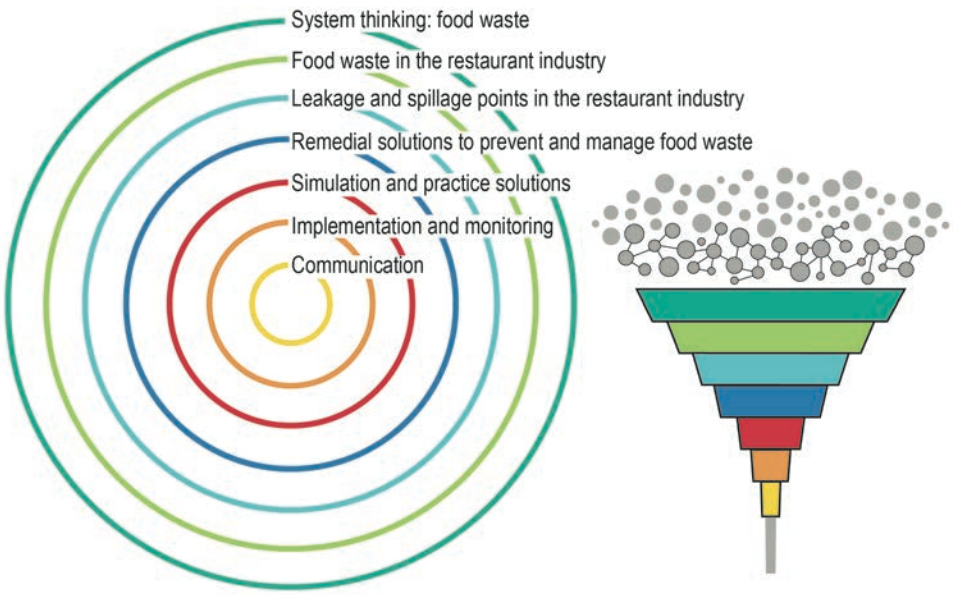


Table I: Structure of the training of the trainers: steps, levels, modules and subthemes

Step	Level	Module	Sub-theme
1. Food waste problems recognition & definition	System thinking: food waste	The food system and the dilemma of the food waste	• Food and the food system • Major challenges of the world food system and SDGs • Figures, fact and definition (wastage, food loss, food waste) • Focus on EU context • Food waste: a error into the system & a system error • Systemic thinking (elements of the system approach applied into the food system)
	Food waste in the restaurant industry	Food waste in the restaurant sector	• Figures, fact and definitions of food waste into the restaurant sector • Classification within the restaurant sector • Comparison between household food waste and restaurant sector food waste • The sustainability in the restaurant sector • Boundaries and actors of the restaurant sector
2. Development of a strategy to fix the problems within the organization (problems cycle) and to gather data	Leakage and spillover points in the restaurant industry	Work group about the food flow analysis in restaurant sector and the individuation of leakage points	• Adaptation of the Swiss cheese (theory of error) model to the restaurant sector • Definition of the 5W in the restaurant sector
		Food waste problem map	• Selection of critical and representative products for the food waste generation • Product analysis
3. Adoption and implement of a solution plan by assessing the resources at the user's disposal	Remedial solutions to prevent and manage food waste	Strategies and solutions to prevent and manage the food waste	• Debrief of the results of the role play of the day before • Brainstorming about the solution to prevent and manage food waste • The risk of competitive and conflicting solutions • The conditions for good solutions adoption • Building an effective action plan
		Food waste hierarchy and circular economy principles applied to restaurant sector	• Waste as a resource, waste is food • Food waste options management in food waste hierarchy • The butterfly diagram applied to the restaurant sector • Definition of the different kind of cycles • Circular kitchen & cooking

4. Progress & results' monitoring	Implementation and monitoring	Food waste quantification methods & monitoring	• Why quantify? • Presentation of the main food waste quantification methods • Pros and cons according to the context • Monitoring food waste prevention and management benefits
		Focus group on food waste quantification in a VET centre	• Analysis of critical points of food waste production • Selection of the best methods
1. Adoption and implement of a solution plan by assessing the resources at the user's disposal	Simulation and practice solutions	Menu as a planning tool	• Thinking relationships: menu as a link between consumer, professional and producer • Matching needs and expectations to build up a planning tool
		Menu balancing (food cost, nutritional balance, human resources and equipment management)	• Structure of a planned menu • Pieces of information to include, sharing with the team (community), evaluation of critical issues
		Planning tools and elements, *mise en place*, parametric recipe, storage management (first in - first out, labelling)	• From menu to recipes: what is a parametric recipe • Focus in ingredients and link to storage management (correct order as first tool to avoid waste) • From recipes to procedures: "mise en place" • Line and service
		Training simulation on menu design/work group	• Ingredients analysis and experience of the planning tools
			• Preparation of lunch (divided in groups)
		Training simulation on menu design-comments, exchange and analysis	• Debrief of the preparation and lunch experience
		Food bricolage: resilience and adaptability in the food preparation and plating	• Design plating • How to be adaptable during service
		Second life recipes: focus on bread and offal (quinto quarto)	• Concept of reuse and offal • Current trends in restaurants • The importance of Offal in rated restaurants and their problem in proposing reuse dishes • Importance of bread in traditional dishes and their use in Italian osterias with reuse dishes • What is changing in the world of restaurants • Sharing menu: "Carpaccio di rapa e corteccia di topinambur" - "Manfrigoli mantecati nel passato di verdura, pesto di radicchio rosso e paprika dolce" - "Trippa di Parmigiano" - "Neve nel bicchiere"
	Remedial solutions to prevent and manage food waste	The quality of the raw materials and the whole ingredients approach Waste as a modern concept, the recovery and education to the tradition	• How we can think the menu to use all the products we buy • Planning dishes and rethinking process • Examples of what we can do using traditional dishes, to avoid waste, and how technology and creativity can help us in finding new ideas
3. Adoption and implement of a solution plan by assessing the resources at the user's disposal	Communication	Recipes story telling: how to value sustainable choices	• Example of communication in sustainable projects • What are the best techniques to give value to dishes prepared with products considered of low value
		Communication & narration of the sustainability of a plate	• Introduction about how to convey the meaning of the sustainability to clients/consumers • Waste in the modern productive and consumption model, market interpretation of waste
		The communication effectiveness (i.e. the correspondence between what is spent and what is perceived)	• Useful pieces of information for consumers • Work group about the communication and narration of the plate sustainability
4. Progress & results' monitoring	Implementation and monitoring	From job description to observable behavior	• Introduction and work phases: from job description to observable behaviors: sharing a method for the evaluation of performances (and learning) in a non formal context • Focus group: embedding food waste reduction strategies in a job description elicit competences in specific work situations/contexts • A ksa analysis: sharing a common glossario prepare a job assessment

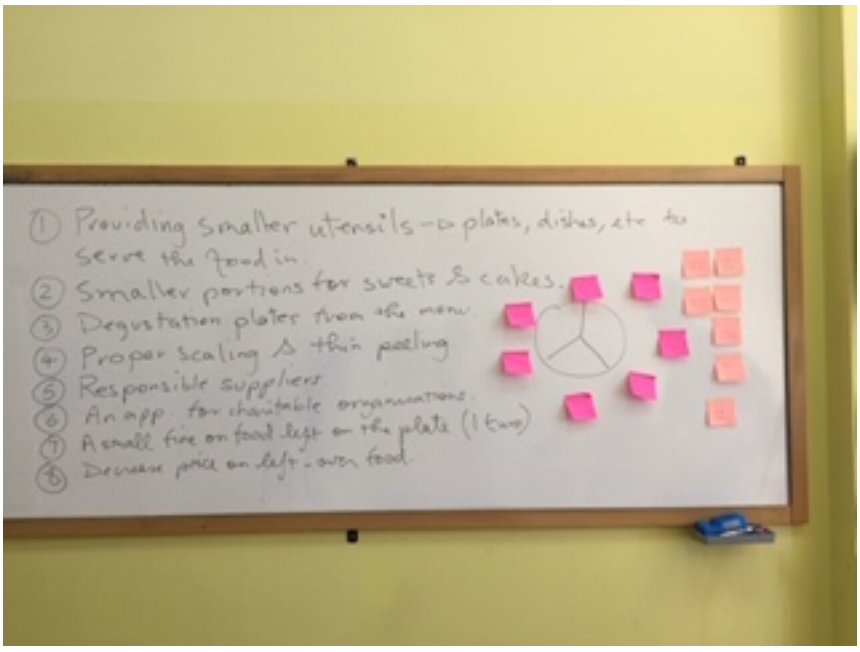
			• The model of the repertoire of qualifications and profiles in friuli venezia giulia region: the typical situations datasheets • Establish proficiency levels and indicators to measure • Workshop " building a checklist of observable behaviors, with the evaluation criteria" • Sharing and presentation of the check-list draft • Open discussion & conclusion

By this first training of a small group of trainers, LIFE FOSTER aimed to create a ripple effect, which will bring to the training of relevant numbers of other trainers and the consequent training of even more significant number of students. In order to enable the generation of a ripple effect the organization of the modules and sub, the techniques used as well the overall problem-solving approach has been structured to be easily replicated for the sub action B.1.1.2.

During the course some proven techniques were used as problem-solving strategies to contribute to the development of a systemic and problem-solving oriented thinking.
Here, follows a list of the main techniques applied by the trainers:

- **Abstraction**: solving the problem of food waste in the restaurant sector before applying it to a real restaurant/VET center;
- **Brainstorming:** (especially used during the work in groups of people from the 4 different countries involved in the project) suggesting a large number of solutions or ideas and combining and developing them until an optimum set of solution is found (Picture III);

Picture III: Example of a brainstorming group results about the solutions to prevent/reduce food waste in the restaurant sector



- **Reduction:** transforming the food waste problem into other sub-problem for which solutions exist;

- **Means-ends analysis**: choosing an action at each step to move closer to the goal of food waste prevention and reduction;
- **Morphological analysis:** assessing the food waste output and interactions of an entire restaurant system;
- **Divide and conquer:** breaking down the large, complex problem of the food waste into smaller, solvable problems (i.d according to the different stages of storage, processing and consumption or assuming different perspectives) in order to create a food waste problem map;
- **Research:** employing existing ideas or adapting existing solutions to prevent and reduce food waste in household or in the retail to similar problems of the restaurant sector;
- **Root cause analysis:** identifying the cause of the food waste problem across the different main stages and the relevant player to find a proper set of solutions (Picture IV);

Picture IV: During a work group discussion to look for the holes (leakages points) of the restaurant system

- **Proof:** try to prove that the food waste problem cannot be solved. The point where the proof fails will be the starting point for solving it;
- **Learning from mistakes:** use mistakes made in specific procedure (execution of a recipe or a menu), to fix what are the incorrect actions that we recurrently adopt and generate food waste and to remember the learned information (Picture V and VI);
- **Team working:** experience the importance of coordination and collaboration among the parts, of pooling knowledge and skills, of finding peers to emulate, of tackling more complex problems than we could on our own, of developing new approaches to resolving problems, of balancing between individual and group responsibility to fight effectively food waste.

Picture V and VI: Food waste produced in the first (Picture V) and in the second kitchen simulation (from preparation to consumption)

To promote the widest possible perspective on the food waste, different professionals and experts have been involved by the University of Gastronomic Sciences, which in various ways deal with this topic (as a researcher, chef, food consultant, journalist-blogger, trainers in VET centre) (Table II).

Table II: List of experts involved during the training

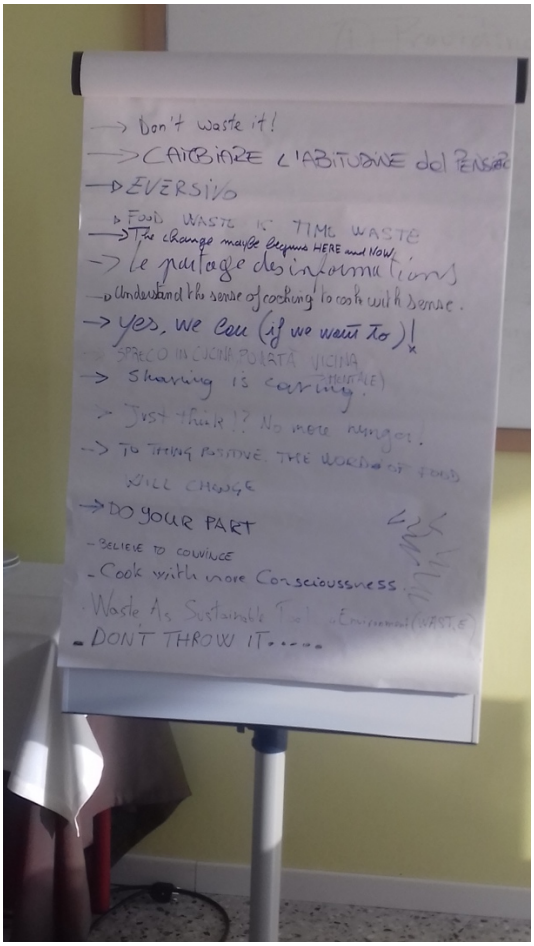
Name & Surname	Expertise
Carlo Catani	Consultant about communication activities events and quality control in the food service industry
Barbara Dainelli	Project designer and project manager at EnAIP Friuli Venezia Giulia (FVG). She is member of the expert group in charge for the implementation of the Repertoire of Qualifications and Profiles of FVG.
Carol Povigna	UNISG chef and trainer
Cinzia Scaffidi	Freelance journalist, about global topics in relation to food production and the environment
Nadia Tecco	UNISG researcher in environmental economic and consultant in the sectors of food production and consumption, in the evaluation the sustainability of food systems

3. Results from the training and the trainers

In the last day of the training, UNISG asked to all the trainers to fill a sheet to identify the main pieces of information, concepts, key-messages, skills and competences acquired during the training that could be transferred to other trainers and colleagues during the following activities of the Life FOSTER project. Here follows a word cloud that summarizes the main relevant aspects learned during the training by the participants and that will be transferred to other trainers and a picture of the key messages of the course.

Figure II: Word cloud of the key concept from the training

Picture VII: key messages list collected by the trainers

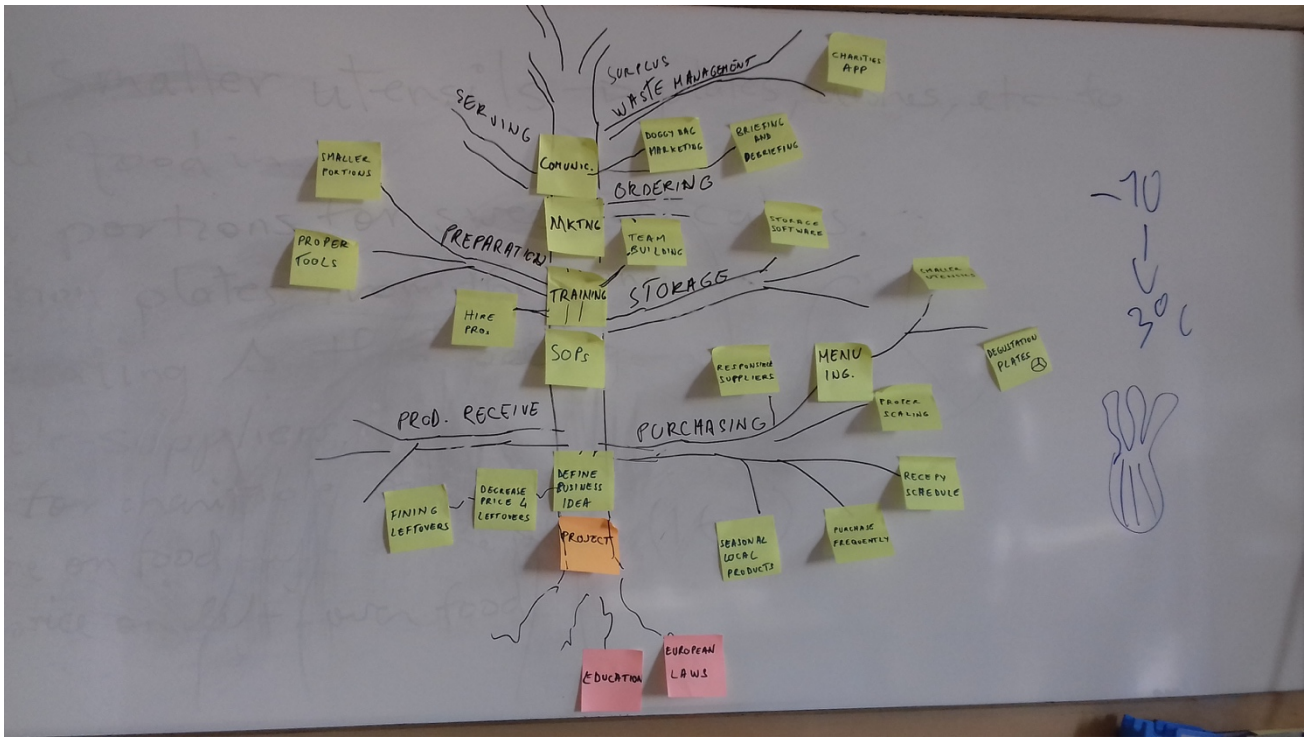


However, since the first exchanges with the trainers, it has emerged that it will be necessary to adapt the course's contents according to the type of target (students, adults) their abilities (beginners, experts, adults in the process of job placement/replacement), their degree of motivation. At the

same time it will necessary to preserve the dimension of the whole process, that is, to remember that all the phases are relevant.

Thanks to the pro-active participant of the trainers and to their high level of experience in the restaurant sector, the training has consolidated some of the findings coming from the preliminary project phase during Action A1.
Reference is made here in particular to the leakage points in the restaurant sector system (Table I- Food Waste Map), the understanding of cause effect relationship in food waste generation, the availability of solutions in compliance with the food waste hierarchy and the upcycling principle of the circular economy (see Picture IV).

Picture IV: Solutions' tree for the restaurant sector realized by the trainers during the training



These training methods, as well as the materials and contents created, can be used as starting points for the next training. Following this principle, all the training materials have been shared with all the participants by the creation of a shared folder.

Table II: Food waste problem map realized by the trainers during the training

PURCHASING	RECEIVING PRODUCTS	STORAGE (RAW & PROCESSED)	PREPARATION	ORDERING	SERVING
○ Lack of SOPs (Standard Operating Procedure)	○ Hiring wrong staff/ lack of training (receiving)	○ Lack of storage capacity	○ Hiring wrong staff/ lack of training	○ Lack of selling skills	○ Lack of SOPs (Standard Operating Procedure)
○ Bad planning	○ Lack of safety management systems	○ Hiring wrong staff/ lack of training	○ Lack of communication	○ Lack of communication among staff	○ Accidents
○ Hiring the wrong people	○ Accidents	○ Lack of SOPs (Standard Operating Procedure)	○ Bad planning	○ Lack of training/hiring	○ Lack of communication
○ Lack of inventory	○ Lack of SOPs (Standard Operating Procedure)	○ Lack of first in /first out	○ Accidents	○ Lack of menu engineering	○ Lack of marketing
○ Lack of priority to seasonal/local products	○ Time of reception	○ Seasonal concerns	○ Lack of skills	○ Negative environment	○ Lack of food safety management
○ Lack of proper menu planning/nutrition	○ Time organizing the reception	○ Accidents	○ Caresness	○ Lack of SOPs	
○ Wrong suppliers' choice		○ Expiry date	○ Miscalculating portions	○ Pasion	
○ Low quality products			○ Not following recipes	○ Lack of awareness/motivation/ historical info	
○ Bad communication with supplier			○ Lack of SOPs (Standard Operating Procedure)		
○ Wrong formats of products			○ Edible parts		
○ Lifetime of products			○ Lack of the right tools/equipment		
○ Not being able to foresee/predict the correct amount of product and frequency			○ Lack of space		
			○ Lack of passion		
			○ Bad management		
			○ Bad hygiene practice		
			○ Not considering the customer's demand		

4. Training's satisfaction

During the final day of the training, participants have filled a questionnaire about the satisfaction of the different modules' contents (Were the topics covered during the class lessons interesting and useful?) and about how the trainer/experts has been able to explain clearly the topics and to involve the trainers (Was the explanation clear? Were the trainers helpful and involving?). For the practical part an additional question relative to the cooking techniques has been inserted in the questionnaire (Were the cooking techniques applied new for you?).
The goal of the satisfaction questionnaire was to understand how participants like or dislike the set of planned activities organized to develop the knowledge, skills, and attitudes required to effectively perform the food waste prevention and reduction in their job and transfer this knowledge to their colleagues.

The degree of satisfaction of the training has proven to be high. On a scale from 0 minimum to 100 maximum 88,3 was the average score for the training. In the table the satisfaction's score for each trainer.

Table III: Degree of satisfaction of the training of the trainers

Name & Surname	Average score for each trainer	Average satisfaction's score about the whole training
Carlo Catani	84	88,3
Barbara Dainelli	86,6	
Carol Povigna (Theory)	90	
Carol Povigna (Practice day 2)	86,3	
Carol Povigna (Practise day 3)	91	
Cinzia Scaffidi	86,2	
Nadia Tecco	93,7	

These results made us confident on the participants' readiness to transfer learning in the future activities of LIFE FOSTER project (ESPECIALLY B.1.2) by creating a ripple effect. These considerations move from the theoretical[1] and empirical evidence[2] that show positive relation between training satisfaction and normative commitment[3] with the creation of a favorable trainee psychological state that predisposes and leads him/her to transfer the learning as a post reaction.

1 Kirkpatrick, D.L. Evaluation of Training. In Training and Development Handbook: A Guide to Human Resources Development; Craig, R.L., Ed.; McGraw-Hill: New York, NY, USA, 1976.
2 Mansour, J. Ben, Naji, A., & Leclerc, A. The relationship between training satisfaction and the readiness to transfer learning: The mediating role of normative commitment. Sustainability (Switzerland), 2017, 9(5).
3 Schmidt, S.W. The Relationship between Satisfaction with Workplace Training and Overall Job Satisfaction. Hum. Resour. Dev. Q. 2007, 18, 481–498.