FOOD SURVEY: LOOKING AT SAFETY, HYGIENE AND WASTE MANAGEMENT

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Abstract: Food is a basic necessity; many people are still unaware of the level of cleanliness and care required to keep it safe. The food stalls face challenges in maintaining proper hygiene, handling food safely, and managing waste effectively. These issues increase the risk of foodborne illnesses and also contribute to environmental pollution around food-selling areas. In many cases, these problems are not caused by negligence but by a lack of proper infrastructure, training, and awareness. The study emphasizes the importance of basic hygiene practices such as regular handwashing, keeping cooking and serving areas clean, and disposing of waste responsibly. Even small steps can greatly reduce health risks and improve overall food safety. This research also highlights that food safety is a shared responsibility among vendors, consumers, and local authorities. By promoting awareness and cooperation among all stakeholders, safer and cleaner food environments can be created, leading to improved public health and a more pleasant dining experience for the community.

Keywords: Hygiene, inspection, contamination, temperature, sanitization, disinfection.

I. INTRODUCTION

Food plays a crucial role in maintaining health and is a necessary part of everyday lives. However, particularly in crowded food stalls and street markets, food safety and hygiene are frequently disregarded. It's critical to comprehend on how food is prepared, handled, and disposed of as street food gains popularity. Food contamination and major health problems can result In poor hygiene and inappropriate waste disposal. Through the survey, this paper seeks to examine the state of food safety, hygiene and waste management today. Using the data gathered from food vendors and consumers, the study identifies common issues and offers simple solutions to enhance cleanliness and cut waste for a healthier environment.

II. IMPORTANCE OF FOOD SAFETY, HYGIENE AND WASTE MANAGEMENT

In order to preserve public health and a clean environment, food safety, hygiene and waste management are essential. Eating food free of dangerous bacteria, chemicals and contaminants is guaranteed by proper food safety. Preventing foodborne illnesses and enhancing general health are two benefits of using good hygiene practices when handling, preparing and storing food. Segregating and recycling food waste is one aspect of effective waste management that lowers pollution and stops the spread of illnesses and pests. These methods work together to produce a sustainable and safe food system. In order to guarantee that food is both safe to eat and produced in an environmentally responsible manner, they also promote responsible behavior among people, food businesses and communities.

III. LITERATURE REVIEW

SL NO	YEAR OF PUBLICATION	PROJECT TITLE	DESCRIPTION
1	2025[1]	Identify and Analyze the Healthy and Unhealthy Food Items Using Deep Learning	The study introduces a Deep Learning method that uses **Convolutional Neural Networks** (CNNs) to categories foods as either healthy or unhealthy. The study makes use of image datasets with nutritional information like calories, fats and carbs that are available from open sources like Food-101 and Kaggle. The model learns to identify visual features and

			correctly classify foods through the use of image preprocessing, data augmentation and transfer learning. The CNN demonstrated strong reliability in determining the healthiness of food, achieving 94% training accuracy and 90% testing accuracy. Street foods have more fats and carbohydrates than healthy foods, according comparisons. Deep Learning offers a strong, automated, and scalable solution for nutritional assessment and dietary management, according to the study's findings. AI-based applications may also help with health monitoring and encourage healthier eating habits.[1]
2	2024[2]	Examining Food Literacy and Anti-Food Waste Behavior to Support Food Smart City Initiative: Household Routine as a Mediator.	In order to support the Food Smart City initiative in Banyumas, Indonesia, the study investigates on how household routines and food literacy affect anti-food waste behavior. Food literacy the ability to plan, prepare and manage food has a positive impact on household routines and anti-food waste behavior, according to research using data from 409 respondents and **Structural Equation Modeling – Partial Least Squares** (SEM-PLS) analysis. Food waste is further decreased by organized household practices like portion control, meal planning and appropriate storage. The relationship between waste reduction behavior and food literacy is mediated by household routines. It comes to the conclusion that reducing food waste and creating sustainable, food-smart urban communities require enhancing food literacy, promoting healthy eating practices and incorporating technology into homes.[2]
3	2024[3]	Food Insecurity and the Global Environment: The Role of Food Loss and Waste.	The impact of food loss and waste on environmental degradation and global food insecurity is examined in this paper. It shows that almost one-third of the food produced globally is lost or wasted, resulting in significant resource waste, greenhouse gas emissions and financial losses. Despite adequate global food production, food waste happens at every stage, from production and storage to consumption, making hunger worse. The study highlights no addressing food loss and waste can improve sustainability, lessen environmental impact and greatly increase food security. It urges concerted international action in areas such as better food supply chains, effective distribution, consumer education and circular economy principles. This results in minimizing food waste is essential for sustainable development and global resilience on a moral, financial and environmental level.[3]
4	2023[4]	Sustainable paths to food security from the perspective of food loss and waste management.	This study investigates the relationship between sustainable food security and lowering **Food Loss and Waste** (FLW). The authors contend that minimizing FLW is crucial because hunger

			is getting worse due to global crises like COVID-19 and the conflict between Russia and Ukraine. They provide useful solutions along the food value chain, from improved packaging and reprocessing surplus food to creative selling strategies and consumer education. Other important tactics include increasing shelf life and turning waste into high-value products. In order to create a resilient, sustainable food system for future generations, the paper highlights the importance of policy, education, and public awareness in bringing about change. It also calls for cooperation from governments, businesses and individuals.[4]
5	2022[5]	Sharing Food with Food Life Savr Smartphone App.	To ensure transparency and appropriate distribution, the app allows users to register, select food categories, enter donation amounts and follow courier deliveries. It has a forum where users can exchange thoughts and stories. The system effectively handles donor, courier and recipient data and was constructed with MySQL and a structured class diagram. In order to address food inequality, particularly in times of crisis like the COVID-19 pandemic, the study highlights the value of empathy, community awareness and digital solutions. Future research attempts to incorporate chatbots and AI-based recommendation systems to improve efficiency and accessibility. In general, FoodLifeSavr encourages social responsibility and sustainable food sharing.[5]
6	2019[6]	Evaluation of food-grade vegetable oils using ultrasonic velocity measurement and fatty acid composition.	This study involved in the examination of 80 samples of common food-grade vegetable oils, including olive and sunflower oil, to analyze the propagation of sound waves within these substances that employed a precise ultrasonic device to measure the speed of sound, as well as the density, thickness and fatty acid composition of each oil. Research indicated that oils containing higher levels of unsaturated fats, particularly those abundant in **PolyUnsaturated Fatty Acids (PUFAs)**, exhibited distinct variations in sound transmission properties. This method effectively differentiates olive oils from other vegetable oils. However, it struggles to distinguish oils with closely related fat compositions. The researchers intend to further investigate the attenuation of sound in various oils to enhance non-destructive testing methods for assessing oil quality and purity.[3]
7	2018[7]	Improvement of the System of Selective Collection of Household Waste in Latvia.	In order to lessen landfill usage and encourage sustainability, the paper discuss about enhancing Latvia's system for collecting household waste selectively. It points out that waste amounts are rising quickly, endangering human health and the environment. Despite legal requirements, Latvia does not have

			explicit laws governing the collection of separate waste, including standards for container types, locations and frequency of collection. According to the study, laws should be strengthened to require selective collection and establish clear guidelines. With the help of education and public awareness campaigns, it suggests distinct containers for paper, plastic, glass, textiles and biodegradable waste. Enacting rewards and penalties may encourage people to properly sort their waste. This concludes that increasing selective collection will boost recycling effectiveness, preserve natural resources and build a more sustainable and clean waste management system in Latvia.[7]
8	2018[8]	Consumer' Behavior of Restaurant Selection.	The study, conducted in Plovdiv, Bulgaria, surveyed 250 local and foreign visitors to analyze their dining preferences. The findings indicated that food quality, fresh ingredients and cleanliness ranked as the primary concerns for the majority of consumers, with ambience, price and service plays an important role. Tourists prioritized restaurants that provided traditional or locally sourced foods, associating authenticity with customer satisfaction. And indicates that restaurants ought to engage with local farmers via online **Business-to-Business(**B2B) platforms to ensure the provision of fresh and highquality products. The study highlights that contemporary restaurants must address nutritional requirements providing enjoyable, social and authentic dining experiences to maintain competitiveness.[8]
9	2015[9]	Food Safety and GIS (Geographic Information Systems) Application.	In the 21st century, while traditional field sampling methods remain valid, the application of advanced technologies offers significant advantages, particularly regarding efficiency and time management. Production data can be monitored, immediate onsite data can be input into the system and the accuracy of the entered data can be verified using GIS. Production planning and control, along with pollution and environmental assessments, enable the management of food safety through the regulation of pesticides and the analysis of their adverse effects. The concept of GIS requires no further elaboration. GIS usage facilitates the acquisition of data regarding the cultivation climate of a product within a specific region, environmental pollution factors in the cultivation area, climate impacts and production quantity and quality, thereby providing source data based on coordinates.[9]
10	2015[10]	Food Nanotechnology and Nano Food Safety.	This study examines the ways in which nanotechnology is revolutionizing the food

			industry, from increasing food safety and traceability in improving nutrient absorption and packaging durability. Smart packaging materials increase shelf life and facilitate biodegradation, while nanoscale ingredients and additives can improve nutrition and cut waste. Additionally, nanotechnology enables DNA barcoding for product authenticity and powers sophisticated sensors for quick contamination detection. Safety issues still exist, though, as there are no international guidelines for assessing nanofoods and nanoparticles may present unidentified health risks. Regulatory agencies are urging more stringent oversight and more transparent marketing and consumers are still differs in food safety. Not with standing the uncertainties, if applied with careful study and ethical considerations, nanotechnology has the potential to revolutionize food processing, machinery and safety.[10]

IV. CONCLUSION

Ensuring the quality of food and safeguarding the public's health depend on food safety it entails keeping food hygienic at every stage of the supply chain, from processing and production to storage, cooking and eating. Safe food practices lower waste, increase consumer confidence and prevent foodborne illnesses. Food safety is not only a local issue but also a global one in the world of today's fast urbanization and international trade. Everyone is essential to its preservation, from farmers and food handlers to consumers. A safer food system can be created by implementing contemporary technologies, enforcing safety laws and bolstering education. This concludes in, maintaining food safety contributes to sustainable development, healthier lives and a more robust and resilient society.

Sustainable Development Goals

SDG Goals	Goal Description	Justification
SDG 2: Zero Hunger	Achieve food security, improved nutrition and sustainable agriculture	Technology (AI, IoT, GIS, sensors) improves production efficiency, reduces losses, and ensures nutritious, safe food reaches consumers. Waste reduction increases available food supply.
SDG 3: Good Health and Well-being	Promote healthy lives for all.	Smart food systems ensure food safety, detect contamination using technology, and reduce foodborne diseases. Waste reduction leads to safer, fresher food.

SDG 11: Sustainable Cities and Communities	Make cities inclusive, resilient & sustainable	Smart city initiatives for food waste management, food donation apps, and optimized food distribution reduce urban waste and improve sustainability.
SDG 13: Climate Action	Combat climate change.	Food waste reduction lowers methane emissions. Smart agriculture reduces carbon footprint through optimized inputs and reduced spoilage.

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