

# Awareness and Implementation of Reuse, Reduce and Recycle Waste Management Practices in Restaurants

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## Abstract

Reduce, reuse and recycle play an important role in maintaining not only the environment in the long run but also gives the people a sense of self-worth and satisfaction. The entire report shows us that because of an increase in awareness and various movies such as *Revenant*, *Greta*'s speeches there has been a severe impact on the environment practices followed not only in the food industry but also in various industries and household. People nowadays are very skeptical about what they try and what they consume so this is a global opportunity to explore the endless possibilities and not only increase the footfall but also have massive savings up to 8% when it comes to costing. People also know about the benefits and are in fact following it in their day to day work. Compiling the data made us realize that there is a need in more restaurants solely based on the basis of following environmental practices. Many restaurants are following R3 but have only 1 to 3 percent savings and are not going all the way through. The finding further indicate that restaurant are happy with following R3 and they need to showcase in to the world that they are following the practices and how they benefit the world. One of the important finding was that restaurants didn't have complete knowledge regarding the practices and equipment which could be used by them to make a difference in times to come. Restaurants are also adapting with time, so are the people as they want to try and taste different cuisines as well as cooking styles such as gas less kitchens and ancient cooking methods.

**Keywords:** Restaurants, Hotels Kitchen, Reuse, Recycle, Reduce

## INTRODUCTION

Each one of us believe we waste less than other households yet in each household, 20% of the food purchased

never gets eaten. India throws out 67 million metric tones of good food every year, valued at INR 92,000 crore, making wasted food the largest contributor to landfills and producing harmful amounts of methane gas – gas which is 20 times more potent than carbon dioxide. Be it buffet spreads or individual orders, Indian restaurants make a sizable contribution to the total food wastage which is more than 40 per cent of what is produced. Which means, we waste more than what we create, something to think of in a country where ironically almost 194 million people sleep hungry every single day.

Much of the waste created in hotels stems from either food- and beverage-handling (generating materials such as packaging and food waste, aluminium cans, glass bottles, corks and cooking oils), or from the housekeeping department (creating waste such as cleaning materials and plastic packaging). Waste is not only created in guest rooms but also in public areas, hotel gardens (anything from engine oils, pesticides, paints and preservatives to grass and hedge trimmings) and offices (toner cartridges, paper and cardboard waste). Regular refurbishment adds TVs, minibars, carpets, towels and linens, and much else into the equation.

It is the order of priority of actions to be taken to reduce the amount of waste generated, and to improve overall waste management processes and programs. The waste hierarchy consists of 3 R's as follows:

## Reuse Reduce Recycle

Called the “three R's” of waste management, this waste hierarchy is the guidance suggested for creating a sustainable life. You might be wondering as to how you can incorporate these principles in your daily life. They

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are not hard to implement. All you need is to bring a small change in your daily lifestyle to reduce waste so that less amount of it goes to the landfill that can reduce your carbon footprint. The three R's –reduce, reuse and recycle – all help to cut down on the amount of waste we throw away. They conserve natural resources, landfill space and energy. Plus, the three R's save land and money communities must use to dispose of waste in landfills.

*Reuse:* Reuse refers to using items more than once. Re-using in environment health and safety or waste prevention terminology means using an object or resource material again for either the same purpose or another purpose without changing the object's structure in a significant way.

*Reduce:* The concept of reducing what is produced and what is consumed is essential to the waste hierarchy. The logic behind it is simple to understand – if there is less waste, then there is less to recycle or reuse. The process of reducing begins with an examination of what you are using, and what it is used for. Reducing the amount of waste we all generate is a great way to benefit the environment.

*Recycle:* Any waste that cannot be reused needs to be sorted into its component fractions so that as much as possible can be recovered for recycling. To recycle something means that it will be transformed again into a raw material that can be shaped into a new item. There are very few materials on the earth that cannot be recycled.

One of the issues facing communities that want to become more involved with a recycling effort is that while the relying collection and sorting process may be affordable to implement, there still has to be a facility to receive and transform the discarded waste into a raw material. More progress is being made toward uniting recycling plants with industries that can process the waste material through agreements and incentive credits.

As hotel industry's dependence is directly proportional with the availability of natural resources like food, water and energy, it was vital that the burgeoning hotel industry commenced to take its baby steps towards responsible luxury.

At most hotels, waste is created at upwards of 1 kg per guest per night - a large amount when multiplied by the number of hotels and guests around the world. But many hoteliers are responding to the waste challenge. The hotel industry

is becoming more and more aware of sustainable mode of operation. Many luxury hotels have adopted the 'green' way of living to enhance customer satisfaction and to sow the seeds of a healthier lifestyle. Although waste is clearly a big issue for hoteliers, examples of good waste management practice can be found across the hospitality industry. They range from environmentally enlightened individuals at small establishments 'doing their bit', to well-orchestrated systems within international groups.

## OBJECTIVES

- To check if restaurants are aware of the R3 practices.
- Impact of customer behaviour regarding the practices being followed.
- To check if general people follow or have an impact in conservation of the environment.

## RESEARCH METHODOLOGY

### Significance of the Study

This research intends to study the impact Ecofriendly Practices has on Customer, also to raise awareness and check if restaurants are aware regarding the various practices which can be followed by them in the long run. This study also proves that there is a lot of potential for this type of restaurants as there is very less competition and more customers waiting to try out new concepts in the real world.

### Scope of the Study

This research is done with limited scope of one city there is also a lot of potential to explore this concept in Pune by many restaurateurs.

### Sample Size

For the Purpose of Data Collection, the total sample of approximately 50 owners and 80 consumers were selected randomly to answer the customized questionnaire.

### Sampling Techniques

The sampling techniques for the first questionnaire which was meant to be for the general public as random.

The sampling techniques for the second questionnaire which was meant to be for restaurants was random. The restaurants selected were restricted to the city of Pune.

- Primary Data was collected from: Questionnaire and Interviews.
- Secondary Data was collected from: Literature available.

The customers, General Public which could be potential customers as well as the restaurants owners will have to fill a questionnaire survey. I have also gone to a restaurant to check if they follow Eco-friendly Practices and have had a short interview with them.

## LITERATURE REVIEW

- Food waste management innovations in the food-service industry | September 8, 2018, Carlos Martin Rios | Christine Demen Meier

They spoke about the growing trends in sustainable future for not only our kids but also the future generations to come. The importance food preservation plays in our life and the role of it. They also spoke about the growing importance of reuse reduce and recycling concept and its importance. The paper presents a range of waste management initiatives, showing that their implementation in the foodservice sector varies depending on management's beliefs, knowledge, goals and actions. The concepts discussed here could help practitioners to become more aware of the factors that drive the adoption of food waste innovations.

- Food waste generation and industrial uses | June, 2015 Francesca Giroto | Luca Alibardi | Raffaello Cossu  
In the report they spoke about Food waste is made up of materials intended for human consumption that are subsequently discharged, lost, degraded or contaminated. The problem of food waste is currently on an increase, involving all sectors of waste management from collection to disposal. They also speak about the preservation of resources for future use.
- A Staged Pyrolysis and Combustion Process for Solid Waste Recycling in Fast Food Restaurants | 21 December, 2007 Marek Wojtowicz | Michael A Serio

The past few decade the fast food chains are using a lot of plastic, paper and non-recyclable waste. So

the impact of using the waste and using of DG fuel in restaurants and the influence in has on the environment is emphasized and given importance to. The use of paper straws and recycling material is also elaborated in detail.

- Reducing food waste through surplus food redistribution | Paula Capodistrias

This study shows the importance of food redistribution and how a company serves 3500 meals a day simply on the concept of food redistribution and supplying of produce. The results show that the logistics of direct redistribution in the cities included in this study are complex, efficient and formal. Direct surplus food redistribution in Norway is heavily dependent on the workforce of volunteers and personal relationships among the participating actors. This concept can be idealized in countries like India and USA as well.

- Biomass from waste food | 2014 Eng-Mohamed L-Sebay

In this study he shows us that with a few newspapers we could convert food waste into ethanol. The mathematical and logical working has been carried in the report along with the uses of bio mass in restaurants and places which can help us save not only the consumption of fuel but also economic benefits which is saved in consumption of fuel.

- *Green Hotels* - Use of food waste derived from hotels and restaurants for the production of sustainable and biodegradable consumables | 2015 Joachim Venus | Daniel Pleissner

They speak about the entire process required by restaurants and hotels to process food waste. Food waste requires an effective treatment in order to avoid an accumulation and a negative impact on the life quality of citizen and attractiveness of regions. This is especially essential in regions where tourism significantly contributes to the income and where tourists expect an intact environment.

- *Current and Future Trends in Food Waste Valorization for the Production of Chemicals, Materials and Fuels: A global perspective.* | 2<sup>nd</sup> June, 2014 Egid B Mubofu | Carol Lin | Apostolis Koutinas | Avtar Matharu | Nikolaos Kopsahelis | James Clark

They speak about all the techniques with could be implemented by a restaurant such a whey transformation and the enzymatic reactions / Transformation

in food when it goes through chemical changes. The study of chemical changes is very important as it gives small establishment an idea of what could go wrong and how to prevent it from happening in the future.

- *Sustainability Assessment of Food Waste Prevention Measures: Review of Existing Evaluation Practices*, Yanne Goossens, Alina Wegner and Thomas Schmidt 10<sup>th</sup> October 2019

This paper complements these efforts by providing an overview of the current gaps in evaluation methodologies found in literature regarding food waste prevention measures within EU and beyond.

- *Sustainable Consumption by Reducing Food Waste: A Review of the Current State and Directions for Future Research*, Esther Alvarezde los Mozos Fazleena Badurdeen Paul-EricDossou, 2020

The paper presents an in-depth review of current state-of-art practices in food waste management. The solutions and recommendations presented to reduce food waste at the household, retail, restaurant, manufacturing and supply chain levels are reviewed. Regulations and regional variations in food waste management practices are also examined.

- The effectiveness of advice and actions in reducing food waste, June 2015, Christine Göbel, Nina Langen, Frank Waskow

The purpose of this paper is to discover which kind of information or action is appropriate to minimise household food waste, expired best before and use by dates are important to a lesser extent because the products wasted most frequently are not sold with such labels and consumers' comprehension of these labels is correct.

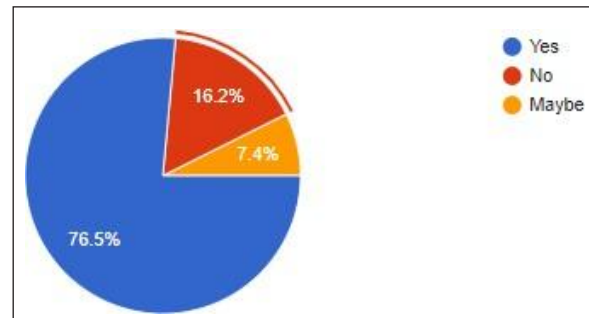
- A Methodology for Sustainable Management of Food Waste, October 2015, Guillermo Garcia-Garcia, Elliot Woolley, Shahin Rahimifard, James Colwill, Rod Hite & Louise Needham.

This paper takes a holistic approach with the aim of achieving a better understanding of the different types of food waste, and using this knowledge to support informed decisions for more sustainable management of food waste.

## DATA ANALYSIS

### Questions Asked to the Customers

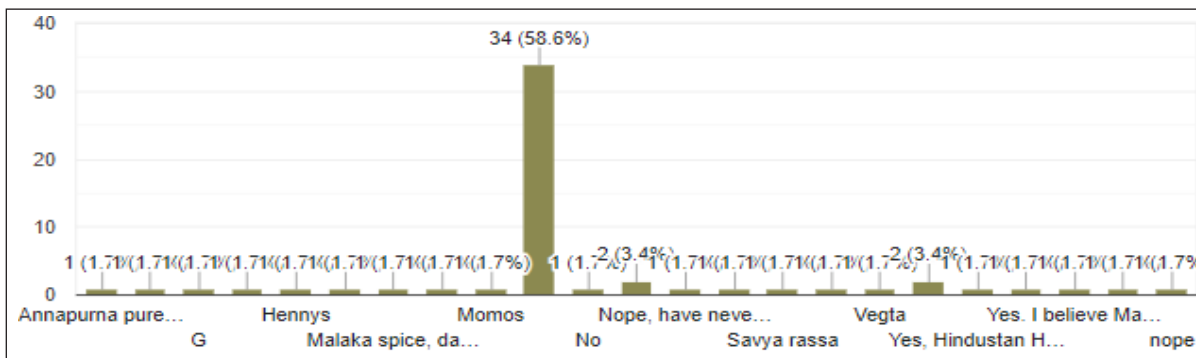
1. Are you Aware of the meaning of R3?



*Observation:* The above pie chart shows that out of 70 people 53 people are aware about the meaning of R3 practices whereas 12 people are unaware and 5 are not sure.

*Interpretation:* The feedback confirms that the customers visiting the restaurants are aware about the R3 practices which are followed and are aware about the environment hazards.

2. Do you know of any restaurants that follow R3 in Pune?

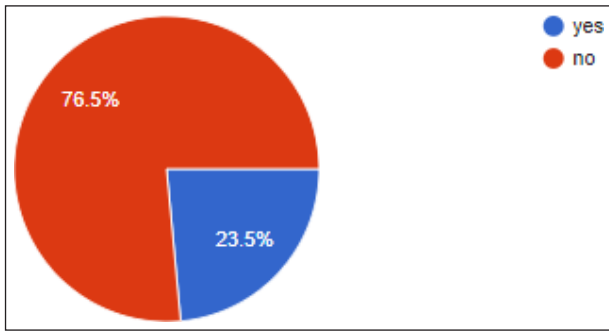


*Observation:* In spite of Majority people (38) have written no when it comes to knowing a restaurant that follows

R3, a surprising 32 people knew about at least a single restaurant that follows R3 in Pune.

*Interpretation:* With the information given above the maximum people have written Malaka Spice. Whereas Annapurna, Savya Rassa, Hindustani hotel and 4 points were the other choices which follow environmental practices in their organisation.

3. Have you ever asked if the restaurant follows Environmental practices?

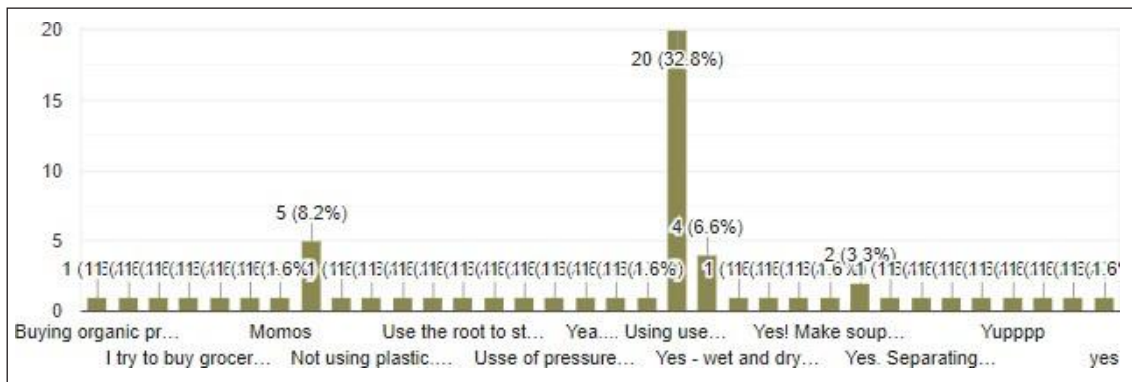


*Observation:* Out of 80 People 54 people have never asked if a restaurant follows R3 practices whereas a surprising 16 people have actually asked whether a restaurant follows environmental practices .

*Interpretation:* People have actually started getting that feeling of asking if a restaurant follows any environmental practices as it is now picking up like a trend and specially a young age group wants to follow this trend. The train is yet far from the station as the vast majority have never asked if a restaurant does anything for the environment.

4. Do you follow any eco-friendly practices at home during day to day cooking?

*Observation:* Almost all the people follow practices which are good for the environment at home.



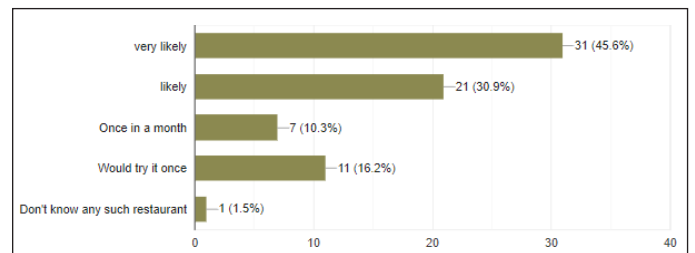
A few practices followed by people are:

- Reusing oil.
- Buying organic produce, using leftover food, reusing recyclable plastic containers.
- Buy groceries loose instead of packaged to reduce plastic waste.
- collect the onion skin and soaked in water that water use for plants its good food for them.
- We make our own compost using everyday wet garbage.
- Using leftovers. Making only as much food as required.
- Make soup of left over waste
- Using used tea powder as manure.

*Interpretation:* The part to focus is that the majority of people are trying to do their bit by conserving not only

energy but also trying to reuse a majority of the produce which is left over at the end of the day. Unintentionally we conserve a majority of food produce and try to reuse it in our daily lives. R3 is not only being followed in restaurants but also in houses and to the fullest.

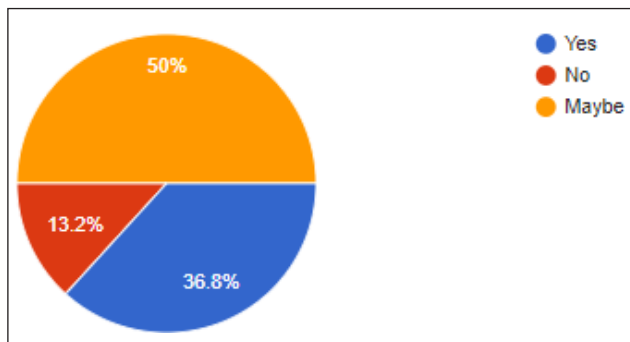
5. How likely are you to visit an eco-friendly restaurant?



*Observation:* The above chart shows that out of 70 people 31 people are very likely to visit an eco-friendly restaurant whereas 21 are likely and 19 are unlikely to visit a restaurant.

*Interpretation:* People are infatuated by this concept and wouldn't mind trying out an eco-friendly restaurant whereas a few would not mind just trying it for the experience and for the look of it.

6. *Would you be willing to pay a higher price at an eco-friendly restaurant?*



*Observation:* The above chart shows that out of 70 people 35 people might be okay with paying a high price to visit an eco-friendly restaurant, whereas 25 people are absolute okay with a higher price and 10 people are against the price factor.

*Interpretation:* When it comes to restaurants external factors play an important role when it comes to people selecting the price point as its aim to visit a restaurant. People will be okay with the higher price point if the external factors such as ambience, food and service are met by the establishment.

## SUGGESTIONS/RECOMMENDATIONS

According to the survey, people in Pune are familiar to the concept of R3 (reduce, reuse and recycle) policies and surprisingly many people are following them too. A few suggestions and recommendations I've observed are:

- In the survey it shows that social media plays an important role for marketing of eco-friendly practices so every restaurant should be more active on social media to promote his business.
- People should ask about the practices followed by the restaurants specially in the times where diseases are spreading.
- Restaurants should draw a thin line between cost saving practices and eco-friendly practices
- The gasless kitchen is a very rarely used concept by a few brands and should be followed by many more restaurants in the time to come.

- Majority of the restaurants following this have seen a major difference in cost saving compared to the ones who haven't started with this practices.
- Majority of the restaurants are yet not aware about a lot of Eco-friendly practices which can be followed by them in the long run.
- The cost of setting up eco-friendly restaurant is also low so many restaurants should think about setting one up.
- The people should follow safety standards while practicing eco-friendly practices such as biogas emissions and composting which could lead to many harmful gases.
- In a place like Pune the market is very erratic and uncertain so restaurants should be careful with the cuisine they select as in the long run the customers always come back for the food and services.
- Restaurants should start with a few R3 practices and then expand in the long run so the financial strain doesn't come in one go.

## Further Scope

- There is some further scope which can be done in this research by analysing the cost benefits which can be affected depending on the level of practises which are followed.
- The customer's adaptation to the concept in the future.
- Till what extent are people adapting to this concept in the future.
- The revised profit obtained by the restaurants.
- To check if this concept is sustainable in the future by restaurants in current economy.
- To study the equipment used by brands to conserve waste and energy.

## CONCLUSION

The research was conducted to find the customers perception and awareness about the eco-friendly practices followed in a restaurant and hotel.

Restaurants and Hotels especially large scale are adapting and implementing R3 practices in their daily routine to help with the production and saving of not only food cost but it is also making a massive difference in their

marketing as well overall cost. People nowadays are adapting to this concept because a lot of movies are promoting this concept.

The concept of farm to fork in a part of this and had made a massive difference in the way many of the brunches and menu are curated in today's day and age. A lot of restaurants prefer to get their produce directly from the farm and go to the source from where their produce has come.

People are getting aware about the know-hows which are followed in a restaurant and are generating a keen interest in how the places function and from where the source food is obtained.

It's clear that, from the motives that push the restaurants to implement green practices improving of the restaurant image in front of customers as well as increase customer satisfaction. Also the result showed that the benefits of the implementation increases profitability by reducing operation costs.

I conclude that, my objectives have finally been understood and a lot of people have finally been aware of the effect which will come in the future once it's implemented by the people.

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