

Enigma of Food Wastage: A Consumer Behavior Prospective

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Abstract:

The issue of food wastage is much more rooted in the actual handling, storage, transport of food grains and vegetables before they even reach the consumer's plate, the matter of food waste and the amount of food thrown away at the consumption level, especially at the social gatherings can't be ignored. The food that has been wasted must be discussed keeping various reasons in mind. A huge amount of energy has been utilized during its production and distribution and as the food wastage occurs so does the wastage of all the input amount of energy goes to waste along with it. In this Article the researcher is drawing attention to explore driving force of food wastage at different level most significantly at consumption level, and also examine ethical behavior of consumer toward food wastage. Researcher also thrown some light on various measurement scales to measure consumer attitudes towards food wastage. This research is based on extensive literature review and concludes with an account of various caused of leading food wastage at consumer level along with impact and ethical behavior of consumer toward food wastage.

Keywords: Food, Food wastage, Ethical behavior, Consumer behavior.

Introduction:

Food and Food Waste

“Starting from the trivial, in order to survive, man, like other more complex life forms must feed himself with natural organic substances called “food”. Or, to be more precise, the term “food” should be replaced by “edible” because the most fundamental distinction made by man, the original Homo culinary, divides the world into edible and inedible, into that which may be incorporated and that which may not.” (Falk, 1994)

Drink and liquid waste, fish discarded to sea and waste of any materials that are ready for harvest, but which are not harvested, are included in FUSIONS's definition of food waste, making its perimeter wider and broader than many other existing definitions. FUSIONS also considers

inedible parts of food (e.g. skin, bones...) as food waste in order to support the development of resource efficient and sustainable food systems in the EUFAO definition 2014 (FAO, 2014):

- Food loss: “a decrease in mass (dry matter) or nutritional value (quality) of food that was originally intended for human consumption.”
- Food waste: “food appropriate for human consumption being discarded, whether or not after it is kept beyond its expiry date or left to spoil.”
- Food wastage: “any food lost by deterioration or waste. Thus, the term “wastage” encompasses both food loss and food waste.”

According to FAO interpretation “Food loss and food waste refer to the decrease of food in subsequent stages of the food supply chain intended for human consumption. Food is lost or wasted throughout the supply chain, from initial production down to final household consumption.” Two of these problems seem similar, but have key distinctions within their definitions as well as different solutions. The causes of food waste or loss are numerous, and occur at all stages of the food supply chain.

As per the previous conducted literature reviews, various researchers have given their different opinions on whether what would qualify as wastage of food and what could be excluded. Upon drawing the basic viewpoints over the discussion of what would the researcher define food wastage as, the researcher would like to elaborate on how the food usually is perceived. The term food itself is quite subjective (Kołozyn-Krajewska et al., 2014). By which the researcher means that it has a different meaning in many people's life with much differentiated contexts (Just, 2011; Cuesta, 2014). For example, food may be perceived to be a means of medicine for in case one is concerned about food with respect to health (Jean C. Buzby et al, 2014). It may be considered unhealthy option which could be referred towards obesity (Stuart, 2009).

Various Stages of Food wastage:

Here the researcher is drawing attention to examine the consumption of food to be an affluent experience which denotes various societal, related to culture and symbolic meaning (EPRS, 2014). As it has been mentioned earlier as well that wastage of food would happen in various stage as per the events in the food chain. These events could begin with the initial down production at agricultural level which reaches the consumption at a household level (Gustavsson et. al, 2011) and the researchers study is in particular emphasizing towards the wastage of food that occurs on daily basis (Agencedel'Environnement et de la Maitrise de l'Energie – ADEME) by throwing the food leftovers in the garbage bin without giving any consideration to personal environment.

However, despite various insights and literature the researcher does not point the fault of the consumers towards wastage of their personal food (MAGRAMA, 2015). Rather, the researcher decides to recognize the various reasons and activities at many levels which lead to the wastage of food. Moreover, wastage of food has been in connecting too much other process of day to day activities and it cannot be any stand-alone action.

Consumers at various levels have been wasting a significant number of foods that has been produced and has been distributed (see behavior analysis of Greek households during the economic crisis of (Abeliotis et al., 2014) the food that has been wasted must be discussed keeping various reasons in mind. A huge amount of energy has been utilized during its production and distribution and as the food wastage occurs so does the wastage of all the input amount of energy goes to waste along with it. Hence, the researcher observes that the waste of food represents the wastage of resources thus leading towards an unacceptable impact being caused on the environment (Gustavsson et al., 2011). In fact, another observations made on the basis of studies conducted by various researchers is that the handling of waste of both food and its packaging have had some serious impact over the environment (Albisu, 2012). Besides the enormous amount of waste of food must be understood and dealt with ethical view point as quite a significant part of world population has been suffering with starvation (FAO, 2010).

The wastage of food by the consumers and at the institutions have had a significant high impact thus itself highlighting the importance of food wastage reduction (Graham-Rowe et al., 2011). Studies conducted by (Kantor and Lipton, 1997; Engström and Carlsson-Kanyama, 2004; Qvested and Johnson, 2009 have illustrated that the amount of food wasted by Europe and U.S.A alone varies between 15% and 30% of the all the food they purchase (FAO, 2013 and 2014; WRAP, 2011).

Amount of food Wastage:

The food wastage that could have been avoidable in India alone on an average could have been of approximate 4 Kg per week (Qvested and Johnson 2009). And by the term avoidable food wastage the studies mean that the food before being waste could have been consumable. Coxx and Downing, 2007, have been researching in their study and as per these notable researchers have been investigating at various levels. As per the study conducted by Quiested and Johnson, 2009 in UK, the study highlighted that approximately 41% wastage in food has been occurring during food preparation and by serving food more that it was consumable. Another point highlighted (Gustavsson et al., 2011) –as stated by FAO (2011) as per the study is that often more than half portions of food is gone to waste because food either purchased nor cooked but as a result of not being able to use that food in a proper time frame.

Food wastage at consumer level:

As per the behavioral study by Coxx and Dowining (2007), various reasons contributing towards losses in the food sector are stated for example, planning was insufficient, or planning was constantly undergoing changes, buying excessively (Refsgaard and Magnussen, 2009), no desire to finish of the leftover food, adding on to lack of knowledge about how to utilize the leftovers, or being highly sensitive towards hygiene maintenance of food. Research conducted by Wrap, 2007 a have noticed a key observation that most of the families with small children have given reason of food wastage as children wasting it. The research (EPRS, 2014; FAO, 2011 and 2012;

Thøgersen, 1996; Williams et al., 2012) says that approximately two third of families agree on the above stated fact. Further investigation has been conducted on the aspect related to packaging of food which is also considered an important role player in the food wastage scenario (Cox and Downing, 2007; Fredriksen et al., 2010).

The research says that wastage of food has been observed in two scenarios both being during the purchase time of food products and while packing them at home. Most reasons were mentioned frequently (FAO, 2011) some being, excessive shopping, exciting offers on the food such as but two get one free, and multi packs of food products. Another interesting aspect of food packaging being a contributing to food wastage is that food crossing its expiry date (Parfitt et al., 2010; WRI, 2013) was one of the main factors with the packaging context (Cox and Downing, 2007). As per the study conducted in UK, usually people lack proper knowledge about how to store food in house and storing of food in a wrong manner can be a factor to decrease the life of food products (Bolton and Alba, 2012) , thus leading to wastage of food..

Even more interestingly it has been observed that approximately 60% of the food consumers are non-believers of importance of packing food in an appropriate manner (Swami et al., 2011). Since food being natural and bio-degradable product, the consumers feel that it would not be wasted. (wrap, 2007a). Some studies (Capone et al., 2014) working on the issue of food wastage has done a significant research keeping the attitude aspect in mind. As per a Norwegian study, consumers roughly about 15% have highlighted improper packaging as a prominent cause of food wastage, 30% of them have pointed out that attitude of consumers (Capone et al., 2014; Garrone et al., 2011) towards non conservation or better utilization of food is an important cause of food wastage (Fredriksin et al., 2010).

Consumer Attitude towards food wastage

As per some studies conducted in Uk, approximately 70-85% consumers blame the basic attitude and improper behavior as a contributing factor and serious concern for environmental issues caused because of food wastage (Cox and Downing, 2007; wrap, 2007a) Consumers often do not realize that attitude and behavior represent quite a significant percentage of the environmental impact from the food wastage system or that better attitude towards food conservation would have higher impact can be a motivational factor towards changing attitude for not wasting food products (Williams and Wikström, 2011). Some previous studies conducted to understand the attitude have shown that a huge potential in change of attitude has reduced losses of food in both direct and indirect way (Williams et al., 2012).

The various attitudes towards ethics of not wasting food has its variations such as attitude, packaging, quantity of food to meet its various demands etc. are examples of direct aspects (Quested et al., 2011). Providing various ways on how ethics play a role so that food wastage is minimal. Providing knowledge for enhancing attitude, leading to many methods for conserving food so that it is consumable for a longer period of time, or ways to utilize it best before the expiry

time have different aspects to it. Some public debates have pointed out that it is through the basic ethics and motivation of attitude and behavior the consumers may be able to focus on the bad environmental impact caused because of wastage of food (Williams and Wikström, 2011; Fredriksen et al., 2010).

Consumer ethical behavior towards food wastage:

More people must understand the requirement of ecological and welfare implications when sustainable development needs to be done (Chowand Chen, 2012). At the parallel side the consumer's ethical behavior that incorporates the aspects of ecological and human welfare situation is drastically increasing. Often the study witnesses that attention from the main brands that attracts attitude formation is spurred by the fair trade movement, ethics have no longer place in the bigger nations (Doherty and Tranchell, 2007).

Although most packed food products claim being ethically made, or packed or even belonging to social welfare community (Ethical Trading Initiative, 2010) But this is no surprise that various researchers are studying on the various aspects relating to the ethical mind of consumer behavior towards researches in food wastage of India (Chow and Chen, 2012). Currently, the topic of Corporate Social Responsibility is picking up in a very fast pace, it has started becoming an important and a prominent concept among the researchers (Lee, Park, Rapert, and Newman, 2012) thus giving the study enough recent research papers and reports with various aspects to the problem of food wastage keeping the ethical viewpoints in mind for a consumer (Andorfer and Liebe, 2012).

It is more prominently observed that after the 1990's research in this particular area has strongly focused on the food wastage by the consumers from the corporate point of view and being specific to the ethically minded consumers attitude (Schlegelmilch and Öberseder, 2010), and interestingly it has also been observed that the scales used to measure the ethical mind set of a consumer has been rare when specially compared with the scale that could be available for measuring the ethics in a business decision scenario. Despite the research done for ethical consumer mind set with specific focus on the consumer's point of view the scale tends to discuss on the issues related to the environmental concerns but only few studies and research has considered the broader context. Although, no longer a parameter is considered to be the mindset of a ethical consumer and products(Carrington et al., 2014), which are considered ethical products now act for services now are observed to have an increasing share(Ethical Consumer Markets Report, 2012), but it still is quite unusual to search for a very valid are reliable scale relating to the consumer behavior with specifics to the ethically minded attitude towards food wastage which incorporate both social and environmental issues(Carrington et al., 2014).

The current "burgeoning social movement" is indicating towards the need for developing such similar scales in similar situation to address the current need which is the requirement for ethical consumerism (Graham-Rowe et al., 2014; Qusted et al., 2011). Without any doubt, researchers

have supported the need for research conducted with observational skills. Observational research has gained advantage on measures that can be self-reported and analysis can be concluded based on judgment of the researcher (Graham-Rowe et al., 2014; Quested et al., 2011) by observing the people and reporting about people what and how they are doing instead of only making claims of their work. Although these days as the technology is advancing so is the ability to obtain and measure observational data in many forms such as by direct purchasing from the internet and method called as scanner tracking (Lee and Broderick, 2007). Despite of all the advances it has not be very accurately possible to collate a data with high accuracy specifically when it is individually purchased. Therefore there still remain a scope for a scale which is psychometrically reliable with ability to be validated and produces sound results. It should be able to be used as a short-term measure to study and understand the different types of purchasing on ethical grounds as claimed by many individuals (Refsgaard and Magnussen, 2009).

The particular scale as stated above would be helpful in collecting and collating information on time and which would be valuable when being collected from a larger number of folks in a shortest time period possible and further it should be fairly utilizable for people from the research and business communities. Research studies require a very valid and reliable scale that is on comparison with others an easier and quicker tool that administers for gathering a data that can be quantified and analyzed.

It should be able to profile different categories in stage of planning and forecasting (Gustavsson et al., 2011). It then would further help in segmentation so that different models and designs can be strategized. Studies in future require such instruments of measurements so that ascertaining of varieties of fundamentals, motivations (Quested et al., 2011) and experiences for ethically minded consumer may be uncovered and analysis to similar situations in food wastage can be well pointed.

Theoretical ground for measurement of consumer attitude towards food wastage:

On ground theories and studies can be well conducted to explain the reasons (Gleim et al., 2013) for consumers to engage with ethical mind set in an environmental sustainable attitude and behavior, which is often seen to be rare. Furthermore, a standard instrument in form of a scale (Schneider and Obersteiner, 2007; Parfitt et al., 2010), in particular with one which would exhibit invariances with measurements is without any doubt a powerful research tool for research in both comparative and longitudinal forms in many different countries in form of new theory or hypothesis for existing texts.

Needless to mention in the role of policy makers in the area, in order to understand and decipher the reasons for ethically consumer attitude (Schneider and Lebersorger, 2009) and behavior for not being in line with the ethics, proper reasons must be addressed which begins with the basic attitude change leading to the behavioral changes. Despite of witnessing massive increase in sales of food items and products a proper utilization of food products have not been observed or reported (Ethical Consumer Markets Report, 2012), hence requiring an urgent policy intervention from the

policy makers. The researcher has also noticed some other scales available in the area for observing and measuring the ethical consumption of food products which have been available in some countries.

However, they have been more successful in observing and measuring the attitude and behavior of consumers in a more hypothetical scenarios (Trudel and Cotte, 2008), and these are documented in a quite eloquent manner which reflect the “attitude and behavioral gap” (Carrington et al., 2011). Evidences on the empirical front have stated that intentions with ethical fronts do not usually translate into actual ethical choices of the consumers (Carrigan et al., 2011). Among the other few tools of measurements which are relevant to the actual behavioral front, the scales focus mainly on the environmental problems and forget the social problems on a wider front (Schlegelmilch et al., 1996).

The scales that have been used by some studies are researches have focused more specifically on a particular aspect of consumption at the ethical from such as the fair trade (Shaw, Shiu and Clarke, 2000) but these also ignore a wider perspective. An instrument to measure attitude and behavior on an ethically minded consumerism on both environmental and societal front is more of importance because currently different reactions of consumers with different strands of consumption on ethical front have emerged (Ailawadi, Neslin, Luan, and Taylor, 2014). Despite all of these scales available and being well documented, the scale called the socially responsible consumer behavior (SRCB) scale (Roberts 1993, 1995), has proved to be most successful in inquiring from consumers their actual consumption on ethical front which measures both the Social and environmental perspective.

The socially responsible consumer behavior (SRCB) scale has however become two decades old and in the past few years the world scenario has dramatically changed. (Harrison,2014) has mapped out the beginning of the consumers (Lundqvist et al, 2008) from the ethically point of view which dates to the 1990’s called the development period of the socially responsible consumer behavioral scale and since then the scale still is called the same. As per Harrison (2014) in 1990, the study revealed that approximately 30% of the people perceived that they would not worry about any ethics during the consumption of the food products. Interestingly, approximate 75% of the consumers had an ethically attitude towards food wastage but still made no efforts for the same. Hence a gap of attitude and behavior was observed. The similar studies were carried out over the decades and until recently it started becoming concern for the consumers with a willingness to stimulate behavior but still not much in actual front has been noticed (Ethical Consumer Markets Report, 2012).

Causes of increased food waste

The studies show that though the discussion on the wastage of food and its losses seems to be quite similar to each other but the reasons to the ever increasing problem is very different from each

other. Often the wastage stage in the food chain comes towards the later part, as it is a resultant of the behavior of people (Kassarjian, 1971; Freeman, 1989). The problems of food wastage seeming to be a problem occurring because are lack of inventive or creative solutions in terms of technical know-how. The problem becoming a contributing factor of food wastage is now becomes a diversified and complex problem. The researchers is observing the need for describing the various reasons that is contributing towards the problems of food wastage (Wood, 1990) with special emphasis on the ethically minded consumers behavior which has robust connection to the problem of food wastage (Fuller, 1999).

The points of food supply chain are another crucial factor which must be looked upon with keen insight. As, last few years in recent times the food supply has been much easily available for cheaper price than in any time of history (Godfray et al., 2012). Being able to afford food in developed nations has motivated the increment in procuring bigger portions or meals hence, increasing bigger wastes. Another known important aspect of wastage of food generally lies with the retailers where the competition in the market would force the retailer to sell varieties of food products and in much higher quantities as well (Schwartz, 1990).

Many studies have published that a consumer's attitude, his habits and actual behavior must be studies in-order to discover the reasons for understanding the actual causes of generating such huge amount of food wastage in houses. Moreover, taking into consideration the massive amount of peoples choices which would include the kind of food to procure, from where it must be procured, and in what quantity it must be procured, they signify important decisions and their influence towards the massive food wastage every day. It is very important to understand the differentiation between the wastage occurring, the food losses and the connection of ethically minded consumers with their actual ethically minded behavior.

By food losses the research is signifying that if all the food lost be taken in account for, lost food would mean that the food which is edible after being harvested but still is not being consumed rather is going to the dumpster owing to certain reasons. The waste food can also be part of some reasons such as reasons owing to personal behavior, like losses occurring during cooking of the product etc. Hence, the importance of ethically minded consumer behavior cannot be ignored on the agro based supply chain in the food industry.

Also, the interaction between the retail sellers and the customers is fundamental, as it would enable much better conception among the stages of the food chain (Marcus, 2006). All over the world, it is estimated that approximate to 33% of the food losses are occurred yearly (Cuesta, 2014). In countries where industries play a significant role, the consumption waste is approximately half of the total losses, while in lesser developed countries it has been observed a drastic diminishing scenario to the degree that it sums up to 5 % of the annual losses in Sub-Saharan African countries.

A towering connection amid the high per capita income and increased wastage of food has been noticed. During the consumption stage, the differences are bigger than the stages of the agro chain in the food supply scenario, in different countries in the world.

The application of behavioral economics constitute an important decision making process in the ethical consumption of food chain. Most decisions that the ethically minded consumers make, are occurred without giving much thoughts to their actions. Most occasions are impulse action driven by the consumers. Despite of some bitter past experiences, yet most decisions taken are not well logically thought off. The habits which have been established long past in a personal life have high influence over the decision making process. Often the less knowledge database, poorer administration account for some noted reasons of decision making process. Decision about the consumption of certain food products usually considered by the adults is often reflection of the learning's done during their childhood.

These childhood memories and habits are engraved deeply into one's mind, and are often difficult to modify. Often it is noticed that issues concerning general public clash with consumers personal interests. For example; would a child consume a box cereals because of fancy packaging and the toy that the child would get inside or because it has a good taste? Fancy packing has ability to appeal its customers but they are a bad influence over the environment. Most children are absolutely not habitual of each fresh foods like fruits and fresh and green vegetables.

This habit gets difficult later to be changed. For influencing good eating habits require lot of promotional efforts. The elderly people are seen to be more interested in consuming fresh fruits and vegetables because they feel immediate positive after effects of healthy eating (Padel and Foster, 2005).

For forcing a change of eating habits require lot of efforts and infuse lot of motivation and awareness. Despite some may have low elasticity of income, specifically in economic crisis situations, consumers per force have to change their eating habits because of the economic situation? Similarly, some segments or strata of the population are sensitive to other ethical concerns like poverty, which has a high impact on the food wastage habits. Hence, shaping of good habits is crucial at an early age, where good habits become part on one's attitude and behavior (Sahota, 2007).

Nevertheless, it is an ongoing process where the preferences at present will collide with the embedded previous habitual patterns (Schwarz, 1992), where significant changes will occur only when there would be special circumstances. These significant changes can occur when the consumer is under sweeping economic crisis or is concerned gravely about his personal health or even his nearby environment. In the first world nations there are well laid policies with respect to its citizen's health concerns, related to the environment (Chryssochoidis, 2000) and the impact it would cause to the environment.

This has been another important factor for the growing concern among the general mass folk in recent times. The impacts on the environment with respect to the consumption of food and food products have direct authority over the choices of the food of the consumers (FAO, 2013). Two important reasons contributing towards the massive usage of natural resources are the extra packing material that is discarded is an important example.

With the production of only the amount of food and products that are required is quite in itself a challenging task but regrettably this is controlled by the agro based food chain (Thøgersen, 2007). Consumers behavioral patterns are a result of many ethical factors which contribute towards there processes of making a robust decision for the procurement of and disposal of the food products. Consumers with ethical mindset are better aware of the restrictions (Krystallis et al., 2008) which are existing in the first world nations specifically when they are compared with the excessive supply in the wealthier nations.

Hence, they have a channel of considering ethical concerns while making any decisions. A respondents decision towards wastage of food is not alone his choice, some decisions taken by the stakeholders in the food chain also are contributing to it. For example, when a respondent chooses to waste food by disposing it in the dumpster, the very decision has influence or connection with certain decisions taken by the stakeholder's handling the food during the food supply chain such as some standards imposed by the supplier.

Discussion:

As per the study conducted by (Jean C. Buzby et al., 2014) wasting the food can be decision not only with unethical intentions but also extra activities involved during the processing of food, such as during chopping of meat and vegetables, extra fruits and vegetable peelings, inappropriate storage of food products or even factors related to seasons (Ajzen, 2002). Often another factor has also been noticed to be a contributing factor, which is , respondents get quite confused between the terms 'use-by' and use the product 'best before' date, it is mainly because of lesser knowledge on the know-how of food preparations, attitude , habits and predilections (DEFRA, 2008) contributing towards the actual behavior of food wastage.

All the stated factors which lead towards the wasting food have some or the either explanation but particularly one point being the "best before date" condition has been creating confusion among the respondents (Quested, Ingle, & Parry, 2013). However, the term 'use-by' has indicated the date upon which the product might be quite unsafe for consumption. As per the literature review (Flower & Collett, 2014), the respondents with ethical consumerism have shown confusion in both scenarios.

Inefficient household economic skills have also been noticed to be another factor to be contributing to extreme food wastage problems. People who are young in age and working do not display any affection towards acquiring any culinary skills and this particularly leads to enormous food wastage.

Another aspect of problem is seen to be the influence of children in household for preparation of food. Respondents tend to over purchase when they are with children, which may often lead to buying of excess food which may not be neither consumed nor stored properly. Moreover, often children can be quite fussy in their eating habits, which leads to cooking especially for them alone, and even wastage of the food is it so happens to be of their disliking (Ward, 2007).

In households, another factor observed is that of labeling on food material, the lack of knowledge on the safety basics of the food leading to combined massive degree of food wastage. In order to succeed in the combat against the wastage occurring in the food wastage scenario, if ethical consumerism is not just attitude but become part of actual ethical behaviorism (Quested, 2013).

The magnitude and scale of the problems of food wastage must be acknowledged by all. It has generally been the role of government to impart knowledge and create awareness on the issue and problems concerning the grave situation of food wastage specifically on daily basis in the household sector. Enough evidences have been known to unfortunate understanding on the topic of food wastage and different wants and methods for its optimum utilization. Among imparting of knowledge, fridge has been noticed to be in maximum households but they still seem to be unaware on how to utilize the fridge and what its optimal temperature should be to store the food in the best form (Ward, 2007).

Some families are quite sensitive with maintenance of hygiene in relation to food and they are not willing to take any chances in consuming any food products which have past the date of 'best before' despite of looking absolutely alright and seem to be edible. This has linkage to being less aware on the labeling of the food products (European Commission, 2015b). The deficiency of not possessing enough knowledge on the topic of food storage and conditions of being nearer to the expiry date of the food items would lead towards wastage in the household sectors (Aschemann-Witzel, 2015).

Conclusion &Direction for Future Research:

the extensive literature review clearly suggest the researcher that it is quite very common to identify houses which have acute awareness on social issues, economic issues, and environmental problems because of the collective massive food wastage occurring daily. As per the British study by Ward (2007), standards of living if modified in households can be crucial for saving the enormous food wastage occurring in the sector. If people are more conscious on their diet and health, this will mean more consumption of fresh fruits and fresh vegetables leading to shorter shelf life for fresh food and quicker consumption.

The causes of food wastage underlined in the abovesections are heralds of an imminent danger ofscarcity that the mankind faces. Fortunately, thesecauses also highlight the potent solutions that maycreate a positive impact on the problem strickenareas. Bringing changes, however, seems difficultin the light of several other personal and economicobjectives and trade-offs related to food buyingand eating.

Future studies may explore the possibilities of comparative analysis of food waste causes in developed and developing countries and design customized solutions in the light of economic and social disparities. There is also a call for developing a sound measure of perceptions and attitudes towards food wastage among consumers at individual and household levels. Further research on food wastage can undertake the task of investigating into the relationships of food waste behavior with value systems, regulatory restrictions, social norms, etc.

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