

Understanding Food Mile: An Qualitative Study on the Concept of Food Mile

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Abstract

Food mile is an important topic for debate for developed nations who are against global food supply chain and for organizations who are working on sustainable and environmental issues. This article investigates related literature on the concept of food mile and tries to bring forth a different perspective to the issue in relation to the Indian subcontinent. It talks about the various arguments given by researchers from developed nations against food mile. The article is about how local farmers' gain can only come at the expense of consumers who will be forced to pay higher prices for similar food items or similar prices for lesser quality food items and how farmers from developing nations are deprived to make their economic condition better if international food trading is given a red signal. A focus group study was also conducted to understand the perception of Indian consumer about food mile concept. The results for this qualitative study was later analysed using Thematic Content Analysis.

Keywords: Food mile, Sustainable Development, Life Cycle Assessment

1. Introduction

Food miles as a term was first used by the United Kingdom's SAFE Alliance in 1994 to highlight the environmental and social impacts caused by the increasing distances travelled by food. It is defined as the distance in kilometres or miles that food travels from farm gate to the consumer (Paxton, 1994). Food mile is the distance travelled by a food item from point of production to point of supply and the critics of this concept state that greater the food mile, more harmful it is to the environment due to higher CO₂ emission from transportation. Food mile is the distance travelled by a food item from point of production to point of consumption and the associated green house gases with it. The term was apparently first coined in the United Kingdom in the early 1990s, and has been variously attributed to "The Food Miles Report" published by the SAFE Alliance in 1994. Researchers, environmental decision makers and activists are convinced of the importance of 'food miles' and use them as an indicator of sustainable development (Pirog and Schuh, 2003; Smith et al., 2005).

The campaigners of the food mile concept give various appeals to the customers to buy locally produced food like high quality seasonal food which are locally produced, food which are cheap and provide economic and health benefit. Critics also force the

customers to consume local food as the source of food production is known, which implies more freshness and hygiene.

All these reasons seem to be legitimate by a common consumer and motivate him to personally choose to buy food locally. However, the expected environmental advantages of buying food locally are often based on an improper assessment of the overall sources of greenhouse gas emissions in the food production and distribution process, as well as a misunderstanding of the advantages of geographic specialization. This paper aims to bring forth all the research and the arguments each of the paper presents to support or criticize the food mile concept.

2. Relevant literature

During the last four decades, a progressive increase in environmental consciousness has emerged as the environment moved from a fringe, to a mainstream issue (Grant, 2007; Goleman, 2009). A lot of study and research on food mile has been conducted in Europe and North America. This subject has become a hot topic in recent years for government, industry, and environmental and consumer groups. At its core are environmental and social concerns relating to the impact our food choices are having on the environment, a growing interest in the safety, ethics and origins of the food we eat, and spiralling costs in relation to energy usage (Emma Conroy, 2006). In India very little work has been done so far on this issue prior to this research work.

2.1. Defining food mile

In their report "The Validity of Food miles as an Indicator of Sustainable Development: Final report", Paul Watkiss et.al, 2005 define food mile as distance food travels from the farm to consumer. It can also be defined as food mile is the distance travelled by a food item from point of production to point of supply and the critics of this concept state that greater the Food mile, more harmful it is to the environment due to higher CO₂ emission from transportation. "Food miles help make the environmental impacts of long-distance transportation more visible over space and time" (Iles, 2005).

With increase in globalisation and India being an attractive destination for foreign players, we can see large number of imported food products in Indian retail stores and also Indian agriculture exporting food items to various countries around the world. But this exporting and importing of food can come with a high price; it can be environmentally critical, spoil regional economies, and hamper many aspects of local communities. Reducing food miles may support local farms, reduce dependency on fossil fuels, and help strengthen local economy and create more self-sufficient communities (Govindswamy et.al, 2012).

Food mile measurement is a tedious process and sometimes is not only the factor to be taken into consideration while analysing which is better among global & local food. To

measure the environmental effects of agricultural and food production and consumption, the analysis must take into account off-farm environmental effects. For example, food waste ending up in landfills, in store refrigeration, and the distance food travels from producer to consumer, called 'food miles', have implications in terms of energy use and pollutants (Sirieix et.al, 2008)

The term "food mile" was first coined by British academic professor Tim Lang in the mid-1990s (Paxton, 1994). According to him greater distance the food item travels to reach the customer, the worse it is for the environment. The total distance is nothing but the total supply chain from farm to plate with short chain like (i) farm to process house (ii) from process house to storage place (iii) from storage place to vendor warehouse and finally to (iv) consumers.

Food mile became more widely used towards the end of 1990's and was being counted as one of the economic agents responsible for increasing environmental concerns. The messages in the media of UK and US campaigned against the long distance foods and gave consumer an easy way to reduce their carbon footprint by avoiding consumption of food items travelling long way, instead consuming local substitutes. Carbon footprint is defined as the emission of GHGs (Green House Gasses). Some articles in UK published articles on food mile and questioned consumer: why buy imported lamb from New Zealand, when one can get a perfectly good substitute in Wales? Similarly question was raised on imported wine from Australia when sourcing is much easier from France and Italy for something similar.

The sudden hype and discussion in these parts of the world on Food mile commenced due to commercial advertising, food security and lobbying by environmental groups (Ballingall & Winchester, 2008). Environmental activists, NGOs and Farming Associations were major promoters of food mile in these nations. Advertising campaigns on websites and other promotional tool like print ads and banners were adopted by agricultural producers in Europe and United States, to convey the importance of eating "Local".

Shifting our focus from developed nations, if we come to underdeveloped nations like Africa, we will see that these continents often heavily are dependent on export of primary products coming from faraway places. A reduction in purchases of items from developing countries due to food miles concerns could have a significant detrimental effect on agricultural exports from these countries. Kenya has responded to food miles movements with the 'Grown under the sun' (<http://grownunderthesun.com>) campaign, highlighting that Kenyan horticulture uses relatively few energy-intensive inputs compared to European producers (Ballingall & Winchester, 2008).

The food mile concept has gained much popularity but it's not obvious that it's the only correct measure for environmental sustainability. Many other factors in total contributes to the emission associated with a food item.

2.2. *Measuring food mile*

Talking about food mile and the environmental impact associated with it is much easier than actually measuring the environmental impact of distribution of food items to the market. Many critics have questioned the relevancy of considering distance as the only factor to measure environmental impact. They have been vocal in stating the distance travelled is not an accurate measure of environmental impact (Smith & McKenzie, 2006).

The campaigner of food mile has somewhere forgotten the other factors like driver training, vehicle specification and transport logistics as the greatest influence on fuel efficiency (Whiteing & Murray, 2002)

Smith, Stancu & McKenzie (2006) states in their paper, that transport of goods over identical distances will have more or less GHG emissions depending on:

- The type of transport
- The type of fuel used
- Weather condition during transport
- Weight load factor
- Weather the produce is held at ambient temperature, cooled or chilled
- Other operating conditions and storage requirements during transport

The simple formula to calculate or measure emissions from freight is

Freight tonnage / distance (tonnage-kilometers)

But the above factors should also be considered. Kilometric performance mentioned by Smith et.al is also an apt way to measure freight emissions. They proposed that the first step to measure emissions is to involve identification of all direct and indirect sources of GHG emissions that are considered material i.e including those that are significant as a proportion of total emissions, important to stakeholders and those emissions that can be reduced easily.

According to Ballingall & Winchester reducing purchases of imported food will not necessarily reduce GHG emissions. They gave few steps to calculate or measure food mile.

- Calculating GHGs emission during product life cycle, including sowing, growing, harvesting, packaging, storage, transportation and consumption.
- Calculate the GHG efficiency of alternative transport modes, while calculating only distance travelled and associated Green house gas with it.

Here we see food mile out of so many stages of product life cycle focuses only on transportation and also ignores the mode of transportation used for the distribution. For example carbon emissions from long haul, air freight are over 100 times larger than from sea freight (DEFRA, 2001&2005 and Mason, 2002).

As food mile neglects the total product life cycle, several studies highlight it to be an inadequate factor for environmental sustainability measurement. For example DEFRA (2005) notes that it can be more sustainable (in terms of energy) to import tomatoes from Spain than to produce them in heated green houses in the U.K. Similar results have been found by other researchers too. Saunders et.al (2006) also argued that the energy associated with consuming dairy products, lambs, apples and onions from New Zealand is lower than that associated with local equivalent substitute. To support this argument by Saunders, Schlich & Fleissner (2006) presented the fact that energy used in the production phase in New Zealand lamb has lower energy inputs than lamb produced in Germany.

Similar results have been obtained even with research on "Flower Miles". Williams (2006) estimates that carbon emissions associated with importing Kenyan roses in the UK, are almost six times lower than for roses imported from the Netherlands (where roses are artificially heated), even after accounting for emission associated with air freight.

Research done to compare the GHGs emission associated with domestic freight and international freight has also confirmed that domestic freights are major contributor. Domestic freight accounts for 82% of vehicle kilometres associated with transporting food consumed in the UK DEFRA (2005). A standard British shopping trip of 6.4 kilometres in a large family to collect 20 kilograms of food uses 25.6 mega joules of energy, the same of energy used to transport 20 kilograms of food over 8500 km by sea (Heyes and Smith 2008).

Researches on these factors in India are none and much can be done in coming years. Although this research just aims to understand what will be the affect of distance of food on the purchase pattern and behaviour of Indian consumers.

Pretty (2005) compare external environmental costs of sea and air freight with the total cost for consumption of representative food baskets in the U.K. External environmental costs associated with increased carbon emissions from fossil fuel consumption. Total cost on the other hand includes monetary plus environmental cost. The research brought out amazing data to ponder upon. Sea, internal water and air transport account for 'trivial' proportion (0.0002 percent) of the total food costs, and just 0.003 percent of total food externalities. On the other hand on farm externalities domestic road transport and household shopping trips account for nearly two-thirds of total food externalities.

2.3. Why is food mile an issue?

Food mile talks about the distance a food item travels from farm to plate and it talks about the associated harmful gases emitted during this travel. The environmental activists and local farmers in US and Europe have presented Food mile as an issue to the whole world. They have considered one factor distance to be the most important aspect and have argued that the greater distance a food item travels from its place of origin to its

place of consumption, greater problem it creates for the environment as more GHGs emissions are due to this travelling.

Recent studies have shown that this distance has been steadily increasing over the last fifty years. Studies estimate that processed food in the United States travels over 1,300 miles, and fresh produce travels over 1,500 miles, before being consumed (Holly, 2008).

As the climate change patterns have become so apparent in last two decades, the concept of food mile has received an increasing amount of attention. Food mile is an issue and also a method to evaluate the sustainability parameter of global food system in terms of GHGs emission and energy use during transportation.

Researchers have also pointed out that food mile is an issue as it affects both producers and consumers. The global food system has changed substantially over the last five decades due to various circumstances including the globalization and centralization of the food industry and the concentration of the food supply onto fewer, larger suppliers. The global food supply chain today is made up of complex, indirect network of a few large, centralized producers, processors, transporters and distributors and various food items now passes through these channels before reaching the consumer. To allure the consumers, these multinational firms source food from outside of regional, state and even national boundaries in order to provide consistent products at low prices to the consumers.

Consumer expectation has increased due to development of global food transport. They choose from wide variety of food items all through the year regardless of their original season of growth and location of production. The prices of these products are kept low, which is an additional attraction for the consumers. The ability to enjoy consistent produce and exotic ingredients at all times of the year is a luxury that, according to many food system analysts, has its price. The farther food travels and the longer it takes en route to the consumer, the more freshness declines and the more nutrients are lost. Many fruits and vegetables are engineered for a long shelf life, sacrificing taste and nutrition for preservation. Changes in the food system have resulted in a broad range of social and economic implications, but the present food system also has an environmental cost. The farther food travels, the more fossil fuels are required for transport. The burning of fossil fuels leads to the emission of greenhouse gases, which contribute to global warming (Holly, 2008).

Food mile is an issue in the eyes of economists and anti foreign product, according to them large multinational companies gain control over the food industry and small local farmers suffer.

2.4. Local v/s imported food products

While talking about food production, we must understand first the distinction between subsistence agriculture and commercial agriculture. In their *economic note, "Will Buying Food Locally Save The Planet?" Montreal Economic Institute, February 2010, Pierre Desrochers, and Hiroko Shimizu* stated that "subsistence agriculture was the traditional way of food production where, food is consumed in the community in which it is produced. In this form of agriculture at the end of the growing season food crop is stored and used until the next harvest. Crop failure in this system was managed by domesticated livestock. Recurring famines and starvation are still the part of subsistence agriculture, which is seen mostly in underdeveloped nations and some parts of developing countries. They mentioned that developed nations brought in the commercial agriculture which focused on development of the mass transport of foodstuffs and large scale storage facilities. This system of food production implied reliance on trade with producers in more remote locations. Rising productivity and advancing specialization in this system made people free to develop expertise in other fields".

The scenario in advanced economies now is that they generally specialise in a few crops and are so technologically sound that they often generate enough surpluses to enter international trade. Modern technologies, better training program to the farmers and full government support helps them to increase their field productivity unlike to food producers in developing and underdeveloped nations. The commercialization of agriculture with huge export and import between nations contributed to a higher standard of living for all the involved parties than would otherwise be the case.

In 2008, Pierre Desrochers and Hiroko Shimizu in their paper "*YES, WE HAVE NO BANANAS: A Critique of the "food miles" perspective*"; October 2008; mentioned that the most fundamental advocate of the food mile perspective are people who willingly limit their food consumption to items grown or caught within a 100-mile radius of their residences. They highlighted one case in their report were a Canadian couple based in southwest British Columbia took this up as eco-challenge for a year and documented their experiences online and in a book. Their experiment quickly highlighted some fundamental problems with the 100-mile approach:

- Locally grown organic products or substitutes for conventional products, in general, cost more (often significantly more) than conventional products.
- Lack of variety and all popular food items could not be produced locally. In winter, only a very narrow selection of vegetables was available.
- The time spent acquiring and preparing food was comparable to holding a part-time job. And thus it was not an easy task for everyone and thus sophisticated division of labour in form of import was necessary. The experiment illustrates the large and very tangible benefits of trade.

2.5. *What is the meaning of local?*

Locally produced, marketed and consumed food is called as local food. Developed nations like U.S and U.K have shown recent interest in local food and this somewhere points to the fact that “local” is now being used in new and different ways, and by people and organisations that have previously had no interest in movements that challenged the mainstream food system (Michael & Martinez, 2010).

Many campaigns and public discourse have been launched to promote local food. Newspapers, magazine, articles, books, television shows and other electronic media in developed nations have been devoted to local foods and its advocates. The term local has been promoted at the highest levels of government and codified into federal law and regulations (Michael & Martinez, 2010).

But among all these, what actually the term “local” means to the consumer? Is it different for different individuals? Can it be standardized? Will consumer motivation, interest and their place of origin, change the definitions of “local food”?

Many definitions of local food has been cited in various journals, newspapers, magazine and research papers and in all the definitions following set of demands are fulfilled by a local food item (a) quality and freshness (b) social or environmental sustainability (c) economic well being. Local foods usually are considered the food items produced in close proximity to the consumer. This area may represent an existing or imagined “food shed”- the area from which a locality derives its food supply (Peters et.al 2008). This definition being general in nature is acceptable but other definitions for local food argues on the geographic circumscription and proximity that are relevant for a given location, food product, or individual consumer (Michael & Martinez, 2010). Consumer may have different opinion and attitude about the distance and proximity of food they purchase and what they consider local, but in general food produced and consumed within a 100 mile radius is considered local. Consumers’ exhibit great variation in the distance they consider to be local, and this distance may be different for fresh and processed products (Durham and Roheim, 2009).

Some consumers think of local foods as those that come from within certain political boundaries, such as their county, metropolitan area, state, or region. Studies of consumer purchases indicate that state of origin may be a natural geographic definition of local for some consumers (Darby., 2008), and that consumers are willing to pay a premium for in-state products (Giraud, Bond, and Bond, 2005) and products from within the consumers’ county (Schneider and Francis, 2005).

State boundaries also fail to capture consumer definitions of local food (Ostrom, 2007). State of origin may only be important for some products (Eastwood, Brooker, and Orr, 1987), and consumers may use regional definitions of local that cross state boundaries (Brown, 2003). In a survey of 120 food shoppers yielded 140 unique responses to an

open-ended question of the definition of local foods; only 3% of respondents identified state, county or community boundaries as the relevant local geography (Wilkins, Bowdish, and Sobal, 2002).

A definition of local in which products are produced within a certain distance of where they are marketed may be thought to reduce transportation distances and thus transportation fuel use and emissions (Michael & Martinez, 2010). Thus different definitions of local are stated according to the required demand of the market and the attitude of the consumer.

3. Analysis

With the relevant literature and arguments from researchers around the world, various problem areas of this food mile perspective can be seen, which if taken care can give a whole new dimension to the discussion all round the globe on this sustainability issue.

Problem areas in the Food-Mile Perspective

The problematic areas in this concept and whole food-mile perspective are:

- **Food mile Ignores productivity differentials between geographical locations:** Food mile campaigners assume that producing a given food item requires the same amount of inputs independently of where and how it is produced. For example India is the leading exporter of the Basmati Rice to the global market. Now the production of basmati in India is under ideal condition with much more intensive and efficient use of fuel, capital, machinery and other resources than any other part of the world. The country has exported 31,78,174.42 MT of Basmati Rice to the world for the worth of Rs. 15,449.61crores during the year 2011-12 and the country has exported 39,97,719.57 MT of non-basmati rice to the world for the worth of Rs. 8,659.13 crores during the year 2011-12. Major export destinations for non basmati rice are Nigeria, Senegal, cote d ivoire, Indonesia and United Arab Emirates.
- **Food mile does not consider the whole life cycle of food production:** Food mile concept does not consider the whole life cycle of a food item. This drawback of food mile concept has been highlighted by researchers working on Life cycle Assessment of a product. Life cycle assessment (LCA) is the systematic analysis of the environmental impact of products during their entire life cycle. It comprises of all the phases of product's life cycle including production, use and disposal phases and all through the phases the environmental impacts are evaluated throughout. The LCA of a food item can be diagrammatically shown as in below:

Figure 3. Life cycle assessment of food item

Scope	Player	Input
Raw material for production	Farm ↓ Supply Chain ↓ Consumers	Seed, Land, fertilizers, water, herbicides, pesticides etc.
Production		Capital (Facility, machinery, building etc.)
Packaging		Energy (Fuel, Oil etc) Labor
Distribution		Storage Waste Transportation labor
Consumption		Transportation Preparation waste
Disposal		Recycle Waste Transportation

Source: Will Buying Food Locally Save The Planet? by Pierre Desrochers, and Hiroko Shimizu. Economic Note, Montreal Economic Institute, February 2010.

- Food mile ignores the complete transportation of food item till the consumption plate: Any realistic assessment of the environmental impact of food production must also reflect both transport to final consumers – not just to stores – and the total energy consumption and greenhouse gas emissions associated with production. But in food mile concept this aspect has been neglected. The total CO₂ emissions associated with consumers' food purchases can be affected by walking or biking as opposed to driving. Consumer can make many small-volume shopping trips by car to transport food from retail stores to their homes which can relatively make significant greenhouse gas impact. The mode of transport chosen by an individual consumer is definitely less efficient than bigger transportation modes that move food from the point of production to the retail location.
- Food mile ignores the other factors which contribute to greenhouse gas emissions: instead of only focusing on the distance travelled by the food item and associated green house gas with the travelled distance, the picture changes radically when one focuses on: (i) mode of transportation: Air transportation can any way be more polluting than sea or road. The vehicle condition is also another factor which brings in difference in GHGs emission during transportation. (ii) consumer's mode of Transport: Transportation mode of customer which is used by consumer from retail point to consumer's kitchen should also be considered after the food item is supplied to the destination. This transportation varies from customer to customer and is not

scrutinized or questioned. Research shows frequent use of cars in a week by a customer to bring daily grocery from a nearby store to his house. (iii) Green house gas emission during production stage: The most energy-intensive segments of the agricultural production chain are instead related to the production stage (fertilizers, pesticides, irrigation, energy required to power machinery, etc.). In their report, Alison Smith et al., *The Validity of Food miles as an Indicator of Sustainable Development, Report ED50254, Issue 7, July 2005* mentioned that in USA, in a study on food mile 11% of greenhouse gas emissions related to food were from the transportation segment as a whole, while 83% came from the production stage (Table 3.1).

Table 3.1: Various food products and their associated GHGs emission

Crop/Animal Product	GHG Emission (g Kg ⁻¹)			
	CH ₄	N ₂ O	CO ₂	GWP(CO ₂ eq)
Wheat	0.0	0.3	45.0	119.5
Rice	43.0	0.2	75.0	1221.3
Rice Basmati	0.0	0.3	82.5	1515.4
Pulse	0.0	0.8	83.3	306.8
Potato	0.0	0.1	10.0	24.9
Cauliflower	0.0	0.1	13.3	28.2
Brinjal	0.0	0.1	12.5	31.1
Oilseed	0.0	1.3	50.0	422.5
Poultry Meat	0.0	2.7	50.0	846.5
Mutton	482.5	0.0	0.0	12062.7
Egg	0.0	2.0	1.0	588.4
Milk	29.2	0.0	0.0	729.2
Banana	0.0	0.2	10.0	71.6
Apple	0.0	1.0	41.7	331.4
Spice	0.0	2.5	100.0	845.0
Fish	25.0	0.3	18.8	718.3

Source: calculated from Bhatia et.al (2004), NATCOM(2004), Chabra et.al (2009), Pathak et.al(2009b)

- GHGs emitted per unit of food item exported: To be clearer, the point of discussion here is whether only the quantity of GHGs emitted should be taken into consideration or should the no of units or the volume of food item transported and the GHGs associated with it should also be a part of the whole discussion. For example, let us see a hypothetical situation given below (it's an assumption not a fact). Now what can be inferred from here is that in this situation, distance travelled is not area of focus but how much green house gas emission is associated with the quantity of food item supplied from point A to point B because according to FAO the consumption need is increasing and to meet the growing demand, food agriculture trade between far-off countries becomes mandatory.

Table 3.2: Hypothetical assumption to show why distance should not be considered as the primary factor for green house gas emission in food transport

Sl.No	Food Item	Production Location	Supply Location	Metric tonne GHGs emitted during transportation	Quantity of food item transported in quintals (Q)	GHGs/Q
1.	Rice	Texas, USA	USA	100	10	10
2.	Rice	West Bengal, India	USA	250	100	2.5

4. Methodology

The qualitative and interpretive approaches to studying consumption pattern of consumers have played an increasing role (Beckmann and Elliott, 2001). Many of the earlier researches show that to gain more information and insight on perception about food mile and consumption pattern, qualitative research is more suitable than simple polling. First focus group interviews with 6 people were conducted in September 2014. Interactions between participants allowed the researcher to explore consumers' motives and barriers related to food coming from far away, and to reveal consensus or diversity of opinions amongst the participants.

The study with the focus group :

The 8 participants of the focus group were faculties from department of Environmental science (2), Agriculture (2) and Economics (4) from universities located in NCR, India. The invitation was given to 15 faculties through personal email out of which 8 accepted the invitation. The discussion was for two hours thirty minutes and the procedures to conduct the focus group study were similar as in the study conducted in France by Sirieix (2006).

In the study by Sirieix (2006) the two product chosen were bottled imported water from Fiji and salt from Himalaya. The researcher argued the products were chosen because of neither seasonal bias nor other availability issues. But in this study water was chosen, not because of the reason stated by previous researchers, but because imported bottled water in India like developed countries is becoming more and more a fashionable lifestyle product. In the metro cities we can even buy the famous brands of Italian and French mineral water and thus "Perrier" was chosen as the first product in the focus group study. Furthermore, water by its very nature and in comparison with other food products, present several methodological advantages: absence of intolerance or allergies, daily consumption, no 'freshness' and conservation concern, reduced variability of production methods and of use and preparation (Sirieix, 2006). The purpose of presenting the group

with imported water was to know their perception in regards to items travelling such a long distance and to know their general perception about imported items. The process implemented with focus group is indicated in table 1. The participants were not disclosed about the topic "Food Mile" in the beginning of the discussion and were introduced to the topic at the last hour of discussion unlike to the research by Sirieix (2006) as the objective of the paper was also to find difference of opinion on food mile by consumers of developed and developing countries. The group members were asked to write on few open questions about food Mile & developing country like India and the product shown (e.g. Do you think that food mile is a relevant to Indian subcontinent? Why or why not?) The notes taken by the interviewer was later transcript using thematic content analysis (TCA) (Boyatzis, 1998; Krippendorff, 2004). TCA is the most foundational of qualitative analytic procedures and in some way informs all qualitative methods (Anderson, 2007).

5. Major Findings

The 8 member focus group analysed the data with the use of Thematic Content Analysis and three major themes were identified:

- Influence of imported food
- Positive and negative influence of distance
- Complexity of Food supply Chain

Indian consumers are heavily influenced by imported food, and are bringing its use more in their daily dietary habits. The study of focus group showed that the consumption of imported food is low but growing.. Increased use of imported food was reasoned for increased urbanization, growing income, influence of media on lifestyle, increased influence of western culture and working women. Food products from western companies in every organised retail store and these items slowly occupying the shelves at unorganised retail, also is a major factor today, which have influenced the Indian customer for imported food product. Experimenting nature of Indians was also discussed in the group as a reason for intake of imported food item in various metros of India.

In overall judging food consumption pattern, distance is perceived to have both negative and positive feature. The study revealed that the distance associated with imported food items was considered more as an exotic food product. Phrases like "better production technique in developed nation", "exclusive food item as it comes from far off place", "not available in local market makes it special product", "they are distinctive" etc. highlights the positive connotation of distance. Few group members were concerned about environmental and freshness issue due to long distance, ("how fresh is the food product, that is the question", "what about the environmental cost and economic cost associated with these products", "what about the food security issues?") but the positive features outweighed the negative feature. Some members did point out that there is no valid reason for importing bottled water as water is available in plenty in India ("why should we import water, it isn't a scarce resource?"). Thus we see, distance in positive

connotation is pure emotion whereas negative feature of distance is more of moral reasoning.

Complexity of food supply chain for imported food products is a known factor in purchase process. The focus group study showed that distance does not reveal the production process and the associated GHGs emission. The members of the focus group were aware about the issues of food security, local farmer's livelihood issues, fair trade practices and environmental and social conditions for food production both in developed and developing nations. The focus group discussions lead to a more sensitive issue of fair trade than the transport issue and its associated environmental effect, "longer supply chain is an issue, but what about food export to places with inadequate food production". Another angle to this discussion was, "will export of food product will bring inadequacy in local supply". The discussion brought in the negative feature about longer supply chain, imported food product and sustainable food chain.

6. Conclusion

One can talk about the benefits of local production as very fresh produce, platform to socialize with neighbours and have an evening or morning with spouse or grand children but saving the planet, or improving the local economy, are definitely not the benefits of this economy as brought out by the focus group discussion. Food mile concept does not consider the whole life cycle of a food item, the production process and other activity involved in food supply beside transportation. This drawback of food mile concept has been highlighted by researchers working on Life cycle Assessment of a product and also pointed out in the discussion. Missing from this perspective, however, is the fact that, if imposed by political intervention, local farmers' gains can only come at the expense of consumers who will be forced to pay higher prices for similar food items, or similar prices for lesser quality food items. The end result of such policies is the local economy is made worse off overall and farmers from developing nations are deprived to make their economic condition better.

In a modern economy, people specialize in what they do best and trade with one another. This ensures both lower prices and a greater variety and year-round supply of goods. The idea is not to stop trading and turning backward towards the traditional method of farming and consumption but trying to feed the growing world population in a sustainable manner through agricultural free trade. This kind of free trade should insure that food is produced the most efficiently in the most suitable locations, with optimum utilization of required inputs in the whole process of production and not just transportation of food item from origin to plate. This will create more wealth and a better environment for everyone.

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