A Research on

The Food Environment of Kathmandu Metropolitan area
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Food Environment of Kathmandu Metropolitan area

ABSTRACT

With the major objective to assess the nutritious environment of urban Kathmandu especially of vegetables and fruits and availability of the junk foods and how those factors influences the food choices, this study was done in Kathmandu Metropolitan Area. This area was focused for study mainly because the city of Kathmandu is densely populated and people are getting trouble to find healthier and fresh foods to fulfill their bodily needs. In this respect Ason and adjoining markets like Janabahal are the examples of crowded markets of Kathmandu. These markets were taken as reference markets because people from different parts of the city come to buy the vegetables thinking vegetables and vegetables are available fresh and quality with reasonable price in these markets. In addition, some other areas of the city were selected for conducting the study as: Cluster No. 1 – Thamel, Galkopakha, and Samakhusi. Cluster No. 2 – Lainchaur, Lazimpat, and Maharajgunj and Cluster No. 3 – Putalisadak, Kamalpokhari, Gyanrswor, Bhagwati Bahal, Bhatbhateni, and Baluwata to assess the food behavior of the people there.

After selection of the spots as mentioned above a sample survey was conducted with structures checklist separately for mapping, shopkeepers, consumers and Key Informants information adopting interview, observation, mapping and interaction methods with the shopkeepers as well as with the consumers in the markets of Ashon and Janabahal. Similarly interview was also done with the shopkeepers and consumers of all the 3 clusters and in main markets. Further, key informant's information (KII) was also taken from each cluster and collected their views regarding the food environment and shopping habit of the people. For this 1 resident house maker of each cluster were taken as KII. All the gathered information and data then processed in the template and SPSS data processor and prepared the write up of the reports. Based on the analysis of the data some findings were mentioned in the report and recommendations were done with focusing to concerning authorities separately.

Content

Graph

1. BACKGROUND

Worldwide, there were 6.7 rural dwellers to each urban dweller in 1900s. Now the scenario has changes and there is less than one and projections suggest close to three urban dwellers to two rural dwellers by 2025. This has been underpinned by the rapid growth in the world economy and in the proportion of gross world product and of the economically active population working in industry and services (since most industrial and service enterprises are in urban areas). Globally, agricultural production has managed to meet the demands from a rapid growth in the proportion of the workforce not producing food and rapid changes in food demands towards more energy- and greenhouse gas emission-intensive food. However, hundreds of millions of urban dwellers face under-nutrition today, although this is far more related to their lack of income and than to a lack of capacity to produce food. There is a very large urban population worldwide with incomes so low that their health and nutritional status are at risk from any staple food price rise—as became evident with the rising hunger among urban populations after the food price rises in 2007 and the first half of 2008 (Cohen & Garrett 2009).

Urbanization is an example of social change that has a remarkable effect on diet in the developing world. In 2009, for the first time in the human history, more than half of the world populations reside in urban areas[1]. Over the period 2000-2025, the urban population in the developing world is expected to double, up to 4.03 billion, and the rural population is expected to increase from 2.95 billion to 3.03 billion however the urban population is growing three times faster than the rural population[2]. The trend of taking western type high fat, high sugar and refined carbohydrates and low fiber diets by consuming packed foods, canned juices and beverages is especially persuasive amongst the newly urbanized populations where these foods becomes associated with being " modern". More and more people in the developing countries have a trend to migrate in urban areas in search of better opportunities and easy lives. It is hence remarkable that food demands grow higher in urban areas, if populations increase and brings shifts in the consumption pattern. Street foods, Super markets, fast food chain industries, role of advertisements are changing the attitude towards diet. The transition in staple food is often accompanied by increased consumption of packed foods, canned juices, cold drinks, restaurant foods and other junk foods. Also salt and simple sugar intake is increasing at the same time.

Although urbanization is generally associated with economic growth, this does not mean that the number of urban dwellers facing hunger has declined in all nations. A study of 10 nations in sub-Saharan Africa showed that the proportion of the urban population with energy

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[1] Anita Baka 2012, *Research on Urban Food Habits, RECPHEC.*
[2] *http://whqlibdoc.who.int/publications/9241590416.pdf*

deficiencies was above 40 per cent in all but one nation and above 60 per cent in three (Ruel & Garrett 2004). In 12 of 18 low-income countries, food-energy deficiencies in urban areas were the same or higher than rural areas, even though urban areas have higher average incomes (Ahmed *et al*. 2007).

The rapid increases in food prices during 2007 and early 2008 showed the vulnerability of the urban poor to price rises. Although there has been some decline in prices since mid-2008, most analysts believe that prices will not return to the levels of the early 2000s because of continued strong demand for energy and for cereals for food, feed and fuel, as well as to structural land and water constraints and likely food production impacts of climate change (Cohen & Garrett 2009).

Urban food security depends on households being able to afford food within other needs that have to be purchased (Cohen & Garrett 2009)—although as noted above, the contribution of urban agriculture is important for many households. Various studies have shown the extent of food insecurity among low-income households in urban areas and the many coping measures taken, including those that in the longer term compromise health and nutritional status (Maxwell *et al*. 1998; Tolossa 2010).

Urbanization brings major changes in demand for agricultural products both from increases in urban populations and from changes in their diets and demands. This has brought and continues to bring major changes in how demands are met and in the farmers, companies, corporations, and local and national economies who benefit (and who lose out). It can also bring major challenges for urban and rural food security.

It is also a common nature of urban that a growing role for supermarkets (and transnational corporations) in food sales had brought changes in all aspects of the food chain. This includes favoring larger (and often non-local) food producers (may be multinational companies) and major changes in the distribution and marketing of food (Kennedy *et al*. 2004). The high proportion of urban households with electricity in middle-income and some low-income people also means far more households with refrigeration and this supports shifts in food demand (Reardon *et al*. 2003). Many low- and middle-income nations are likely to have a growing share of urban food demand met by imported food.

At this moment feeding of nutritious foods for them is beyond their capacity which may be the consequences of under nutrition eventually among the poor segment of the population. Different types of deficiencies might be occurred due to food insufficiency where both the physical and mental development of their children is likely to be etarded. It could have

transferred the effects of retarded growth from generation to generation which makes the country always poor due to the incompetent, less productive and ill population. This is a normal phenomenon and applied in all the countries if the cause persists. Since some of the poor countries are sustaining their economy even with low rate of gross domestic production and have maintained their social and economic lives with the uses of foreign currencies in the form of remittances earned by their citizens abroad. This is a gloomy picture of a poor country which is not possible to change the situation over a night.

Nepal is one of the South Asian Countries admitting the characteristics of a poor nation as mentioned above. Still 23 percent population are in poverty (National Planning Commission, 2013) has not enough resources to buy the nutritious food with their choices and needs. Increasing market prices of the foods have also hindered the purchasing capacity of the country. However, because of increasing in level of income of the people acknowledging remittances of the country, purchasing capacity has slightly been pushed up even of the poor strata of the people. Further the poverty rate has also been lowerd by approx. 23 percent (Economic Survey 2012/13 Government of Nepal, Ministry of Finance). "Remittances from Nepali workers abroad have remained the second largest source of income after agriculture. Share of remittance in the household income has increased in the last 15 years[3]. A few studies have suggested that income growth from remittances is one of the key drivers of poverty reduction especially in urban areas"[4]. In the mean time publicity and propaganda of different types of foods is being spread out through different sources of media and with mouth publicity. Subsequently, due to increased in level of income of the people consumption level has been increased. "At the national level, nominal per capita consumption increased more than five times in the past 15 years"[5]. Accordingly, due to being propagandized and heavily attractive publicity by the media, people are induced to have the foods of different tastes which are low in nutrition quality and loaded with many chemicals, low grade color and more added fat instead of fresh foods. Therefore, knowing or unknowingly people are eating less healthy foods with high in sugar, fat, or salt. Here we are defining "healthy foods" as fruits and vegetables. "Unhealthy foods" are defined as processed foods that are high in sugar, fat, or salt[6].

The word junk means not useful or low quality. In the search result we found the synopsis as – **rubbish, scarp, garbage, useless item, trace, debris, litter, refuse, throwaway, dump**. Knowingly or unknowingly people are consuming even the unhealthy foods because of taste, quick availability /preparation/consumption, easy carrying/and handling with home packing

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[3] Economic survey 012/13, GoN, Ministry of Finance.
[4] Nepal Status Paper, UN Conference on Sustainable Development 2012 Rio +20 Synopsis, National Planning Commission, Kathmandu November 2011,P.19
[5] Nepal Living Standard Survey 010/11, GoN, CBS, Nepal.
[6] *Nutrition Environment Survey paper- RECPHEC*

system etc. Moreover, the advertisement and label of the item is so attractive clamming that it is the only item that provides important nutrients for healthy and happy life. Similarly, due to its availability and accessibility in their doorsteps with expanding in the number of shops and vendors has resulted in increasing in the level of consumption of highly processed foods and packed foods. This is also known as **nutrition transition**.

Consequently peoples' dietary pattern is shifting specially among the urban population, and it can create nutritional deficiencies complications in the absence of healthy and balanced diet. They might have lacking of the required macro or micro nutrients causing to both the conditions as leanness, obesity, stunting and seized mental capacity. Further they might have different abnormalities as the consumption of such foods continues in their life time. Having developed the scenario of abnormalities in the population it can strongly be forecasted that the country or even the city / location might be suffered from ill environment of nutrition or nutrition transition. If it persists for longer period of time people might have different non-communicable diseases like cardiovascular diseases, stroke and diabetes etc. Thus the consumption of over nutrition will be pushed up by other economic and social factors due to increment in the income level of the majority of the people. At the same time especially the children might be suffered from under nutrition due to intake of low quality of packing or non packing foods known as junk foods. These foods have chances of creating leanness in the children caused by some communicable diseases like diarrhea, dysentery, and para/typhoid etc. Further, possibilities of less absorption of specific nutrients in the bodies of the children that creating dental impacts simultaneously in the long run are the consequences of the junk foods.

Urban Food Systems: A few Theoretical Concepts

It has often been assumed that hunger and starvation are distinctively problems of rural areas. Therefore, researchers in this field neglected urban areas. Food security research mainly concentrated on rural food production and on the scope for its increase. On the other hand, urban areas have generally faced malnutrition, which is difficult to detect and takes a long time to correct. But its toll is usually greater than devastating but episodic famines. As compared to rural areas, urban space is very diverse in terms of differences in the living conditions of people, their political and economic power and access to resources and infrastructure. Therefore, the general average situation revealed from government statistics masks the reality about the situation of poor neighborhoods and families in a city or town.

Gartel (1995) identifies three approaches in studies related to urban food systems: *a conventional policy-oriented approach, a historical approach from the perspective of political economy, and a crisis-oriented approach focusing on vulnerable food systems*. The policy-oriented approach addresses the nutritional situations in cities while the historical political-

economy approach reconstructs urban history and analyzes the social embeddedness of food provisioning systems.

The third approach of urban food system concentrates on the issues of food security and vulnerability. The works of A.K. Sen, particularly Poverty and Famines (1981)[7], have provided a new concept for the understanding of food insecurity. His work shows that enough food availability is not a sufficient condition for avoiding a hunger or famine. What is also important is the entitlement to food. In a situation where food entitlement declines (due to insufficient purchasing power and limited resources to enable entitlement through production, purchase and exchange, or due to increase in food prices in relation to income) famine or hunger is likely to occur. The concept of entitlement helps us to integrate the spheres of food production, food exchange, and food consumption and locate the vulnerable individuals, households or places. The concept of vulnerability disaggregates the concept of poverty, as it is not always the poor that are affected by famines or hunger. Watts and Bohle (1993) suggest applying a combination of three different analytical approaches to examine Food Insecurity in Metropolis.

Vulnerability: the entitlement approach (dealing with decline in access to food), the empowerment approach (dealing with institutional failure in securing the basic right to food security) and a political economy approach (dealing with inequalities that lead to food insecurity). Dreze and Sen (1993) in their book Hunger and Public Action, list a number of conditions which are important for analyzing food security situations. Of particular importance to the study of urban food security, is the institution of wage labor. As city dwellers, particularly the poor, possess no means of production except their labor, they become vulnerable to changes in market conditions like decline in wages vis-à-vis food prices and to production conditions which may result in unemployment. This is particularly so in the context of Kathmandu as it is undergoing an intermediate phase in its process of transformation from an agrarian society to an industrial/service economy. Accordingly the class of wage laborers has become large in Kathmandu, but a formal system of social security (from the state) has not yet developed. On the other hand this phase is characterized by erosion of traditional social security systems.

The concept of capability (Dreze and Sen 1993) is also important in the study of urban food security as the goal of public policy should be to make all capable of avoiding undernourishment and escaping deprivations associated with hunger. Improving capability means much more than providing adequate food, as the relationship between food intake and nutritional status can vary greatly depending not only on age, sex, pregnancy, metabolic rates, climatic conditions and activities, but also on access to complementary inputs such as health

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[7] Jagannath Adhikari and Hans-Georg Bohle, Urbanization, government policies and growing food insecurity in Kathmandu metropolish, 1999.

care, drinking water, and education, and on the prevalence of epidemics and diseases, environmental pollution and so on. Accordingly, Dreze and Sen (1993:13) argue that "focus on entitlements, which is concerned with the command over commodities, has to be seen as only instrumentally important, and the concentration has to be, ultimately, on the basic human capabilities."

As food security generally implies adequate food for all at all times, food security research should look into vulnerability at the individual level. The entitlement approach that is generally used in vulnerability analysis is of a disaggregative nature – beyond the class analysis. The logic of the entitlement approach indicates that it should take into account, among other things, the occupational groups, vulnerability of households and individual variability within those groups, depending upon various socio-economic influences. Along these lines, Blaikie et al. (1994), in their 'access model' extend analysis to the household level and Food Insecurity in Kathmandu Metropolis also give consideration to the gender and age composition of each household. This is particularly important in the context of an urban area. Urban space generally consists of a continuum from less built-up areas to a core urban area. As a result, food systems and livelihood strategies differ widely along a transect in an urban area because of differences in specialization in occupation. For example, peripheral areas even in a city may give emphasis to farming. In Kathmandu this type of occupational specialization is clearly visible.

The 'access model' developed by Blaikie et al. (1994) indicates that lack of access to resources is the main reason for the vulnerability of households. The model states that social-political processes operate to further deteriorate the access position of vulnerable households. The processes iterate and force the vulnerable households to an unsafe position. In urban settings where most families lack access to land and other resources needed for food production, the most important resource, as revealed in this study, is the ability to earn more and to gain knowledge about the efficient use of income and about enhancing human capability. For this, education and skill were found to be important. Similarly, in addition to food, other complementary facilities (like health support and clean water and air) are important to reduce the extent of sickness in poorer neighborhoods. This finding is important in devising development programs for the vulnerable individuals and families and for appropriate public action by concerned citizen groups.

Health foods and Junk foods

Before going to find differentiations between the health foods and junk foods we have to be aware of the foods with its definition. "Food is that which nourishes the body. According to Webster Dictionary "food material consisting essentially of protein, carbohydrate, and fat used in the body of an organism to sustain growth, repair, and vital processes and to furnish

energy; *also* : such food together with supplementary substances (as minerals, vitamins, and condiments"[8]. Based on the definition foods are those elements which contain most of all the nutrients generally or in specific term, and nourish the body with providing essential nutrients and support for healthy and productive life. In other word, healthy foods support to build, and maintain our body structure including the brain in a normal way. It does not contain high dose of fat, sugar, or salt rather it has high class of nutrients like carbohydrate, fat, protein, micro nutrients, trace minerals and fiber naturally. It does not create health hazards unless and until we have taken it properly with balanced way.

Furthermore, foods not only nourish the body, these also support to minimize/ prevent abnormalities or diseases in the body. Eventually the "food that has low nutritional value, typically produced in the form of packaged snacks needing little or no preparation" may lack various macro and micro nutrients could be harmful for the body in a long run. Common junk foods include salted snack foods, gum, candy, sweet desserts, fried fast food, and carbonated beverages (Coca-Cola, pepsi, sprite, fanta, various artificial jucies, redbull etc.) etc.

Some harmful effects of the junk foods:
- Lack of energy – it does not generate energy in the body instead of losing it.
- Poor concentration of essential nutrients.
- Heart diseases – Due to intake of high dose of salt or fat possibilities of heart diseases are high.
- High cholesterol - because of high level of fat contained in the junk foods chances of cholesterol is also strong.
- Liver failure - Junk foods affect the function of the liver.
- Diabetes - Due to various harmful effects of the junk foods as mentioned above it has been one of the causes of diabetes.

Though it is harmful for all ages people, we are eating these junk foods due to instant, tasty, quick preparation, and easy to carry. However it is very sensitive in the case of the children as they are vulnerable from the point of view of physical and mental growth. It does not support for the growth of the children rather creates threats physically as well as mentally.

Accordingly, teenage /adolescence is a second fastest growing stage of life span when overall development occurs for the future. This stage requires enough intakes of nutrients with appropriate amount from carbohydrate, protein and fat and from trace minerals. But various researches of food behavior done in urban area have shown that teenage diet consists of junk food containing burgers, pizzas, *chow chow*, hotdogs, chips, and soda with other popular foods

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[8] Dictionary of Nutrition and Diet Therapy, Merriam & Webster Inc. Manila, Philippines

like *titaura*[9]. Unfortunately the teenagers do not believe to harmfulness of the junk food, and neglect even for talking about the effects of junk foods.

Possibilities of harms of junk food towards the teenage / adolescent are as follows:
* Due to lacking of required nutrients for proper functioning of the body the boy or the girl will have feeling of tired and fatigued to perform their assignments.
* He / she will feel constantly hungry and weak due to imbalance created by the junk food.
* On the other hand they might have feeling full of stomach because of fat deposit in the body converting the junk foods into fat and calories.
* Junk foods do not contain any nutrients that are beneficial to the human body. In most cases, these foods are filled with harmful carbohydrates, fats and cholesterol that do not provide any useful energy.
* Being over-weight affects the flow of oxygen to the brain cells and this can adversely affect of an adolescents' concentration and memory.
* Consumption of junk food can cause chronic degenerative diseases, as well as hypertension, obesity, cardio-vascular problems and glucose intolerance.
* Eating foods with high sodium content like in chips and French fries can lead to the one's developing high blood pressure. This makes more prone to heart disease.
* It has been seen that teenagers / adolescents who eat junk food are more prone to mood swings and other behavioral issues.

Food behavior of Nepali People

Virtually, Nepal has its own eating habits unique to the region, but practiced by many others nearby countries. The main meals, generally eaten twice daily, almost always consist of *bhaat, daal, tarkari and Achar*. *Bhaat* is steamed rice containing carbohydrate that is paired with the soupy dish called *daal. Daal,* which is eaten in many south Asian countries, is a lentil soup made with various lentils adding with garlic, ginger, turmeric ghee/oil and salt which is good protein diet. *Tarkari* is the name for all vegetable dishes. *Tarkari* is cooked with a variety of spices easily accessible in Nepal, where the vitamins, minerals and fiber are contained with the nature and type of the vegetables including turmeric, garlic, ginger, coriander, salt and chilies. These three foods comprise the staple meal eaten in Nepal. From the nutrition point of view it is considered as highly nutritious dish containing all forms of nutrients like carbohydrate, fat, protein, vitamins, minerals and fiber.

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[9] special nepali sweet & sour candy.

However especially urban people are changing their food habit and shifting from *daal, bhat* to chow chow(instant noodles) and other similar types of convenient foods. People were not known about the junk foods, and eating habit was not developed before nearly one and half decade in Nepal. Even many of us were not heard the word junk food. Globalization gradually increases the availability of multinational companies' products so high that they became very popular among the Nepalese especially of urban households where the family members are being engaged in their own occupations and have money to buy those foods. Now people normally ignoring traditional foods and are giving preference to boiling the *chow chow* within a minute to meet their hunger. Many of us also eat even the raw *chow chow* because of access for everyone at everywhere at affordable price. Similarly, the so called soft drinks, which are actually hard drink from the point of view of health hazards, are being available in all the parts even in the shops of very remote rural area of the country. It is rather difficult to get the fruits, vegetables or eve n the medicines easily but the soft drinks are available in all the types of the shops in urban and rural area of the country. Junk foods are available in all the shops like groceries, restaurants, fruits and vegetable shops and in the *Nangle Pasal* (specially the *chow chow, chips,* cheeseballs). Referring to and the urban area of the country Kathmandu is a good example which representing all the city area of the country. Being the capital of the country all types of practices and habits can be observed here.

Scenario of Kathmandu

Kathmandu is revealed to be a city facing a deep problem of food insecurity. A large proportion of inhabitants were found to have no access to adequate food. When considered in terms of human capability, food security was found to be markedly inadequate. The incidence of health problems was higher among the centre city dwellers than the inhabitants of peripheral areas. The proportion of households having chronically sick member(s) have ranged from 4 % to 42 %. The communities (e.g., Anamnagar, Thimi) which were relatively affluent, with higher education and access to white collar jobs, were found to be in better health (due to better nutrition and sanitation).

Kathmandu is the oldest and first metropolitan city *(Maha Nagarpalika)* in the country where process of urbanization was taken place earlier and fast. This is the most crowded metropolitan city in the country with more than 4 million population (population census 2011) living in all the 35 Wards of the city. According to a census conducted in 2011, Kathmandu metropolis alone has 975,453 inhabitants; and the agglomerate has a population of more than 2.5 million inhabitants.[6] The metropolitan city area is 50.67 square kilometres (19.56 sq mi)[7] and has a population density of 19,250 per km²(Wikipedia, revived in august, 2013). The total number of households has increased to 5,427,302 with 3.7 family sizes.

Evidence shows that the urban residents are the first to undergo lifestyle, environment and dietary change, but eventually it filters down to less urban areas as well. Traditional staple food containing high volume of nutrients is more expensive in urban areas than in rural areas and takes more time for preparation. In comparison processed foods are less expensive and easily available with lacking of nutrients. Healthy nutritious food has been replaced by junk foods. In urban area it is status queue or fashion to eat junk/ready to eat foods with carbonated drinks. It seems to have engulfed every age, every race and the newest entrances are children where wafers, colas, pizzas and burgers are suddenly the major food items. Due to urbanization of the city with high population and have every facilities any types of food which may be healthy or unhealthy (transition foods) can have the market immediately. So Kathmandu has dense consumers of various food choices especially with 3 reasons –

I.   Increasing in purchasing capacity of the city dwellers with increased income level.
II. Due to metropolitan city and dense population all advertisement and publicity of the products is focused to Kathmandu. Various forms of advertisement are concentrating to Kathmandu which creates sensitization to possessing the products even for observing first time. Moreover there are sufficient no. of outlets where people easily buy or eat convent food.
iii. Kathmandu is a place where every type of people whether very rich or very poor are residing. Therefore it is a huge market of fresh foods (vegetables & fruits) and convenient foods. Though fresh foods are relatively expensive (people have that misconception) and not convenient to eat immediate so more people are attracted to buy convenient/ready to eat foods that are relatively cheaper and good in taste.

If we go back to 30 years focusing on eating habits of Kathmandu there were no availability of restaurants like of today's. Restaurants were concentrated only in some parts of Kathmandu like New Road, Basantapur or Durbar Marga. Otherwise only some small local restaurants or so called *Chiya Pasals* (tea shops) were located in petite streets corners that would cater few items on their menus like *masu-chiura,* tea, boiled eggs, potato fried, jeri swari, nimki, haluwa and *momos* etc. These small restaurants were hardly busy because people then had not developed a habit of eating outside like today. Accordingly there were no mobile stalls of foods, and no junk foods were in fashion like today's. Local green vegetables were available everywhere even from the local farm sides. But now scenario have been changed; Kathmandu got large population with increased no. of housing which decrease farm lands and squeegees the production of green vegetables and fruits. Further, it seems that there is no choice of junk foods for the tiffin of the children especially in the case of the busy parents.

Moreover, foods with packaging or non-packaging are selling in the department store, groceries and in mobile stalls along to the road side and foot path of Kathmandu Metropolitan city. It is

observing by most of us that home service system is also being popular especially among the high and medium class of the people in Kathmandu. Thus the people are in nutritional transition. The city dwellers are compelled to consume the unhealthy foods due to less availability and inaccessibility of the healthy (fruits and vegetables) foods in the market in compare to convenient foods. It is assumed that the foods are not accessible for entire population of the city due to lacking of retail outlets at their approaching or they cannot afford due to high prices of the food stuffs. On the other hand the foods might not be available in sufficient quantity as well as quality is also in doubt. Normally we have perceived that nutrition problem is only of rural area but not urban one and much studies are focused only rural areas however we never think what is under our nose. Therefore, a research study was needed to explore whether there are sufficient amount of outlets of fresh green leafy vegetables so that urban people have easy access to buy those food items in compare to convenient/junk foods especially in some selected high densely populated core areas of Kathmandu metropolitan city.

In this regard here, we have tried to address the various nutrition environments considering community environment, consumer environment, organizational environment and information that can have direct influence in the consumption pattern of the individual/family as:

I.   Community environment - It relates to quantity, type, location, and accessibility food.
II.   Consumer environment - It deals with food outlets at retailing stage of marketing including availability, prices and quality of food.
III. Organizational environment - It reflects availability and price of food available
IV.   Information - It reveals the information regarding consumption of healthy diet.

Based on the above stated 4 types of approaches of environment related to availability and accessibility of healthy foods as well as of the junk foods are virtually controlled by some determinants like prices, supply and demand, quality and quantity, types, physical location of the market of foods, and information about the foods. But it is not known that how the foods are administer by the factors in the market. What is the rate of availability and accessibility with in respect to demand for and supply of the foods? Therefore, a research study has to be conducted about the issues of junk foods and nutritious foods in Kathmandu focusing to some high dense area of the metropolitan city with following objectives.

1. **OBJECTIVE**
Objectives of the study are classified into general and specific as follows:

   1.1.   General objective:
The main objective of the study is to assess the environment of the nutritious as well as of the junk foods in Kathmandu, and how those factors impact food choices.

   1.2.   Specific objectives:

I. To identify factors influencing availability and accessibility of the foods including nutritious and junk foods.

ii. To identify specific location (area) in Kathmandu city where the actions of marketing (demand, supply, pricing, quality) of fruits, and vegetables followed by the junk foods prevailed.

2. REVIEW OF LITTEREATURE

Urbanization is an example of social change that has a remarkable effect on diet in the developing world. Access to food in urban areas is dependent on cash exchange. This directly affects the diet of the whole family. The food supplies of the rural community largely come from their own production, but in the urban populations it has to be purchased, providing new options and new norms and values. Due to globalization large no. of multinational companies are bringing a lot amount of their product so families also brings home more store brought and processed food rather than fresh animals and garden products. It is a practical experience that the traditional staple foods are becoming expensive in comparison to the processed foods in urban areas. As urbanization increases, the impact of the broad range of factors defined collectively as "globalization" becomes more prominent. The urbanization and globalization has hence brought a shift in the dietary pattern.

The trend of taking western type high fat, high sugar and refined carbohydrates and low fiber diets by consuming packed foods, canned juices and beverages is especially persuasive amongst the newly urbanized populations where these foods becomes associated with being " modern" status que. More and more people in the developing countries have a trend to migrate in urban areas in search of better opportunities and easy lives. It is hence remarkable that food demands grow higher in urban areas, if populations increase and thus brings shifts in the consumption pattern. Street foods, Super markets, fast food chain industries, role of advertisements are changing the attitude towards diet. The transition in staple food is often accompanied by increased consumption of packed foods, canned juices, soft drinks, restaurant foods and other junk foods. Also salt and simple sugar intake is increasing at the same time that might be the cause of various non communicable diseases. WHO report 2002 also highlighted the scientific evidence that shows unhealthy diet and physical inactivity as well as tobacco use, are the major global determinants of non-communicable disease.

Changes in the dietary pattern include changes in production, processing, availability, and consumption of food as well as changes in nutrient intake. Studies have revealed that there is a consistent relationship between unhealthy diet and the emergence of a range of cancer, diabetes mellitus, dental carries and various bone and joint disease. However it is not only the adult life style that determines the risk level of chronic disease. The nutrition through the life cycle affects the latter health outcomes. Smoking habits, alcoholism, low quality diets intakes,

physical inactivity are some of the established risk factors of non-communicable disease. This risk contributes 80 percent in the development of non-communicable disease. Approximately 46 percent of the global burdens of disease are carried on by non-communicable disease. According to the World Health Organization in 2005, out of 58 million deaths from all the cause, non-communicable disease accounts for 35 million deaths. The proportion of the burdens of non- communicable disease is expected to increase to 57 percent in 2020 (FAO, 2004). On the global basis 79 percent of the deaths attributed to the non-communicable disease occur in developing countries. Nepal has population of about 18.5 million in which the rural population accounts for 90.8 percent and urban 9.2 percent. Nepal is one of the poorest countries in the world at 136 position of Human development index (FAO, fact sheet on Nepal/ online).

There are very few researches were done about urban food behavior and nutrition sufficiency/environments of Kathmandu. A research done by Anita Bake identified that some reasons like increasing the population in urban area and modern and busy life style of the city dwellers have been compelled to consume the junk foods rather than the nutritious foods. At the researcher same also explained that aggressive advertisement and publicity have also changed the attitude and habit of the population to imposed consumption of the junk foods with the diets of sugar, salt, and fat. But it is not actually a diet to nourish the body of the individuals rather it hampers and deteriorate health of the users gradually where the chances of non-communicable diseases also appeared to the individuals which has been stated in the report of WHO in 2002, stated in the same study report.

Adhikari & Bohle done a study in Chettrapati-Asan area which represented urban core area anf a traditional business center. Income level in this area is also higher. Study showed that the families of this area spent about 61 per cent of income on food. This expenditure on food should be examined in the context that residents of the community do not grow or produce anything. They used to buy all foods they require. Researcher has stated that people of this area consumed not only traditional food items like rice and flour, but also many ready-made foods like bread, biscuits and noodles.

Like wise a study done by Vaidya et.al. had revealed that fruit and vegetable intake in the community was low with, only 2.1 percent were consuming the recommended five servings of combined fruit and vegetable. Hence, 98.3 percent (95% CI: 96.5-99.9) of the males and 97.8 percent (95% CI: 96.5-99.0) of the females had low fruit and vegetable intake.

When compared to other South-Asian countries such as India (approximately 74 percent inadequate fruit and vegetable intake), Sri Lanka (68 percent) and Bangladesh (47 percent), Nepal stands next to Pakistan (99 percent) when it comes to the overall insufficient fruit and vegetable consumption (Hall et. al., 2009). Comparatively, a high income country like Canada has on average a fruit and vegetable consumption of 4.95 servings per day10. Fruit and

vegetable intake has been studied in other Asian health demographic surveillance sites (HDSS) as well 24. A wide variation has been noted with the proportion of inadequacy ranging from 63.5 percent in men and 57.5 percent in women in Chililab HDSS in Vietnam to 100 percent in Vadu HDSS in India and WATCH HDSS in Bangladesh (Kanungsukkasem et.al., 2009).

A fact sheet[10] of Kathmandu has also revealed the similar result and stated that Kathmandu people were eating less than 5 combined servings of fruit & vegetables per day that was 98.9 percent male and 99.5 percent female.

There are other problems and issues when it comes to fruit and vegetable consumption in Nepal. In relation to availability of fruits, local fruits are replaced in the markets by costlier imported fruits. Locally available fruits are often wrongly considered inferior in terms of nutrition or social reputation. Difficult terrains and lack of transportation facilities lead to wastage of tons of fruits that grow in the highlands. Use of pesticides, artificial colours and other harmful chemicals that rapidly ripen the fruit discourages people from consuming fruits and vegetables. Besides, artificially flavoured instant drinks, coupled with high salt and trans-fat laden fast-food snacks, are gaining widespread popularity, especially among children, and gradually replacing consumption of fresh fruits.

Food habits of Nepali people have seen a paradigm shift lately. This 'unfortunate' shift, according to nutritionist Dr. Aruna Upreti, is evident in crowds lined up in front of roadside *thelas* (carts) to skip their healthy family meals against deep-fried stick foods that come in yummy-looking menus stuffed with items ranging from sausage to meatball. Such food habits prevalent among the city dwellers may make people suffer from malnutrition in the long run (The Kathmandu Post, Jan. 24, 2013).

Recently, an analytical study report on Media Coverage of Junk Food Advertisements and its Content Analysis on Selected Nepali and Indian Television Channels on 2013, was presented jointly by Hasana Magazine and RECPHEC focused that the TV channels were giving messages even from the children's channel on junk food targeting to the children, women and youths so as to promote its marketing in all the parts of Nepal and India. It is known to us that the Junk foods are not the healthy diets even some of the messages like the Vitamin Q, and Docosahexaenoic acid etc. are completely false. Though the media is an appropriate way of propaganda and advertisement for promoting and marketing of the products it should be prohibited or discouraged immediately to continue such types of propaganda or advertisement by concerned authorities. This study has recommended intervening in such types of advertisement by the Department of Food Technology and

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[10] A Fact Sheet, Nepal (Kathmandu) STEPS Survey 2003,
http://www.who.int/chp/steps/Nepal_2003_FactSheet_Kathmandu.pdf

3. METHODOLOGY of THE STUDY

This study was conducted applying the both qualitative and quantitative approach of research. However qualitative approach was given more emphasis because the nature of the research was to assess the behavior and attitude of the consumers and shopkeepers. Beside this observation and area mapping were also done to find out the number of vegetables and fruit shops and junk foods shops during mapping. During research following procedures were adopted.

I. Multi stage random sampling
II. Mapping
III. Survey interview
IV. Observation
V. Key Informants Interview

I. Multi stage random sampling:

As per the approved objective the study was conducted in two stage random sampling. In the first stage core locations (areas) were selected for conducting survey based on the trend of availabilities and accessibilities of the various foods – fresh and convenient one at different spots in Kathmandu. In the second stage the areas were divided into clusters. After series of brain storming 3 larger clusters of 3 different location areas of inner Kathmandu were taken as sample areas for the study. Numbers of clusters with the main locations (areas) are as follows:

i.   Cluster No. 1 – Thamel, Galkopakha, and Samakhusi.
ii.   Cluster No. 2 – Lainchaur, Lazimpat, and Maharajgunj
iii.   Cluster No. 3 – Putalisadak, Kamalpokhari, Gyanwswor, Bhagwati Bahal, Bhatbhateni, and Baluwatar.

Besides, the two market centers **Ason and Janabahal** were taken as reference market centers considering as the main market centers for vegetables and fruits followed by groceries representing Kathmandu as a whole.

Further, sample vendors/shops and consumers were identified from the above given locations/clusters get the information according to the checklists. The survey sample population was selected on the basis of the purposive random sampling. The main criteria of selection in the case of the shopkeepers were in the basis of selling the nutritious as well as the junk foods in their shops / stores. Similarly, the consumers were interviewed focusing who were visiting to the market to buy the foods.

Altogether 43 checklists were filled up covering all the 3 clusters of Kathmandu municipality areas.

Cluster for research:

Three clusters were selected for this study:

1. from Thamel to Samakhusi via Galkopakha under the cluster number 1
2. cluster number 2 was focused from Lainchaur to Maharajgunj via Lazimpat, and finally
3. cluster number 3 was from Putalisadak to Baluwatar via Kamalpokhari, Gyaneswar, Bhagawati Bahal, Tangal, Bhatbhateni, and Baluwatar on the way.
   - Accordingly the two spots Ason and Janabahal were taken as reference market centers to take interview of the consumers where most of the people prefer to come for shopping of their need of vegetables and fruits as these are oldest market of the Kathmandu metropolitan.

These cluster areas were selected because these are purely residential core areas of the city. These areas are old residential areas and not much market expansion is seen on the contrary of other newly expanded areas where much vegetables and fruits markets and venders can be seen.

Mapping of the cluster

In this research mapping is an effective tool to see how many convenient/fast food shops and vegetables and fruits shops are there in those areas. The study has mapped all the above mentioned clusters with pointing out the marketing outlets of the fresh vegetables and fruits and other convenient foods in general. It has given a sketch of number of stalls/ shops of the each cluster. In this mapping we have pointed out streets or roads containing the segments. For each road segment, we have indicated the number of retail outlets, supermarkets and wholesale shops of the foods (nutritious and junk foods) as stated according to the objectives. This was done walking intensively by foot in each cluster.

Data Collection

- ***Orientation of enumerators:*** Dividing the survey areas into clusters a team of comprising 2 members of enumerators were assigned with checklists and rough sketch of map of the clusters. They were first oriented in details about the objectives of the survey, expected output, their roles and responsibilities, checklists, and technique of taking interviews. They were also informed about how to do mapping and how to take information carefully without missing any important notice. During orientation a pilot study was also done in Ason before finalizing the checklists.

- ***Cluster Survey:*** Then each type of retail food outlets of each cluster was selected for the survey. The surveyor were prepared an inventory of fruits, vegetables, and junk foods available at each location by counting each type of fruit, vegetable and junk food, chips and soda shops. Similarly, the price collections of each of the item of the foods were done by asking the vendors/shopkeepers in each of the segments.

- ***Consumers' survey:*** The above procedures were concentrated in supply side of the foods, and now this one was for the demand side of the study. This survey was mainly to reveal the food behavior of the consumer. This survey fact also reflects the attitude of the consumer towards various factors of food market such as price, preferences, awareness, transportation and quality of the foods. This survey was done in the reference central markets – Ason and Janabahal where buyers from all the parts of Kathmandu visit there. The sample consumers were selected randomly to interview for their food buying pattern and their views about food price, preferences, awareness, transportation and quality. This survey was done when they were shopping at that centre

- ***Key Informants interview (KII):*** In this survey key informants were taken among the home makers to know the food behaviors, accessibility to vegetable markets and affordability of healthy foods. One homemaker from each cluster to collect information is selected. For this, a checklist was developed including all the necessary information in the form of question to collect information.

Similarly shopkeepers were also taken as a KII. They are the main person who could be a good and true observer/witness of the food transition and food behavior of the consumer.

4. DATA COLLECTION AND INTERPRETATION

As per the methodology primary data were collected at various stages. For this purpose the mapping of the business activities, shopkeepers' responses at clusters, consumers' responses in the form of KII (key Informants information) were taken to gather information. Similarly information collection and observation were also made of reference market centres of Ason Tole including Janabahal, where marketing activities of vegetables and fruits are being performed as a core old market of the city.

a. Mapping Exercise

Here the mappings were done in all three selected clusters to know the easy accessibility of the various foods to the consumers which could express the nutrition environment of the cluster. It mainly gathered information of the market as – number of vegetables, fruits, meat and fast food shops available within 40-45 minutes walking area of a cluster, types of food items available in the shops and observation of any other food items if any during mapping of interpretation of the data available from the survey at different stages it would be shown here

TABLE 1. Cluster wise no. of vegetable, fruit & junk food shops

Cluster	No. of Shops within 40-45 minutes walking					Items available in the shops			
	Fast food Shops	Fresh vege.shops	Fresh fruit shops	Fresh Vege. Fruit &with junk foods	Fresh meat shop	Fast food	Fresh vegetable	Fresh fruit	Drinks
I Thamel Samakh usi	39 (41%)	4 (4%)	17 (18%)	23 (24%)	12(12. 6%)	Instant Noodles,Bisc uits, & cheese balls etc.	Leafy & dried veg., Peas & beans, tomatoes, & lemons etc.	Banana, apple, watermelon, mango, lichi, & grapes etc.	Cold drinks, juice, & alchoholic drinks (in separate store)
II Laincho ur - Maharj gunj	49 (61%)	11 (13,7)	11(13.7%)	2 (2.5%)	7 (8.5%)	Instant Noodles,Bisc uits, bakeries, & cheese balls etc.	Leafy & dried veg., peas & beans, tomatoes, & lemons etc.	Banana, apple, watermelon, mango, lichi, & grapes etc.	Cold drinks, juice, & alchoholic drinks (in separate store)
III Putalisa dak - Baluwa tar	152 (76%)	12 (6%)	18 (9%)	11 (5,5)	7 (3.5%)	Instant Noodles, Biscuits, bakeries, & cheese balls etc.	Leafy & dried veg., Peas & beans, tomatoes, pumpkin, & lemons etc.	Banana, apple, watermelon, mango, lichi, pomogranat e, & grapes etc.	Cold drinks, juice, redbulls, & alchoholic drinks etc. (in separate store)

Here we have categorized the shops in 5 groups according to its nature. According to gathered data (Table 1) there were altogether 39 fast food shops, 4 fresh vegetable shops, and 17 fresh fruit shops separately in the markets of the cluster 1. Likewise the shops with combination of

vegetable, fruits and junk foods were 23 in the area. Additionally meat shops were only 12 in the same cluster.

GRAPH – 1 Mapping of the Food Items
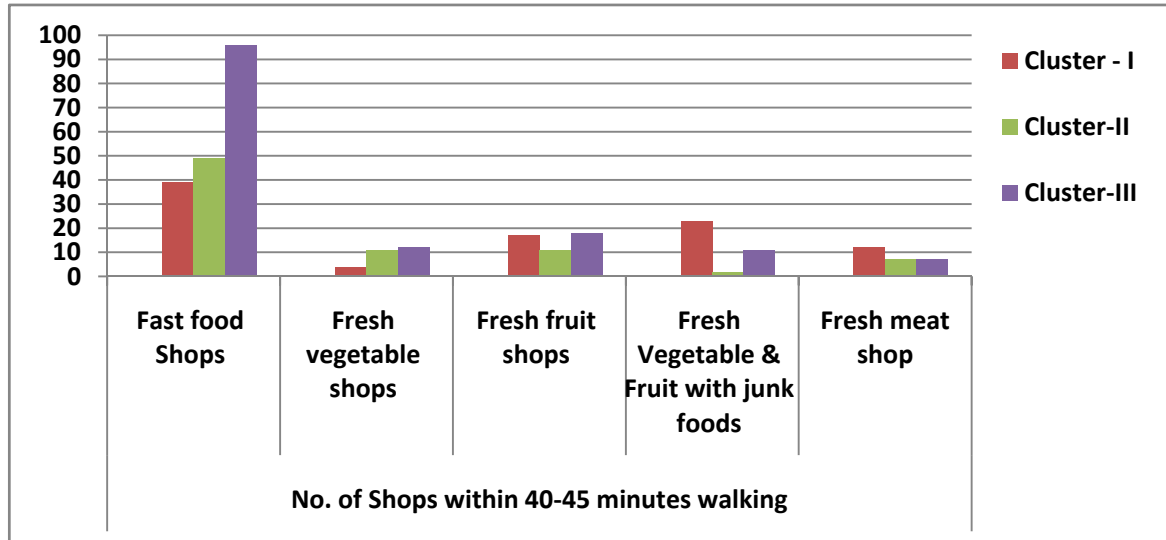
The survey data has revealed that the number of the shops/stores of the junk foods and fast foods were available more than the shops/stores of fruits and vegetables. Quantifying the number of the shops in three different clusters, altogether 95 shops were in cluster one among them there were only 21 shops exclusively for fruits and vegetables or for the nutritive foods with 12 shops for meat variety in the cluster one. But the shops for fast foods which are alternative word of the junk foods were 39, and mixed shops are 23. Total number of such shops is 95 in the cluster. From the calculation of the shops highest ratio was i.e. 58 percent was combined of fast/junk foods, combined of fruits and vegetables is 16 percent, mixed foods of fruit, vegetable, and junk foods percentage is 17, and 9 percent for the meat varieties.

Similarly, in the cluster number 2 the fast food shops were 49, fresh vegetable shops 11, fresh fruit shops also 11, combined fruits and vegetable shops 2, and fresh meat shops were 7. If we express in percent, fast and junk food shops were 61 percent, fresh vegetable shops 14 percent, same figure for fresh fruit shops, 3 percent for combined shops of fruits and vegetables, and 9 percent meat shop. In this way, shops of the fast foods and junk foods are highest among the other types of shops in this cluster too.

Likewise, number of the shops of fast food, fresh fruits, fresh vegetables, combined of fruits and vegetable, and meat were 96 (where 56 shops contained junk foods also), 12, 18, 11, and 7 respectively in cluster 3. Out of 200 shops in cluster 3 nearly 76 percent is the combination of fast/junk foods, 6 percent fresh vegetable, 9 percent fresh fruit shop, 6 percent combined shop

of fruits and vegetables and 3 percent meat shop. This reveals the fact that shops of the fast foods and junk foods are highest among the other types of shop where the shops of nutritive foods are only 21 percent. Access to the junk and fast food shops is more than 3 times than the quality nutritious foods in the cluster.

The fast food items include exclusively like instant noodles, biscuits, cheese balls, crackers, Lays and Kurkure etc. Fresh fruits are the seasonal fruits like banana, apple, watermelon, mango, lichee, and grapes. Fresh vegetables are both seasonal as well as dried vegetables like leafy vegetables known as *Sagpat,* peas, beans, tomatoes, lady's finger, eggplant, potato, onion, garlic and pumpkin etc. Besides, the drink items were also available in almost all the shops of fast food, fruits, vegetables, and mixed shops. The drinks more commonly known as carbonated drinks popularly known as cold drinks like - Coke, Fanta, Sprite, Red bull/Cash bull, packed fruit juice, in addition to some fresh fruit juice in only in fresh fruit shop. Even the alcohol was available in the fast food or mixed shops.

Here it is noticeable that the fast foods shops are more in numbers than fruits and vegetables in every cluster. Normally people have a habit that whatever available easily they consume. So if fast foods are available easily than people do not think much and eat it easily. If we want to share the information for not consumption of junk food, than we need to increase the availability of alternative healthy nutritious foods to door steps.

b. Observations

During mapping some observations were also made during the mapping exercise in all the 3 clusters. This result of the observation is as follows:

1. Some of the shops especially of fruits and vegetables are permanent, some were semi permanent and some were temporary. Permanent shops were kept inside the room of the house which was opened since a long (more than 5/10 years) in the same shutter/apartment/chamber. Semi permanent was known as the shops started from 2 to 5 years. The temporary shops were the mobile one in a 4 wheelers cart *(gada)* or bicycles selling fruits and vegetables. These temporary vendors were not located/operated in the same area even within a day. They were moving from one place to another depending upon the volume of sales with the expectation of high profit margin. Similarly, it was also observed that the items of fruits and vegetables were selling by the bicycles along to the footpath especially in the late afternoon, or carried the items from house to house.

2. All the three cluster areas of the survey are core residential area of Kathmandu where the marketing of the food items is being extended along with the industrial products. By virtue of this fact the presence of departmental stores (super market), or big grocery stores are also operated in these area. Some of the famous supermarkets who are able to attract a large number of high to middle class people are Bhatbhateni Super Market, Big mart, City

Centre Super Market, Greehini Departmental Store, etc. The stores are selling large variety of multinational industrial products along with national/local product with attractive packaging/display. These big super markets also sell lot of fruits and vegetable items too.

3. Some stores are practicing to keep food items safely with the use of refrigerator for the fruits especially in super market. It was observed during the survey that some of the fruits like apple, mango, and pomegranate were imported from abroad and tried to maintained the quality of the fruits with writing the date of expiry in a sticker.

4. In the case of vegetables both types of items like organic and inorganic are available in some stores e.g. super market/big market or few other permanent stores. During observation the color, shape and size are the same of both types of vegetables – organic and non organic however they are kept in separate space. It was also known that the prices of the organic items is some higher than the inorganic. The differences of prices were from 10 to 25 percent depending upon the types, quality, and freshness of the vegetables and the location of the stores.

5. Cold drinks and packed fruit juice are available in almost all the fruit shops and mixed shops. However it was also observed in some stores that the packed fruit juices were date expired.

6. Junk foods like chow chow(instant noodles), biscuits, puffs and crackers are selling out even in the fruits and vegetable shops.

7. Meat which is very susceptible from the point of view of spoiling and life threatening is exposed in front of the dust and direct sunlight in all the meat shop except in the supermarket/big stores.

8. Prices of the fruit and vegetables are comparatively cheaper in the temporary shops like the stalls or the bicycle venders than the permanent shops. However, it depends upon the bargaining capacity of the buyers.

C. Food Behavior of the shopkeepers and consumers

The study was done focusing to the attitude and behavior of the consumers whether environment of nutrition was supported and adopted by the consumers in their daily lives. In this respect it was conducted the behavior of the consumers at different times and locations.

1. Shopkeepers behavior and attitude about food and its environment
2. Consumers' behavior at Ason as a main marketing centre for the Kathmandu
3. As the key informants at 3 locations of 3 clusters

- **Behavior and Attitude of Shopkeepers in Ason & Janabahal**

Ason and Janabahal market is known as very old concentrated popular market where all types of food (fresh & dried/quality or non quality) are available in reasonable price (Table 2) Most of the people of the Valley make visits to Ashon especially with shopping purposes followed by just on the way to other parts of the city, to worship to the God and Goddess at Ashon or with the meeting purposes. It is also a common expectation of the Kathmandutiies that the market of Ashon is comparatively better in quantity, quality and in prices of the foods. Sure availability of food items and verity also attracted people in this market. Shopkeepers of Ason specially for the selling of fruits and vegetables are both outsiders and locals. It is the characteristics of Ashon Market that there is always crowded and congested due to main business area. Therefore, it was selected as a reference market centre for this study. Further, to make the study more specific and informative other adjoining market centre of Ashon like Janabahal also had been included as a reference market centre for the study. With this purpose an interview was conducted with some randomly selected shopkeepers.

General Information
In the process of interview 5 shopkeepers (1 female 4 male) of these central core areas of Ason and Janabahal were interviewed for getting information about general food management procedure, consumer's attitude, habit of buying foods and awareness about nutritious foods and general price fixing mechanisms. Among those interviewed shopkeepers two were from Ason and 3 were residing in other areas like Balaju, Kalimati, and Balkhu but doing their business in those areas.

TABLE 2: **General Background information of shopkeepers in central market of Ashon & Janabahal**

Location	Average Age	Sex	Education	Type of store	More selling item/s	If other items too	More profitable item/s	Price fixation	Obtainig food from	Buyers come from
Ashon	37	M	25% prim LS 25% & 50% seco,	50% all in 1 (grocery), 25% each of fruit & veg.	Biscuits, noodles, Dal, rice, oil, fruit & veg.	50% soft drinks, with juice, & 50% none	Rice, juice, soft drinks, dried veg.	50% self by including all costs, & 50%market	Wholesaler	60% Ashon periphery, & 40% outsiders
Janabahal	45	F	Primary	Vegetable	Veg. (green leafy)	No	Around equl in profit	Market price	Producer	Janabahal periphery, outsiders

Education status of the shopkeepers was from Primary level to Secondary level. Out of 5 shops /stores 2 for vegetables, one for fruit and rest of the 2 were of mixed (combining fruit,

vegetable and other dry foods). All the items like the drinks coke, fanta, pepsi, redbull, slice and even *chow chow* were selling by some 3 stores including the fruits shop at Ashon. Only two vegetable shops of that area were selling only vegetables. In the case of dry foods all the food items were bought from the wholesaler. According to the shop keepers profit margin is usually high in the dry food item like rice and *daal* in the grocery store. Other profitable items are juices and soft drinks. It is also found during interview that the shops are buying food items either from wholesalers or from producers.

It was observed during the interview that the shopkeepers were not open-up to reveal profit margin, and did not want to give information about the foods with high profit margin. However they informed that all the shopkeepers do calculate the prices of the items including 10 percent profit margin and other costs like transportation and house rent etc. In the case of the buyers they are both local of Ashon as well as out of it however nearly 40 percent costumers are from outside Ason/Janabahal. This shows attraction of Ason/Janabahal is still working.

- **General information about food management system of shopkeepers and their awareness about junk food & quality foods**

Regarding quality of the foods, most of the shopkeepers (80 percent) responded that they could only realize the quality of the foods as per the reactions and comments of the buyers. Otherwise they did not pay their attention towards date of expiry, color, and freshness of the foods. Only 20 percent shopkeepers were aware towards the manufacturing date and expiry of the packing foods.

TABLE 3. Shopkeeper's general food management system and their awareness about junk food & quality foods in Ashon & Janabahal

Description	Response from Ason	Response from Janabahal
Identification of quality of foods	75% consumers' reactions, 25% condition of the foods	According to customers
Duration of storage of foods	75% 5 days, 25% 1.6 months (rice, beans spices etc.	At least one day
Preservation system	50% Room temperature, & freezing	Open
Foods keeping techniques (observation)	75% Fruits kept openly in dust and sunlight, 25% kept room or in freezer	Directly expose to sunlight and dust
Demand from the consumers	50% rice, dal, oil, noodles, & biscuits, 50% fruits and vegetables	Leafy vegetables, dried and peas/beans.
Management of date expired and rotten foods	50% throw out, & 50% return to the seller	Throwing out
Pre-inform to the buyer	50% yes, 50% no	No
Getting complain from the buyer about the foods	50% yes, & 50% not yet	Not yet
Aware of the nutritive value in the foods	50% yes, & 50% no	Aware
High nutritive value containing foods	25% beans, 25% horlicks & juices, 50% not applicable	Nutrients in beat root & green veg.
Aware of the junk foods	25% yes, & 75% no	No
Nature of junk foods	25% packing foods, 75% N/A	N/A
More demanding foods based on quality	25% highly nutrient content foods, 25% junk foods, & 50% N/A.	High nutrient content foods
Suggestion for keeping the environment clean	Collection & management of the wastes properly/everyday	Collection & manage the wastes

Data says that storage of the foods was done depending upon the nature and types of the foods (table 3). All the shopkeepers did not have freezer and not applying safety mechanism to keep the foods safe for a longer period. They use to keep soft drinks only in the freezer, while other fruits and green vegetables are exposed in the sunlight, and dust in open environment. These conditions were easily observed during interaction with the shopkeepers.

During interview shopkeepers shared that they could not apply safety measures and compelled to keep fresh vegetables and fruits and drinks in open because of space problem in their shops, and they also told that this situation continued in coming days unless and until a substantial change will be occurred there. It was also known from the interaction with them that the volume of sales had not been decreased even in the same condition. So they are not willing to improve facilities investing more money to provided improved quality of the foods for the consumers.

- **Consumer's behavior at Ason and Janabahal**

Market Studies at Ashon & Janabahal

Here the consumers who were doing shopping in those places were interviewed in the market place of Ashon and Janabahal which are closer of the Central area. Altogether 15 consumers were interviewed with 11 in Ashon and 4 respondents in Janabahal respectively. Interview was taken on the spot during morning time when they were doing shopping.

TABLE 4: General information of consumers in Ason and Janabahal

Description		Area	
Location		Ason	Janabahal
No. of Respondents		11	4
Average Age		31	36
Sex		F	F 2 M2
Education		1 Illiterate, 1 primary & 9 higher secondary	2 primary, 1 highersecondary
Occupation		5 House wife, 3 service, 2 student, &1 job	2 House wives & 2 Service
Address		1 Narayanthan, 10 around Ashon	1 Nayabazar, 1 Bansbari & 1 around Ashon
Visiting purpose to the market		36% only to have foods, 55% multipurpose, 9 % as a local,	75 % Only to have foods, 25 % with other works
Reason		45 % cheaper, 45% better quality/fresh, & 9 % no shops	50 % cheaper & fresh, 50% no shops (New road)
Means of transport ation	By foot	81%	50
	Public vehicle	9% 9% 25	25
	Pvt. Vehicle	9%	25
Distance		45 % 15 minutes, 45 minutes, & 10	50 % 15 minutes, 50 % 45 minutes
Aware of pricing		100%	100
Higher or lower in price at 6 months		45% Almost same, 27% doubled, 18% lowered, 10% unstable	50% Almost same & 50% doubled

Data interpretation showed that of the 15 consumers 2 were male and 13 were female with variations in the age (Table 4). Average age of the respondents was calculated as 32 where normally people are already engaged in family life. Four of the fifteen had got education with more than higher secondary level, two had secondary level, three lower secondary and primary levels each, and finally only one consumer was illiterate. Professionally 9 of them were house maker plus service and rest of the 6 were students and engaged in some other job. Out of the 15 respondents about 13 percent used public vehicle to visit to the market because of going from far distance like Babarmahal and Banspari. Likewise 13 percent visited to the market by their own vehicle from Nayabazaar, and Narayanthan. Rest of the others i. e. 74 percent walked on foot to the market because they were living very close to it like Ashon, Indrachowk, New Road, and Mahabauddha, but others (13%) were from Bansbari, Naya Bazar, Narayanthan, and

Kaldhara. Most of them came for shopping purposes followed by on the way to their destination (67 percent). Time took 3 minutes to 45 minutes. On an average it took 25 minutes to reach the market. Rest of the 33 percent of the buyers had different purposes of walking like religious matters. Main reason to come to the Ashon/Janabahal market was to buy the vegetables and fruits because here available in better quality and cheaper in comparison to their own local area. Nearly 80 percent people bought the foods from Ashon where 33 percent (out of 80 percent) visited there for different purposes. Rest of the 20 percent also bought from the same market because of lacking of such market in their own area at New Road. Regarding prices of the goods all the respondent consumers were aware of pricing of their foods. When asked about the price rise since last 6 months about 45 percent said almost same, 27 percent said it doubled, 18 percent replied that it is lowered and 10 percent respond that it is unstable at Ashon. Likewise, 50 percent expressed almost same and another 50 percent reacted as doubled the price at Janabahal.

TABLE 4a: Consumers' behavior in centre market Ason & Janabahal

Description		Area	
Location		Ason	Janabahal
Food preference by family members		100 % seasonal vegetable/fruits,Noodles, cookies & Fanta	100 % seasonal vegetable/fruits, Noodles, cookies & Fanta
Complain to shopkeeper on defective food		54% yes, 46% No	50% yes, 50% No
Knowledge of nutritive value in foods		72% yes, 28% no	50% yes, 50% No
Nutritive value in foods	**Fresh vege/fruits**	54%	50%
	Fast food	**45%**	25%
	Packaging foods	0	25%
Buying foods as per nutritive value		45% yes, 45% no (taste), 10% others	50% no, 25 % yes,25 % N /A
Awareness of junk food		45% no, 54% yes	50% yes, 50% No
Prefer to eat junk food		54% yes.18 no, 18%N/A	50% yes, 50% No
Habit of looking at expiry date & ingredients		64% No, 37% Yes	50% No 25 Expiry date, 25 % yes
Waste food management		81% throw in container or give to pets, 19% not specific	100% throw in container or give to pets, 19% not specific
Suggestion for keeping environment clean		64% proper management, 18% stop plastic bags, 18 % awareness campaign	100% proper management
Food is safe in the market	**Yes**	18%	0
	No	54%	25%
	Don't know	25%	25%

Regarding the preferences of the foods by their family members all the interviewees (hundred percent) in both the market centers responded that they preferred to eat seasonal fruits and

specially leafy vegetables with other packing foods and drinks (chow chow, biscuits, ice cream, fanta, coke, slice, lays, and bakery items etc.) which are popularly known as junk foods. In this respect, though some of them (> 50 percent) were aware of the junk foods they did not care it to have such foods. Likewise, they (> 70 percent at Ashon and 50 percent at Janabahal) were aware of the foods with nutritional value but they bought foods without caring it (table 4 a).

Regarding the habit of checking ingredients in the food and expiry date most of them nearly 64 percent and 50 percent were not aware of the expiry date and ingredients in both the market centre. Similarly about 50 percent interviewee of both the market centers replied that they did not complain regarding the defective foods to the respective shopkeepers or storekeepers. They felt that that was only wastage of time and creating conflict between them. Further they were asked about the food safety in the market. Only 18 percent responded positively or in favour of food safety in the market at Ason. Fifty four percent and 25 percent replied as the foods were not safe in the market of Ason and Janabahal respectively, and rest of the interviewees (28 percent and 25 percent) were not known about the food safety. They were not aware of the foods they themselves were consuming bought from the market.

Regarding the management of the garbage products from their individual homes they replied that the waist products were thrown in the container which was kept nearby their houses or give to the person who collected the garbage daily (in the morning). Additionally, they used to give the waist food to their pets too. More than 80 percent consumers from both the market were throwing the garbage in container or giving to the staff of the Waist Management Co/concerned Municipality. Rest 20 percent of the consumers were divided equally (10% for each) for feeding to their pets, and doing as per the situation for disposing the waists (table 4a).

Finally, it was asked them an open question expecting the suggestions regarding proper management of the garbage. In response of the question most of them suggested to do proper management of the garbage but with different approaches / techniques like,
  i. Increase awareness to the people about waste management,
  ii. Collection and disposing of the wastes on time,
  iii. Specify the collection centers and disposing centers of the wastes.
  iv. Stop the use of the plastic bags,
  v. Separation of degradable and non-degradable wastes and manages all as per the potentialities from the wastes. It can produce bio-gas too to use as alternative energy in the country.
  vi. Manage the wastes that are possible by us. Handed over to the authority that is not possible to manage by the individuals.

d. Food behavior of shopkeeper – Cluster wise

General Background
The survey was carried out with purposive sampling in the markets of all the three clusters. Altogether 8 shopkeepers, in which 2 females and 6 males were interviewed during the survey to get information about food purchasing behaviors of the individual consumers, access of various types of foods and food/nutrition environment .

Table 5: General background of shopkeepers - Cluster wise

Description	Cluster 1	Cluster 2	Cluster 3
Mean Age	40	38	41
Sex	Male	50% M, 50% F.	100% Male
Education	Higher Secondary	50% illiterate, 25% Secondary & 25% HS	67% HS, & 33 Primary
Type of store	Vegetables & fruits	50% Grocery & 50% Fruits	50% Fruits & veg., 50% groceries
If other items too	No	67% Vegetables, cold drinks, juices, ice-creams, & 33 none	100% Juices & soft drinks e.g. redbull, and coke items etc.
Obtaining food from	Wholesale	Wholesaler	Wholesaler
Location of buying food	Balkhu & Kalimati	50% Kalimati, 50% Balkhu & others	50% Kalimati, 50% Balkhu & others
More selling item/s	Veg. & fruits	67% Cold drinks/soft drinks, sweet foods & 33 fruits	67% Cold drinks/soft drinks, sweet foods, & 33 fruits
More profitable item	Potato & onion	50% Packed foods, rice & 50% veg. & fruits	50% Packed foods, rice & 50% veg. & fruits
Price fixation	Based on all types of costs with some profit	75% expenses of rent, labor, transport & profit & 25% market price	50% costs like rent, transport with 10 % profit, 25% Association & 25 market
Buyers come from	Local people from Samakhusi area	50% local & 50% outsiders	50% local & 50% outsiders

Survey showed that the mean age of the shopkeepers was 40, 38 and 41 respectably from cluster 1, 2 and 3 (table 5). Education status of the shopkeepers was from Primary to Higher Secondary level however 2 among total shopkeepers (25%) were illiterate also. Out of total shops /stores 3 were for fruits only, 3 mixed (grocery) and rest were for mixed (combining fruit,

vegetable and other dry foods). All the items like the drinks coke, fanta, pepsi, redbull, slice and even chow chow were selling by the 5 shops except three 3 shops concentrating for fruits and vegetables solely. All the shopkeepers bought food items from wholesalers at different locations like Kalimati, Balkhu, and Kuleshwor which are big wholesale market place of Kathmandu or of Nepal also. Among the food items the lucrative items they sold out the most are packing foods, and soft drinks known as junk foods followed by the seasonal fruits and dried vegetables from their stores. It was also explored from the survey that the prices of the food items were fixed by the sellers by adding all the costs like rent, transportation, labor with 7 to 10 percent profit margin. According to them consumers used to come from local areas as well as from outside also however, the local people were more frequent visitors than the outsiders.

TABLE 6. Shopkeeper's general food management system and their awareness about junk food & quality foods (cluster wise)

Description	cluster 1	Cluster 2	Cluster 3
Identification of quality of foods	By touching, seeing and smelling	25% Expiry date, 75% condition and colour of the foods	100% consumers' reactions, & fresh w/o damaging
Duration of storage of foods	2 days	25% 1 month, 25 % 1 day, 50 as requires	As per the food
Preservation system	No particular method applied	25% room temp. 75% depends on food items	As per the food in room temperature & freezer
Foods keeping techniques (observation)	Kept inside the room, but some exposed to sun and dust	75 % kept openly in dust and sunlight, 25% kept inside (soft drinks)	75% kept junk, fruits, & veg. openly in sunlight, & soft drinks in freezer
Demand from the consumers	Seasonal fruits, vegetables, & juices	75% fruits & veg., & 25% dry foods like noodles, biscuits, and cheese balls.	Banana, apple (seasonal), cane juice/real/slice etc
Management of date expired and rotten foods	Throwing out	100% throw out, giving to (pigs & gini pigs)	67% throw out, and return to the sellers, 33% return
Pre-inform to the buyer	Yes	75% no, 25% select by the consumers	50% yes, 50% no
Getting complain from the buyer about the foods	Yes	Mostly yes	100% Not yet
Aware of the nutritive value in the foods	Yes	75% no, 25% yes	75% no, 25% yes
High nutritive value containing foods	High in fresh fruits/ vegetables & low in junk/fast foods	25% fruits & veg, 75 N/A	N/A
Aware of the junk foods	Yes	25% yes, 75 no	67% yes, & 33 no
More demanding foods based on quality	Junk foods	50% junk foods, & 50% N/A	67% Junk foods, 33% don't' know
Suggestion for keeping the environment clean	Proper waste management & public awareness.	25% Separation of wastes, 25% no use of plastic, 25% dust bean in the shops, & 25% cleaning around the shop	100% proper waste management w/o throwing anywhere.

The shopkeepers were asked about identification of quality of the foods. Unlike central area's shopkeepers the cluster's shopkeepers were aware of the quality of food items by different techniques like the buyers' views, colour and freshness of the foods, and expiry date of the packing foods (table 6). However regarding storage and preservation of the foods cluster shopkeepers has also no special attention was given except to keep the juices in the refrezaration, other foods were kept in room temperature and exposed the fruits and vegetables in dust and sunlight. The interaction with shopkeepers revealed that the buyers demand for seasonal fruits and vegetables for their consumption along with the packed foods, juices and noodles so they deposited and sell those items as demanded. Not sold food items were threw to the container, gave to the pets, sale in half price or returned to the wholesaler according to the nature of food. In this regard some 37 percent of the sellers use to inform the buyers about the quality of the foods before purchasing. Likewise, some 50 percent shopkeepers faced complain of the buyers regarding quality of the foods.

Regarding awareness, 37 percent of the shopkeepers claimed that they are aware about the nutritious foods, and 62 percent about the junk foods. However, they were selling a lot of junk foods because of highly demanded by the buyers with high profit margin. Finally they were asked about an open ended question on suggestions for keeping the environment clean. They responded differently but the collective answer was proper management of the wastes with disposing regularly at appropriate place, less or no use of plastic bags if used separation from other decomposed wastes etc.

Here it is noticeable that the cluster shopkeepers are aware about quality of the food items they sold/selling than central areas and they normally inform consumers about the quality of food.

e. Key Informants Information (KII)

To gather information about the consumers' behavior in nutrition environment, some randomly selected individual consumers were taken as the key informant in each cluster.

Cluster I (Table 7a, 7b & 7c)
Here interview was taken with a lady of 46 years old in Samakhusi as a key informant of this cluster. With Lower Secondary level of education she was a house maker residing as inherent family. She used to buy foods from the mobile vendors as well as from the shops close to her home. She spent nearly half an hour on foot from her home to buy food. According to her, though the price is higher in neighboring shops as it is retail shops than in vegetable markets or major markets, it was convenient her to buy in local shops. She was asked about the changes in price in the last 6 months. She replied - *it was about double increment in the price of the vegetables and fruits*. According to her major barriers for the easy accessibility of the vegetables and fruits were virtually differences in price from market to market, shops to shops

and no quality assurance of the foods. She was asked about the use of transportation to go to the local market to buy the foods. She replied that she use to walk about 40 minutes back and fore during buying foods which could be benefitted also to her health. She also added that she said that she prefers to go to the permanent vegetable markets when there is feast and festivals but since it is very far from her resident she generally goes with her husband in motorbike. She also informed that, she cannot take public vehicles as they are too crowded when you are carrying many things at once.

When asked about the availability of needy foods in nearby market she replied that she would prefer to buy everything in local shops if available there. Likewise local market could be a main centre to buy the foods rather than other markets like major markets and super markets. According to her it would be time saving if market price is reasonable. Further, it is easier to exchanged foods if there were some defective or rotten in food items. She also stated the benefit of local market that the shopkeeper might give credit facilities too in case of insufficient amount of money having with her at the time of shopping or in some emergency cases.

TABLE 7a: General information of KII

| Cluster	Consumer's Name	age	education	sex	occupation	address	types of habitant	obtaining food from	reason	Distance
I	Renuka Dangol	46	LS	F	House maker	sammak husi	inhabitant	mobile vendors & close shops	Nearness	< 30 min.
II	Sanu Maya	44	HS	F	business	lazimpat	inhabitant	market & home production	Nearness, & buying always	< 30 min.
III	Manila Silpakar	36	LS	F	House maker	housewife	since 11 yr.	local shops	Nearness	2 min.

TABLE 7 b: General expenditures on food according to KII

Cluster	Expe./ week in such market	Expenses /week at different markets (Rs.)			Expenses / week for different foods (Rs.)				Who arranges budgets for household			Adequate Income for consumption		Perceive the cost for preparation foods		
	Rs.	Local /Vendor	Major market	Super market	Fruits+vege	Rice+ lentils	Meat	Others	Husband	Wife	Others	Yes	No	Affordable	Cheap	High
I	800	800	500	0	800	1,500	500	500	y			Yes				y

II	1500	1500	1000	0	700	1,200	300	300		y			No			y
III	1000	1000	500	0	1000	1600	500	500		y		Yes		y		

Regarding expenses for food, she expressed that she spent around Rs. 8 hundred in the last and 2nd last week. It was the amount spent in local market including vendors. Accordingly, she spent Rs. 5 hundred for shopping in the major market, but did not visit to super market. Usually she did not go to super market specially for the shopping of fruits and vegetables. Total expenses she did in the last week was Rs.3 thousand 3 hundred dividing for different purposes like Rs. 8 hundred for fruits and vegetables, Rs. one thousand five hundred for rice and lentils/beans, Rs. five hundred for meat, Rs. five hundred for others. The budget expenses are controlled by her husband likely in most of the cases of Nepalese society. Income of her family was adequate to cover the expenses that they do. But she commented that the market price was high and difficult to afford if the situation would be continued for two or three months.

GRAPH – 2 KII - Expenses
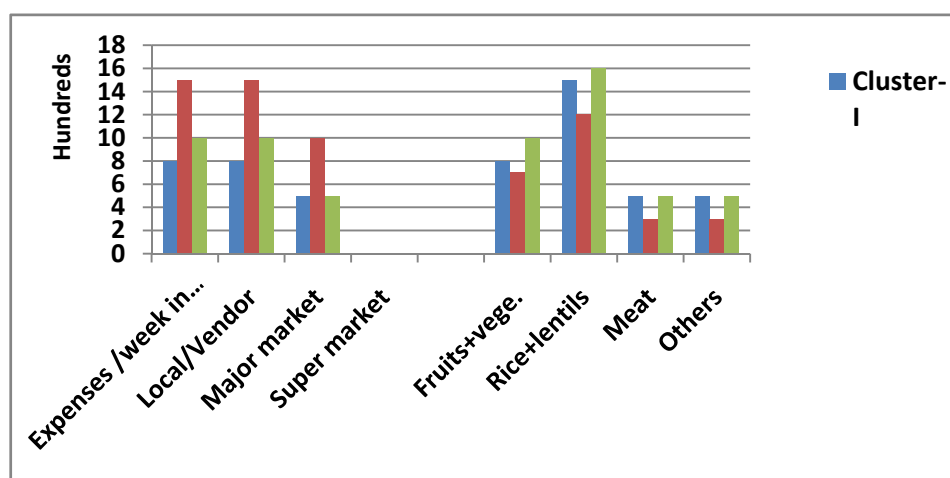
Cluster II (Table 7a, 7b & 7c)

In the cluster II interview was taken with a lady of 44 years old in Putalisadak as a key informant of that cluster where she was living as an inherent residential. With Higher Secondary level of education she was working as a business woman. Likely in the other two clusters she used to buy foods from the local market in addition the use of her own home produced vegetables. It took about 15 minutes by foot to reach the market from her home. She was asked about the changes in price in the last 6 months and she replied as of above mentioned KII that it was approximately doubled in the price of the vegetables and fruits. For the reason behind this price increment, she stated that the price of the vegetables has been doubled because of its high demand and low supply. According to her vegetables could be easy access for everybody supply is abundant and the market price are affordable for all. Major barriers for the easy accessibility of the vegetables and fruits were virtually due to congested markets with narrow lanes and tall buildings.

Referring her opinion she could buy food varieties in local markets. Permanent market is the main centre to buy the foods rather than other markets like super markets. She said that, you can easily walk for an hour now but later in her years, she might need to depend upon the mobile vendors. The mobile vendor save a lot of time, the price differ significantly at times.It would have been easier for her of there were fixed permanent vegetable markets increasing instead of super markets.

Regarding expenses on food she spent around Rs. one thousand five hundred in the last week. She also spent similar amount too in local market including vendors. Accordingly, she spent Rs. One thousand for shopping in the major market, but did not visit to super market. Usually she did not go to super market specially for the shopping of fruits and vegetables. Total expenses she did in the last week was Rs. two thousand 5 hundred dividing for different purposes like Rs. 7 hundred for fruits and vegetables, one thousand 2 hundred for rice and lentils/beans, three hundred for meat, and three hundred for others. Unlike of cluster I the budget expenses are controlled by her. Income of her family was not adequate to cover the expenses they do for foods. She commented that - *market price is very high so it is difficult to feed the family if the situation would be continued for coming months.*

Cluster III (Table 7a, 7b & 7c)

In this cluster of Putalisadak to Baluwatar a lady of 36 years old in Putalisadak was interviewed as a key informant of the cluster. With Lower Secondary level of education she was a housemaker residing since 11 yrs. She used to buy foods from the shops close to her home. It is just 2 minutes on foot from her home. As per her views though the price was higher in neighborhood retail shops than in vegetable market or major market, it was convenient for her to buy in local shops. In the answer of changes in price in the last 6 months she stated - *it was about tripled in the price of the vegetables and fruits*. Further she said that she is not much aware about contaminated (pesticide/insecticide) foods as well as organic foods. S

Considering her views fast food might have higher nutrients than in other foods. The family members especially children prefer to eat junk foods like the soft drinks, biscuits, puffs, chow chow, cakes and ice creams etc. She did not know about food safety in the market. Finally she suggested using the wastes of each individual household in kitchen gardening whenever it was possible.

When asked about accessibility, she said that she do not prefer to walk a long distance to purchase vegetable, so rely upon nearby small shops. However, she sometimes feels the freshness in those little shops is not good as it in vegetable markets. But since her resident is more of a commercial area with no nearby vegetable market, she said she have not option for daily purchase.

She spent around Rs. 1 thousand in the last and pre last week for fruits and vegetables in local market including the vendors. Accordingly, she spent Rs. 2 thousand 6 hundred for shopping in the major market, but did not visit to super market. Usually she did not go to super market specially for the shopping of fruits and vegetables. Total expenses she did in the last week was Rs.3 thousand 6 hundred dividing for different purposes like Rs. 1 thousand for fruits and vegetables, one thousand six hundred for rice and lentils/beans, five hundred for meat,. five hundred for others. The household budget is handled by her. Income of her family was adequate to cover the expenses that they did. Therefore, she commented that the market price was affordable.

5. CONCLUSION

Kathmandu being the capital of the country is still suffering from different types of pollutions which of them are the pollution of nutrition environment. Pollution of nutrition environment has been created from the nutritional deficiencies on food due to more supply of low quality food, massive adulteration, abundant supply of junk/ready to eat foods, poor awareness about nutrition requirement and its availability in food etc. Specifically under nutrition is the major cause of nutrition deficiency followed by increasing number of over nutrition. In general under nutrition is associated with, food shortage, poverty, urban price hike, junk food sufficiency and wrong food behavior of the society.

Eventually no food shortage has been felt in Kathmandu but there is lacking of appropriate distribution system or consumption pattern of the people of Kathmandu. The healthy foods like fresh fruits and vegetables are not sufficiently access to every household (HH) from both physical and economic point of view. Here either the foods are not available in the market or these are unaffordable because of low level of spending capacity of the family. It has also been mentioned in the K II (consumers' behavior). Due to low purchasing capacity with shoring price of the fresh foods, its availability is minimum in the HH. Minimum level of food availability in the HH means insufficient intake of the foods by the individuals which finally results in under nutrition or any other complications related to nutrition insufficiency.

Huge amount of vegetable and fruits are coming Kathmandu either from Kathmandu or from outside Kathmandu. Still proper distribution system is lacking here. People want to purchase their foods in neighboring market but no sufficient facilities or market outlets for fresh vegetables and fruits are provided in this respect. Likewise no other basic requirements like infrastructure, pricing, and transportation facilities are systematic, regular and effective in the core market area of Kathmandu. Similarly, food safety mechanizes are very poor also. Due to these entire situation consumer as well shopkeeper are suffering more. Therefore more concrete programs/ activities for motivating people to open abundant fresh vegetable and fruits market is necessary so that the consumers can easily have access to those nutritional foods. It is just a step to create a nutrition environment. Similarly massive awareness about nutritious foods and its necessity is required to make consumer or homemaker conscious.

6. MAJOR FINDINGS OF THE STUDY

Based on the study done at various stages some of the findings are identified and discussed as follows:

1. The market area of *Ason* including its peripheral market like *Janabahal* and *Teud* are considered as better market especially for fruits and vegetables than any other similar markets from the point of view of availability, accessibility, quality, prices, and freshness in Kathmandu. It is virtually a traditional and oldest market for vegetables and fruits of Kathmandu which is being run with congested and crowd of the buyers and shopkeepers. But it is not an organized market where all the sellers and buyers are performing their jobs at their own way. It is happened because of the spacious problem of the location.

    a. *Ason* market is a dominating market to others in Kathmandu in respect to availabilities of qualitative foods and accessibility. Everybody can reach to *Ason* by public transports from any parts of Kathmandu valley within an hour or even at 45 -60 minutes.

    b. Prices of the foods (vegetable and fruits) vary in morning to late evening. It is happened due to demand for the foods and supply in the market with changes in the quality of the foods. Virtually, the prices are high in the morning when the foods are not enough supplied in the market or vegetables are fresh and shining too and they have whole day to sell it. Prices of the vegetables are also imported along with the items of vegetables and fruits. On the contrary, foods are enough stocked from the morning, and new supply from outside Kathmandu, and supply of vegetables from surrounding area of Kathmandu (local production) in the late afternoon.

    c. Formerly, it was the centre for selling of very fresh vegetables brought by the farmers/producers themselves from the vegetable cultivating area like, *Dallu, Swyambhu, Balaju, Manamaiju, Naya Bazaar, Kalimati, Tahachal,* and even from *Thimi*. However due to construction of buildings and roads during expansion of urban areas resulted to cut off the production of the vegetables which pushed up to import the vegetables and fruits from other parts of the country via *Kalimati* Whole Sale Market Centre or other market.

2. It was learnt from consumer's interview and from observation of the individuals that especially the middle class people want to buy foods (fruits, vegetables, and even the industrial products) in the local market if available. They do not want to visit the major shops or supermarkets only to buy the fruits and vegetables even it may be close to their homes. People have a impression that Ason market is better than the local market of Kathmandu from the point of view of variety, freshness, and prices.

3.

    a. It was also known from the interaction that the people of various clusters buy foods from their local market for daily consumption (since the quantity of the foods is small) and they do not feel necessary to visit major markets like Ason. There is the time factor and saves even the public transport expenses. Besides, there are some other factors also - local market is accessible, convenient, time saving, and cheaper also depending upon the bargaining capacity. The foods which bought by the consumers could be exchanged if were defective, rotten, or unhygienic for consumption. Further, the shopkeeper might provide credit facilities or they can burrow goods.

    b. On the contrary, if they want to buy bulk of the foods for different purposes will be visiting to the major markets like Ason and even Kalimati and Balkhu. They can have cheap, fresh, quality, and selection of the foods from such markets which can save the daily expenses on transportation which was informed by the shopkeepers and buyers of Ason, and by the key informant of the clusters

    c. The culture of visiting super markets only for the purposes of buying fruits and vegetables has not still been developed in Kathmandu among the middle class population.

    d. It is found from the study that most of the people (> 50 percent) are not aware of junk foods. Some of them have heard the terminology JUNK FOODs, but not understand it literally. Some are aware or defined the junk foods however they do not care of such food items. They are consuming junk foods a lot and are feeding to their children in the form of school tiffin or in the form of snacks or as leisure time diet or for fun.

4. Similarly, Nearly 30 percent population has the concept that nutritive food is junk foods like the pizza, momo, ice-cream, chow chow(instant noodles), and soft drinks. These foods have more nutrients than the fresh foods. All of them has such a concept that packaging foods contain higher nutrients than the fresh foods.

5. It is an alarming situation of marketing of the products that nutritious foods like fruits, vegetables or the meat items are not access for everybody every time. Cluster-wise there are more fast food shops (41 – 76%) than fresh vegetables (4-13%) and meat shops (4-13%). Junk foods in the form of solid or liquid are available in all the stores/shops even in green vegetable shops. The shopkeepers are selling junk foods freely in all the shops.

6. It was learnt from the survey that majority of the people prefer to eat leafy, green, and seasonal vegetables. Similarly they prefer seasonal fruits more than off season. In the mean time they prefer also the junk foods like noodles, biscuits, soft drinks and other types of junk foods.

7. Majority (65 percent) of the population has such a perception that the food which they buy from the market is not safe to eat. They developed this concept because of similar types of cases / issues that have been raised in the country and published by the media.

8. Similarly, most (> 60 percent) of the people even the educated one do not have a habit to look at the ingredients of a packaging food they are consuming. However, they have been developed the habit of looking at the expiry date of the product.

9. On the other hand almost all of the population is aware about the prices of the products. They have felt that prices of the foods have been increased sharply within the short period of time.

10. People are aware of organic foods but no idea about spraying the pesticide and insecticide in the food, and the magnitude of its effects in the short run or long run.

11. From both of the analysis of the junk foods and nutritive foods it can be drawn a line of differences between these two elements that people are more aware of nutrition than junk. Nutrition which means POSHAN is very familiar and close to all classes of people though it may not be brought strongly into practice because of food habit, tastes, food preferences, religious matters, and economic conditions etc. But junk is new terminology and people have given stressed by publicity, propaganda and advertisement of the foods from various medias. Actually concept of junk food came only in 1960.

12. Majority of the people suggested during the survey that kitchen (backyard / or rooftop) gardening should be developed by the households. It can provide organic, fresh but cheap vegetables to the HHs. It could save money as well as increase supply and boost habit of eating those foods.

13. The study revealed that people have not developed the habit of complaining to the shopkeepers regarding quality of the foods even those are defective or not usable.

14. Survey revealed that prices of the vegetable items are higher in the retail shops than in the vegetable market because abundance of the vegetables with much stock in those stores. However in retail shops quantity is minimum and they do not face much competition so they cost more. It was found from the survey that people of Kathmandu Municipality have developed the habit of disposing the garbage by throwing into container or by handed over to the staff of Waste Management Co. who usually visits to the individual houses or location of the garbage collection centres. It was known from the interaction with the respondents that people are conscious of the garbage management in their households or locality. Consumers and shopkeepers combine have given following suggestions for garbage management.

a. Proper waste management by the concern authority: collect all the wastes garbage from the main centers of the city in time and dispose properly

b. Remove the use of the plastic bags as soon as possible, and bring the cotton or any other types of non polluted bags into practice.

c. Increase awareness of the people towards keeping the environment clean.

15. It is identified that higher the education higher the knowledge about the foods and garbage management too, and vice versa.

16. Regarding expenses made by the consumers in the local market is calculated as on an

a. Average Rs. 1 thousand 1 hundred per week. Similarly, they made expenses for different markets in a week like as Rs. 8 hundred for local market / vendor, 6 hundred 50 for major market, and no expenses for super market however they did not make visit to supermarket.

b. Regarding the food items they spent Rs. 8 hundred 25 for fruits and vegetables, 1 thousand 4 hundred 30 for rice and lentils, 4 hundred 50 for meat, and same amount for salt, spices and others.

17. Budget of the household is controlled mostly by the wife rather than by husband. It is known that nearly 65 percent HHs is managed by wife followed by 35 percent by the husband. It is also known that about 70 percent of their budget has done expenses for their foods as per the income. However 30 percent has no enough income to cover up their expenses for the foods. Similarly, nearly 70 percent felt that market price of foods is high to manage foods, and 30 percent felt that it is affordable. Finally, it was found as per the trend of the expenses that people has maintained their lives with a minimum amount of expenses due to high market price. Though the meat is highly protein food they are not able to consume adequate meat in the family. Food habit has been developed by people so that they are habituated to eat fruits and vegetables in their meals. But in the mean time price has been increased in the market that can be caused in reduction of the consumption of foods.

7. RECOMMENDATIONS

Based on the findings of the study some recommendations have been done for the improvement/adjustment. Here it is tried to segregate different recommendations level wise as follows for proper utilization by concerning stakeholders:

a. Policy level
Based on the findings of the study it is recommended –

1. To establishment/development foods (fruits and vegetable) market centre/shops in each locality or main centers of Kathmandu Municipality. Actually, policy is needed to motivate people involve in vegetables and fruit trade. There is also provision to mobilize

private parties like the FNNCCI / Chamber of Commerce or the individuals with creating suitable conditions and facilities.

2. In the meantime Ministry of Agriculture Development (MoAD) should develop/ extend the whole sale markets like Kalimati Fruits and Vegetable Market in other parts of the city which can make more access to the people. It can reduce the price of the market for the consumer and on the other hand the producers might be benefitted from marketing facilities of their products in short distance.

3. Policy should be taken so that trader may encouraged selling the nutritious foods and discourage the selling of junk foods. There should be some restriction on selling the junk foods in all the stores including vegetable and fruits shop. Along with it

   a. More tax/vat for the junk food and ready to eat market foods.
   b. Mention in the labeling of the junk foods politely that **"junk food is dangerous to health"** as of cigarettes.
   c. As per the findings of the study most of the people are not aware of junk foods, or consuming it though they are familiar. Therefore, it has to bring into publicity and advertisement through different media about the junk foods that we mostly eat every day and disadvantages of junk foods.
   d. Promotion of nutritious foods comparing it's price with packed food of market. In this respect, Department of Food Testing and Quality Control (DFTQC), and the Health Education Division in association and Ministry of Education.
   e. Develop and publication of dietary guidelines/food composition table and other related documents. The guidelines should make available to the all school/hostel, hotel for proper utilization.

4. Compulsory nutrition education in school level education to all which will boost up the awareness in respect to consumption of foods.

5. Prices of the fruits and vegetables are out of controlled of the government. There is neither price fixing policy of the items nor follow up (monitoring) of the price in the market. Government should take initiation towards price controlling.

6. As per the findings of the study kitchen gardening should be prioritized of the government even in urban centres like Kathmandu. To promote this kitchen gardening the MoAD specially the Department of Agriculture Development should take initiations to promote the gardening over the roof top of the individual HHs and public and private organizations.

7. Massive promotion of organic production of vegetables and fruits

8. Strong, effective and practical long term policy of garbage management and environment management.

b. Implementation level

Kathmandu Municipality should have to take initiation to establish the market centres of fruit and vegetables at least in each ward of the Municipality. The centres should have well equiped and have facilities so that the consumers as well as the sellers would be benefitted by selling and buying quality foods.

In addition to this establishment of shops for organic and inorganic foods should be promoted in the city.

Prices of the commodities should be uniform so monitoring system should be strong in the market, centers, & shops so that the buyers would be not cheated.
Ason market is small in place so it would be convenient for both the sellers and buyers if this place is prohibited the entry of all types of vehicles, ricksaw, and tractor or cart *(thela gada)*.n

Kathmandu Municipality has to manage this type of disorganized marketing system of Ashen and periphery who can have fresh and quality products.

Massive awareness campaign about the consumption of nutritious foods so that it reduces consumption of junk foods.

 The municipality should make surprised visits without any prior information to the shops for checking either foods are selling safe for the public.

Kathmandu is suffering from the pollution of the garbage because of disturbances in its dumping regularly. Environment of entire the municipality is not conducive for its citizens. It can affect health and nutrition status of the people of municipality. Therefore, it is strongly recommended to the municipality to keep the city clean and hygienic with proper management of the garbage. Regarding the management of the garbage it was found some suggestions from the survey that garbage should be managed inside the home of the individual by separating the spoiled and non-spoiled, and the former one should be used as compost in the kitchen gardening if possible and should be thrown only the non-spoiled in the container or garbage collection point.

Further, the municipality should be more accountable and authoritative organization in respect to garbage management in its territory. People have to be aware and facilitated to improve the environmental situation of Kathmandu.

c. Advocacy level

RECPHEC as a responsible organization could do many steps of advocacy to various stakeholders. So it is recommended to do advocacy to the GoN and Municipality to

establish/and strengthen marketing mechanism of the fruits and vegetables by making improvement in infrastructure and by promoting production to distribution with appropriate channels.

This study is limited to municipality areas. Therefore it is recommended to conduct a comprehensive study on fruits and vegetable marketing in respect to improve nutrition environment of Nepali people. Similarly more exposure study of nutrition environment in rural and urban areas is recommended.

It is also recommended to organize a talk programme in related topics of agriculture, health, nutrition, and environment with targeting as an advocacy campaign for the government and other related organizations of the country from where lot information can be collected and sis by side can advocate the policy level people who may not be aware about these issues.

d. Some area of Research for future

1. Individual food choices, health behaviors,
2. **obesity related eating pattern, eating disorders, sports nutrition, prevention of chronic disease. Nutrients and nutritional needs across the lifespan. Issues facing society including food safety, use of supplements.**
3. **Examines the many facets of the modern food supply from production and processing to distribution, marketing, and retail. Systems approach to foods studies considers geopolitical, agricultural, environmental, social, and economic factors along the pathway from harvest to health.**
4. **Study of nutrition behavior of supermarket consumers**

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Some Picture