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RESEARCH ARTICLE

FOOD SECURITY ISSUES AND CHALLENGES IN INUIT NUNANGAT.

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Abstract

The objective of the study is to analyse the challenges to food security in Inuit Nunangat. To examine whether it is the lack of food policy and implementation of food security programme in Canada. The study is taking descriptive and analytical studies, making a critical analysis based on the four dimensions of food security: food availability, food access, food utilisation and food stability. The issue of food security is a serious problem for the Inuit communities in Canada despite the fact that they lived in a rich country. Over half of the Inuit population living in Inuit Nunangat have experienced food insecurity. Food prices, country food harvesting, store-bought food shipping, employment and unemployment rate, income, food policy, and impact of climate change are the key factors of food security issues in Inuit Nunangat.

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Introduction:-

The Inuit communities in Canada have been experienced food insecurity and the scourge of hunger for decades despite the fact that they lived in a rich country, one of the world's largest food aid donors to the World Food Programme of the United Nations (WFP), which is world's largest humanitarian agency that dealings with global hunger and promoting food security. Food insecurity is basically measured hunger and undernourishment. The Food and Agriculture Organisation of the United Nations (FAO) defined 'food insecurity' as "a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life" (FAO, IFAD and WFP, 2013). According to the WFP, there is enough food in the world to feed everyone to have the nourishment necessary for a healthy and productive life, however, about 800 million people or one in nine people in the world today do not have enough food to eat for a healthy active life and development, and about 98 per cent of them are in the least developed and developing countries (FAO, IFAD and WFP, 2015).

Canada has a good reputation for producing quality, safe and healthy food. Canada recognises that food security is key to survival and sustainable development. Canada has been a long time actor in the international food security arena and sent millions of dollars, at least US\$150 million to US\$370 million each year to combat food insecurity and global hunger (Government of Canada, 2009). Yet, food insecurity and hunger are main problems in the Canadian households. According to the International Polar Year Inuit Health Survey (IPYIHS) 2007-2008, seven out of ten Inuit population were lived with food insecurity in Canada, particularly in Nunavut which is the highest documented food insecurity prevalence for any indigenous population living in Canada and a developed country (Rosol et al., 2011). While the preliminary household data from the Canadian Community Health Survey (CCHS) 2011 indicates that about 8.2 per cent or 1.1 million households or 4.3 million individuals/Canadians were lived under food insecurity (Tarasuk, Mitchell and Dachner, 2015; OHCHR, 2012).

Inuit are survived and strived by harvesting country food through hunting, fishing, trapping and gathering wild food from the environment as well as importing market food from southern Canada. The harvesting of country food is the economic foundation of traditional livelihood and a key factor of the modern mixed subsistence of Inuit.

The purpose of the study is to explore and analyse the challenges to food security in the four regions of Inuit Nunangat, the homeland of Inuit of Canada, namely Inuvialuit region, Nunatsiavut, Nunavik and Nunavut. The study seeks to examine the main reasons for food insecurity and hunger prevalence in Inuit Nunangat while Canada is leading and a champion of the international food security issue for decades. And also to determine whether it is a lack of food policy, strategy, funding and implementation of food security programme in Canada.

Materials and Methods:-

Exploring the challenges to food security in Inuit Nunangat, the study is taking descriptive and analytical studies, making a critical study based on four dimensions of food security defined by the Food and Agricultural Organisation of the United Nations (FAO): food availability, food access, food utilisation and food stability. Each dimension of food security is illustrated by specific indicators for a better understanding of the assessment of food insecurity and challenges to achieve food security in Inuit Nunangat.

The data were from the Aboriginal Peoples Survey (APS) 2006 and 2012, Canadian Community Health Survey (CCHS) 2004, International Polar Year Inuit Health Survey (IPYIHS) 2007-2008, National Household Survey (NHS) 2011, Nunavik Inuit Health Survey (NIHS) 2004 and Nunavut Child Health Survey (NCHS) 2007-2008 as well as other governments sources.

Food security is a complex condition and multidimensional phenomenon that evolved over time as there are more than 200 definitions and 450 indicators of food security (IFPRI, 1999). According to the 2009 Declaration of the World Food Summit, food security exists in a country or region “when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food, which meets their dietary needs and food preferences for an active and healthy life” (FAO, IFAD and WFP, 2013).

Food availability is the physical presence of food in the area through all forms of domestic production, agriculture, trade or imports, food aid and food stocks in sufficient quantity of quality food in all parts of the country, territory or region (WFP, 2009). Food availability is determined by food production or produced in the local area. Secondly, trade or food brought into the area through market mechanisms. Thirdly, food stocks or stored by traders and in government reserves. And fourthly, food transports or supplied by the government and aid agencies (FAO, IFAD and WFP, 2013).

Food access is the households or individuals ability to acquire an adequate quantity of quality food regularly through a combination of purchases, barter, trade, borrowings, food aid and gifts (WFP, 2009). Food access is determined by physical access to food through the availability and quality of infrastructure including roads, railways, ports and other installations that facilitate the functioning of markets. Secondly, through agriculture, livestock, forests, fisheries and aquaculture. Thirdly, people’s ability to purchase food at markets which are influenced by the income of the households. Fourthly, through trade, barter or exchange of things for food. And fifthly, acquiring food through gifts from friends, relatives, community, government and aid agencies (FAO, IFAD and WFP, 2013).

Food utilisation is referred to the households or individuals use of the food to which they have access, and individuals’ ability to absorb and metabolise nutrients that the efficiency of food conversion by the body (WFP, 2009). Food utilisation is influenced by how food is processed, stored and prepared with care including cooking fuel used and sanitations. Secondly, feeding and sharing of food within the household particularly for individuals with special nutrition needs such as babies, young children, the elderly, sick people and pregnant and lactating women (FAO, IFAD and WFP, 2013).

Food stability is the assurance of food secure to households or individuals which must have access to adequate food at all times (FAO, 2009). Food stability is broadly determined by the stability of other three dimensions of food security: food availability, food access and food utilisation in the households or individuals to food even in the face of natural, climatic, price fluctuations, political and economic crisis (FAO, IFAD and WFP, 2013).

Results:-

Inuit Population and Households Food Insecurity:-

In 2011, about 43,460 out of 59,445 Canadian Inuit are inhabited in 53 communities in the vast four regions of Inuit Nunangat: Inuvialuit region (Northwest portion of Northwest Territories and Northern portion of Yukon), Nunatsiavut (Northern coastal Labrador), Nunavik (Northern Quebec) and Nunavut comprising more than one-third of Canada's land mass. While around 15,985 Inuit population lived outside the Nunangat across Canada of which over 76 per cent were settled in urban areas (ITK, 2014; Statistics Canada, 2013). As seen in Table 1.1, the 2011 National Household Survey (NHS) counted almost 73.1 per cent of Inuit population were residing in Inuit Nunangat while 26.9 per cent lived outside the Inuit Nunangat. About 45.5 per cent of Inuit in Canada lived in Nunavut, 18.1 per cent in Nunavik, 5.6 per cent in the Inuvialuit region and 3.9 per cent of Inuit lived in Nunatsiavut (Statistics Canada 2013). According to the NHS 2011, Inuit represented 4.2 per cent of the total indigenous population and 0.2 per cent of the total Canadian population. Unfortunately, the Inuit population who lived in Inuit Nunangat regions are one of the most hunger people in Canada and the world.

Table 1.1: Inuit Population in Canada by region: 2006-2011

Region	2006*		2011**	
	Number	%	Number	%
Inuit Nunangat				
Inuvialuit region	3,120	4	3,310	5.6
Nunatsiavut	2,160	6	2,325	3.9
Nunavik	9,565	19	10,750	18.1
Nunavut	24,635	49	27,070	45.5
Outside Inuit Nunangat	11,000	22	15,985	26.9
Total	50,480	100	59,440	100

Source: *2006 Census of Population (Statistics Canada, 2008). **National Household Survey 2011 (Statistics Canada, 2013).

The Inuit Nunangat has the largest gap of food insecurity prevalence in Canada. According to the 2003 Study in Kugaaruk report, five out of six Inuit households were experienced food insecure in Kugaaruk, Nunavut (Ajunggingiq Centre, 2004). After almost five years of the report of the severe food insecurity in Kugaaruk, the Nunavut Child Health Survey (NCHS) 2007-2008 found that seven of out ten or about 70 per cent of Inuit children aged 2-5 year lived in food insecure households. Moreover, about 75.8 per cent of Inuit children had skipped meals and 90.4 per cent went hungry while 60.1 per cent did not eat for a whole day (Egeland et al., 2010). While the International Polar Year Inuit Health Survey (IPYIHS) 2007-2008 signified that food insecure Inuit children (aged 6 to 14) in three Inuit regions: 56.5 per cent in Nunavut, 32.7 per cent in Inuvialuit region and 25.8 per cent Inuit children in Nunatsiavut region have experienced food insecurity (Rosol et al., 2011). Whereas five out of ten or 49.7 per cent of the Inuit children were experienced food insecure in Nunavik (Pirkle et al., 2014) which is the second highest in four Nunangat regions. In addition, the IPYIHS 2007-2008 indicated that about 88.6 per cent adults in the household had skipped meals, 76.9 per cent gone hungry and 58.2 per cent not eaten for a whole day. Whereas about 86.5 per cent Inuit adults worried that food would run out and 87.8 per cent adults did not have enough money to buy quality food (Rosol et al., 2011).

The disparity in the prevalence of Inuit households food insecurity were noted by the (IPYIHS 2007-08) in the three regions of Inuit Nunangat: about 68.8 per cent of Inuit in Nunavut lived under food insecure which is the highest documented food insecurity prevalence in Canada, over six times higher than the Canadian national average at 9.2 per cent (ONPP, 2007; Rosol et al., 2011) and the highest documented prevalence for any indigenous population living in a developed country. The food insecurity rate in the Inuvialuit region was recorded at 43.3 per cent while 45.7 per cent was reported in Nunatsiavut region (Rosol et al., 2011). Whereas the Nunavik Inuit Health Survey 2004 found that about 24 per cent of Inuit lived under food insecurity in Nunavik region (Ancil, 2008; George, 2010) which is less among four Inuit Nunangat regions but still higher than the national average.

Table 1.2: Prevalence of Household Food Insecurity by region: 2004-2012

Region	2004-2008	2012**
	%	
Inuit Nunangat	N.A	53
Inuvialuit	43.3 *	32
Nunatsiavut	45.7 *	45
Nunavik	24 #	55
Nunavut	68.8 *	56
Outside Inuit Nunangat	N.A	17
Total population of Canada	9.2 ##	8

Source: *International Polar Year Inuit Health Survey 2007-2008 (Rosol et al., 2011). #Nunavik Inuit Health Survey 2004 (Anctil, 2008). ##Canadian Community Health Survey 2004 (ONPP, 2007). **Aboriginal Peoples Survey 2012 (Wallace, 2014).

While the 2012 Aboriginal Peoples Survey (APS) showed that Inuit food insecurity in two Inuit Nunangat regions have been decreased by over 10 per cent from the 2007-08 report in Inuvialuit and Nunavut whereas it has significantly increased by 31 per cent in Nunavik region. According to the APS 2012, about 53 per cent of Inuit households in Inuit Nunangat had experienced food insecurity (Table 1.2). In 20011, the lowest prevalence of food insecurity in the four regions of Inuit Nunangat was reported at 32 per cent in the Inuvialuit region, compared to 45 per cent in Nunatsiavut and 55 per cent in Nunavik whereas 56 per cent in Nunavut as the highest rates in the regions (Wallace, 2014).

Discussion:-

The prevalence of food insecurity in Inuit Nunangat is a serious challenge to Inuit population and health. Hence, the study seeks to analyse the reasons for food insecurity prevalence in the regions.

Challenges to Food Availability :-

Food availability is related to the contribution of food through production, import and trade or barter. It is one of the main pillars of food security. While a local agriculture production is essential to food availability of achieving food security in a region, however, the production of agriculture is absent in Inuit Nunangat. Due to the climate variability and physical geography of the Arctic tundra, the agricultural crops cannot grow in the Nunangat regions. At the same time, the farming of poultry, livestock and market gardening are also not possible to practice due to the geographical factor and the climatic conditions. Traditionally, the Inuit have relied on country food to live and these diets are collected from the land, sea and rivers even today. In addition, store-bought food items are the supplementary diet of Inuit communities that import from southern Canada.

Country Food:-

It is locally produced food and traditional diet of the Inuit in the Arctic. Country food is what the land and sea provided like caribou, moose, polar bear, arctic fox, musk ox, arctic hare, muskrat, ringed seal and bearded seal, duck, goose, beluga and bowhead whale, fish (arctic char, sculpin, arctic cod, whitefish, lake trout, herring, inconnu) birds eggs, berries (blueberries, currants, cranberries, crowberries) and plants. According to Kuhnlein and Receveur (1996), country food refers to “all food within a particular culture available from local natural resources and culturally accepted. It also includes the socio-cultural meanings, acquisition, processing techniques, use, composition, and nutritional consequences for the people using the food.” In Inuit regions, hunting, fishing, trapping and gathering of wild products play a significant role in Inuit diet and livelihood.

According to the Inuit Tapiriit Kanatami (ITK), for the harvesting of country food, the Inuit are often required to travel long distances from their communities to hunt and fish. At the same time, their incomes are often not pretty enough to buy the hunting and fishing equipment such as snowmobiles, guns, bullets, boats and another basic kit. Moreover, Gas or fuel prices in Inuit Nunangat are very high (Inuit Tapiriit Kanatami, 2007; Statistics Canada, 2013). Nevertheless, the data from the Aboriginal Peoples Survey (APS) 2006 indicated that seven in ten or 68 per cent Inuit adults were actively harvested country food in Inuit Nunangat. In 2005, about 74 per cent Inuit men were engaged in the harvesting activities, compared to 62 per cent of Inuit women in Inuit Nunangat (Tait, 2008).

While trade, barter or exchange of goods for food are considered to be the important parts of Inuit livelihood and food security in the regions. These things have been practised by the Inuit and the Europeans from the colonial period. For example, the trade of Arctic Fox furs was one of the main sources of Inuit income in those days. However, the Inuit have also experienced a lot of troubles in trade. The collapse of the fox fur trade after the Second World War was devastating to the Inuit livelihood, who relied on it as a source of income to purchase cloth, flour, sugar, tea, hunting and fishing tools or guns and ammunition (Rennie, 2015).

Inuit have faced a serious trouble again as the European Union along with other 34 countries declared a ban on trade in seal products which is a significant factor on Inuit food security issue and livelihood. Terry Audla, (then chair of the Inuit Tapiriit Kanatami), stated that “Inuit have suffered immeasurably as a result of other nations’ discriminatory bans on seal products. We remain hopeful that the trade of seal products – an abundant, renewable, sustainable and natural resource – be once again a generator of economic growth for Inuit communities.” The seal harvest provides important economic value as well as sources of income to sustain Inuit livelihood and ways of life (Inuit Tapiriit Kanatami, 2014a).

In the defence of Inuit food, culture and livelihood, Leona Aglukkaq (then Minister of Health, Government of Canada) stated that “in the Arctic, the food security issue is not about access to food. It’s about fighting environmentalists trying to put a stop to our way of life” (Gunn, 2012). In fact, climate change is the biggest threat to both the polar bears population and Inuit communities in the Arctic. In 2013, the US proposed to ban cross-border trade in polar bears and their parts was defeated at the international meeting in Bangkok. In response to the question of the proposal to ban the polar bears trade, Audla stated that “We don’t have cows or pigs or chickens; what we have are the polar bears, the seal, and the walrus. This is how we make our living; this is how we put food on the table. It’s less than 1 per cent of the global polar bear population was traded. What’s traded is not in any way detrimental to the polar bear population. We harvest for subsistence, we are never driven by the market” (McGrath, 2013).

Similarly, climate change has affected on migration patterns of caribou, moose and shifting breeding and moulting areas for birds in the Arctic. For example, moose and caribou numbers have decreased by about one-third since the 1990s and early 2000s in the region (Gunn et al., 2009). It was also reported in the late 1940s and early 1950s when a change in caribou migration patterns caused widespread starvation in the Kivalliq Region of Nunavut (Rennie, 2015). Thus, the Inuit are now worried about to lose country food for future generations.

In addition to country food, **store-bought food** is another source of food available in Inuit Nunangat regions. Store-bought food refers to food that generally not harvested from the land locally. With the arrival of Europeans in the Arctic in the mid-1900s, Inuit were usually started eating the modern food or store-bought food (Flynn 2006). The contemporary Inuit rely on a combination of country food and store-bought food that imported from the southern Canada by plane or sea barge or ship and sold at local stores such as fresh vegetables, fruits, dairy products, frozen food, canned food and packaged food items. This food is becoming popular among the Inuit young population and generations.

Shipping of store-bought food items are done by airlift and sealift services since there are no rail route and no roadways easily reached almost in the regions. Sealift service is also not available in the long winter season or bad weather in the Arctic. The food mail flight service has twice a week that bring fresh fruits and vegetables, bread and perishables like milk. Food mail orders can be placed every week for fresh food items which are cheaper than shopping at the local stores (ITK and ICC-Canada, 2012; Giannetta, 2009; Lawn and Harvey, 2003).

Moreover, the availability quantity of store-bought food in Inuit Nunangat is very limited as there is no railways and roadways connection between the mainland of Canada and Inuit Nunangat regions or due to the geographical and climatic factors. At the same time, the Inuit population are scattered across a vast four Nunangat regions and the relatively small populace in remote, isolated and far from the major transportation and power station hubs.

Challenges to Food Access:-

Country Food:- Access to nutritious food in Inuit Nunangat is very difficult as the availability of food is extremely limited throughout the year. Locally accessibility of food in the Inuit regions are fish, animals meat, birds eggs and berries. Traditionally, the Inuit harvested country food in each season from the land, sea and rivers. During the

winter, the Inuit mostly practice trapping animals and fishing seal are the main source of food. When the spring comes, muskrat is harvested for their pelts and meat. Spring is a good time for gathering roots. Summer is whaling time, and the Yukon coast is the well-known place to hunt beluga (Arctic's whale). Caribou meats are available during summer and fall. Most significantly, fish, whales, birds and other sea mammals such as walrus are available year round. Bird eggs are also a staple of the Inuit diet, and they are available in the month of June. Autumn is hunting season for caribou, moose, ducks and geese. After all, it is time to dry fish and caribou meat and to pick berries (ACIA, 2005; Nuttall, 1998). This is how the Inuit survived by harvesting the wild animals, plants and fished in each season with their traditional knowledge in the Arctic.

However, there are a lot of issues on access to country food in Inuit Nunangat regions. First, fewer skilled Inuit hunters are available in the communities today. Inuit younger generations lack the knowledge of their grandparents and they have fewer learning opportunities (Campbell et al., 2014). It is basically linked to the colonial policy and legacy, indeed, Inuit country food infrastructure was destroyed by Canada's policy of forced assimilation through the residential schools system that erased traditional knowledge of hunting, fishing and trapping skills. Second, due to climate change, Sheila Watt-Cloutier, (environmental activist and former chair of the Inuit Circumpolar Council) said, "the weather is increasingly unpredictable. The look and feel of the land are different, and the sea-ice is changing. The Inuit hunters are having difficulty navigating and travelling safely." The hunters now have even lost their hunting experienced and skills through the ice in areas that traditionally safe. The melting of the ices in summer is now such that it is dangerous for Inuit to many of their traditional hunting places (UNEP/GRID-Arendal and Inuit Circumpolar Conference, 2004).

Third, the individual's or household ability to access quality food is influenced by the income of the individuals or households (FAO, IFAD and WFP, 2013). The low income of the Inuit individuals and households have impacted on food security issue in the regions. The cost of hunting and fishing equipment is another significant problem of access to country food in Inuit Nunangat.

According to the Statistics Canada (2008), the 2006 Census of Canada report indicated that the Inuit median income was lower than for the non-indigenous population in Inuit Nunangat. While about \$60,047 was the non-indigenous individual median income, compared to \$16,669 was the Inuit median income, that meant the Inuit median income was \$43,378 less than their counterparts population in Canada in 2006. In Inuit regions, the average Inuit median income was \$16,576 in Nunatsiavut and \$16,944 in the Inuvialuit region. While the Inuit median income in Nunavik was \$18,994 and \$15,939 in Nunavut which came the highest and the lowest Inuit median income respectively in the Nunangat regions (Statistics Canada, 2008).

According to the 2011 National Household Survey (NHS), the median household income for Inuit in Inuit Nunangat was \$74,021 which was higher than the median household income for the total population of Canada at \$74,777 (Table 2.1). However, the households in Inuit Nunangat are larger than that outside Inuit Nunangat or the rest of Canada. In essence, the median household size in Inuit Nunangat is 5 people while 3 people for the total population of Canada. In addition, the cost of living in the Inuit Nunangat is generally higher than that of southern Canada. In fact, the median income of Inuit in Inuit Nunangat was actually less than outside Inuit Nunangat or the rest of Canada (Wallace, 2014; Rogan, 2003), for example, the average Inuit median income in Nunavut was just around \$16,549 in 2011 (Statistics Canada, 2008).

Table 2.1: Median Income by region: 2005-2010

Region	Individuals in 2005*	Households in 2010**
		\$
Inuit Nunangat	16,669	77,935
Inuvialuit	16,944	69,079
Nunatsiavut	16,576	61,561
Nunavik	18,994	82,799
Nunavut	15,939	79,478
Total population of Canada	25,955	74,777

Source: *2006 Census of Population (Statistics Canada, 2008). **National Household Survey 2011 (Wallace, 2014).

Fourth, the high cost of hunting, fishing or harvesting of country food affects accesses to healthy food in Inuit regions. While about \$15,00 to \$23,500 is required for a normal hunting trip (of three day supply) in Iqaluit, Nunavut region. For example, \$800 is required for clothing, \$100 for food, \$500 for the GPS, \$500 for rifle and \$100 for ammunitions, \$400 for sleeping bag, \$9,000 snowmobile, \$1,200 for tent, \$200 for gas and other basic necessities (Weber 2014).

According to the Inuit Tapirisat Kanatami (ITK), 42 per cent of Inuit complained that hunting is too expensive in the Arctic as the hunters required snowmobiles, rifles, ammunitions but only for food and gas costs about \$150 in a day (TGM, 2012).

Table 2.2: Costs of Hunting and Fishing Equipment for Country Food Harvesting Trip

Particular/Item	Minimum Amount	Maximum Amount
		\$
Clothing	800	1,000
Food (\$35-\$50 per day)	105 (3 day supply)	150 (3 day supply)
Camping Stove	200	300
Sleeping Bag	400	500
GPS (Global Positioning System)	500	600
Rifle	500	1,500
Ammunitions (2 boxes of 20 shells)	100	150
Snowmobile	9,000	15,000
Inuit komitak (Snowmobile-Sledge)	1,000	3,000
Boat	12,000	16,000
Tent	1,200	1,400
Gas/Fuel	200 (3 day supply)	300 (3 day supply)
Fishing Equipment	1,000	2,000
Total	18,005	41,900
All Seasons (3 day per week)	39,056	73,100

Source: Cost of Iqaluit Hunting Trip (Weber, 2014). Note: The Data was compiled, adjusted and illustrated.

In Nunavut region, the hunters and trappers required the amount of \$39,056 to \$73,100 to harvest or access country food in all seasons (Table 2.2). Whereas Campbell et al. (2014) estimated that the average Inuit hunters required about \$55,000 for all seasons hunting and fishing apparatus in the Arctic while half of Inuit adults earn less than \$20,000 a year (Statistics Canada, 2013).

Fifth, the transportation and shipping of **store-bought food** items from southern Canada to the Arctic are one of the most challenges to food access in the regions. Due to the high cost of food shipping has affected to afford and access nutritious diet in northern Canada. Sixth, the cost of food price in the Inuit regions are higher than any southern regions of Canada. In 2006, as shown in Table 2.3, the average cost of a basket of nutritious food which contains 67 standard food items and weighs about 52 kg to provide healthy diet for a family of four in a week was recorded at \$325 to \$500 in Inuit Nunangat, whereas the same basket of food was cost \$155 to \$200 in southern Canada (Government of Canada, 2015; Duhaime, Lévesque and Caron, 2015; Halton Health Statistics, 2015; Wallace, 2014; AANDC, 2010).

According to the 2013 Nunavut Food Price Survey (NFPS), the food prices increased in Nunavut were over 140 per cent higher than the rest of Canada on average basic food items in April 2013 (Campbell et al., 2014). Notably, the NFPS 2014 found that food prices across Nunavut dropped by 4 per cent from the rate of 2013. However, one kg of chicken in Nunavut was selling for \$16 compared to \$7 for the rest of Canada. The average cost of 2.5 kg of flour in Nunavut was \$13 and a two-litre jug of orange juice for \$26.29. While a four-litre bottle of milk was selling for \$10.39 that it would be \$20.91 without the subsidy of the Nutrition North Canada (NNC)¹ (Rennie, 2014).

¹ The NNC is the Government of Canada subsidy programme to access perishable and nutritious food to isolated and remote communities in northern Canada. The NCC has a fixed budget of \$60 million annually and managed by

Table 2.3: Cost of the Northern Food Basket (per week) by region: 2006, 2011-2014

Region	2006*	2011**	2012**	2013**	2014#
	\$				
Inuvialuit region	400	471	399	419	495
Nunatsiavut	360	335	325	345	366
Nunavik	380	417	386	385	390
Nunavut	450	469	433	438	461
Ontario ##	155	178	183	187	195

Source: *Revised Northern Food Basket: Highlights of Price Survey Results for 2006 (AANDC, 2010; Wallace, 2014). ** Revised Northern Food Basket 2011 to 2013 (Duhaime, Lévesque and Caron, 2015). #Revised Northern Food Basket in 2013-2014 (Government of Canada, 2015). ##2015 Household Food Security & Cost of a Nutritious Food Basket Indicator Report (Halton Health Statistics, 2015).

The NNC subsidy programme is provided directly to northern retailers, food suppliers and distributors and northern food processors through contribution agreements to help lower the price of nutritious food items. The subsidy rates of the programme have varied by the community: some communities are eligible for a partial subsidy and others are eligible for a full subsidy (OAGC, 2014). The NNC subsidises food items are perishable food including country food that is commercially processed in the Arctic (AANDC, 2013).

In the first five years, the various issues have come out on the management of the Nutrition North Canada (NNC) programme. 1) Food continues to be extremely expensive in northern Canada. According to the 2014 auditor general's report, the NNC does not subsidise items necessary to pursue country food harvesting equipment, hunting and fishing activities such as fishing nets, boat motor parts, ammunition and gas, nor does it support the purchase of other basic necessities like toilet paper, diapers, hygiene products and medical devices. 2) Some of the full subsidised food are not traditionally eaten by the northern communities that imposing food choices on the communities. 3) There are serious doubts consumers actually benefit from the programme as many northern communities are ineligible for the NCC subsidy (Kassi and Sheedy, 2015).

In essence, the shipping \$200 worth of groceries in southern Canada cost \$500 to \$600 a week or \$26,000 to \$31,200 per year for a family of four in Nunavut. For example, a head of cabbage was selling for \$20, a small bag of apples for \$15, a case of ginger ale for \$82 in Nunavut region (TGM, 2012). In this context, the average Inuit family in the Nunangat has to spend about \$2,000 per month or \$24,000 in a year on food alone while compared to their fellows Canadian are at \$800 per month or \$9,600 in a year.

Seventh, the unemployment is a significant factor of food insecurity prevalence in Inuit Nunangat. According to the 2006 Statistics Canada report, 20.4 per cent of the Inuit adults working-age were unemployed in Inuit regions, compared to 5.2 for the non-indigenous population in Canada, which was four times higher than the national average in 2006 (Table 2.4). The finding from the IPYIHS 2007-08 signified that about 87 per cent of food insecure households in Nunavut were due to "not having enough money" to buy healthy food (Campbell et al., 2014; Rosol, 2009). The Inuit population and unemployment rates in Nunavut were 19.2 per cent and 18.8 per cent in Nunavik. While the unemployment rates for the Inuit adults were much higher in Nunatsiavut at 34.8 per cent and 24.5 per cent in the Inuvialuit region. Employment rates for the Inuit men and women in Inuit Nunangat were about the same in most regions, except Nunatsiavut where Inuit women had a higher rate at 53.1 per cent than men at 39.3 per cent (Statistics Canada, 2008a).

While the 2011 National Household Survey (NHS) indicated that the average Inuit unemployment rate in two Inuit Nunangat regions was decreased by about 2.5 per cent and over 10 per cent was decreased in Nunatsiavut, whereas it has increased by 1.8 per cent in Nunavut region.

Canada's Department of the Aboriginal Affairs and Northern Development Canada (AANDA). While the advice on the food nutritional value of the programme is provided by Health Canada (AANDC, 2013).

Table 2.4: Unemployment Rates of both Sexes by region: 2006-2011

Region	2006*	2011**
	%	
Inuit Nunangat	20.4	17
Inuvialuit	24.5	21
Nunatsiavut	34.8	22
Nunavik	18.8	14.1#
Nunavut	19.2	21
Total Population of Canada	5.2	7.5

Source: *2006 Census of Population (Statistics Canada, 2008). **National Household Survey 2011 (AANDC, 2013). #Nunavik in Figures 2015 (Duhaime, Lévesque and Caron, 2015).

In 2010, about 78 per cent of the Inuit population in Nunavut were the working-age population, however, only 64 per cent of the Inuit adults population were able to work in the region. While the average total income for the non-indigenous Canadian families of two or more people was \$69,850, compared to \$62,680 for the Inuit in Nunavut, which meant the non-indigenous population earned at least \$7,000 more in a year. Whereas the average household expenditure for food in Nunavut, as already mentioned above, was more than three times the average household expenditure for the overall Canadians population (Nunavut Tunngavik Incorporated, 2013; Statistics Canada, 2011).

Challenges to Food Utilisation:-

According to the World Health Organisation (WHO), food utilisation is an appropriate use of food based on knowledge of basic nutrition, care, clean drinking water, and sanitation. In Inuit Nunangat, **Country food** is the main diets of Inuit as they are locally accessible and available with good nutrition, socially and culturally accepted. According to the Inuvialuit Regional Corporation (IRC), “Consumption of country food is important to Inuit identity, and the culmination of a series of cooperative activities – harvesting, processing, distributing and preparing – that require behaving in ways that emphasise Inuit values of cooperation, sharing and generosity” (Statistics Canada, 2013).

Flynn (2006) stated that each culture has their special food according to their way of life, sources of food available where they live and they have a different style of making food like the Inuit have their special food habit of eating country food. While some food habits may seem peculiar and unusual, but these food habits are a part of their culture and they have enjoyed with them from time immemorial. In this context, the Inuit consume country food in different taste which gives very nutritious diet for good health as well, for example, they eat meat fresh or raw, frozen, fermenting fish and meat and cooked in traditional dishes such as caribou stew flavoured with berries and berries mixed with animal fats (Giannetta, 2009). The Inuit diet has many benefits over store-bought food, for instance, raw and fresh meat diet keeps them warmer and stronger in the cold climate because it contains high level of fat or about 50 per cent of calories which provides valuable energy and even prevents protein poisoning, and while the diet contains high-quality level of protein approximately 30-35 per cent of calories and 15-20 per cent of the calories from carbohydrates in the form of glycogen (Krogh and Krogh, 1915; Ho et al., 1972).

In addition, country food provides invaluable health benefits due to high levels of antioxidants, omega-3 fatty acids, monounsaturated fatty acids, protein and other micronutrients (Egeland et al., 2009; Dyerberg and Bang, 1978). Similarly, a study on Inuit diets has found that a nutritious levels of vitamin A, D, E and B6, riboflavin, iron, zinc, copper, magnesium, manganese, phosphorus, potassium and selenium are contents in the Inuit diets or country food (ITK and ICC-Canada, 2012; Kuhnlein and Receveur, 2004).

According to the 2006 Aboriginal Peoples Survey (APS), about 65 per cent of Inuit in Inuit Nunangat lived in homes where at least half of the meat and fish consumed was country food. The highest consumption of country food was reported in Nunatsiavut at 79 per cent in the Inuit regions. While approximately 66 per cent was having in both Nunavut and the Inuvialuit region and 59 per cent in Nunavik. Many Inuit children eat country food on a regular basis. For instance, 49 per cent of Inuit children aged 6 to 14 in Canada ate country food meat at least 3 days for every week (Tait, 2008).

Food sharing is a part of the Inuit culture and customary to share meat or fish with their family and neighbours. When the hunters brought meat or fish goes first to the elders of the households, widows and persons with providing them with hunting kit or fuel and then to other households in need of meat or fish. The sharing country food was widespread across Inuit Nunangat regions. According to the APS 2006, about eight in ten or 80 per cent Inuit adults in each of the four regions reported living in households that shared country food with others during the previous year (Tait, 2008).

The country food diets obtained from the land and sea by hunting and fishing is healthier and less costly than the store-bought food. According to the Makivik Corporation, for Inuit, consumption of country food is not only important to the community and cultural benefits but also healthy, rich in essential nutrients and low in sugars and unhealthy fats (Statistics Canada, 2013). It is estimated that between 15 and 20 per cent of all animal protein consumed is derived from aquatic animals, which are highly nutritious and serve as a valuable supplement to diets lacking essential vitamins and minerals. Moreover, wild food provides a wide range of highly nutritious food, in the form of leaves, seeds, nuts, honey, fruits, mushrooms, insects and wild animals (FAO, IFAD and WFP, 2013).

However, climate change affects Inuit food system, food process, and food storage system in the Arctic. Due to the global warming or increases in summer temperatures, country food meats are seen to be spoiling faster while out on the land, and fish are observed to be dying and spoiling quicker in nets than ever before as a result of increased water temperatures. The hunted meats and fish that stored in the ice caches are also spoiling rapidly these days due to the thawing of the ices in the regions (Nickels et al., 2005). Moreover, climate change affects the health of human as well as wildlife through the direct or indirectly outcomes, such as the Arctic contaminants or food contaminants in the Arctic. The contaminant has affected on drinking water, which led to spreading water-borne diseases among the Inuit communities in Inuit Nunangat. At the same time, due to a rapid snowmelt and heavy rainfall in the summertime, there was a report of frequent diarrhoea and vomiting in Rigolet of Nunatsiavut region (Than, 2012). The impacts of climate change are not only affecting the Inuit health but also on wildlife in the regions. The Inuit hunters found that the animal like Caribous had become skinnier, and not seem as healthy as they used to. On the other hand, the Inuit have reported that water from some rivers and ponds smells and tastes bad when it did not rain for a long time in Nunatsiavut. As a result, the Inuit communities in the regions are concerned about clean and safe drinking water, which is the essential parts of life (Gardiner, 2007).

Store-bought Food:-

In Inuit Nunangat, how to prepare healthy food for the family is a key factor of food utilisation as the cost of food in the northern Canada are dramatically higher than the rest of Canada. In addition, most of the store-bought food items such as fruits and vegetables are unfamiliar to Inuit in terms of use for it, preparing or cooking and cuisine. Besides, some of the food items are very poor quality at times of arrival in the northern stores, and they keep it for months in such condition of the food that they are often uneatable (Campbell et al., 2014). The store-bought food items are divided into two groups, for example, vegetables, fruit, milk and grain products are known as healthy food whereas canned and chips food that contain higher in sodium, fat and sugars come under unhealthy food group (Council of Canadian Academies, 2014).

The majority of the Inuit feel that store-bought food is inferior in nutritive value than country food and an over-reliance on store-bought food will lead to decreases in human health. The majority of store-bought food consumed by Inuit are of poor nutritional quality, containing high levels of salt, sugar and fat (ITK and ICC-Canada, 2012; Lawn and Harvey, 2004; Kuhnlein and Receveur, 1996). Many communities who rely on weekly food shipped by air have reduced the quality and freshness of the food due to improper handling of the food during shipments.

According to the Health Canada (HC), the consistent consumption of poor nutritious food like store-bought food has not only brought chronic diseases such as anaemia in the communities but also a number of obesity cases are also being reported (ITK and ICC-Canada, 2012; Health Canada, 2001). At least one in three or about 35 per cent of Inuit in Nunavut were suffered from anaemia and obesity. More than half of Nunavut children aged 3 to 5 were overweight, which was 10 times higher than elsewhere in Canada. When the consumption of country food had dropped from 1992 to 2004, the obesity rates of Inuit children were increased to 24 per cent in 2004 from 19 per cent in 1991. The 2004 Qanuippitaa Health Survey (QHS) in Nunavik had found that the Inuit patients were lack vitamin D, iron and calcium because they consumed a diet loaded with trans-fats, sugar, salt and contaminants. In this circumstance, the medical doctor of the 2004 QHS suggested that some of these problems could be resolved if

Inuit consumed more country food that comes from caribou, walrus, birds, mussels, fish and arctic char (George, 2010).

Challenges to Food Stability:-

Food stability refers to the ability to acquire healthy food at all time of all the three dimensions of food security such as food availability, access and utilisation in a region or country. In the context of food stability issue in the Inuit Nunangat, the shortage of food availability in the regions has come first. Second, access to nutritious food is extremely difficult in the regions due to the high cost of food and harvesting of country food. For harvesting of country food issue, Inuit have experienced a number of different forces that threaten to restrict harvesting activities. Moreover, the social, economic and demographic change due to globalisation or resource development, resource management, trade barriers and animal-rights campaigns have all affected on Inuit livelihood and cultural activities (Nuttall, 1998; Wenzel, 1991).

Third, the high rates of unemployment and low income among the Inuit communities are the significant factors of food insecurity prevalence in Inuit regions. According to the Nunavut Inuit Health Survey 2007-2008 report, Inuit adults unemployment and low income, and the high cost of food were the core contributing factors to food insecurity in the Inuit Nunangat regions (Nunavut Tunngavik Incorporated, 2013; Egeland, 2011). Fourth, most of the store-bought food items are not healthy diets for the Inuit, at the same time, these food items are not available in times of poor weathers in Inuit Nunangat. As a result, all the four dimensions of food security are extremely affected in Inuit Nunangat.

Fifth, climate change poses additional challenges to food security in the region in many ways, for example, the melting of ice and permafrost in the Arctic create more difficult conditions for food access, transport and infrastructure. Moreover, climate change is influencing animals migration patterns, human access to wildlife, food preparation methods and food storage (Nuttall, 2007). Climate change is not only affects hunting activities, it has also affected on social relationships and mental health of Inuit communities (ACIA, 2005). As a result, the Food and Agricultural Organisation of the United Nations (FAO) stated that “climate change affects all four dimensions of food security: food availability, food accessibility, food utilisation and food stability. It has an impacted on human health, livelihood assets, food production and distribution channels or food transportation and supply, and also affecting purchasing power and market flows” (FAO, 2008).

Sixth, the failure in policy making, lack of funding and implementation of the food security programme are the major factors of food insecurity in the regions. Canada has been a long time champion of the international human rights issues in terms of the protection of civil, political, economic and social rights including the right to food. However, Canada has failed to give legal protection of economic and social rights particularly the right to food domestically, in fact, Canada has no national food policy so far. According to the United Nations Special Rapporteur on the Right to Food, Canada has considerably exceeded its minimum food aid commitments under the Food Aid Convention in the past few years (OHCHR, 2012). Notably, Canada is the first developed country that faced a probe by the United Nations human rights expert, Olivier de Schutter, the UN Special Rapporteur on food security and the right to food in May 2012. During his visit, Schutter said, “this is a country that is rich but that fails to adapt the levels of social assistance benefits and its minimum wage to the rising costs of basic necessities, particularly food and housing in the northern Canada” (Gunn, 2012). Hence, over 4 million Canadians lived in poverty, hunger and food insecurity.

Seventh, in order to manage the high cost of food in northern Canada, the federal government created the Food Mail Programme (FMP) which was operated by Canada Post in the late 1960s which covers part of the transportation costs incurred when shipping nutritious, perishable food and other essential items to isolated northern communities which are not accessible year-round by road, rail and ship services. However, the FMP could not able to address the food price high in the region that resulted in a decision to replace the programme with a more focused food subsidy programme called Nutrition North Canada (NNC) in April 2011. Similarly, the NNC programme has also failed to address the objective of the programme which is to make nutritious food more accessible and more affordable to residents of isolated and remote communities in northern Canada. The 2014 Fall Report of the Auditor General on the NNC revealed that the subsidy programme has failed due to the lack of accountability, transparency, community consultation and assess the eligibility of communities. In a nutshell, Canada has failed to address food security in the country.

Conclusion:-

Canada's has enough food and money to afford the adequate quality of food to all Canadian population. While Canada ranks high in Human Development Index (HDI) such as life expectancy, standards of living and quality of life, and being a Group of Eight (G-8) nations who spends millions of dollars in food aid to developing countries around the world. However, food insecurity remains a critical problem in Canada. Food security issue is a serious concern of the Inuit communities in Canadian Arctic.

The prevalence of food insecurity in the Inuit Nunangat is a complex issue that it is required a collaboration between the federal and territorial governments as well as the communities organisations to achieve food security in the regions. Notably, the 2009 World Summit on Food Security in Rome reaffirmed that "food security is a national responsibility and that any plans for addressing food security challenges must be nationally articulated, designed, owned and led, and built on consultation with all key stakeholders" (FAO, 2009). Based on this understanding, Canadian federal government is responsible for policy formulation and implementation of national food security and food nutritional programmes in Canada. As a result, Canada needs a national food policy and strategy to achieve food security and free from hunger.

In essence, Inuit are continued to live with their traditional livelihood by hunting, fishing and trapping, and also shipping store-bought food. In this circumstance, there is need to improve the capacity of country food harvesting programmes through enhancement of subsidy for hunters to ensure they have the essential equipment required to hunt, fish and harvest for country food. Accordingly, the Harvester Support Programmes (HSP) should enhance with the existing programmes in each Inuit region, such as the Nunavut Harvester Support Programme (NHSP) in Nunavut, Inuit Hunting, Fishing and Trapping Support Programme (IHFTSP)/Nunavik's Hunter Support Programme (NHS) in Nunavik, Take a Kid Trapping and Harvesting (TKTH) in Inuvialuit region and Aullak, Sangilivallianginnatuk/Going Off, Growing Strong (GOGS) in Nunatsiavut. At the same time, the Inuit youth should train in traditional harvesting programmes such as hunting, fishing and trapping skills through apprenticeships programmes like the TKTH, GOGS and other Harvester Support Programmes as mentioned above. Similarly, the Nutrition North Canada programme should review and update its performance measurement strategy. As the 2014 Fall Report of the Auditor General on NNC, there is a need to determine whether the retailers are passing the full subsidy on to consumers and the programme to meet its objective. It is essential that subsidised food is healthy and that communities in need benefit from the subsidy programme. Ultimately, food security is attainable in Canada but the biggest challenge is distribution, which is not providing the affordability of food to the individuals and communities in need.

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