**Food Insecurity - An Analysis of Amartya Sen’s Entitlement Approach**

According to the World Bank, one in six people live in extreme income poverty on less than one dollar a day, and almost half of the world’s population live on an income of less than two dollars a day.[[1]](#footnote-1) Almost 840 million people worldwide do not receive proper nutrition on a daily basis.[[2]](#footnote-2)

 The Eight Annual Report on the State of World Hunger determined that the causes of hunger in the world are: “lack of economic opportunity; political disempowerment; income inequality; inadequate public social spending; discrimination based on race, ethnicity, gender, and age; environmental degradation; and violence.”[[3]](#footnote-3)

 Food security is a very complex issue. Politics of sustainable development must be linked directly to health issues since, populations suffer constant malnutrition due to food insecurity, but also to sustainable economic development, trade, environment, and politics. There is a great deal of debate between scholars and politicians on food security topics such as:[[4]](#footnote-4)

* Is there enough food in the world to feed everyone adequately?
* Can current levels of production meet actual and future needs?
* National food security is paramount, but is global trade a solution to this problem?
* Is globalization a positive or a negative force to address food insecurity and poverty in rural communities.

 Indian economist and philosopher Amartya Sen’s entitlement approach has been used by international organizations when creating policies and to answer and understand questions addressed at alleviating world hunger. This paper will aim at defining food insecurity, understanding Sen’s entitlement approach and his critiques, as well as looking at sustainable ways to reduce hunger in a growing economy. We will use Sen’s entitlement approach as well as other philosopher’s approaches in order to look at recent policies regarding water sustainability, agricultural development, and development of the meat industry.

**Definition of Food Insecurity**

 Food security was defined during the 1996 World Food Summit as “a situation that exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life.”

 There are three main dimensions of food security that came out of this definition; availability, access, and utilization. A fourth dimension, stability, is often argued upon in the political science world, but is generally used when creating policy dealing with food security. Without availability there is no access, and without access there is no utilization therefore these concepts are hierarchical. Availability, access, and stability have guided efforts to improve food security as a long term project, in contrast with utilization which looks at nutrition as composition of diet and absorption of food energy and nutrients by the body. Let us further define these fourth dimensions of food insecurity.

* **Availability**

 In order for all people to have sufficient food there must be adequate food availability. Food availability is determined by the level of food production, net trade, and stock levels. Roughly two-thirds of African countries have inadequate protein and calorie supplies to be at international standard nutrition levels.[[5]](#footnote-5)

* **Access**

 Access reflects the demand side of food security, as manifest in uneven inter and intra household food distribution and in the socio-cultural limits on what foods are consistent with prevailing tastes and values within a community. Through the concept of access we can see that food security has a close relationship with economics, poverty, politics, and social norms. Access also emphasizes problems responding to price spikes and unemployment.[[6]](#footnote-6)

* **Utilization**

Utilization deals with concerns regarding whether individuals and households make good use of the food they have access to. Whether they consume nutritionally essential foods or choose a nutritionally inferior diet. Utilization concerns itself with micronutrient deficiency associated with inadequate intake of essential minerals and vitamins.[[7]](#footnote-7)

* **Stability**

 Stability refers to a person being food secure over a continual time. A population, household, or individual must have access to adequate food at all times. They should not risk losing access to food as a consequence of sudden shocks due to economic, climatic crisis, or seasonal food insecurity.[[8]](#footnote-8) Stability both looks at the availability and access dimensions of food security.

 For the purpose of this paper we will use the United Nations definition of poverty as stated in International Covenant on Economic, Social, and Cultural Rights as “I*n the light of the International Bill of Rights, poverty may be defined as a human condition characterized by sustained or chronic deprivation of the resources, capabilities, choices, security and power necessary for the enjoyment of an adequate standard of living and other civil, cultural, economic, political and social rights.*”[[9]](#footnote-9)

**Causes of Food Insecurity**

According to the World Food Program (WFP), a branch of the United Nations, the world produces enough food to feed the entire global population of 7.4 billion people.[[10]](#footnote-10) However, one in eight people on the planet go to bed hungry each night and the world is growing more hungry each day.[[11]](#footnote-11) Food shortages occur when quantity demanded is greater than quantity supplied at the market price. In contrast, scarcity is a naturally occurring limitation on the resource that cannot be replenished by the market.

 The WTP has identified six main reasons for the presence of hunger in the world;

* **Poverty Trap[[12]](#footnote-12)** -The poverty trap refers to people who live in poverty who cannot afford nutritious food which makes them weaker and less able to earn money to escape poverty and hunger. When children are chronically malnourished it often condemns them to a life of poverty, and as adults, the hunger cycle traps them in poverty.
* **Lack of Investment in Agriculture[[13]](#footnote-13)** - Lack of agricultural infrastructure such as irrigation, decent roads, and warehouses result in high transport costs and unreliable storage facilities and water supply. The lack of adequate infrastructure leads to a limited agricultural yield and a limited access to food.
* **Climate and Weather[[14]](#footnote-14)** - Natural disasters such as long periods of drought, floods, and tropical storms all lead to food shortages in the world. However, with the increase in global warming, these phenomenons are only getting exacerbated. As well as deforestations of large bodies of forests by human hands are accelerating the erosion and reducing the fertility of farm lands that could be used to produce food.
* **War and Displacement [[15]](#footnote-15)**- Often in wars, food becomes a weapon, as soldiers can contaminate water wells to force farmers to abandon land and soldiers often stave their opponents in order to force a submission by destroying their food and livestock. Fighting often leads to hundreds of people being displaced from their homes which leads to hunger emergencies.
* **Unstable Food Markets[[16]](#footnote-16)** - With the prices of food substantially increasing in the last years, poor consumers have to shift to cheaper, less nutritious foods which lead to malnutrition and micronutrient deficiencies.
* **Food Waste[[17]](#footnote-17)** - Roughly 1.3 billion tons of food are wasted each year, this is one third of all the food that is produced in a year. This might seem unimportant until we consider what is involved in producing that wasted food. Producing this wasted food consumes approximately three times the volume of Lake Geneva in Switzerland and adds 3.3 billion tonnes of CO2 carbon footprint in the atmosphere each year. As scientist have shown an increase in carbon footprint correlates to in an increases in global warming and therefore an increase in the number of natural disasters worldwide.[[18]](#footnote-18)

**The Entitlement Approach to food security**

 Sen Amatya is an Indian economist and philosopher who’s contributions in welfare economics, social choice theory, social justice and economic theory of famines has won him a Nobel Memorial prize for his academic work. In the world of food injustice and food insecurity he is well known for his theory on famines and entitlement approach; an approach that is often used when creating policy to alleviate world hunger. Let us explore the entitlement approach closer.

 The entitlement approach is based on three conceptual categories:[[19]](#footnote-19) the endowment set,the entitlement set, and the entitlement mapping. The endowment set is defined as the combination of all resources that are legally owned by a person conforming to established practices and norms.[[20]](#footnote-20) Resources which include both tangible assets such as land and animals and intangible assets such as labor power, knowledge, and skills. The entitlement set is defined as the set of all possible combinations of goods and services that an individual can legally obtain by using the resources of his endowment set.[[21]](#footnote-21) The use of these resources to get final goods and services may be in the form of production, exchange, or transfer of goods. The entitlement mapping (E-mapping), refers to the relationship between the endowment set and the entitlement set.[[22]](#footnote-22) The rate at which resources in the endowment set can be transformed into goods and services allocated in the entitlement set.

 In his 1981 *book, “Poverty and Famines”* Sen argues that starvation is not caused by a lack of physical availability of food, but rather by a function of entitlement for people to access food. Sen states that ownership of food is one of the most primitive property rights and in each society there are rules governing the rights to entitlement sets. A person starves when his entitlement set does not contain enough food to enable them to avoid starvation in the absence of non-entitlement transfers such food charities or government hand-outs. This is often the reason why starvation implies poverty and these two features are often found together in many parts of the world.

 Sen uses the Irish potato famine as an example of starvation happening in an environment where there is food availability. Ireland’s food production was enough but because of the political system, Irish people starved to death in front of food shops filled with food. This example helps Sen argue his point that famines are not cause by a lack of food, but rather a lack of entitlement. Famine involves a widespread of acute starvation but does not necessarily affect all groups in the famine affected nation, as different groups have different commanding powers over food and in times of shortage, lines between power spheres are clear. Some groups can suffer acute deprivation even when there is no over-all shortage of food.

 Sen presents a strong argument to differentiate between starvation and famine, stating that starvation is when people go without adequate food while famine is a manifestation of starvation leading to widespread death. Starvation can be described in 3 ways: the low level of the typical level of food consumption, the declining trend of food consumption, and the sudden collapse of the level of food consumption. Analysis of famines can also be done by looking at the relationships between the concepts in his “E-mapping”: production, exchange, and transfer. According to Sen, the underlying cause of the famine will determine which of the four different types: endowment loss, failure of production, exchange failure, and transfer failure.[[23]](#footnote-23)

 In his 1989 book “*Hunger and Public Action”* Sen argues that in a private ownership economy, command over food can be established by either growing the food oneself and having property rights over what is grown; or selling other commodities and buying food with the proceeds.[[24]](#footnote-24) Sen states that the only substantial asset a person has is their own ability to work. Sen calls this asset “labor power”. If an individual is not able to secure employment then his means of acquiring food fails and if the laws of the land do not provide any social security arrangements or unemployment insurance, then, the individual fails to secure the means of substance. If an individual’s ability to acquire food is in this way linked to his ability or possibility to secure labor, there is a clear argument about the relationship between famine and government policies. Therefore legal systems must be reformed in order for social security rights to be guaranteed with minimal protection and survival.

 Consequences of food deprivation include undernourishment, debilitation, fatigue, morbidity, and possible death. The problem of chronic undernutrition is closely related to deprivation from education, health care, basic facilities, and social environment. Sen argues that in order to combat chronic hunger, there is no need for a speedy intervention but there needs to be strong actions for institution building, legal reforms, and asset redistribution.

**Critiques to Sen’s Entitlement Approach**

 One of the strongest critiques of Sen’s entitlement approach in the academic world comes from Peter Bowbrick. Bowbrick argues that Sen’s approach to famines being caused by food distribution rather than by food shortage is not completely correct, and that food availability plays a big part in starvation and famines.[[25]](#footnote-25) Bowbrick says that there are 4 different kinds of food shortage. No shortage: where there’s enough food to go around and famine can only occur if there is a serious maldistribution. First degree shortage: where there’s sufficient food to provide a barely adequate diet for everyone. Second degree shortage: where there’s insufficient food for long term survival, and most would suffer from deficiency until the next harvest. Third degree shortage: where there’s insufficient food for long term. In this stage, if rationing were to happen, food would run out before the next harvest. In this situation mass starvation would be inevitable without import of food.

 Using Sen’s method could result in ineffective government action and could even worsen the situation because of the degree of food shortage.[[26]](#footnote-26) If the famine is diagnosed as a food availability decline, then actions can be taken to rapidly bring the famine to an end with food imports. Sen’s approach calls for political system change which like is not immediate. Bowbrick states that Sen does not acknowledge the food shortage problem and that Sen is incorrect in not addressing the need for food import in times of need because it is easier to get food into the public distribution system by importing food than by forcing purchases and by the seizure of stocks.[[27]](#footnote-27) Bowbrick argues that scale rationing, like Sen suggests in the entitlement approach, would exacerbate the situation yielding to a worse shortage.

 Another critique of Sen’s entitlement approach theory is Stephen Devereux. Although his criticism is more subtle, Devereux favors a structural approach to the issue of world famine and hunger. He argues that the problem is a multi-dimensional problem which involves political regimes, political conflict, international rules, and war.[[28]](#footnote-28) Unlike Sen and Bowbrick, Devereaux emphasizes that conflict and civil war are significant factors in the cause of famine. Deveraux takes a middle man approach; an approach with which I strongly agree. Devereux states that besides political contexts, food availability (decline due to natural factors such as drought and floods) and the decline in exchange entitlement lead to famines.[[29]](#footnote-29)

 Devereux underlines four limitations in Sen’s approach. The first limitation is Sen’s idea of endowment, and that people prefer to starve rather than sell their assets. Since food and water are essential human needs. Second, based on De Wall’s health crisis model, the mortality is not so much caused by the lack of entitlement than by patterns of migration and exposure to new diseases. Third, Devereux focuses on the fuzziness of entitlement since in many cases, especially in developing countries, the individual is not the unit of analyses as the poverty right is shared by the community rather than individuals. Lastly, the limitation of Sen’s entitlement approach is due to the problem of extra-entitlement transfers. The problem of famines are not only a problem with the individuals but also a problem with institutions, social context and political crisis.

**The Human Right to Food; Moral vs. Legal**

Let us look at how the movement of food as a human right has slowly been implemented by states and governments. The realization that the global community had failed to end hunger using the traditional way the world viewed hunger as technical problem about production and not about empowering people to hold governments accountable came in the 1890’s.[[30]](#footnote-30) Through Amartya Sen’s work, in 1996 we saw a pivotal moment at the United Nations World Summit in Rome, where for the first time the idea of the right to food was identified as central to achieving successes against hunger and malnutrition.[[31]](#footnote-31) Out of that meeting, many governments requested that human rights bodies develop the normative concept of the right to food. Until then the concept was mostly just a slogan, seen as abstract, vague, and un-useful. Today, the idea of food as a human right has become operational, and the global community has increasingly seen fighting hunger as essential. One of the core ideas to the right to food is that “*unless you increase political pressure on governments, unless you ensure that those in need participate in identifying the solutions to the obstacles they face and play an active role in monitoring progress, nothing will change.*”[[32]](#footnote-32) This notion comes from the recognition that you cannot work for people without people and real freedom can only be achieved when individuals are shielded against exclusions caused by the market. Human rights have been created to prevent majorities from acting abusively and failing to respect the needs of the minorities and the underprivileged.

 In recent years, an increasingly number of developing countries have adopted policies based on the United Nations right to food. In January 2003, when President Lula took office in Brazil he launched the Zero Hunger effort, and effort which has been tremendously effective in reducing the number of hungry and malnourished in Brazil. The origins of this program come from the city of Belo Horizonte, Brazil, where, starting in the 1980s, policies were designed to increase access to food. The programs main targets were to develop farmers’ markets, create programs to prepare food for the very poor and other initiatives, create community kitchens, and to rebuild new localized food systems. The Zero Huger effort was one of the first programs of its kind, and soon became a model for other countries.

 Does the government have the responsibility to provide its citizens with the right to food? The United Nations’s Food and Agriculture Organization legal officer said that "the state's obligation to fullfil the right to food comprises two elements: the obligation to facilitate and the obligation to provide. The obligation to facilitate means that it should create and maintain an 'enabling environment' within which people are able to meet their food needs.” We must not confuse the right to food as the same as the right to be fed, as the state’s primary obligation is to protect and promote human rights as defined by the international customary law and international human rights treaties. The government has the obligation to protect the right to food,

**Urbanization vs Rural Poverty**

 In order to analyze Sen’s entitlement approach a distinction must be made between urban and rural poverty. Urbanization is a direct effect of socio-economic development, but in many countries urbanization has grown so fast that it has outpaced the growth of services and employment. In developing and non-developing countries, urban poverty has been increasing along with the increase in urbanization due to rapid population growth, economic recession, and structural adjustment that often leads to a reduction in government spending and a reduction in employment opportunities.[[33]](#footnote-33) Urbanization has also affected food production and consumption as people have a greater dependence on the market system and on commercially processed food, making wage employment and monetary income the main prerequisites for achieving food security.

 For several years, people living in urban areas have benefited from “cheap food” policies which have included widespread subsidies, trade restrictions, and overvalued exchange rates.[[34]](#footnote-34) However, in the 1980’s many developing countries worked on combating food insecurity in the urban poor by adopting structural adjustment policies that would revitalize the economic growth and employment.[[35]](#footnote-35) The short term outcome was not as it was intended, as case studies showed that food prices rose more than general living costs and more than income. The new policies only aggravated the food security problem for the urban poor, as in the case of Kampala Uganda where minimum wage was sufficient to provide food for a household of four in 1972 but in 1988 the entire monthly minimum wage of that same family only purchased food for four or five days.[[36]](#footnote-36)

 Poor families living in cities often spend as much as 60-80% of their income on food.[[37]](#footnote-37) With most of urban dwellers working in sectors where wages are low and job tenure is low, ability to earn a cash income is a major part in urban food insecurity. Another major part is market and food prices. Food prices depend on a variety of factors, the primary being the efficiency of the food marketing and distribution system. As the demands for food rise in urban areas, food supply demands must be meet. Often this rising demand food is met by food in distant production centers. Every step taken from the moment of harvesting up to the moment in which the consumer has access to the goods, adds to the price for the consumer. The price increases more if the food source of production is further away. On average 10%-30% of food is lost between the production and retail stages because of poor transport and spoilage.[[38]](#footnote-38) Food supply and distribution systems compensate for the loss by charging 10%-30% more for food in rural area.[[39]](#footnote-39) As cities expand, urban planners construct supermarkets in the more central locations. This has created serious consequences in terms of infrastructure, transport and store requirements. It has also lead to many poor urban neighborhoods to become food-retailing deserts.[[40]](#footnote-40)

 On the other side, let us now look at the urban sector. In the last few decades intervention efforts have focused around urban agriculture as a strategy for the urban poor to earn extra income. By allowing the urban dwellers to grow their own food on plots, you reduce their release on cash income and increase their access to food. We cannot discard the importance of developed commercial urban farming as it is a major component of the urban food system because it supplies urban residents with a diversity in food.

**Water and Food Security**

 When it comes to human rights many of us have strong views on what ought to be recognized as a right based on our sense of the essential requirements of justice and human dignity. When the United Nation’s delegates meet to discuss policies concerning food security they use Sen’s Entitlement approach focusing on national food distribution. In recent years the United Nations has linked water to food security, as water is not only a human need that many struggle to obtain, but is also an essential component of food production. Given the poor trends in nutrition, on the one hand, and water and environmental implications of expanding food systems, on the other, it is important to align policies in these two spheres.

 Under international law, human rights advocates call for action at many levels among states business and other actors. The world has a commitment to deal with global food insecurity and water waist in three ways:[[41]](#footnote-41)

* 1. Producing more nutritious food with less water to ensure a more sustainable food productions.
	2. Focusing on human capacities and institutional framework.
	3. Improving the value chain, from production to consumption.

 Let us look at water requirements when producing beefs, fruits, and vegetables. It takes about 15,415 liters of water to produce 1 kilogram of beef, 822 liters of water to produce 1 kilogram of apples, 214 liters of water to produce 1kilogram of tomatoes, and 287 liters of water to produce 1 kilogram of potatoes. [[42]](#footnote-42) Clearly we can see that with a lot less water the same amount of vegetables and fruit can be produced, as compared to beef. Water is a scares resources and many countries around the world still do not have access to it. Therefore we should ask ourselves if it is more beneficial for societies where water is a scares resources to use the water to produce one 1kilogram of fruits or vegetables, or should they use it to produce 1kilogram of meat?

 We must also take a look at other aspects of meat and poultry production that do not go into vegetable and fruit production. Worldwide, 80 percent of all soybeans are used to feed stock and in the United States alone, 70 percent of all the corn produced goes to feeding livestock.[[43]](#footnote-43) The primary reason for using corn and soybeans to feed live stock is because corn and soybeans are cheap, and special because corn fattens the livestock quickly. Today beef calves can grow in 14 months from 36 kilograms to 544 kilograms when in the past it would take about 4 to 5 years for beefs to get to that weight. It is no surprise that meat producers would opt to use corn then letting the animals graze on grass. In addition to a diet full of corn and soybeans, antibiotics and hormones are also given to livestock to aid in the fattening process with 70 percent of all antimicrobial drugs in the United States being given to chickens, cows, and pigs.[[44]](#footnote-44)
 As well as currently live stock takes up 70% of all the arable land in the world. World Health Organization is predicting that by 2050, meat consumption will more then double due to the growing middle class in china, india, brazil, and africa. This dietary change could greatly impact world food insecurity in the foreseeable future.

 In February of this year, France passed a law that forbids french supermarkets from throwing away unsold food, forcing supermarkets to instead donate unsold food to charities and food banks. Since the law has passed, efforts by the french government has pushed for all European nations to adopt similar Food Waste Supermarket Laws. This movement has not only gained momentum in Europe but also in the United States. This law could be an essential key in combating food insecurity in countries were food waste is a major problem.

 Every 10 seconds we lose a child to hunger, which is more then the deaths due to HIV aids and tuberculosis combined. By 2050 the global food production will have to increase by 60% to be able to feed the growing population. With less resources available each day, we must keep both adopting policies based on Sen’s Entitlement approach and at the same time focus future policies on the availability dimension. Especially targeting food waste and efficient water use.

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