# Politics of Food

*Abundance, not scarcity, best describes the world’s food supply. Enough wheat, rice and other grains are produced to provide every human being with 3,500 calories a day.”*

*Food First – Institute for Food and Development Policy, 12 Myths about World Hunger*

## World Hunger

There are an estimated 925 million hungry people in the world, with an additional 910 million malnourished individuals (FA0 2010). The biggest victims of malnutrition and hunger are children. Children suffer from either too little food to eat or too little of the right kinds of nutrients in their food. This can be either lack of calories because there simply isn’t enough food available or lack of protein or other nutrients because the food that is available doesn’t provide the protein, vitamins and nutrients that their growing bodies need. Without enough food, undernourished children are sick up to 160 days a year, with about 5 million children dying each year as a result of hunger. Additionally, undernourished children are more likely to die from diseases like malaria and the measles, pneumonia, and diarrhea. Malnutrition is also associated with stunted growth, which affects approximately 32% of children in developing nations. Many of these children suffer malnutrition before they are even born leading to 1 in 6 infants in a developing nation to be born with low birth weight. This is a risk factor for infant mortality as well as other developmental disabilities. Of all the hungry children in the world, 70% live in Asia, 26% in Africa, and 4% in Latin America and the Caribbean. <http://www.worldhunger.org/articles/Learn/world%20hunger%20facts%202002.htm>



We know people in the world go hungry, we’ve seen the commercials, but the question is why? The truth is lack of a global food supply is not the root cause. There is enough food to feed the world’s more than 7 billion people. In fact, there is enough wheat, rice and other grains to supply every individual with approximately 3,500 calories and 5 pounds of grain, beans, nuts, fruits, vegetables, milk, meat and eggs. That is enough food to make the world nice and fat. And we do have a many people getting fat; more than 60% of Americans are overweight, and many other countries are seeing explosions of obesity as well. Yet, as Americans and others in food rich nations are getting fat, we still see millions throughout the world going hungry.

In light of these statistics, large agribusiness companies like Monsanto and GM argue that more production of the global food supply is the cure. It is based on simple reasoning, if people don’t have enough food to eat; we need to make more food. This reasoning leads to economic policies in which large scale food producers (corporations) take greater control of available fertile land to grow food, cleared rainforest land is utilized to grow soy and other food products, farming practices increase the use of technology and heavy machinery, greater use of pesticides and fertilizers, development and greater use of genetic engineering, and greater financial subsidies are paid to large scale agribusinesses. Few of these farm policies are contracted and most are defended in the name of creating food security for the millions of hungry people in the world. But, all these policies are based on one simple, but wrong assumption: That food insecurity is based on lack of food rather than lack of *access* to food. The reality is, that these policies designed to increase food production, only increase the profits of large scale agribusinesses. In the process, the world’s poor living on less than $1 a day have less ability to pay for that food or grow their own food. Wealth and land around the world becomes increasingly concentrated in the hands of the few who manage to usurp control of the entire agricultural industry. What once was an industry that allowed everybody throughout the world to engage in food production, ensuring their own food supply, is now an elite profitable business. This process begins with a series of economic policies handed down to poor nations in exchange for loans.

## Economic Policies for Agriculture

 Agricultural policies, which ultimately determine what foods are available, who grows them and how they are priced, come from a series of economic policies known as structural adjustment policies. When poor nations struggle to pay for basic infrastructure, they must regularly turn to the World Bank to borrow the money. The World Bank operates in parallel to the United Nations and provides low interest rate loans to poor nations through an Internal Monetary Fund (IMF). The goals of the World Bank are to help poor nations get back on their feet economically so they can not only pay back their loans, but also establish some economic independence and escape poverty. In essence, the World Bank maintains the altruistic goal of helping poor nations move into the economic realm of independence and development.

 Both the IMF and the World Bank were formed following World War II to help nations ravaged by war rebuild. Delegates from 44 nations around the world met in a little place in New Hampshire called Bretton Woods. Delegates from the United States and the United Kingdom were the most formidable at the meeting. Their goal was a simple one, figure out how to get the world’s economy back on track after the war. John Keynes was even present at the meeting, an influential economist who has promoted an economic theory that would help diminish the natural but extreme economic cycles of capitalism. The result of the meeting was five institutions designed to provide financial assistance to nations when needed; two of those were the IMF and the World Bank. Working as partners, the IMF provides short term emergency funds for immediate economic crisis, whereas the World Bank provides longer term loans for major infrastructure projects like dams, roads, schools, and irrigation. These organizations along with many other international loan organizations have cropped up and now provide most of the revenues that poor nations use to build infrastructure.

Since their establishment in the 1940’s, their role in economic policies throughout the world has grown into an international banking system that monitors foreign investment, international trade and global monetary policy. Nations participating in the World Bank each have proportional vote commensurate to their contribution, of which 186 nations currently participate. Of course, this inevitably means that wealthier nations have more votes and more power to establish those economic policies. The United States for instance has the highest voting power at 16%. This is especially noteworthy considering it only takes 15% of all votes to have veto power. What this means is that the United States has enough power to get policies implemented as well as veto, unilaterally, any policies they feel are not in their best interest. Additionally, the director of the World Bank, the one who establishes the agenda, is always selected by the president of the United States. The current president is Robert B. Zoellick, a former Bank Executive from Goldman Sachs. He announced his retirement in February of 2012 and will soon be replaced by a candidate selected by President Obama. While the World Bank is always led by an American, the IMF is always led by a European.

The World Bank and the IMF, to maintain their prime bond rating are generally less willing to write off loans or extend the terms as private banks. Instead, they find ways to ensure that borrowing nations can pay off their loans. So, in the 1980’s and 1990’s they adopted a series of economic policies that would ***structurally adjust*** the economies of poor nations. The President of the World Bank between the years of 1969 and 1981 coined the term structural adjustment. Despite the controversy of these economic policies, they had the support of other leading Western nations, giving rise to the term the “Washington Consensus.” Economic theory at the time really believed that free market, neoliberal ideas were the answer. In the last decade, this consensus has faltered and structural adjustment policies are being replaced with gentler forms of free market policies. The realization that these policies not only did not produce greater wealth among poor nations, but instead led to the economic decline of most nations who adopted these policies has forced policy changes. Only a few nations like China, Taiwan, South Korea and Singapore benefited of more than 100 nations, leading to reference “Asian tigers.”

Structural adjust policies were implemented radically, with little flexibility, giving rise to the term “shock therapy” by officials at the World Bank and IMF. While wealthy nations did benefit from these same policies, the United States or Western Europe did not have to adopt them with the same level of severity as was imposed under structural adjustment. We never had “shock therapy.” While these policies have become in less favor in recent years, the basic ideologies stand with simply greater flexibility in their implementation. In other words, the World Bank and the IMF to date have not given up on the policies themselves, just in the harshness with which they were implemented. Now you may wonder why nations followed these policies when they created so many problems, and the answer is simply, they had no choice. If they wanted to borrow money from the IMF and World Bank they had to implement the policies. If they refused to implement these policies under their directive, they would not be allowed to borrow money. In other words, wealthy nations, through the World Bank and the IMF control the purse strings and economies of poor nations. Is greater control of the rich over the poor a good thing?

 While the primary goal of the World Bank and the IMF is to reduce poverty in developing nations, criticisms abound about the specific policies and whether they are really there to benefit poor nations or wealthy corporations. In fact, as you will see poor nations have been getting poorer while wealthy nations have seen their wealth increase in part because of expanded economic growth for corporations. Because the United States is the most powerful nation leading the World Bank their economic policies tend to stem from American ideals of economic success. This means, the prescriptions that have worked to put Europe and the United States on top of the economic success ladder are being handed down to poor nations. They worked for the United States, so they must work for the poor nations of the world. Free market policies which make up neoliberal economics are viewed as the prescription. This generally means less government and more free market: Less for the public sector and more for the corporate sector. It also means that nations must focus on producing money to pay back those loans. Corporations move in and buy up all the best land to sell crops on the export market which will raise revenues for these struggling nations. Local people who cannot produce the type of wealth they produce, instead growing food to consume and trade with their neighbors are pushed off the land, forced to move into cities or onto marginal land which leads to greater environmental decline.

Corporations have tremendous power in the US political system and contribute indirectly to the World Bank through political means, giving them a tremendous amount of weight to set which policies are established. Now we must remember that corporations when influencing the policy decisions of the World Bank actually do want to increase the wealth of poor people throughout the world. After all, if more people have greater spending potential, they will buy their products. More wealth among the poor means more consumers. More consumers mean greater profits for corporations. Structural adjustment policies therefore provide several opportunities for corporations: more consumers to buy their stuff, cheap employees to make their products, and more land to access necessary raw materials. So, these policies accept a very basic premise, what is good for the corporation is good for all of us. Free market policies throughout the world will create a win-win for all. First world nations, through their corporations, will have an expanded market while the third world will reap the benefits from corporate tax revenues and development. Unfortunately, this is not how the policies have played out.  First world countries are seeing some devastating impacts to their local populations, particularly surrounding the issue of food and access to land to help produce that food,  a primary issue for well-being across the globe. To see what went wrong, let’s take a look at the specific policies. All of the policies follow a “demand management” prescription. This means, they focus on increasing the attractiveness of the raw materials sold by poor nations, increasing their demand, increasing their sales, and therefore, increasing their profits.

*Devalue currency:* In basic economic theory, when two equivalent items are competing, consumers will buy the cheapest one. Carry this same logic to the global scale, if two nations produce the same commodity, then the nation selling their commodities for less money will find more buyers. One way a nation can make their commodities cheaper than their competitors is by making their currency less valuable and competitively cheaper. For instance, traveling to Mexico allows you to buy a lot more than traveling to Europe because of the value of their respective currencies. If a coffee is worth $4 Euros, you could spend upwards of $10 American dollars to buy that coffee. However, in Mexico, you would spend far less American dollars to buy a similar cup of coffee. A major reason for this stems from the fact that the Euro is pricier than the Peso. Because it is worth more, we have to use more dollars to buy any products sold in the Euro. Structural adjustment policies require nations to devalue their own currencies, relative to their competing nations so their commodities are cheaper and more desirable on the market. They sell more, they profit more.

But in practice, this doesn’t work as neatly as economics would have us predict. This is primarily because most poor nations are selling raw commodities like lumber, coffee, beef, cotton, soy, flowers, tobacco, and sugar. In the market place, raw commodities generally sell for less than finished products, a lot less. All of the monetary value is added when those raw commodities are turned into finished goods. This is also where all the profit is made and prices jump substantially. What this means for poor nations is that they sell raw commodities so cheaply, that sometimes the sale price is less than their cost to extract or produce that raw commodity. The cost to grow sugar cane is more than the price they can sell it for, especially after devaluing their currency. Corporations, however, are able to buy those raw commodities at rock bottom prices, use them to produce finished products, and sell them at a much higher price. Poor nations, who sold those raw commodities in the first place, find themselves in a position to buy back the finished products, only at a much higher price. What this means is that poor nations are selling low and buying high, while wealthy nations are buying low and selling high. Wealth is redistributed to already very wealthy nations. Poor nations, find themselves in a trade imbalance. With their devalued currencies, they cannot sell their products for the same amount of money they will need to buy all the finished products they will need. Their exports are far less than their imports putting them further and further behind economically. Additionally, they must pay back their loans with their devalued currencies. It will take more of their “dollars” to pay back a loan. These nations do not find themselves getting ahead, but falling further and further behind.

*Specialization:*  Based on an economic theory of Comparative Advantage, the nation who can produce a commodity for the greatest profit should be the only nation to sell that commodity. When every nation specializes in the 2 or 3 commodities that have the potential for making the greatest profit, then the market is operating at it’s greatest level of efficiency. Rather than encouraging nations to diversify, ensuring a broad spectrum of resources for their own use, they are encouraged to specialize in only a few products for greater potential profit. What this does, however, is make them more vulnerable to swings and shifts in the market place. If a nation is selling primarily one commodity and that commodity suddenly loses appeal and the price drops, then that nation finds themselves precariously unprepared to compensate with a wide choice of other commodities. The simple analogy would be advice about investing in the stock market: Diversify, diversify, diversify. Why? Because if you invest in one company and that company crashes, you lose your entire investment. The same outcomes apply here. There is stability in diversity. This exacerbates famines across the world, if a single commodity crashes on the global market, that nation is thrown into economic turmoil which threatens their food security. Without money, they can’t buy the food they need.

The other dilemma with this policy is the push for poor nations to specialize in what are called luxury commodities for consumer nations. These include things like flowers, lumber, coffee, beef, tobacco and sugar. Again, this runs parallel to economic ideas of greater profitability, but counter to what is really necessary to ensure food security. Economically, these nations can make more profit selling flowers for weddings and Valentine’s Day in the United States than they can growing beans or grain for themselves. Valuable land is diverted away from food production so we can have coffee, hamburgers, hardwood floors, and cheap dog food. Remaining land that is used to grow food produces food too expensive for the poor in these nations to afford. The free market addresses the needs of those with money not those without money. If we can buy food flowers for more profit than they can buy food, the market will tailor to us, not them.

 *Balance Budget:* Budgets must be balanced without raising taxes. To force poor nations to “live within their means” they are required to balance their budgets by making cuts rather than raising revenues. What this inevitably means is that the poor, the ones most dependent on government assistance, lose access to healthcare, free education and food subsidies. During the 1980’s and 90’s when these requirements existed, the poor faced the stiffest penalties, leading to high infant mortality rates, malnutrition, and little access to a basic education. With little government support for basic human care, people had no choice but to turn to scarce charity organizations. Most did without. The burden of these loans and their policies were placed directly on the backs of the poor.

 *Encourage Foreign Investment:* To increase “development” in these poor nations which would provide tax revenues, jobs and financial stability, poor nations are required to implement several policies that would bring foreign investors into their borders. This means lifting import restrictions, removing price controls and subsidies. If we examine these policies specifically for agriculture, it means that local farmers should be given no special advantages to compete against large corporate farms who want to move into the nation for development. If, for instance, local farmers had an advantage because their locally grown grain was cheaper than imported grain, or subsidies made their grain cheaper than the corporate farms, then outside investors would be less willing to move in and establish their business. According to this economic theory, foreign investors see an opportunity for profit because they can compete favorably, and they bring their in their business, jobs and tax revenues. Governments benefit with additional taxes, while the people benefit with jobs. Of course corporations benefit with an expanded investment opportunities.

 The downfall, however, comes with the ability of local farmers to compete with these new corporate interests. They simply can’t. They do not have the mechanization, seeds, access to the best land, expensive irrigation systems, pesticides, fertilizers and acreage to compete against these agribusiness companies. They may be producing a food for immediate use for their families and local communities, but they are simply pushed off the land by their inability to compete. They can’t sell their food, they lose money and they lose their land. Where do they go? Into the cities to try and find a job at one of the new factories brought in for “foreign investment.” In Mexico for instance, local Mexicans can grow a diverse variety of corn and sell it in the local market place for a reasonable amount of money that would keep them on the land. But because of the IMF and World Bank policies, Mexico is inundated with cheap US corn (which is ironically subsidized by the US government). There is no variety in the US produced corn, but it sells for far less than what the local farmers can sell their corn. Local farmers, unable to sell their corn, go out of business. But what is really lost is many local people growing their own food and growing a wide variety of foods. Thousands are pushed off their land with no other economic means. There simply aren’t enough jobs. With no job and no money, it doesn’t matter how cheap the corn is, they can’t afford to buy it. Without these financial policies, local governments could subsidize local farmers allowing them to compete and continue working the land. The best way to improve food security is to increase the number of people who can produce food. What these policies did was decrease the number of food producers, increasing the number of people who had little access to food. While the last decade has eased these requirements for IMF and World Bank loans, the damage has been done. The global food market is now controlled by a handful of super corporate producers and local, organic farmers face an uphill battle breaking into the marketplace to sell their goods.

 This is a loss to the global food market in multiple ways. First, local producers are much more likely to use less environmentally aggressive technologies. The amount of fuel for mechanization is far lower means they contribute far less carbon dioxide and other greenhouse gasses into the atmosphere. They are less likely to use pesticides and fertilizers which contaminate water supplies. They are also far more likely to grow a wide variety of local crops preserving the genetic diversity of many food species. In fact, this diversity means that local food producers are actually more productive than large scale agribusinesses, despite the claim that they produce greater yields.

 *Privatize the Market:* Arguably, profit can be made by the private sector not the public sector. What this means is that services that could be provided to the public like water, electricity, sanitation, hospitals, and schools are contracted out to private investor’s hoping to reap a profit. It also means that all the rules of supply and demand apply. If profit cannot be made from people without money, investor’s will simply go elsewhere. The logic goes that when the government operates these services, it serves as only a cost that drains revenues that could otherwise be spent to pay back IMF and World Bank Loans. Private investors, however, can reap a profit. So rather than money lost, money is created. When the market is privatized, outsourced companies can come in and generate a profit, delivering a slice of that profit to the government in the form of taxes.

 While this economic model works well in theory, it forgets several key elements. First, investor’s do not come in altruistically to ensure that all citizens have access to basic services. They are there to make a profit. Most of these investors will be outside corporations. The local economies are generally not yet strong enough to produce corporate competitors. Even if they do exist, they can be given no special consideration or incentives to compete with foreign investors. Outside investors come in, generate a profit, and generally deliver that profit back to corporate headquaters so dividends can be shared with stockholders. Profits are not redirected back into the economy. While tax revenue can be delivered to the governments, profits are siphoned out of the economy into the hands of large corporations. More money leaves than enters those nations. Additionally, the ones paying the price are the people who must either pay for these services or the ones who do without because they cannot afford to pay. The largest drawback to a privatized market is that it can and will only respond to consumers with money. In many poor rural areas, people do without access to clean water, hospitals and public schools. In remote areas, people must travel hundreds of miles for basic healthcare.

 At the height of these structural adjustment policies in the 1990’s, governments were even discouraged from providing food allowances during times of extreme poverty and famine. In the last decade, these policies have allowed governments to provide many of these services through the public sector, but after decades of privatization, most control still resides in the hands of corporations.

 To really understand the consequences of these policies, we could examine what happened in Honduras. In 1990, Honduras met more than 90% of its domestic demand for food with more than 20,000 farms. This was in part to local policies that subsidized rice farmers and extracted the highest import tariffs of Central America. In the 1960’s and 1970’s, Honduran campesinos received land in the fertile Aguán Valley. The land was rich and productive and with governmental policies that benefited local farmers over imports, foreign food was more expensive than local food and local farmers stayed in business. But, while they had food security in the 1980’s, their economy stagnated and lacked economic growth. In September of 1990, Honduras was required to eliminate import restrictions and surcharges as well as reorganize their agricultural financing system in exchange for a World Bank Loan. The Result? Farmers saw prices for their crops fall by 13% in 1991 as foreign crops flooded the market and local subsidies disappeared. In 1992, they fell by an additional 30%. In 1993, an additional World Bank Loan required more extensive changes, mandating Honduras to privatize state silos of food supply that were being used to stabilize prices. Without these government pricing controls that enabled many Honduran farmers to stay in business, the number of farmers dropped from 20,000 to 1,300 over the course of the next 15 years. While there are a few fertile valleys, much of Honduras is on rocky hillsides, not feasible for agriculture. Farmers have no place else to go but into cities. The growing number of foreign factories, a result of globalization policies, became the only alternative for once productive and independent Honduran families.

 While it was devastating enough that there were almost 19,000 fewer farmers, much of the land that once produced food, found greater profitability in commodities like African palms, a luxury product that produces no food. Food security was traded for the potential for economic growth. The consequences have been grave in Honduras. Campesinos, the once landowning farmers, now pushed off their land from policies that favor corporate farmers, have resorted to rebellion and which has led to political instability in the region. Access to food by land ownership is a key characteristic for establishing political stability. When most of the population is producing their own food, the price of food is of little relevance. They can access that food because they grow it. But when they become dependent on others producing that food, the price becomes important. In recent years, as a result of global market forces, the price for food and oil has increased. Hondurans are now vulnerable to those price shifts in the global market, but without earnings that are globally competitive, food becomes further and further out of reach.

 Honduras was not alone. In 2004, the Philippines shifted to free-market, pro-global policies for a World Bank loan. They were advised to cut tariffs, market tropical fruits, and remove government stockpiles of grain which were being used to stabilize prices. While they were able to export tropical fruits, they had to shift into greater dependence on imports for food they could live on and eat. Philippines did shift course and they now are shifting their policies towards more self-sufficiency so they can decrease their dependence on imports.

 Ghana, Mali, Ethiopia and Indonesia also signed on for loans that required them to drop policies that benefited local farmers, allowing them to stay in business. With policies that allowed for an influx for foreign crops, local farmers find themselves unable to compete and ultimately lose their land and their ability to grow their own food. They move from being producers of food to buyers of food. There is far less power when you are a buyer than a producer of a commodity that we all need. Food is not a luxury commodity we can do without. The economic logic that wealthy nations have been able to succeed because of these same policies is built on a major logical fallacy. It is beneficial to open yourself up to global competition when you are financially stronger than your competitors. But to open up poor farmers and poor nations to global competition only exposes them to greater risk. It is not an equal playing field when the most powerful are staged to compete with the least powerful. An unfair fight will ultimately hurt those without power.

Campesino land struggles in Honduras Heather Gies | 23 January 2012

 When we look at the result of policies pushed by the IMF and the World Bank we see the same pattern emerging in poor nations around the world from Honduras to Indonesia. Government services for the poor are pulled back, along with subsidies to small local farmers. Farms become concentrated in the hands of large corporate owners who are considered better able to generate profit, and are definitely more able to invest in high energy equipment, fertilizers and pesticides. The poor, who could previously generate a living by growing their own food are forced into a money economy where they do not earn enough to buy the food they need for their families. Corporate farm owners, generally from first world nations, benefit from expanded growth and low prices on commodities. Poor nations, while exporting only a few items suffer financially for several reasons. Profits are not redeemed by the nation, but by the foreign corporate investor. Must sell their own products at reduced prices, by lowering their currency, and then must buy everything else they need at high prices from competing nations. Poor people suffer the most because their subsidies go away, government assistance goes away and their land is taken by large corporate business interests. These economic policies are a far cry from a win-win situation for all.

## Farm Subsidies

 “End government subsidies to processed food. We grow more corn for livestock and cars than for humans, and it’s subsidized by more than $3 billion annually; most of it is processed beyond recognition. The story is similar for other crops, including soy: 98 percent of soybean meal becomes livestock feed, while most soybean oil is used in processed foods. Meanwhile, the marketers of the junk food made from these crops receive tax write-offs for the costs of promoting their wares. Total agricultural subsidies in 2009 were around $16 billion, which would pay for a great many of the ideas that follow.” Mark Bittman

 It is almost impossible to discuss the issues of malnutrition and hunger without looking around and seeing Americans struggling with their weight. Obesity in the United States is nearing 40%, while the percentage of overweight Americans is over 60%. It’s hard to contemplate people with little to no food without looking around at a nation with too much food. Obesity in the United States adds approximately $147 billion in doctor’s bills each year. Type II diabetes, gout, diverticulitis, gall-bladder disease, back pain, and coronary artery disease are but a few of the health conditions brought on by an excessive bad diet. But this is exactly what the global food market has created, a system by which food, and unhealthy food, is diverted to wealthy nations away from poor nations. And a major economic force behind this dynamic is the nature of food subsidies. Food subsidies are essentially payments by the government to producers of food. Now, we generally think of the recipients of these subsidies as farms, but the largest recipients of these subsidies are actually corporations who are running a food industry that resemble factories more than farms. The conditions in these factories are chronicled in a popularized book and documentary “Food, Inc.” Chickens engineered to reach full growth after 45 days, antibiotics pumped into livestock, cows fed remains of other cows, crowded and unsanitary conditions, waste dumped into local environments, and diseases like salmonella and e-coli.

 In truth the obesity epidemic in the United States is related to the issues of malnutrition throughout the world. Both are based in a food industry that values profit above all, and focuses on large corporations producing food that sells rather than food that nourishes all under very industrial conditions. For instance, one food that is heavily subsidized in the United States is corn. A heavily subsidized American corn market drives the price for corn down all across the world. Small farmers in Mexico can no longer produce varied and healthy corn for a profit and begin to lose their farms. In addition, corn is overproduced in the United States. What is done with all this corn, because it is simply too much for people to eat. Corn growers know they can maximize their profits by creating alternative uses for its product. Turning it into sugar is by far the most profitable enterprise. Corn is therefore turned into high fructose corn syrup, a form of sugar that is dumped into virtually most foods sitting on the grocery shelves. For corporations that package food like cereal, snacks, and spaghetti sauce, high fructose corn syrup is a much cheaper alternative to cane sugar. If you go to the grocery store and read the ingredients of most processed products, you will see that most food we eat are just variations of corn with high fructose corn syrup topping the list. With this cheap filler, unhealthy food becomes so widely accessible that Americans find themselves eating too much. Chicken nuggets, soda and hamburgers are filled with corn filler making fast food appealing by its cheap price. We eat more of it because we can get so much of it, but what we think of food is just recombined corn. Corn products may make food in the United States cheap, accessible and fattening, does little to help malnutrition throughout the world. Farmers are losing their land but cannot live on corn and high fructose corn syrup. They cannot make money on corn, nor can they live on corn. What is gluttony for us creates a source of scarcity for them.

 If we look at subsidies in the United States, we can quickly see that subsidies are based on profit industries of major corporations, not the recommendations for a healthy nutritional diet. Meat, dairy and corn are highly subsidized while nuts, legumes, fruits and vegetables receive virtually no subsidies. This has had consequences of obesity in the United States, particularly for the poor. While it may seem logical that those with greater wealth and more access to buy food would be heavier, in the United States it is actually the poor who are most likely to be overweight and obese. Subsidies are part of that reason. Because unhealthy foods are subsidized the most, they become the cheapest for people to buy. If you have 1$ and you are trying to maximize the amount of food and calories you can guy with that food, it turns out to be the least healthy and most fattening foods on the market. Ground hamburger, chips, soda, and processed foods can be bought rather inexpensively while carrots, strawberries, almonds and blueberries can be prohibitively expensive for anyone without unlimited food budgets. A study in the American Journal of Clinical Nutrition found that 1$ buys 1,200 calories of potato chips, or 875 calories of soda, but only 250 calories of vegetables or 170 calories of fruit. No wonder obesity is a problem of the poor; they simply can’t afford to eat the foods that require healthy eating.

 Besides corn products, soybeans are often used as a filler for many foods and contribute to the availability of global food access. In Brazil, cleared rainforest is quickly converted into one of two uses, grazing for cattle or producing soybeans. Thanks to structural adjustment policies, both items are sold cheaply on the international market and are widely available to an already gluttonous American diet. Much of the soybeans are actually sold to producers of dog food and another large portion is sold as feedstock for animals in Europe. Soybean and beef, thanks to the cheap availability and subsidization in Brazil and the United States, can easily be stuffed into many food products making it tastier, cheaper and more fattening. Hamburgers in many fast food chains are filled with soy filler making those hamburgers cheaper and a more affordable alternative than healthier grains and salads.



## Biotechnology

 Here is a challenge for you. Go to the grocery store and try to find the foods that have genetically engineered products and those that don’t. Look for a label that tells you that you are eating some product that has been genetically engineered. If you are in the United States, you won’t find any such label. You will find a label telling you the nutritional information, but you will not find a label simply telling you whether the food you are eating was engineered in a lab or developed in the natural environment. If you are in Europe, you will find that label. This is because of the political power differences of the food industry in the United States vs. Europe. Food industries know that consumers may hesitate buying a product if they knew it was genetically modified. To overcome that, they have convinced Congress that labels informing you of this fact is bad for business, won’t help you any, and therefore should not be required. European governments have opted to side with the consumer and force food industries to label their food. What this means is that Americans eat far more genetically engineered foods and we do it without knowing we are. Because we remain blissfully unaware, genetically engineered foods have seeped into virtually every food product on the market.

 Biotechnology is the use of technological knowledge to produce and grow agricultural products. Despite the belief that biotechnology has only been recently used, biotechnology is actually as old as agriculture itself as farmers always took and saved the best seeds for replanting each year. Fertilizing fields, brewing beer with yeast, and lactic acid fermentation are all forms of biotechnology. In and of it self, biotechnology is not harmful and has been used to bring us many of the foods we love today. The controversy however, began when scientific knowledge got to the point where we could combine the genes of two entirely different species. For instance, adding fish genes into a tomato plant. This form of biotechnology is specifically known as transgenic crops and has allowed food industries and scientists to create food products that would and could never occur through natural means. There are several economic and political consequences of genetically modified foods, even if it can be argued successfully that there are no health or environmental repercussions.

 The biggest drawback to genetic engineering is actually not environmental, but economic. This is centered on the patenting of genetically modified food products. Patents, historically, have always been used for nonliving technology like phones, computers, and other forms of machinery. The purpose of patents is to ensure that individuals or corporations who invent something, retain the right to profit from that invention. But, in today’s world, it’s not just technology we’re patenting, but the specific genetic code of crops and other biological species grown for profit. A company that has the money to determine the genome sequence of any food product can go down to the patent office and ensure that anyone who grows that food will have to pay the company economic rights. Farmers who have spent years growing some food, whether it be corn, wheat, rye, chilis or beans, would save the seeds from one harvest to reuse and grow that food the following year. If what they have cultivated and save for their fields each year are usurped by a major corporation who takes the seed, decodes the genetic sequence and patents that sequence, now owns that species. The farmer can no longer grow that seed by saving it. To do so now would be a violation of legally registered patents and the farmer can be sued. They will have to pay for it each year. This can be devastating for small, poorer farmers who cannot afford to pay the economic rights to grow a particular seed every year without saving and reusing the seeds from one year to the next. What’s worse is that seeds, just like dust, blow in the wind. They blow off fields, they blow off trucks, they blow off stock piles and they end up, unintentionally in the fields of farmers who have not bought and paid for the patented seed. Corporate owners of the patents know this and quietly genetically test the crops of farmers who did not purchase seed and low and behold, find their patented seed growing in their fields. What they could do next is simply realize this was unintentionally caused by drift of their seed into neighboring fields. But they don’t. Seeing an opportunity for making money, they sue the farmers. Many farmers have been sued for exactly this reason. The company simply argues that it is the farmer’s responsibility to monitor their own crops. The small farmer is put out of business or loses tremendous sums of money in the legal battle and corporations reap greater profits.

 What makes this process particularly pernicious is that most of these patents are not developed and paid for by farmers. Patents are almost universally applied for by chemical companies. That may seem odd. Why would a chemical company be interested owning the rights to the genetic material of food products? The reason is actually related to what characteristics of food products have been manipulated by genetic sequencing. It would be useful, if for instance, that most food was genetically engineered to be better tasting richer in nutrients. But alas, most foods are genetically engineered to increase the profits of chemical companies. The largest manipulation of the genetic material of food is to make them tolerate herbicides and pesticides without ill-effects. Monsanto leads the way in producing GM (Genetically Modified) food products to withstand their own chemicals. Here is how the story goes. Monsanto, a chemical company founded in 1901 gets in the business of making chemicals, many of which cause harmful environmental and health effects. Agent Orange and PCB’s are just a couple of examples. From these chemicals, they move into developing chemicals that can be put on crops to kill insects and weeds. These pesticides and herbicides revolutionize the farming industry, but add all sorts of environmental dilemmas. Most of these dilemmas are highlighted by Rachel Carson in the book Silent Spring where she details the loss of life from the over-abundance of toxic chemicals into our water systems and environment. The almost near extinction of Eagles by DDT was just but one example of the time. But fear not, Monsanto and other chemical companies do a great PR job of convincing the public and our government regulators that these chemicals are safe on our food and in our environment. They even put biodegradable and safe for the environment on the labels of their products for years. Those have since been removed as false advertising. But still, their use explodes globally. Any farmer who cannot afford the chemicals is quietly put out of business while larger corporations consolidate the market into ever bigger corporate farms. Now, here comes the problem. Insects and weeds over time evolve a tolerance to the chemicals and more of it has to be added to kill them. Eventually, these chemicals are so toxic and must be used in such heavy amounts that they pose a danger to the crops as well. They’re no longer just killing the weeds, now they kill everything. This won’t work for farmers. It’s no use to use a chemical that kills your weeds, but also your crops. But, once again, Monsanto comes to the rescue and through the remarkable technology of genetic engineering, delves into the food industry by genetically engineering the food so it won’t be harmed by their chemicals. So now, they are not just the producers of the chemicals to kill the weeds, but now are the producers of the food itself. A marriage of our chemical industry and our food industry was created. Today, our food industry is dominated by chemical companies who make profit on the chemicals they sell, but also on the seeds that farmers must buy to use the chemicals.

 The most widely discussed example of this is Roundup Ready corn by Monsanto, but versions also exist for soybeans and cotton. Corn has been genetically engineered by Roundup to absorb as much of their herbicides as possible with no ill effects. Without that specific piece of genetic engineering, if too much Roundup is sprayed on the crops in attempt to control weeds, the corn also died. Now, a farmer can spray Roundup on their crops to their hearts delight with virtually no consequences to their yield. This means several things. First, more herbicide Roundup will be found on our food. Worrying about harm to corn crops would serve as a limiting factor for farmers, encouraging them to apply herbicides in limited amounts. With genetically engineered corn, that limiting factor doesn’t exist and corn will be dosed with herbicides at greater levels, getting into our own food chain. I don’t know about you, but that is worrisome for me. Second, the overuse of Roundup weed killer has led to the rapid evolution of tenacious weeds that develop a resistance to the herbicide. Super weeds, with an uncanny ability to outlive larger and larger doses of herbicides will grow relatively quickly, forcing herbicides to become stronger and more toxic to counteract their resistance. Weeds such as Palmer amaranth (pigweed) have already developed this resistance in places like Tennessee. Pigweed can grow up to 3 inches a day, up to a length of 7 feet, completely smothering crops. It is so tenacious; it can even damage harvesting equipment during plowing. To counter act these super weeds brought on by Roundup, farmers are going back to less environmentally friendly farming methods. Farmers to stay ahead of these weeds growth are tilling the ground before planting, mixing Roundup directly into the soil. This increases erosion and runoff of herbicides into our waterways. The final environmental and economic loss from these transgenic crops is that the farming industry, which had high hopes to move away from chemically dependent methods are more dependent than ever. Even organic farmers find themselves in a quandary. These super weeds infest their crops as well. Genetically engineered food products were supposed to bring us into an era of better, healthier farming methods, but in essence have simply reinforced the same environmentally degrading patterns of our past. It hasn’t been a leap forward but a giant leap backwards.

 Dow Chemical company has produced a version of corn, soybeans and cotton that can tolerate 2,4-D, a chemical used in Agent Orange. Environmentalists argue that 2,4 D has been linked to cancer, hormone disruption and other health effects. Monsanto is developing soybeans, cotton and corn that can tolerate dicamba, a chemical in the same class as 2,4-D. Bayer, Syngenta and Dupont are also developing crops resistant to a variety of chemicals they produce. Chemical companies have found big business in our food industry. They know that the chemicals they produce can kill weeds and pests, but also harm the crops. They simply make the crops resistant so more of their chemical can be produced, sold and used on our food. Is our food industry controlled by farmers or chemical companies? Who do you want producing your food?

 Most of the food you are eating on a daily basis has been genetically modified. The bio-tech industry which is a compilation of Food and Chemical companies, a most pleasant mix, has not only been able to engineer our food, but our political system as well for their benefit. For instance, let’s say you decide for personal reasons that you are going to avoid genetically engineered food and stay with the natural whole stuff. How will you do that? Ostensibly, it would be nice if you could go into the store, read the label and avoid the foods that are labeled genetically engineered. But you would notice very quickly that you couldn’t do that. Have you ever seen a label that indicates whether your food is genetically engineered? I can tell you right now that you haven’t. The reason is political. The industry has been able to successfully convince our governmental system that you don’t need to know. There are no negative consequences to genetically modified food, so telling you would only create problems, the argument goes. In line with this argument, they successfully convinced the FDA that DNA, something we already consume, is the only product “added,” and that is safe, so genetically modified food is also safe. The term used to summarize this principle is “substantially equivalent.” Genetically modified foods are no different, should not be tested, and therefore can move straight from the lab to the market without dealing with a burdensome regulatory process that would only make the food more expensive. The deregulation of genetically modified foods became an economic argument; regulation would increase the cost of the food to the consumer and the companies would lose money that could be used to develop more products and increase food production. So, in the interest of economic growth, public information was sidelined. Despite the idea of a democracy, this policy of non-informance was never voted on or discussed by the populace. We never had a say in whether we should or should not be informed.

 The European Union has taken a completely different tactic. With stronger values of informed citizenry over economic interests, all genetically modified foods are labeled as such. If you go into a store and pick up any food item, whether it be tomato sauce or an apple, you will be able to find on the label whether that food contains genetically modified ingredients.

## Agribusiness

 If you’ve ever driven through Iowa, you may have had firsthand account of the smell and waste produced in the agribusiness industry and their “factory farms.” Pigs, cattle and chicken are the most popular selling meats and the ones most likely to be farmed under the sorts of conditions these factories produce. Detailed in a Time photo-essay “From Farm to Fork,” pig are raised in pens so tightly confined that their tails are chopped off to prevent biting and they are pumped full of antibiotics to prevent infections from spreading. In what are referred to as concentrated-animal feeding operations thousands or tens of thousands of pigs and chickens are packed into cages and pens that breed infection and violence. Chickens beaks are burned off to prevent them from pecking at each other. They are fed to help grown them to full size in as short of time as possible, often with the help of genetic engineering. Chickens can be engineered to reach full maturity in only 45 days vs. the more natural 3 months. When you have holding cells of thousands or tens of thousands pigs, cows or chickens, inevitably these farms must deal with the inevitable manure waste they produce. Pigs actually produce 4 times more fecal waste per pound than humans and all of it must end up somewhere. The tons of waste are simply washed into manure lagoons that fill the air with a stench that can induce nausea for miles around. Jokes about Iowa even harken to the smell that fills the state. For instance: “Q: How do you get to Iowa City from Ames? A: You go east until you smell it and south until you step in it.” Hand in hand with the pork industry is the corn industry with its cheap subsidized food being used to fatten up cows who will be killed at only 5 months of age. The corn is grown with tremendous amounts of fertilizers and pesticides that all eventually wash into streams and tributaries, washing all the way into the Mississippi River and the Gulf of Mexico creating dead zones along the way. When combined with the industrial pollution that comes from manufacturing facilities along the Mississippi River, that stretch of the nation has been come to be known as cancer alley.

 Agribusiness does what it sets out to do, making food cheap. According to the USDA it is cheaper than ever before. While our calorie consumption on average has crept up to more than 3,000 per person, the amount of our income we spend on food has dropped from 18% in 1966 to 10% today. But the mechanisms and environmental pollution that goes into running these factory farms is astounding. The meat industry produces more carbon dioxide than manufacturing industries and cars. The dead zones in the Gulf of Mexico from farm runoff cost the fishing industry an estimated $2.8 billion dollars a year. More than 70% of all antimicrobial drugs are given to animals, not people, increasing the amount of super bugs that are resistant to antibiotics, costing the public health care system an estimated $4 to $5 billion a year.

 In addition to these environmental costs, agribusiness farms operate on vast scales, generally growing only one or two crops for production. Farms that grow monocultures have a whole host of environmental problems not seen as significantly on small highly diversified farms. One major environmental cost is that monocultures tend to attract more pests. With acres and acres of land growing a pest’s favorite food, their reproduction rates and population numbers sky rocket. Highly diversified farms limit pests naturally because pests do not naturally attack every crop, only specific ones. Varied crops means they are cannot eat everything and their populations stay limited. The only way for industrial farms to reign in the explosion in pest populations is by increasing the use of pesticides. This of course means that pesticide use increases, but pests inevitably evolve a tolerance to the pesticide. If initially, 90% of a pest species is killed, 10% will survive. The 10% that survives are the ones who were more resistant to that pesticide. The following year, as that 10% reproduces on their monoculture feast, they produce offspring who are also resistant. Farmers respond by increasing the amount of the pesticide they apply to the fields, increasing the chemical in our water, soil and food. But despite the increasing application, each year, fewer and fewer pests are killed by the pesticide as the resistant versions of the pest reproduce and grow in numbers until eventually the pesticide is useless. What is true for pesticides is also true for herbicides, chemicals designed to kill weeds. Pesticide and herbicide use have been increasing in farms across the world. When you eat food, you are eating the chemicals used to grow that food.

 Pesticides come with their own environmental and health risks. Corn products have come across this dilemma. Corn, a product heavily produced by agribusinesses, are grown on large monoculture industrial farms, primarily centered in the Midwest. Pests and weeds invading corn fields have grown in response as well. The corn industry has retaliated by genetically engineering their corn to be resistant to Roundup, a popular herbicide. Dow corn which holds the patent and engineers the corn for resistance also sells the herbicide. This is of course clever capitalism on the part of Dow. Corn that is not genetically modified will be harmed by Roundup, in part because it uses 2,4-D, an ingredient used in Agent Orange during the Vietnam War. Of course, if corn is harmed by the herbicide, farms won’t buy it. The solution? Engineer the corn so it won’t be harmed and farmers can buy and apply all they want. But, that herbicide can then become an environmental menace. Wind will blow the herbicide into neighboring farms and fields where it can wreak havoc. For instance, some tomato farmers are seeing their crops destroyed by the herbicide as it makes its way into their fields.

* + 1. Technologies
		2. Diversity
		3. Environmental impact

## Meat industry

* + 1. Meat consumption
			1. Statistics of meat consumption
			2. Proportion of grain fed to livestock
			3. Energy loss in transfer
		2. Energy use
			1. Mechanization of grain production
		3. Global warming
			1. Fossil Fuel Intensive to produce corn
			2. Also contributes to rainforest destruction – land used to grow soy primarily for livestock
			3. Methane
			4. Switzerland recently began labeling food with their carbon footprint of each food item produced.