Macrothink Institute™

Journal of Agricultural Studies
ISSN 2166-0379
2015, Vol. 3, No. 2

Food Security

Aparna Nayak

University of Isaho,Boise,USA

E-Mail: naya6277@vandals.uidaho.edu

Received: July 8, 2015 Accepted: July 24, 2015

doi:10.5296/jas.v3i2.7973 URL: http://dx.doi.org/10.5296/jas.v3i2.7973

Abstract

Global food security is one of the most unrelenting issues for humanity, and agricultural production is not sufficient in accomplishing this. However, earlier analyses of agricultural food production barely ever bring out the contrasts associated with economic development and different climatic zones. The world population is increasing day by day and climate change will be causing more extreme weather, higher temperatures and changed precipitation. The crop contributes about 20 % of the total dietary calories and proteins globally. There is 1% annual growth in food demand in the developing regions. The developing regions (including China and Central Asia) account for roughly 53 % of the total harvested area and 50 % of the production. Although, unmatched productivity growth from the Green Revolution since the 1960s dramatically transformed world food production, benefitting both producers and consumers through low production costs and low food prices. One of the key challenges today is to replace today's food system with new ones for better sustainability. While the Green Revolution freed essential ecosystems from conversion to agriculture, it also created its own ecological problems. Moreover productivity increase is now slow or stagnant. Attaining the productivity gains needed to ensure food security will therefore require more than a repeat performance of the Green Revolution of the past. Future demand will need to be achieved through sustainable intensification that combines better crop resistance plants, adaptation to warmer climates, and less use of water, fuel, fertilizer, and labor. Meeting these challenges will require concerted efforts in research and innovation to develop and set up feasible solutions. Necessary investment will be required to realize sustainable productivity growth through better technologies and policy and institutional innovations that facilitate farmer adoption and adaptation. The persistent lessons from the Green Revolution and the recent efforts for sustainable escalation of food systems in South Asia and other developing nations will definitely providing useful insights for the future.

Keywords: Food security; Climate change, Hunger; Green revolution, Food nutrition

1. Introduction

In many under developed countries like in Indonesia, Cambodia, Bolivia and Nepal the daily undernourishment is a common form of hunger. In these countries and many LDC's (least developed countries) hunger is much more than an empty stomach. The recommended 2,100 kilocalories is an average person needs to lead a healthy life but the hunger victims live for weeks, even months less than the recommended 2,100 kilocalories.

However, hunger weakens the immune system, slowing down physical and intellectual actions. A hungry mind cannot think properly, a hungry body is no longer in active state, a hungry child loses all desire to play and study. As a result of hunger and deprived of the nutrition, hungry children are especially vulnerable and become too weak to fight off disease and may die from common infections like measles and diarrhea. Each year, almost 7 million children die before reaching the age of five; malnutrition is a key factor of these deaths.

Hunger and malnutrition are considered to be one of the greatest health risk worldwide even greater than AIDS, malaria and tuberculosis combined. According to an estimate by WFP (world food programme), there are 805 million undernourished people in the world today. The number of people do not get enough food to be healthy and lead an active life is about one in nine. Solving hunger is a "best buy" in today's tough economy. To solve hunger many nations are working together which also results in providing good nutrition, they are also increasing productivity and creating economic opportunities. On the other hand, studies have shown that countries lose millions of dollars in economic output as a result of child under nutrition. Also, peace and stability comes with solving hunger. When governments can no longer guarantee adequate food supplies, states are prone to fall. Instability on food markets can quickly translate into unpredictability on the streets. Lastly, solving hunger also helps in progress in many other areas of improvement, including health and education. Also, a well-nourished women have healthier, heavier babies with stronger immune system for life. A healthy and well-nourished child is also more likely to attend school.(WFP. *Food Security analysis*)

The best were seen in terms of chronic hunger in the 1980s and the 1990s, but progress fell down between 2000 and 2010. Asia is the continent with the hungriest. Sub-Saharan Africa is the region with the highest prevalence (percentage of population) of hunger. Poor nutrition causes nearly half (45%) of deaths in children under five 3.1 million children each year. One out of six children which is roughly 100 million in developing countries is underweight. In developing countries the proportion can rise to one in three. If women farmers had the same access to resources as men, the number of hungry in the world could be reduced by up to 150 million.66 million primary school-age children attend classes hungry across the developing world, with 23 million in Africa alone. WFP calculates that US$3.2 billion is needed per year to reach all 66 million hungry school-age children.(WFP)[2]remove all these numbers

To solve world hunger we should not favor western chauvinism or anti universalism; but should follow some universals—basic human rights, for instance—which are non-negotiable. In this paper I will discuss on global food problems. I will then argue on today's food system and food insecurity, failure of green revolution, economic pragmatism and industrialization &

role of coffee, corn, fertilizers in global food economy.

2. Modern Food system and Food security

The good news is that ,the latest news from FAO estimates indicate that global hunger reduction is in progress with about 805 million people were projected to be suffered from undernourishment in 2012–14, down more than 100 million over the last decade, and 209 million lower than in 1990–92. However during this period, the frequency of undernourishment has decreased from 18% to 11% globally and from 23% to 13.5 % for developing countries. Subsequently during 1990-92, 63 countries have touched the hunger target of Millennium Development Goal and 25 countries have achieved the more stringent WFS target. Of the 63 developing countries, 11 already had undernourishment levels below 5 percent (the methodological limit that can assure significance of the results different from zero) in 1990-1992 and have been able to keep it in that interval, and are therefore not the prime focus of the 2014 report. (FAO UN 2014)[3]

These data's demonstrate that the hunger target of the Millennium Development Goal of cut up the proportion of undernourished people in developing countries by 2015 is within reach. In some countries like Latin America and the Caribbean have made the greatest overall progress in increasing food security with unassertive progress in sub-Saharan Africa and Western Asia, which have been distressed by natural disasters and conflict. Continual political commitment with food security and nutrition as top priorities, is a prerequisite for hunger eradication. The studies of the State of Food Insecurity in the World 2014 report show that regions such as Africa and the Latin America and the Caribbean, as well as individual countries have strengthened their political commitment to food security and nutrition.

Hunger decline requires an assimilated approach, and needs to include: public and private investments to raise agricultural productivity; better access to inputs, land, services, technologies and markets; measures to promote rural development; social protection for the most vulnerable, including strengthening their resilience to conflicts and natural disasters; and specific nutrition programs, particularly to address micronutrient deficiencies in mothers and children under five.

However, the modern food economy finds that the system entrusted to meet our most basic need is failing. There is very harsh economic realities behind modern food and our system of making, marketing, and moving what we eat is less compatible with billions of consumers it was intended to serve. If we examine the global hunger and in an age of superabundance, one billion people, many of them in sub-Saharan Africa are excluded from the global food economy.

Although, during twentieth century, the modern food system was notable as a shrine to humanity's greatest conquest. Humans were at the stage of producing more food. This includes more grains, meat, fruits and vegetables than ever before with plenty of variety, safety, quality and convenience that preceding generations would have found puzzling. On the other hand, the same methods that released great quantity of food, great livestock operations and chemically intensive farming, have so degraded the productive capacities of

our natural systems that it's not clear how we'll feed the nearly ten billion people expected by midcentury, or even how long current food production levels can be maintained. In developed countries where hunger has been banished, population now struggle with the less desirable costs of the modern food system for instance obesity, heart disease and diabetes.

In North America, Europe, and even emerging Asia, hundreds of millions of anxious consumers skim from one diet to the next, obsessing over bad carbs and good fats, additives and allergies, instead of being citizens in the wealthiest, most sophisticated cultures in human history. The very meaning of food is being transformed: food culture that once treated cooking and eating as central elements in maintaining social culture and tradition are slowly being seized by a global food culture. A food culture where cost and convenience are dominant, the social meal is obsolete, and the art of cooking is restricted only to coffee table cookbooks and on television shows. (Pollan, M.2007)[4]

Today's food crisis is basically economic, that food companies operate for financial gain. Somewhat, the crisis is economic as we see that our food system can only truly be understood as an economic systems. Like all economic systems, it has winner and losers, suffers periodic and occasionally deep instability, and is plagued by the same inherent and irreducible gap between what we demand and what is actually supplied. Food was our first form of wealth, and its production was our first economic enterprise, generating not only most of our employment and prosperity but many of the tools with which the larger economy would eventually be built. The success of the modern food sector has been its ability to make food behave like any other consumer product, but this the paradox of the food economy. According to my views, the source of most of its current problems for all that the food system has evolved like other economic sectors and food itself is fundamentally not an economic phenomenon. Food production may follow general economic principles of supply and demand; it may indeed create employment , earn trade revenues , and generate profits , sometimes considerable profits ; but the underlying product the thing we eat has never quite conformed to rigors of the modern industries. (Breeman.G, Dijkman.J and Termeer.C.2015)[5]

3. Green revolution, Economic pragmatism and Industrialization

In recent years, as world hunger reemerged as a cause celebre. As a cause for celebrities, world leaders have committed to cutting the number of food-insecure people in half by 2015, the so called Millennium goals. But many of the numbers are moving in the opposite direction, in part because as food production improves, human population increases even faster. Every year, the ranks of those who still cannot get enough to eat grow by seven million. But, either elitist or unpatriotic; but possibly be a combined sense of real responsibility for other human beings as human beings with a deeper sense of commitment to a political community. The crucial is global concern and the acceptance that we're all responsible for the human community, which is the essential idea of morality. The fact that people live in different ways; that free human beings will choose to live in different ways and will choose to express themselves in different ways. We should not neglect the power of one i.e. One world & One species. (Julian.B.2006)[6]

Although, as per many studies every twelve months across sub-Saharan Africa, malnutrition kills more than ten million people. Hundreds of millions more suffer a collapsing dietary regime and a medieval nightmare of exhaustion, sickness, and ravaged potential. Although sub-Saharan Africa is the poster child for persistent hunger, the affliction is by no means confined to this continent. While China has revamped its food system, India, once the leading light of an agricultural breakthrough known as the Green revolution, today struggles to handle its more than two hundred million hungry people, including the world's largest cohort of malnourished children. Even in United States, the wealthiest country in the world, one child in six still suffers from inadequate nutrition. All total nine hundred million people, one seventh of the population are malnourished and another one billion suffer chronic and often destructive deficiencies. (Roberts's, P.2008)[7]

Climate change is another factor in having devastating impact on food production in many least developed nations or LDCs and in Africa. Climate changes may cut yield in half by as early as 2020, according to the Intergovernmental Panel on Climate change. The various technological and commercial revolutions that transformed much of the rest of the global economy has largely bypassed the poorer countries. The early success at bringing Western style high yield agriculture to Africa, much of the so called Green revolution on that continent has faltered.

However from 1960, on Kenya's per acre maize yields increased by more than 3 percent a year, better than in the United States. Although maize isn't native to East Africa, it had been part of the regional culture and agriculture for centuries and settlers had developed numerous local varieties. African breeders now begin to cross their local crops with the higher yield varieties from Latin America with impressive results. The entire developing world in fact was poised for such a revolution. In Mexico, wheat yields almost tripled between 1950 and 1965, allowing a country that had once imported 60 percent of its wheat to become entirely self-sufficient. In 1968, the Pakistan and Turkey had harvested record wheat crops. The Philippines brought in a record rice harvest, while India's wheat crop was so unexpectedly massive it overwhelmed the nation's primitive storage infrastructure; hundreds of schools were closed and the classrooms used as temporary silos.

The ocean of grain spilling over the developing world by the early 1970s radically altered not only the food supply but the modern debate over hunger as well. Until perhaps one hundred years ago, governments had been more or less content to understand hunger as an unavoidable part of life. At the same time, there were renewed fears of a population explosion, especially in teeming Asia. Western government worried that endemic hunger would so destabilize Asian countries that they would be easy prey for Communists.

On the other hand, many economic pragmatists who argued that hungry countries shouldn't even try to farm but should focus instead on industrial development with western financing and use their new earnings to import their food. This evolution from agricultural revolution to industrialization was, in sense what had occurred in Europe, the United States, and Japan in the eighteenth and nineteenth centuries. Soon many experts believed industrialization could be replicated in poor countries or development states. In Asia, soaring farm output not only

alleviated famine worries but unleashed the predicted wave of urbanization and industrialization. Africa at this time seemed to have caught the same wave of agriculture driven industrialization.

Many green revolution supporters, pointing to successes in Asia and Latin America, blame the African failure on poor execution by corrupt and inept African government, but also by outside players, especially the major donors, whose strategies shifted constantly with changing global politics. Other critics have focused on the revolutions underlying paradigm; its heavy reliance on expensive industrial inputs, they say, was grossly unsuited to the social and physical realities of African agriculture. And indeed, given the deep involvement of the Western input industry(fertilizer, pesticide, and oil companies among them DuPont, Dow, BASF and EXXON all helped distribute the new technologies) it has certainly occurred to some to ask whether the Green Revolution's primary goal wasn't just building food security but building new markets for American farm inputs. The truth lies somewhere in between. There is little doubt that African governments grossly mismanaged their farms programs: grain boards routinely manipulated grain prices for their own profit; government seed breeders didn't adequately localize the super seeds developed by international seed program. It is true that Green Revolution model did impose a set of industrial agricultural practices that didn't fit the realities of African farming. (Shiferaw. B.*et.al.*2013)[8]

The real peak of the Green Revolution was and is fertilizers. By conservative estimates, more than a third of the Green Revolution yield increase came directly from using more fertilizers. And yet as American and European farmers were also discovering that while fertilizers were a necessary ingredient for modern high yield agriculture, they were not sufficient to ensure its success. Although African farmers saw massive yield increases within the first few years of adopting the new techniques in a relatively short time ; something odd happened; yields fell unless farmers added steadily greater applications of nitrogen and other fertilizers. This effect was so dramatic that over the course of twenty years, a farmer would need to double his nitrogen applications simply to maintain his yields at their initial level. By adding synthetic fertilizers to lands rich in organic matter such as American Midwest and certain parts of Africa could indeed bring massive yield increases. The problem is that soil organic matter (SOM) can be depleted when farmers raise too many crops without replenishing nutrients with cover crops or manure or other fertilizers. Once SOM begins to fall, the soils capacity to hold and transport synthetic nutrients also falls, which means that farmers have to steadily add more nitrogen simply to maintain their yields. The loss of SOM also leaves soils hugely vulnerable to wind and water erosion and thus accelerates leaching of nitrogen.

Environmental groups worried that farm chemicals were damaging fragile soils; and had begun lobbying western governments to shift their financial support away from farm chemicals and towards "environmental sustainable" agriculture. During the same time market economists claimed that fertilizer subsidies themselves were slowing the development of local fertilizer industries within poor countries. Sub Saharan farmers are almost back to where they were fifty years ago no inputs, no mechanization and a preindustrial level of output. The only difference is that farmers are trying to feed a population roughly four times as large. Sub Saharan Africa as a whole now boasts both one of the highest population growth

rates and one of fastest declines in per capita grain supply. By 2025 will need to triple the amount of grain it buys from foreign suppliers.

4. Role of Coffee, Corn, Fertilizers in Global Food Economy

For the LDC's to join global food economy, pay off their debt and generate much needed income and industry they have started exporting high demand crops like sugar, cocoa, coffee and palm oil. But the complex challenge is still there to pursue food security in a fast moving global food economy. Kenya's coffee industry grabbed this opportunity and after a frost destroyed much of the Brazilian coffee crop in the early 1990s, soaring coffee prices encouraged grower's countries like Kenya to expand rapidly. Within a few years, exports of Kenya's distinctive Arabica beans were earning quarter of a billion dollars a year. Unfortunately for Kenya, the same boom attracted other players including Vietnam. With its Robusta bean rehabilitated, Vietnam was poised to become the Wal-Mart of the coffee world, a low cost producer that made up in volume what it gave up on price. Money poured in to the Vietnamese coffee industry: $233million from the Vietnamese government, $16million from the World Bank, and another $100 million from European governments. Nestle which depends on Vietnam for roughly a quarter of its bean opened a research center there. Between 1990 and 2000 , Vietnam coffee production soared from fewer than a million tons to more than sixteen million tons , overtaking Colombia as the world's number two producer and generating hundreds of millions of dollars in yearly export income. In fact, with all these advantage that Vietnam was given in the coffee market, it was quite the opposite for Vietnam and any other coffee producer. Between 1997 and 2000 the composite Robusta-Arabica price fell from two dollars to around 48 cents, well below many farmers' production costs.(Kavallari.A, Fellmann.T, and Gay.H.2014)[9]

In Kenya, coffee earnings have fallen by more than 75% and other exporters have fared worse. In Uganda and Burundi, coffee accounted for more than half of all export earnings, while Ethiopia depended on coffee for two-thirds of its export revenues and lost more than $300 million between 1999 and 2001 alone. The post coffee aftermath has been eye-opening. According to figures from US AID more than half a million coffee laborers have lost their jobs worldwide. In Vietnam coffee plantation were simple abandoned leaving exposed soils to erode in the heavy seasonal rains. In some African countries, unemployed coffee farmers have turned to poaching endangered animals; among them chimpanzees and gorillas for the thriving bush meat market. In south and Central America many coffee farmers switched to coca from which cocaine is made while many more joined the exodus northward to America.

In the post-Green Revolution collapse, many experts have come to regard large-scale, export oriented agriculture as an overly blunt instrument in the war on hunger. Although agribusiness has flourished in some developing countries, where land is suitable and infrastructure is in place, the model simply does not fit as well in the least food secure places, such as India or sub-Saharan Africa. There, Farmers are often so small, so focused on feeding themselves and so poor that they cannot easily upgrade to a more remunerative crop.

However some observers warn that unless new initiatives are carefully planned and executed they will simply repeat old mistakes. Development experts are also more than little anxious

about the surge of interest in high value agriculture such as fresh fruit and vegetables, which has transformed the countryside in many developing nations and revived hopes of an export-led discovery. Demand is especially keen for a producer like Kenya which has the climate to grow several turns of green beans and baby corn. All told, Kenya's horticultural sector is growing about 3 times as fast as the global food economy, and is generating nearly $200 million a year, the most of any product, making Kenya the second largest exporter in all Africa after South Africa. In Mexico, for example, corn is the traditional basis of Mexico's several million subsistence farmers, who consume roughly half of what they grow and who until fairly recently could sell their surpluses in local markets for a price that was kept high by bans on cheap imported corn. After the passage of the North America Free Trade Agreement (NAFTA) in 1995, however, that protectionist ban was phased out, opening Mexico to a rising volume of corn from farmers in Canada and the United states. But the opening of local food system to free market forces poses enormous risks as well. By removing grain boards and grain reserves, for example, developing countries have exposed themselves to some of the downsides of a free market economy. In 2002, officials with the International Monetary Fund advised the government of Malawi to sell off a large portion of its strategic grain reserves in order to pay off an outstanding loan just as the country was moving into a massive maize shortage that sent prices skyrocketing and caused several hundred starvation deaths.

5. Conclusion

In the conclusion, the food economy of the developing world is waiting to see what happens next. After decades of corruption and ineptitude, a steady progression of natural and medical disasters and continually shifting aid strategies the food systems of sub-Saharan Africa and other poor regions are on the knifes edge. In many cases, local officials and aid workers have identified critical factors in food insecurity and have launched targeted solutions that are bringing small but significant successes. The United Nations World Food Program now feeds some two hundred thousand Kenyan children in the Nairobi slums alone, often in school lunch programs .For the meantime the food economies are so fragile that even a small disruption such as drought, flood, and border conflict is sufficient to push the system into collapse. Kenya found itself deeper and deeper into a nation size poverty trap. Population continues to grow which pushes more people into less and less suitable lands, where their maize and other nontraditional crops are even more prone to failure. Daily nourishment levels fall, both in overall caloric intake and crucially, meat; whereas meat consumption has climbed by a third in Latin America and nearly doubled in Asia since 1970s, it has actually fallen in sub-Saharan Africa. All told, most of the gains in food security made during the 1960s and 1970s are being lost: infant mortality in sub-Saharan and India is soaring while life expectancy is dropping like a stone .In Kenya, life expectancy rose from 40 in1970 to nearly 60 by the mid-1990, but it has since fallen back to nearly 40 and drops a year with each year.(Drimie.S and McLachlan.M.2013)[10]

For decades, the operating assumption of the aid community was that no matter how dysfunctional a country's food system might be, it would eventually respond to the right combination of policies and technologies and join the global food system. Such an outcome

may still be possible for a country like Kenya. But we also now understand that food insecurity comes not simply from bad government, fickle aid strategies and post colonialism but also from the pressure of a burgeoning population coming up against natural constraints such as poor soils, scare water and a changing climate. Environmental change and food insecurity has become synonymous with globalization and deterritorialisation. It is now taken as evidence of a globalized world, bound up in the economic practices of globalization, demonstrative of the ecological one-ness of the planet and demanding of some form of globalized governance in the face of a state in the throes of a crisis of capacity and legitimacy. The globalized politics of the food is also firmly embedded in and characterized by social, economic and political inequities in which those who are already marginalized are made disproportionately worse off in both a material and social sense. In this, it is possible to imagine the crisis in Kenya not as a vestige of our food history but as a vision of our food future. To solve food insecurity at a global level we must follow to exchange the views and ideas globally by listening to each other stories to figure out the particularities of the views and scenario, do not just depend on some metaphysical or theological views, and respect the humanity above than any cultural or political views. (Sundström.J.F.*et.al*.2014)[11]

But we should start, I think by recognizing that the issues like food insecurity are subject to disputation within every society as well as across societies. We need a global conversation that recognizes that we have these very different views and that seeks, first, simple understanding of each other's positions. Next, I think, come attempts to try to agree on fundamental rights: things we think every person is entitled to. Finally, if we're convinced that what a government or a society elsewhere is doing to some people is badly wrong and the conversation gets nowhere, it seems to me that sometimes we just have to try and help the victims like hunger or food security, especially if they ask for our help--whether or not we can get the agreement of the perpetrators. But often we won't be able to help (at reasonable cost) unless we do it through dialogue.

Nevertheless according to WHO, there is enough food in the world to feed everyone adequately; the problem is distribution; Future food needs can or cannot be met by current levels of production; National food security is paramount or no longer necessary because of global trade; Globalization may or may not lead to the persistence of food insecurity and poverty in rural communities.

The overall problem with the food insecurity is geographical location, public stewardship and economic strength in the risks presented by several biophysical threats to agricultural production in different kinds of countries. As these causes are far from evenly spread among the world's major food producers, diversified risk monitoring and international assessment of agricultural production will play a critical role in assuring global food security in 2050.(Charles, D.2013)[12]

References

Breeman, G., Dijkman, J., & Termeer, C. (2015). Enhancing food security through a multi-stakeholder process: the global agenda for sustainable livestock. http://link.springer.com/article/10.1007/s12571-015-0430-4/fulltext.html.

Charles, D. (2015). As Promised: Obama Wants To Overhaul Global Anti-Hunger Efforts. April 10, 2013.

Drimie, S., & McLachlan, M. (2015). Food security in South Africa—first steps toward a transdisciplinary approach. Springer. 5 February 2013. Available online: http://link.springer.com/article/10.1007/s12571-013-0241-4/fulltext.html. (Accessed on March 11, 2015).

FAO UN. (2014). The State of Food Insecurity in the World 2014. Available online: http: //www.fao.org/publications/sofi/2014/en/.(Accessed on March 10, 2015).

Future threats to agricultural food production posed by environmental degradation, climate change, and animal and plant diseases – a risk analysis in three economic and climate settings. Springer. 17 February 2014. Available online: http://link.springer.com/article/10.1007/s12571-014-0331-y/fulltext.html.

Julian, B. (2006). Cosmopolitanism: How to Be a Citizen of the World. A philosopher issues a call for a pragmatic, humane stance toward difference in a world of strangers. *An interview with Kwame Anthony.*

Kavallari, A., Fellmann, T., & Gay, H. (2014). Shocks in economic growth = shocking effects for food security? Springer. 3 August 2014. Available online: http://link.springer.com/article/10.1007/s12571-014-0368-y/fulltext.html.

Pollan, M. (2007). The Omnivore's Dilemma: A natural history of four meals. Edition 2007

Roberts's, P. The end of hunger .The end of food. Edition 2008

Shiferaw, B., Smale, M, Braun, H. J., Duveiller, E, Reynolds, M., & Muricho, G. (2013). Crops that feed the world 10. Past successes and future challenges to the role played by wheat in global food security. Springer. 28 April 2013. Available online: http://link.springer.com/article/10.1007/s12571-013-0263-y/fulltext.html (Accessed on March 11, 2015).

Sundström, J. F., Albihn, A., Boqvist. S, Ljungvall, K, Marstorp, H, Martiin, C, Nyberg, K, Holm, I. V., Yuen, J., & Magnusson, U. (2014).

WFP. (2015). Available online: http://www.wfp.org/hunger/stats. (Accessed on March 11, 2015)

WFP. (2015). Food Security analysis. Available online: http://www.wfp.org/food-security.