

2010-2011 RETURN OF HIGH FOOD PRICES: IMPLICATIONS FOR THE FUTURE AND STEPS THAT ARE BEING OR COULD BE TAKEN TO REDUCE THE IMPACT

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This is a silent tsunami, and one [that's] virtually hitting every developing nation on the earth.¹

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April 23, 2008

[T]his time there will be no "silent tsunami." The situation is different from 2008. The world is aware of the risks. The global community, the UN and Bretton Woods system, is fully engaged, more coherent and prepared to act²

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I. INTRODUCTION

For eight consecutive months, beginning in July 2010, global food prices steadily increased, reaching an all-time high in February 2011.³ The global food index, as reported by the Food and

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1. *Seven Questions: The Silent Tsunami*, FOREIGN POL'Y (Apr. 23, 2008), http://www.foreignpolicy.com/articles/2008/04/22/seven_questions_the_silent_tsunami.

2. Paul Gulleik Larsen, Dir. of Multilateral & NGO Relations, U.N. World Food Programme, WFP Remarks to ECOSOC (Feb. 18, 2011), *available at* <http://www.un.org/en/ecosoc/newfunct/pdf/paul.larsen.pdf>.

3. See Agustino Fontevicchia, *Global Food Prices Hit New All Time High After 8 Consecutive Months of Gains*, FORBES (Mar. 3, 2011), <http://www.forbes.com/sites/afontevicchia/2011/03/03/global-food-prices-hit-new-all-time-high-after-8-consecutive-months-of-gains/>.

Agriculture Organization of the United Nations (FAO), averaged 238 points in February, the highest index since the FAO began tracking world food prices in 1990.⁴ Even more startling, the February 2011 index is thirty-eight points higher than the average index for 2008, during which time the world experienced a major food price crisis.⁵ Although decreasing, the index still remains high, averaging 215 points in February 2012.⁶

There are clear humanitarian concerns given the estimated 925 million people who were undernourished in 2010.⁷ And, because increased food prices impact low-income groups to a greater degree given that they spend a greater portion of their income on food, with food representing “about 60-80 percent of consumer spending in poor countries in comparison to 10-20 percent in rich countries,”⁸ increasing food prices threaten to push millions of more people around the globe into extreme poverty. Similarly, even though substantial progress has been made in reducing global poverty, the same advancements have not been made in decreasing global hunger, which is likely due, at least in part, to higher food prices. In other words, the poorest populations still cannot afford sufficient food because food prices are increasing at a similar or greater rate than increases in income. Food price crises also implicate political stability, with evidence suggesting that there is a significant link between changes in food prices and political protests.⁹ In addition to the violence and destruction that can

4. Nathaniel Gronewold, *Food Prices Hit Record High, Spurring Worries About Global Unrest*, N.Y. TIMES (Mar. 3, 2011), <http://www.nytimes.com/gwire/2011/03/03/03greenwire-food-prices-hit-record-high-spurring-worries-a-91940.html>. The FAO Food Price Index measures monthly changes in international prices for a basket of food commodities, consisting of five commodity group price indices: sugar, oils and fats, cereals, dairy, and meat. *FAO Food Price Index*, FOOD & AGRIC. ORG. OF THE UNITED NATIONS (Jan. 1, 2012), <http://www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en>.

5. Gronewold, *supra* note 4.

6. See *FAO Food Price Index*, *supra* note 4 (showing the February peak); *Monthly Food Price Indices*, FOOD & AGRIC. ORG. OF THE UNITED NATIONS, http://typo3.fao.org/fileadmin/templates/worldfood/Reports_and_docs/Food_price_indices_data.xls (last visited Mar. 13, 2012) (providing average monthly data).

7. FOOD & AGRIC. ORG. OF THE UNITED NATIONS, *THE STATE OF FOOD INSECURITY IN THE WORLD* 8 (2010).

8. ANURADHA MITTAL, *THE 2008 FOOD PRICE CRISIS: RETHINKING FOOD SECURITY POLICIES* 1 (2009).

9. See Cullen Hendrix et al., *Grievance and Opportunity: Food Prices, Political Regime, and Protest* 2, 5 (Feb. 15, 2009) (paper presented at the 2009 International Studies Association Convention) (discussing the link between food prices and political mobilization and, “[d]rawing on a sample of 55 major cities in 49 Asian and African countries for the period [of] 1961-2006, . . . find[ing] that international food prices are a significant determinant of the incidence of protest and riots”).

result, political instability can increase the size of vulnerable populations as well as make it more difficult for both domestic governments and the international community to provide food to those in need.

The 2010–2011 increase in prices has demonstrated the speed at which food prices can climb and has already had a devastating impact across the globe. This raises serious concerns for the international community regarding the importance of addressing, and the ability to combat, global food insecurity. This past decade has demonstrated that global food price crises may no longer be few and far between, and instead may be a major impediment to achieving global food security. Therefore, any efforts focused on ending world poverty and ensuring global food security must also address the causes of, and the need to prevent, spiking food prices.

II. BACKGROUND

With memories of the 2007–2008 food crisis still fresh, many fear that another food crisis of the same or larger proportions has arrived. Some believe that the current situation is an extension of the previous crisis, which was briefly stifled due to the global economic recession but which never truly ended, while others believe that a food price crisis is not on the horizon, or at least not one of the magnitude experienced in 2007–2008.¹⁰ Nonetheless, regardless of whether, and to what extent, another food price crisis is occurring, the global community is in agreement that food security and food price stability are pressing international issues.

A. *The Recent Food Price Crises*

1. The 2007–2008 Food Price Crisis

After the global food crisis in the 1970s, food prices began a steady decline, which lasted throughout the 1980s and 1990s, and reached an all-time low in the beginning of the new millennium.¹¹

10. *Compare Concerns Mount Over Rising Food Prices*, INTER-AM. INST. FOR COOPERATION ON AGRIC. 1 (Feb. 2011), <http://www.iica.int/esp/dg/Documents/TechnicalnoteFoodCrisis.pdf> (noting that some analysts believe the current problems are a continuation of the 2008 crisis), with Rudy Ruitenberg, *Food Crisis Not as Bad as 2008 Because of Rice Price*, *OECD Says*, BLOOMBERG (Mar. 2, 2011), <http://www.bloomberg.com/news/2011-03-02/global-food-crisis-was-worse-in-2008-when-rice-costs-rose-more-oecd-says.html> (noting the Organisation for Economic Co-operation and Development's claim that the scale of the crisis in 2008 would not recur because the price of rice, which is a staple for much of the world's poor, has not followed the trend of increases seen with other grains).

11. DEREK HEADEY & SHENGGEN FAN, INT'L FOOD POLICY RESEARCH INST., *REFLECTIONS ON THE GLOBAL FOOD CRISIS*, at x (2010).

Starting in 2003, food prices began to rise dramatically and quickly, with some commodity prices doubling in just a few months.¹² The International Monetary Fund (IMF) estimated that, by March 2008, food prices had increased by an average of 43% compared to prices just one year prior.¹³ Moreover, prices of certain commodities increased much more drastically. For example, the U.S. Department of Agriculture estimated that during that same period, the prices of wheat and soybeans increased by 146% and 71%, respectively.¹⁴ The impact that such increases in food prices had on the world's population was clear. U.N. Secretary-General Ban Ki-moon emphasized the magnitude of the problem by explaining that "in a single year, staple foods that feed half the world more than doubled in price."¹⁵

It was suggested that the increase in prices between 2005 and 2007 increased global poverty by 3%, with almost thirty million additional persons falling below the poverty line in Africa alone.¹⁶ Other estimates suggest that high food prices were the cause—or part of the cause—of an additional 115 million people falling into chronic hunger.¹⁷ To address the growing need for food aid resulting from the increase in food prices, it was estimated that an additional \$25 to \$40 billion was required in aid and that at least \$10 billion would be needed to address the short term needs of the countries that were hit the hardest.¹⁸

2. The 2010–2011 Food Price Crisis

Stories about the movement of global food prices in 2010 and 2011 echo those heard just four years ago. As food prices hit all-time highs, there are concerns that global hunger will surge as well. According to the FAO's Food Price Index, prices for each basket of commodities—meat, dairy, cereals, oils and fats, and sugar—rose

12. *Id.* at 1.

13. *Global Food Insecurity and Price Increase*, SITUATION REP. (USAID/Office of U.S. Foreign Disaster Assistance, Wash., D.C.), May 22, 2009, at 1, available at http://www.usaid.gov/our_work/humanitarian_assistance/disaster_assistance/countries/global_food_crisis/template/fs_sr/food_insecurity_sr01_05-22-2009%20.pdf.

14. *Id.*

15. Lesley Wroughton, *Developing World Leaders Urge Action on Food Crisis*, REUTERS (Sept. 23, 2008), <http://www.reuters.com/article/2008/09/23/us-un-assembly-food-idUSTRE48MCAX20080923>.

16. WORLD BANK, ADDRESSING THE FOOD CRISIS: THE NEED FOR RAPID AND COORDINATED ACTION 3 (2008).

17. Shimelse Ali, *Is Another Food Crisis on the Horizon?*, CARNEGIE ENDOWMENT FOR INT'L PEACE (Sept. 16, 2010), <http://www.carnegieendowment.org/2010/09/16/is-another-food-crisis-on-horizon/4ex>.

18. MITTAL, *supra* note 8, at 16.

significantly during 2010 and 2011, and most experienced a consistent increase from July 2010 to February 2011.¹⁹ “The increasing costs of sugar, whose price recently hit a 30-year high, oilseeds and meat are the main reason behind the rise in the FAO food index.”²⁰ While the export price of maize remained well above its 2008 peak for most of 2011, the export price of wheat remained below its 2008 peak.²¹ The export price in 2011 for the two types of rice monitored by the FAO—Thai 100% B and Viet 25%—exceeded the prices in 2010, but have remained well below the 2008 peaks.²² Nonetheless, while individual price changes are varied, there is still concern surrounding the overall effect that these increases will have on the world’s poor. Indeed, between June 2010 and February 2011, an estimated forty-four million people were pushed into poverty because of increasing food prices.²³

The first half of 2011 presented some factors suggesting that the changes in food prices might not have an effect of the same magnitude as the previous crisis. First, a number of African countries had good harvests, which kept prices relatively stable—at least in those areas—for key staples such as maize.²⁴ For example, the largest maize grower in Africa—South Africa—harvested its biggest crop in three decades, and other African nations were experiencing food surpluses.²⁵ As a result, it was noted that “[i]n most of the countries, we’re not seeing any meaningful food inflation.”²⁶ Second, the price of rice has not been increasing to the same extent as other cereals and, as discussed above, has remained below its 2008 levels.²⁷ A senior economist for the FAO has suggested that “[p]robably rice is the commodity which is separating us from a food crisis[.]”²⁸ Rice is an important staple food for over 50% of

19. See *FAO Food Price Index*, *supra* note 4.

20. Javier Blas, *Global Food Prices Hit Record High*, *FIN. TIMES* (Jan. 5, 2011), <http://www.ft.com/cms/s/0/51241bc0-18b4-11e0-b7ee-00144feab49a.html>.

21. See *EST: Grains*, *FOOD & AGRIC. ORG. OF THE UNITED NATIONS*, <http://www.fao.org/economic/est/est-commodities/grains/en> (last visited Jan. 19, 2012).

22. *EST: Rice*, *FOOD & AGRIC. ORG. OF THE UNITED NATIONS*, <http://www.fao.org/economic/est/est-commodities/rice/en> (last visited Jan. 19, 2012).

23. *Food Price Hike Drives 44 Million People into Poverty*, *WORLD BANK* (Feb. 15, 2011), <http://go.worldbank.org/OFGV8BZN20>.

24. *Id.*

25. Ed Cropley, *Africa Can Ride Out Food Price Surge This Time*, *REUTERS* (Jan. 10, 2011), <http://af.reuters.com/article/topNews/idAFJOE7090AM20110110>.

26. *Id.*

27. See Ruitenberg, *supra* note 10.

28. Rudy Ruitenberg, *World Food Prices Climb to Record as UN Sounds Alarm on Further Shortages*, *BLOOMBERG* (Mar. 3, 2011), <http://www.bloomberg.com/news/2011-03-03/world-food-prices-climb-to-record-as-un-sounds-alarm-on-further-shortages.html>. During

the world's population,²⁹ and, therefore, less volatile rice prices reduces the pressure on many of the world's poorest.

B. *Consequences of Rising Food Prices*

For the world's poorest populations, higher food prices translate into an inability to buy sufficient amounts of food, which can have a tremendous impact even in a short amount of time. U.N. Secretary-General Ban Ki-moon highlighted this problem: "I am especially concerned about the poorest households that often spend three quarters of their income on food They have no buffer. When prices go up, they go hungry."³⁰ As prices rise, obtaining food becomes more difficult not only for vulnerable populations with limited incomes and access to food but also for the organizations that seek to provide food aid to those populations and are restricted by limited budgets. Moreover, even after food prices decline, price spikes can have long lasting effects.

The analysis of hunger during crisis and recovery brings to the fore the vulnerability to economic shocks of many poor countries. Lack of appropriate mechanisms to deal with the shocks or to protect the most vulnerable populations from their effects result in large swings in hunger following crises. Moreover, it should not be assumed that all the effects of crises on hunger disappear when the crisis is over. Vulnerable households deal with shocks by selling assets, which are very difficult to rebuild, by reducing food consumption in terms of quantity and variety and by cutting down on health and education expenditures – coping mechanisms that all have long-term negative effects on quality of life and livelihoods.³¹

Thus, increases in food prices have serious, and long-lasting, implications for the global community in the fight against food insecurity and world hunger.

the 1970s food crisis, the largest increase in price was also seen in rice. HEADEY & FAN, *supra* note 11, at 10. Between 1970 and 1974 and between January 2004 and May 2008, the price of rice increased by 225.3% and 223.6% respectively, with the next largest increase in the price of food occurring with wheat at an increase of 182% and 107.9% respectively. *Id.*

29. Ruitenbergh, *supra* note 10. Ken Ash, the trade and agriculture director for the Organisation for Economic Co-operation and Development has noted that "two-thirds of the world's hungry [are] largely reliant on rice as a staple" and that, because rice prices were remaining low, "[i]n developing countries the impact should not be as negative." *Id.*

30. Press Release, Gen. Assembly, Secretary-General Calls for 'Concrete Plan' to Improve Plight of Most Vulnerable, as General Assembly Holds Debate on Least Developed Countries, U.N. Press Release GA/11053 (Mar. 11, 2011).

31. FOOD & AGRIC. ORG. OF THE UNITED NATIONS, *supra* note 7, at 10.

1. The Millennium Development Goals

The impact that increased food prices are having on global food security is illustrated through the pursuit of the Millennium Development Goals (MDGs). In 2000, the U.N. General Assembly affirmed that there are “certain fundamental values . . . essential to international relations in the twenty-first century . . . [i]nclud[ing] [that] . . . [m]en and women have the right to live their lives and raise their children . . . free from hunger.”³² In recognition of the importance of these values, the United Nations identified a number of objectives, which became known as the Millennium Development Goals. The MDGs encompass eight overarching goals—ending poverty and hunger, universal education, gender equality, child health, maternal health, combating HIV/AIDS, environmental sustainability, and global partnership—each of which have specific targets to reach by 2015.³³

The first of the MDGs, eradicating extreme poverty and hunger, includes as one of its targets to “[h]alve, between 1990 and 2015, the proportion of people who suffer from hunger[.]”³⁴ From 1990 to 1992, 20% of the population in developing regions—approximately 828 million people—were undernourished.³⁵ While this number decreased by 1995 to 1997 and again by 2000 to 2002, the proportion of the population in the developing world that was undernourished remained constant at 16% between 2000 to 2002 and 2005 to 2007.³⁶ Although a reduction in the percentage of developing countries’ population that are undernourished from 20% to 16% (a 20% reduction) is significant, the percentage of the population in developing regions living on less than \$1.25 a day decreased from 46% to 27% (a 41% reduction) from 1990 to 2005.³⁷ The progress that has been made in reducing extreme poverty suggests that there should have been greater progress in reducing the percentage of the population that was undernourished.

In a 2011 report, the United Nations noted that, based on the trend of decreasing poverty but minimal changes in undernourishment, “and in light of the economic crisis and rising food prices, it

32. G.A. Res. 55/2, ¶ 6, U.N. Doc. A/RES/55/2 (Sept. 18, 2000).

33. *The WTO and the Millennium Development Goals*, WORLD TRADE ORG. 2, http://www.wto.org/english/thewto_e/coher_e/mdg_e/mdg_e.pdf (last visited Jan. 19, 2012).

34. UNITED NATIONS, *THE MILLENNIUM DEVELOPMENT GOALS REPORT 11* (2011).

35. *Id.*

36. *Id.*

37. *Id.* at 6, 11 graph.

will be difficult to meet the hunger-reduction target in many regions of the developing world.”³⁸ Indeed, the most recent data available to the United Nations suggests that, while the MDGs target has already been met or is expected to be met by 2015 in northern Africa, eastern and south-eastern Asia, and Latin America and the Caribbean, progress has been “insufficient to reach the target if prevailing trends persist” in sub-saharan Africa and Caucasus and central Asia, and there has been “[n]o progress or deterioration” in southern and western Asia.³⁹ Moreover, the United Nation’s findings regarding undernourishment are based on data from 2007; therefore, the increases in food prices that have occurred since 2007 have likely increased the percentage of the population that is undernourished and made it less likely that the MDGs target will be met.

2. Political Instability

An additional concern raised by high food prices is that drastic increases in food prices can also prompt actions, such as protests and riots, within those countries severely impacted by rising food costs.⁴⁰ “As the Tunisian dictator Zine el Abidine Ben Ali discovered in January [2011], there is no surer route to political oblivion than to deny people access to affordable food.”⁴¹ Increases in food prices have often been a catalyst among populations to spur political change, and “[t]he phenomenon of people taking to the streets to protest hunger has a very long history.”⁴² Evidence suggests that increases in global food prices cause “significant deterioration” to democratic institutions in lower income countries and “significantly increase” occurrences of domestic conflict.⁴³

Food riots often reflect dissatisfaction with the political status quo beyond simply the desire to have access to affordable food.

38. *Id.* at 11.

39. *Millennium Development Goals: 2011 Progress Chart*, UNITED NATIONS, [http://www.un.org/millenniumgoals/pdf/\(2011E\)_MDReport2011_ProgressChart.pdf](http://www.un.org/millenniumgoals/pdf/(2011E)_MDReport2011_ProgressChart.pdf) (last visited Jan. 19, 2012).

40. See generally Raj Patel & Philip McMichael, *A Political Economy of the Food Riot*, 32 *REVIEW* 9, 12–14 (2009) (discussing the history of food riots).

41. Eric Pooley & Philip Revzin, *World Feeding Itself Spurs Search for Answers*, BLOOMBERG (Feb. 17, 2011), <http://www.bloomberg.com/news/2011-02-17/world-feeding-itself-spurs-search-for-answers-eric-pooley-and-phil-revzin.html>.

42. Patel & McMichael, *supra* note 40, at 12, 22 (“Northern officials view the food crisis as a security issue, with food riots as ‘stark reminders that food insecurity threatens not only the hungry but peace and stability itself.’”).

43. Rabah Arezki & Markus Brückner, *Food Prices and Political Instability* 3 (Int’l Monetary Fund, Working Paper No. WP/11/62, 2011).

“[N]ot only is the food riot one of the oldest forms of collective action, it is also the moment in which economic and political injustice reaches a tipping point—arguably because food is the most elemental material symbol of the social contract.”⁴⁴ Political instability is particularly likely as a result of price shocks, opposed to consistently high prices, because, while populations may suffer from consistent hunger, they may not act out until there is a change in the status quo.

Riots express something other, or more, than the depth of poverty. . . . [Riots are related to] a gap between what people believe to be their entitlement and what they can in fact achieve. Food inflation has meant that people believe they ought to be able to feed their families at a certain level, which is significantly lowered when food inflation hits.⁴⁵

The connection between food prices and political instability has perhaps been demonstrated most clearly by the actions of the Egyptian people in response to rising bread prices. In Egypt, which is among the world’s largest consumers of bread,⁴⁶ the government has been subsidizing bread since the 1940s.⁴⁷ However, in an attempt to liberalize the Egyptian economy, in 1977 then-President Anwar Sadat ended subsidies of bread, as well as flour and cooking oil, as part of an agreement with the World Bank and IMF.⁴⁸ In reaction, hundreds of thousands of Egyptians protested for two days, stopping only after the subsidies were restored.⁴⁹ President Sadat expanded the subsidy program, and “[f]ood subsidies came to be seen as both a safety net to protect the poor, as well as an important tool in the promotion of social equity.”⁵⁰

While the government had been able to maintain low bread prices in the intervening decades, the food price crisis that began in 2007 was a force beyond the government’s control. Not only did the increase in food prices make bread more expensive, the

44. Patel & McMichael, *supra* note 40, at 23.

45. *Id.* at 25.

46. *Egyptians Riot over Bread Crisis*, TELEGRAPH (Apr. 8, 2008), <http://www.telegraph.co.uk/finance/economics/2787714/Egyptians-riot-over-bread-crisis.html> (noting that Egyptians eat 400 grams a day per person).

47. See Michael Slackman, *Bread, the (Subsidized) Stuff of Life in Egypt*, N.Y. TIMES (Jan. 16, 2008), <http://www.nytimes.com/2008/01/16/world/africa/16iht-bread.4.9271958.html>.

48. *Current Protests in Egypt Recall “Bread Riots” of 1977*, INT’L BUS. TIMES (Jan. 27, 2011), <http://www.ibtimes.com/articles/105949/20110127/current-protests-in-egypt-recall-bread-riots-of-1977.htm>.

49. See *id.*

50. Tammi Gutner, *The Political Economy of Food Subsidy Reform in Egypt* 19 (Int’l Food Policy Research Inst., FCND Discussion Paper No. 77, 1999).

increased cost of unsubsidized food made the population even more reliant on subsidized bread. To ensure an adequate source of affordable bread, the government sold subsidized flour to bakeries so that the bakeries could sell bread at subsidized rates.⁵¹ The result was long waits and outbreaks of violence at bakeries while people fought to receive their primary food source; moreover, rampant corruption and a thriving black market made cheap bread and flour even scarcer and harder to come by for the poor.⁵² With concerns of bread shortages and the deaths of six people waiting in a bread line—some due to exhaustion, others due to violence—then-President Hosni Mubarak eventually ordered the Egyptian army to begin baking and distributing bread for the public.⁵³ This did not occur soon enough, and in April 2008, tens of thousands of Egyptians protested high food prices, widespread unemployment, and police brutality.⁵⁴

The steep increase in food prices during 2007 and 2008 sparked political protests across the globe, including in Italy, Haiti, Uzbekistan, Senegal, India, Cameroon, Mexico, and Argentina.⁵⁵ It is estimated that during the 2007–2008 food crisis, rioting occurred in forty-eight countries,⁵⁶ affecting nations with various types of regimes, including those that have a history of stability as well as those that have been plagued with political problems. The dramatic increases in food prices seen in the past year have sparked similar problems, with political upheaval occurring in multiple countries and threatened in many more. For example, while many of the stability concerns in the Middle East and Africa are attributed to political problems, “it isn’t just about politics This is about hunger, about poverty, about food production[,] about a

51. See Slackman, *supra* note 47.

52. Michael Slackman, *Egypt's Problem and Its Challenge: Bread Corrupts*, N.Y. TIMES (Jan. 17, 2008), <http://www.nytimes.com/2008/01/17/world/africa/17bread.html>. For example, the government would sell bakeries a twenty-five pound bag of flour for about \$1.50, with the expectation that the bakery would sell the resulting bread at a subsidized rate. *Id.* While selling bread at the subsidized rate could result in a \$10 profit, the bakery could sell the bag of flour on the black market for \$15. *Id.*

53. Ellen Knickmeyer, *In Egypt, Upper Crust Gets the Bread*, WASH. POST (Apr. 5, 2008), <http://www.washingtonpost.com/wp-dyn/content/article/2008/04/04/AR2008040403937.html>.

54. Annia Ciezadlo, *Let Them Eat Bread*, FOREIGN AFF. (Mar. 23, 2011), <http://www.foreignaffairs.com/articles/67672/annia-ciezadlo/let-them-eat-bread>.

55. Patel & McMichael, *supra* note 40, at 9.

56. Henk-Jan Brinkman & Cullen S. Hendrix, *Food Insecurity and Conflict: Applying the WDR Framework* ¶ 2 (Aug. 2, 2010) (background paper).

change of world economy.”⁵⁷ The protests in Tunisia and Egypt, which resulted in their leaders being overthrown, have been attributed in part to the increase in food prices.⁵⁸ Food price increases also contributed to protests held in Algeria, which resulted in the government decreasing taxes associated with basic food products.⁵⁹ And in order to prevent protests, the government of Jordan placed price caps on sugar and rice and decreased fuel taxes.⁶⁰

Similarly, in early 2011 the United Nations warned that Latin American and African countries that are heavily reliant on food imports are at the most risk for riots motivated by increasing food prices.⁶¹ For example, Mozambique experienced brief protests in 2010 in response to government plans to increase the price of bread,⁶² and Bolivia has already experienced protests due to food shortages and government intervention in domestic food production.⁶³ Furthermore, there are concerns that government actions taken to subdue potentially discontented populations may not be sustainable, creating risks of future instability in those nations.⁶⁴

III. CAUSES

Many people believed that the “surge in crop prices to near record highs in [2007–2008] was due to the contemporaneous occurrence of a panoply of contributing factors, which [were] not likely to be repeated in the near term.”⁶⁵ Yet, just two years after that crisis, food prices spiked again, with some commodity prices

57. Mark John, *Arab Protests Show Hunger Threat to World - Economist*, REUTERS (Feb. 12, 2011), <http://in.reuters.com/article/2011/02/12/idINIndia-54852720110212> (quoting development economist Jeffrey Sachs).

58. *Protests and the Pump*, ECONOMIST (Feb. 3, 2011), <http://www.economist.com/node/18070220>.

59. See Salman Ansari Javid, *Arab Dictatorships Inundated by Food Price Protests*, TEHRAN TIMES (Jan. 27, 2011), http://www.tehrantimes.com/index_View.asp?code=234768.

60. *Id.*

61. Nicholas Larkin, *Food Riots Threaten Latin America on Surging Commodities in UN Assessment*, BLOOMBERG (Feb. 16, 2011), <http://www.bloomberg.com/news/2011-02-16/latin-america-africa-most-at-risk-from-riots-as-food-prices-rise-un-says.html>.

62. *Id.*

63. *Morales Aborts Visit amid Fears of Food Riots*, UPI.COM (Feb. 11, 2011), http://www.upi.com/Top_News/Special/2011/02/11/Morales-aborts-visit-amid-fears-of-food-riots/UPI-56061297458214.

64. See Andy Xie, *Hot Money, Fast Riots*, MARKET WATCH (Feb. 28, 2011), <http://www.marketwatch.com/story/hot-money-fast-riots-and-the-fed-2011-02-28>.

65. ORG. FOR ECON. CO-OPERATION & DEV. & FOOD & AGRIC. ORG. OF THE UNITED NATIONS, OECD-FAO AGRICULTURAL OUTLOOK 2010-2019, at 27 (2010) [hereinafter AGRICULTURAL OUTLOOK].

exceeding their 2008 peaks.⁶⁶ Food prices are affected by a number of factors impacting both demand and supply, and as long as these factors continue to fluctuate, food prices remain vulnerable to volatility.

A. *Factors Affecting Supply*

1. Weather

Weather-related factors can have a significant impact on the amount of food produced in any given season and thus can have a major effect on food prices. Weather-related factors have two sets of considerations. First, the impact of a weather-related event can significantly reduce the amount of food available due to single, “one-off” events, such as a flood or a drought, which can affect the harvests for that particular season or year. Second, the long-term effects of climate change can cause extreme weather in any given year as well as cause changes in long-term weather patterns. While no individual incident of severe weather can be specifically attributed to climate change, the effects of climate change on global weather patterns increase the probability that such extreme weather will occur.⁶⁷ Indeed, some data show that “the number of extreme weather events like windstorm[s] and floods has tripled since 1980.”⁶⁸ Additionally, the Intergovernmental Panel on Climate Change predicts that during the twenty-first century “[i]t is *very likely* that hot extremes, heat waves and heavy precipitation events will become more frequent” and “*likely* that future tropical

66. See, e.g., *EST: Grains*, *supra* note 21; *EST: Meat*, FOOD & AGRIC. ORG. OF THE UNITED NATIONS, <http://www.fao.org/economic/est/est-commodities/meat/en> (last visited Jan. 19, 2012).

67. See Tim Woollings, *Winds of Change?*, PLANET EARTH, Winter 2010, at 18, 19. The connection between climate change and incidents of severe weather has been analogized to having a loaded dice:

Imagine you have a loaded dice that comes up with a six more often than it should, then imagine you roll the dice and it comes up six. Now ask yourself, did you get that six because the dice is loaded or would it have come up anyway? By loading the dice you have changed the statistics of how it behaves over many rolls – if you roll it 1000 times and get a six on 500 of those rolls, you know that’s because the dice is loaded but you can’t attribute any individual six to that fact. That’s the equivalent of the question about climate change – by adding greenhouse gases to the atmosphere we are effectively loading the dice, so that the statistics of climate are changed.

Id.

68. Alister Doyle, *Analysis: Pakistan Floods, Russia Heat Fit Climate Trend*, REUTERS (Aug. 9, 2010), <http://www.reuters.com/article/2010/08/09/us-climate-extreme-idUSTRE6782DU20100809>.

cyclones (typhoons and hurricanes) will become more intense, with larger peak wind speeds and more heavy precipitation.”⁶⁹

With regard to the 2007–2008 food price crisis, “it is quite possible that the Australian drought had a particularly sharp effect on prices, especially given that the United States also experienced a poor harvest . . . and more modest declines also characterized Russian and Ukrainian production.”⁷⁰ Similar patterns can be seen today. Beginning in 2010, and continuing through 2011, there were multiple weather-related incidents that have seriously impacted the cost of food. In particular, four of the six largest wheat exporters had wheat crops damaged by severe weather.⁷¹ For example, Russia, which accounts for about 17% of the global trade in grain, experienced a severe drought, affecting millions of acres of wheat production.⁷² Similarly, a drought in Argentina—along with government-imposed export restrictions—led the nation to export the smallest amount of wheat since 1981.⁷³ Additionally, floods damaged wheat harvests in other major wheat producing and exporting countries, such as Australia and Canada.⁷⁴ Nonetheless, as of December 2011, the FAO forecasts that wheat

69. LENNY BERNSTEIN ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT 46 (Abdelkader Allali et al. eds., 2007).

70. HEADEY & FAN, *supra* note 11, at 46–47.

71. See Whitney McFerron & Elizabeth Campbell, *Crop Weather Damage Grows as Europe Drought, Canada Rain Boost Grain Costs*, BLOOMBERG (May 10, 2011), <http://www.bloomberg.com/news/2011-05-10/grain-crop-weather-damage-growing-on-europe-drought-canada-rain.html> (noting damage to wheat crops caused by droughts in Russia, France, and the United States, and excess rain in Canada). According to FAO statistics, in 2008 the largest wheat exporters, in order, were the United States, Canada, France, Australia, the Russian Federation, and Argentina. FAOSTAT, <http://faostat.fao.org/site/342/default.aspx> (follow “Countries by commodity” hyperlink; select “Wheat”; select “2008”) (last visited Jan. 19, 2012).

72. Andrew E. Kramer, *Russia, Crippled by Drought, Bans Grain Exports*, N.Y. TIMES (Aug. 5, 2010), <http://www.nytimes.com/2010/08/06/world/europe/06russia.html>.

73. See Rodrigo Orihuela, *Argentine Wheat Exports May Fall to Lowest in Almost 3 Decades on Quotas*, BLOOMBERG (Jan. 25, 2011), <http://www.bloomberg.com/news/2011-01-25/argentina-wheat-exports-drop-to-lowest-in-three-decades-on-quotas-drought.html>.

74. See Micheal Heath & Luzi Ann Javier, *Australian Floods Prompt Cuts in Wheat Export Forecasts, Cause Evacuation*, BLOOMBERG (Dec. 5, 2010), <http://www.bloomberg.com/news/2010-12-05/australia-floods-prompt-evacuations-crop-alert-as-futures-rise.html> (Australia flooding); Whitney McFerron & Greg Quinn, *Canada’s Wheat Crop to Shrink 17% from Last Year on Flooding in Prairies*, BLOOMBERG (Oct. 4, 2010), <http://www.bloomberg.com/news/2010-10-04/canada-s-wheat-crop-to-shrink-17-from-last-year-on-flooding-in-prairies.html> (Canada flooding).

production in 2011 will be about 6.5% above production in 2010, exceeding the previous high from 2009.⁷⁵

Longer-term changes can also have a significant impact on food prices due to the potential of permanent changes to certain environments.

The [Intergovernmental Panel on Climate Change] forecasts . . . that agricultural yields in some African countries . . . may be reduced by up to 50 percent by 2020. Crop yields may increase up to 20 percent in East and Southeast Asia but decrease by 30 percent in Central and South America by 2030. . . . Drier regions of Latin America are expected to see desertification of agricultural land, and Southern Europe is projected to see higher temperatures, more frequent droughts, and decreases in water availability, [and] agricultural productivity . . .⁷⁶

Moreover, an International Food Policy Research Institute (IFPRI) paper estimates that, while global food prices would increase even without changes to the climate, the effects of climate change will cause further increases in food prices from 2000 to 2050, with the additional increases ranging from 32%–37% for rice, 52%–55% for maize, 94%–111% for wheat, and 11%–14% for soybeans.⁷⁷

2. Trade-Related Policies

Government policies related to international trade can have a dramatic impact on food prices because it can affect the distribution of and access to the global food supply.⁷⁸ Trade policies such as subsidies, export restrictions, and trade barriers, which can be implemented by both food-exporting and food-importing countries, influence the food supply because they can create additional incentives and disincentives to food production, exportation, and importation. “Policies that distort production and trade in agricultural commodities potentially impede the achievement of long run food security, by stimulating or conserving production in areas where it would not otherwise occur and by distorting, obscuring or impeding the transmission of price signals to competitive produc-

75. *Crop Prospects & Food Situation*, GLOBAL INFO. & EARLY WARNING SYSTEM (Food & Agric. Org. of the United Nations, Rome, It.), Dec. 2011, at 4, available at <http://www.fao.org/docrep/014/al983e/al983e00.pdf>.

76. Brinkman & Hendrix, *supra* note 56, ¶ 89.

77. GERALD C. NELSON ET AL., INT'L FOOD POLICY RESEARCH INST., CLIMATE CHANGE: IMPACT ON AGRICULTURE AND COSTS OF ADAPTION 6 (2009).

78. TERENCE P. STEWART, THE FOOD CRISIS: A SURVEY OF SOURCES AND PROPOSAL FOR PREVENTING A GLOBAL CATASTROPHE 8 (2008) (noting the argument by free trade advocates that market forces can better ensure the right amount of production and distribution whereas trade barriers can prevent agricultural trade).

ers elsewhere.”⁷⁹ Thus, these trade-distorting policies function as an additional factor upon which supply is dependent.

From 1961 to 2006, “many developing nations went from being net food exporters to net food importers. In 1960, developing countries were net exporters of food, with an overall agricultural trade surplus of almost \$7 billion per year; by 2001, this surplus had been transformed into a deficit of more than \$11 billion.”⁸⁰ The transition of developing countries from net food exporters to net food importers is considered to be partly a consequence of developed countries—with the support of subsidies and other governmental policies—sending large quantities of low-priced commodities to developing markets. While these countries provided low-priced supplies to populations that could not afford higher food prices, many domestic producers were unable to compete sustainably with low import prices.⁸¹ Thus, many developing countries became dependent on international food supplies, and therefore more vulnerable to international food price fluctuations.⁸²

The implementation of the General Agreement on Tariffs and Trade (GATT), its successor, the World Trade Organization (WTO), and the agreements spawning from subsequent negotiations have resulted in large reductions of tariffs and other trade barriers in many areas of trade.⁸³ Agriculture has always had a unique role, and therefore fewer obligations with regard to tariffs and other disciplines have been imposed on agricultural trade.⁸⁴ Efforts have been taken, starting with the Uruguay Round and the resulting Agreement on Agriculture (AoA), to cap and reduce trade-distorting policies and to expand liberalization in agricultural trade, but these changes are still in their early stages.⁸⁵ While there is potential to make significant progress in the Doha Development Round, as of the writing of this Article the negotiations are

79. FOOD & AGRIC. ORG. OF THE UNITED NATIONS ET AL., PRICE VOLATILITY IN FOOD AND AGRICULTURAL MARKETS: POLICY RESPONSES ¶ 92 (2011).

80. Hendrix et al., *supra* note 9, at 2.

81. MITTAL, *supra* note 8, at 11 box 2, 12 box 3.

82. See generally Carmen G. Gonzalez, Comment, *The Global Food Crisis: Law, Policy, and the Elusive Quest for Justice*, 13 YALE HUM. RTS. & DEV. L.J. 462, 465–68 (2010).

83. See *The WTO Agreements*, WORLD TRADE ORG., http://www.wto.org/english/thewto_e/whatis_e/inbrief_e/inbr03_e.htm.

84. See World Trade Organization, Understanding the WTO: The Agreements, Agriculture: fairer markets for farmers, http://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm3_e.htm.

85. See *id.*

deadlocked, and whether and when there will be forward movement is unclear.⁸⁶

Additionally, short-term government policies can exacerbate the problems associated with price increases, as they can further aggravate supply shortages and price pressures. Faced with the prospect of domestic shortages, governments seeking to protect their populations may impose export restrictions or other trade mechanisms to maintain or increase domestic supply. “In the short run, such measures can be helpful domestically, but have significant negative effects on neighbouring and other importing countries. In the long run, they are not very effective because they are a disincentive to production and trade.”⁸⁷ Article XI of the GATT allows member countries to impose “[e]xport prohibitions or restrictions temporarily applied to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting [Member].”⁸⁸ While the AoA requires that members considering utilizing the exception in Article XI “give due consideration to the effects of such prohibition or restriction on importing Members’ food security,”⁸⁹ the interplay between Article XI and the AoA highlights the challenges that exist for national governments that are faced with choosing between supplying the international community and maintaining domestic supply during a time of high food prices. While governments take these steps during a crisis to protect domestic prices and supplies, export bans and other restrictions can distort supply and demand, making it difficult for other populations to access sufficient food supplies. The imposition of export restraints can also cause food-importing countries to become wary of dependence on food imports and emphasize maintenance of domestic supply even if they are not internationally competitive.⁹⁰

During the 2007–2008 food crisis, agricultural export restrictions were put in place by around forty countries.⁹¹ It was observed that “[t]he case of wheat is striking because of the important interplay between weather shocks and trade restrictions.”⁹² After the

86. See Frances Robinson, *WTO Shifts Meeting Goals amid Doha Stalemate*, WALL ST. J. (Dec. 14, 2011), available at PROQUEST, Doc. ID 910862267.

87. Brinkman & Hendrix, *supra* note 56, ¶ 53.

88. General Agreement on Tariffs and Trade art. XI(2)(a), Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194.

89. Agreement on Agriculture art. 12, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 410.

90. STEWART, *supra* note 78, at 10.

91. MITTAL, *supra* note 8, at 15.

92. HEADEY & FAN, *supra* note 11, at 46.

drought in Australia, countries such as India, Ukraine, Argentina, Russia, and Kazakhstan all imposed export restrictions, which both further reduced global supply and increased demand for wheat from markets that remained open.⁹³ Similarly, the IFPRI attributed about three-quarters of the increase in the price of rice in 2008 to government policy responses like export restrictions.⁹⁴

Recognizing the way in which export restrictions exacerbated the previous crisis, there has been a push to inform countries of the negative impact of such actions. The Director-General of the WTO emphasized this problem while speaking to a conference of agriculture ministers in January 2011, noting that “[e]xport restrictions lead to panic in markets when different actors see prices rising at stellar speed.”⁹⁵ Preventing a large number of countries from taking such actions could help ameliorate, or at least not exacerbate, the repercussions of the current price surge. While Russia, Ukraine, Macedonia, and Moldova had imposed export bans or restrictions on wheat in the wake of the current increase in food prices,⁹⁶ governments have not been implementing export restrictions on the scale seen during the previous crisis.⁹⁷ Additionally, in the summer of 2011 Russia and Moldova lifted their bans on wheat exports and Ukraine suspended its export quotas, which has helped push wheat prices down.⁹⁸ Instead, Ukraine has imposed, and Russia has considered imposing, export duties on

93. See *id.* at 47–48.

94. Fact Sheet, U.S. Dep’t of State, Food Price Crisis of 2007-2008: Lessons Learned (Mar. 3, 2011), <http://www.state.gov/r/pa/prs/ps/2011/03/157629.htm>.

95. Pascal Lamy, Dir.-Gen., World Trade Org., Opening Address to the Berlin Agriculture Ministers’ Summit (Jan. 22, 2011), available at http://www.wto.org/english/news_e/sppl_e/sppl183_e.htm.

96. See *Bridges Weekly: Agricultural Export Restrictions Controversy at the WTO*, INT’L CENTER FOR TRADE AND SUSTAINABLE DEV. (Apr. 7, 2011), <http://ictsd.org/i/trade-and-sustainable-development-agenda/103710>. With the exception of Russia, which is not yet a World Trade Organization (WTO) member, each of these countries notified the WTO of their export restrictions, consistent with their international obligations. See *Agriculture Committee Continues to Discuss Export Restraints*, WORLD TRADE ORG. (Mar. 31, 2011), http://www.wto.org/english/news_e/news11_e/ag_com_31mar11_e.htm. The Kyrgyz Republic has also notified the WTO of export restrictions on hay and fodder. *Id.*

97. See Shimelse Ali & Vera Eidelman, *The Surge in Food Prices: What’s Different This Time?*, CARNEGIE ENDOWMENT FOR INT’L PEACE (Apr. 21, 2011), <http://carnegieendowment.org/2011/04/21/surge-in-food-prices-what-s-different-this-time/3f0n> (noting that over 20 countries imposed export restrictions on food in 2008 whereas only a few had done so by mid-2011).

98. See *Restricted Exports, Breached Limits and Cotton Aired in Farm Committee*, WORLD TRADE ORG. (June 23, 2011), http://www.wto.org/english/news_e/news11_e/agcom_23jun11_e.htm (Moldova and Ukraine); *Food Price Watch*, WORLD BANK 2 (Aug. 2011), http://siteresources.worldbank.org/INTPOVERTY/Resources/335642-1210859591030/FPW_August2011.pdf (Russia).

wheat in order to both supply the international market and prevent a surge in domestic prices.⁹⁹

3. Energy Prices

As with any other product, an increase in the cost of inputs will increase the cost of food. Because of the high energy intensity of agriculture production, the increase in energy prices—fuel, in particular—has led to food prices increasing.¹⁰⁰ As input costs increase, producers may increase prices to cover the increases in costs and/or decrease overall production. The U.S. Department of Agriculture estimated that

doubling of prices of energy intensive components of production, including fertilizer and fuel, increased production costs for the United States corn, soybeans, and wheat by around 21.7 percent between 2002 and 2007. This rise in the cost of production increased the export prices of the major United States food commodities by about 15–20 percent between 2002 and 2007.¹⁰¹

Increases in the cost of oil not only affects the production cost of food through an increase in the cost of inputs, but can also further affect prices due to increased transportations costs.¹⁰² It was estimated that the increase in the cost of fuel between 2002 and 2007 added up to 10% to the cost of U.S. exports of corn and wheat compared to the domestic price due to increased transportation costs alone.¹⁰³ Because “[a]griculture is second only to transport in the oil intensity of its energy usage,” it is not surprising that dramatic increases in the cost of fuel coincide with increases in the cost of food.¹⁰⁴ The increase in transportation costs may also impact the distribution of food, resulting in additional pressures on price based upon the distribution of supply.

Estimates suggest that the rise in the price of oil from 2002 to 2007 increased the cost of food production in the United States

99. See Isabel Gorst, *Lifting Wheat Ban Yields Fresh Trouble for Russia*, FIN. TIMES (June 14, 2011), <http://www.ft.com/cms/s/0/25bc7e40-969b-11e0-baca-00144feab49a.html> (*Russian Grain Union proposed export duties*); Roman Olearchyk, *Ukraine Removes Grain Export Quotas*, FIN. TIMES (May 25, 2011), <http://www.ft.com/intl/cms/s/0/aab568fa-86ce-11e0-9d41-00144feabdc0.html> (Ukraine lawmakers adopted legislation imposing export duties).

100. See, e.g., *High Food Prices: Impact and Recommendations*, INT'L FUND FOR AGRIC. DEV., <http://www.ifad.org/operations/food/ceb.htm> (last visited Jan. 19, 2012) (noting the high correlation between food and fuel prices).

101. MITTAL, *supra* note 8, at 4 (citations omitted).

102. Derek Headey & Shenggen Fan, *Anatomy of a Crisis: The Causes and Consequences of Surging Food Prices*, 39 AGRIC. ECON. 375, 380 (2008).

103. See Donald Mitchell, *A Note on Rising Food Prices* 6 (World Bank Dev. Prospects Grp., Policy Research Working Paper No. 4682, 2008).

104. See HEADEY & FAN, *supra* note 11, at 25.

somewhere between 11% and 40%.¹⁰⁵ From the beginning of 2003 to June 2008, the cost of a barrel of oil increased from \$30 a barrel to \$140 a barrel, approximately 35% above the previous record high in real terms;¹⁰⁶ by September 2008, the price of oil had dropped to \$100 a barrel, but was still double the prices seen in 2006.¹⁰⁷ Similarly, as of January 2012 the U.S. Department of Energy forecasts that between 2009 and 2011 certain crude oil prices would increase from an average of \$61.65 per barrel to \$94.86 per barrel, and increase again to \$100.25 per barrel in 2012.¹⁰⁸ Indeed, crude oil prices in early 2011 climbed toward the record highs seen in 2008.¹⁰⁹ Given the extent to which food costs are reliant on energy prices, a continued high level of oil costs will keep food prices at very high levels.

4. Agricultural Research and Development

Given factors such as changes in weather and the availability of land and other resources, agricultural research is becoming an increasingly important factor in ensuring that supply can match the growth in demand.¹¹⁰ In prior decades, when the global population was growing much faster than the supply of food, developed countries recognized the need to invest in agricultural development and improve crop yields in order to feed the expanding pop-

105. *Id.* at 26–27. The paper cites to Donald Mitchell’s research that production cost increased around 11% whereas the paper’s authors suggested the increase was 30% to 40%. *Id.* (citing Mitchell, *supra* note 103, at 5–6).

106. Int’l Monetary Fund, Food and Fuel Prices—Recent Developments, Macroeconomic Impact, and Policy Responses 6–7 (June 30, 2008).

107. Int’l Monetary Fund, Food and Fuel Prices—Recent Developments, Macroeconomic Impact, and Policy Responses: An Update 4 (Sept. 19, 2008).

108. *Short-Term Energy Outlook*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/forecasts/steo/query/index.cfm> (select “Annual”; specify a Year Range of “2009” to “2012”; expand “U.S. Prices-Petroleum-Crude Oil”; select “West Texas Intermediate Spot”; click “Submit Query”) (last visited Jan. 19, 2012) (forecasting the average price for West Texas Intermediate crude oil).

109. For example, early in 2011 “light, sweet-crude oil futures” hit the highest price since September 2008, and Brent crude oil is expect to reach \$120 per barrel, just below the record high from 2008 of \$150 per barrel. David Bird, *Oil Prices Slip, but Hold Above \$105*, WALL ST. J. ONLINE (Mar. 25, 2011), available at PROQUEST, Doc. ID 858461031.

110. See *Hearing to Review Efforts to Deliver International Food Aid and Provide Foreign Agricultural Development Assistance: Hearing Before the Subcomm. on Specialty Crops, Rural Dev. & Foreign Agric. of the Comm. on Agric.*, 110th Cong. 49 (2008) [hereinafter *Food Aid Hearing*] (prepared statement of Nicholas Minot) (“The most effective long-term strategy for addressing the food crisis is to accelerate yield growth, particularly in the staple-food crops. This is necessary for cereal supply to keep pace with growing demand, thus maintaining downward pressure on cereal prices.”).

ulation and fight global hunger and higher food costs.¹¹¹ After the food price crisis in the 1970s, food prices, along with global hunger, began to wane and the perceived need for investment in agricultural aid decreased as well. Increasing and consistent investment in agricultural research and development remains important as it can help ease upward pressures on price and reduce the likelihood of price fluctuations by increasing the global supply. In particular, developments in technology regarding increases in crop yields can have a significant role in increasing crop production, which is especially important given a growing population and a finite amount of resources. The FAO has estimated that increases in crop yield per acre accounted for over 70% of the increase in crop production from 1961 to 1999.¹¹² Similarly, the effects of climate change make it necessary to explore the ability to continue production in certain regions, as well as the opportunity to develop supplies in regions that were previously not suitable for crop growth.

Investment in agricultural research and development can also help minimize the gap between gross food supply and net food supply. For example, it is estimated that 30% to 40% of food globally is lost to waste.¹¹³ Although waste rates are similar in developed and developing countries, the cause of waste is very different. In developed countries, most food waste occurs in the retail or post-retail stages when, for example, a grocery store may discard edible but blemished food or a consumer may discard a product based on its "use by" date.¹¹⁴ In contrast, in the developing world, waste typically occurs in the pre-retail stages, with losses often resulting because of things like pests and poor storage and transportation technologies.¹¹⁵ Post-harvest losses in Africa alone can reach 25% of the total cereal harvest.¹¹⁶ Similarly, in southeast Asia, more than 30% of the rice harvest can be lost due to factors like pests and spoilage.¹¹⁷ Greater research into new technologies

111. See Keith Bradsher & Andrew Martin, *World's Poor Pay Price as Crop Research Is Cut*, N.Y. TIMES (May 18, 2008), <http://www.nytimes.com/2008/05/18/business/worldbusiness/18focus.html>.

112. UNITED NATIONS ENV'T PROGRAMME, *THE ENVIRONMENTAL FOOD CRISIS—THE ENVIRONMENT'S ROLE IN AVERTING FUTURE FOOD CRISIS* 20 (Christian Nellemann et al. eds., 2009).

113. H. Charles J. Godfray et al., *Food Security: The Challenge of Feeding 9 Billion People*, 327 SCIENCE 812, 816 (2010).

114. *Id.*

115. *Id.*

116. UNITED NATIONS ENV'T PROGRAMME, *supra* note 112, at 32.

117. Godfray et al., *supra* note 113, at 816.

aimed at minimizing pre-retail losses can help reduce price pressures by reducing the gap between food production and net food supply.

By 2008, support and donations for agricultural development had decreased by more than half since 1982;¹¹⁸ the United States alone cut agricultural support from \$2.3 billion to \$624 million during that time.¹¹⁹ Interestingly, during the same time period overall commitments to development aid greatly increased, suggesting that donors recognized the need for increased aid, but simply no longer prioritized agricultural aid.¹²⁰ Similarly, during this time, domestic public expenditures decreased, with one study revealing that, in forty-four countries, total government expenditure on agriculture decreased from 11% to 7%.¹²¹ Moreover, since 1990, both national and international agricultural research institutes have faced declining budgets.¹²²

A 2010 report reviewing agricultural aid donations in recent years highlights the changing emphasis on agricultural research.¹²³ The United States has been by far the largest bilateral donor to agricultural aid, contributing an average of over \$1.016 billion per year and accounting for over 31% of all bilateral agricultural aid from 2005 to 2008.¹²⁴ As a percentage of total agricultural aid donations, contributions to agricultural research decreased from 9% during 2000–2003 to 2.9% during 2005–2008.¹²⁵ The next largest bilateral donor—Japan—contributed an average of \$506 million per year, accounting for 15.6% of all bilateral donations, but contributions to agricultural research accounted for only 0.8% of donations in 2000–2003 and decreased to 0.1% by 2005–2008.¹²⁶

118. *Food Aid Hearing*, *supra* note 110, at 48 (prepared statement of Nicholas Minot).

119. STEWART, *supra* note 78, at 11.

120. *Trends in Agricultural Aid*, TRINITY COLLEGE DUBLIN, <http://www.tcd.ie/iis/policy-coherence/development-cooperation-trade-reform/trends-agricultural-aid.php> (last updated Aug. 25, 2010).

121. DANIEL COPPARD, AGRICULTURAL DEVELOPMENT ASSISTANCE: A SUMMARY REVIEW OF TRENDS AND CHALLENGES OF MONITORING PROGRESS 4 (2010).

122. *Food Aid Hearing*, *supra* note 110, at 49 (prepared statement of Nicholas Minot).

123. See COPPARD, *supra* note 121, at 16. Agricultural aid was defined as support to agricultural sector policy, planning, and programs; agricultural land and water resources; agricultural development and inputs; crops and livestock production; agricultural credit; cooperatives; agricultural education; training and research; institutional capacity building and advice; and alternative agricultural development to displace narcotics cultivation. *Id.* at 7–8.

124. *Id.* at 11 tbl.1.

125. *Id.* at 11 tbl.1, 45 tbl.7.

126. *Id.*

“Agricultural aid” encompasses contributions to a large variety of agricultural areas, with the largest portion of overall agricultural aid contributions from 2000 to 2008 going to agricultural policy and administrative management.¹²⁷ Nonetheless, contributions to agricultural research have “risen in prominence from 6% to 10% of all agricultural assistance” when comparing the 2000-2003 period to the 2005-2008 period, and “2005-[2008] levels . . . are almost double those of 2000-[2003].”¹²⁸ This appears to be largely the result of a few bilateral donors making significant increases in the percentage of agricultural aid going to agricultural research. For example, between the 2000–2003 period and the 2005–2008 period, contributions to agricultural research as a percentage of agricultural aid increased from 3.2% to 66.0% from France, from 23.0% to 50.0% from the United Kingdom, from 0.0% to 14.4% from Switzerland, and from 11.9% to 22.6% from Sweden.¹²⁹

B. *Factors Affecting Demand*

1. Consumers and Preferences

While an increase in population at a rate faster than the increase in food production may appear to be a simple cause of increased food prices—the increase in supply is outpaced by the increase in demand—the reality is much more nuanced. In particular, food prices have increased not just because of an increase in demand, but because of an increase in demand of certain products. As populations gain affluence, their demand for food transforms as well; in particular, there is increased demand for meat and dairy products. For example, “[t]he World Bank estimates that food production will need to grow by another 50 percent by 2030 (*and 85 percent for meat*) to fulfil [sic] projected demand.”¹³⁰ In China alone, per-capita meat consumption increased about 20% per year from 2005 to 2009,¹³¹ and the IFPRI projects that from 1997 to 2020, global meat demand will increase from 208 million tons to 326 million tons.¹³² Although the demand for meat in developing countries is expected to stay well below the demand in developed countries, the majority of the increase in global demand is

127. *Id.* at 16 fig.9.

128. *Id.* at 16.

129. *Id.* at 44–45 tbl.7.

130. ALEX EVANS, RISING FOOD PRICES: DRIVERS AND IMPLICATIONS FOR DEVELOPMENT 2 (2008) (emphasis added).

131. China’s Agricultural Trade: Competitive Conditions and Effects on U.S. Exports, Inv. No. 332-518, USITC Pub. 4219, ch. 2, at 2-7 (Mar. 2011).

132. See MARK W. ROSEGRANT ET AL., GLOBAL FOOD PROJECTIONS TO 2020, at 65 (2001).

expected to come from developing countries, with an increase in demand of 92%.¹³³

The changes in global food demand patterns have a two-part impact on food prices. First, the increase in the demand for meat means an increased need to feed animals that will go on to serve the rising demand. It is estimated that to produce one pound of meat, 2.6 to 7 pounds of feed is needed.¹³⁴ For example, China's largest livestock feed producer stated that it will likely use an additional 1.5 million tons of corn in 2011 to accommodate the increasing demand for meat and dairy products.¹³⁵ Second, the increased need to raise food animals means an increased need for land on which to raise these animals, resulting in less land that can be used to grow crops.

While it has been estimated that global increases in income could account for up to half of the increase in food prices seen during 2007 and 2008,¹³⁶ changes in consumption patterns resulting in higher demand for grains are more likely a contributing factor to the overall increase in the price of food seen today and in 2008.¹³⁷ In looking at agricultural market projections over the next decade, it was noted that "[s]tronger demand, with an anticipated return to higher growth following economic recovery and from increasing populations, should outpace production growth, on average, over the projection period [of 2010 to 2019] to maintain all commodity prices on a higher plateau."¹³⁸ Additionally, even though growth in cereal production is anticipated to match growth in demand, prices are expected to remain highly volatile, particularly given the increasing role in production of developing countries.¹³⁹

2. Financial Markets

Given that farmers must plan output for a given harvest well before crops will be sold, they face the dangers of producing

133. See *id.* at 65–66.

134. RONALD TROSTLE, GLOBAL AGRICULTURAL SUPPLY AND DEMAND: FACTORS CONTRIBUTING TO THE RECENT INCREASE IN FOOD COMMODITY PRICES 12 (2008).

135. See William Bi et al., *China's Corn Demand Climbs on Meat Consumption*, *New Hope Says*, BLOOMBERG (Mar. 9, 2011), <http://www.bloomberg.com/news/2011-03-10/china-s-corn-demand-climbs-on-meat-consumption-new-hope-says.html>.

136. See EVANS, *supra* note 130, at 2.

137. Cf. Headey & Fan, *supra* note 102, at 377 (“[I]t seems unlikely that rising soybean demand from the early- to mid-1990s is likely to explain a sudden and largely unforeseen price shock 10 years later.”).

138. AGRICULTURAL OUTLOOK, *supra* note 65, at 26.

139. See *id.* at 28.

beyond what is needed to satisfy demand, resulting in prices too low to sufficiently cover the costs of production. One mechanism for combating the risks associated with unknown food prices, and thus offering more security to farmers, is the futures market. The futures market can provide a level of security with regard to future demand and allow farmers to plan a level of production based upon an already agreed upon prices.

The futures market is supposed to be a “stabilizing” tool for farmers to sell their harvests ahead of time. In a futures contract, quantities, prices and delivery dates are fixed, sometimes even before crops have been planted. As speculators are supposed to buy when prices are low and sell when prices are high, they serve to make prices *less* volatile rather than more so.¹⁴⁰

Commercial actors—farmers, traders, and processors—can utilize the futures market to hedge against future price fluctuations, whereas noncommercial actors take on the risk of future price fluctuations to earn profit.¹⁴¹ The role of noncommercial participants is important to ensure sufficient market liquidity and allows commercial participants to engage in low-cost transactions. The level of noncommercial participation can greatly impact food prices. “Too little non-commercial participation results in low liquidity and potentially in large seasonal price swings. Too much non-commercial participation can cause frequent and erratic price changes.”¹⁴²

The number of traded futures contracts has been growing in recent years, and the amount of speculative capital entering the agricultural commodity markets has greatly increased.¹⁴³ Moreover, loosened restrictions starting in 2000 and “regulatory loopholes” have allowed a large increase in speculation.¹⁴⁴ As the market is flooded with speculation and futures prices increase, spot—or current—prices can be pushed up as well. It was noted that

with the bursting of the housing bubble in mid-2007 and global grain stocks growing low, financial investors saw opportunities in the food commodities markets to diversify their portfolios and

140. MITTAL, *supra* note 8, at 5.

141. See Joachim von Braun & Maximo Torero, *Physical and Virtual Global Food Reserves to Protect the Poor and Prevent Market Failure*, IFPRI POL'Y BRIEF (Int'l Food Policy Research Inst., Wash., D.C.), June 2008, at 1, available at <http://www.ifpri.org/sites/default/files/pubs/pubs/bp/bp004.pdf>.

142. FOOD & AGRIC. ORG. OF THE UNITED NATIONS ET AL., *supra* note 79, ¶ 82 (citations omitted).

143. von Braun & Torero, *supra* note 141, at 1.

144. MITTAL, *supra* note 8, at 5.

improve returns. The greater demand created by investors' speculation in commodity futures put tremendous upward price pressure on food and energy commodities.¹⁴⁵

3. Biofuels

The past decade has seen an enormous push by governments, international bodies, and non-governmental organizations to address issues of energy security. One of the major aspects of these policies has been the production of biofuels as a source of renewable energy. For example, the European Union has mandated that, by 2020, biofuels should account for 10% of transportation fuel use.¹⁴⁶ Similarly, the Energy Independence and Security Act of 2007 increased the biofuel target of the United States to thirty-six billion gallons by 2022.¹⁴⁷

The increased demand for biofuel production has caused an increase in demand for the foods that are used to produce alternative fuels. From 2006 to 2007, biofuels accounted for almost half of the total increase in consumption of major food crops; from 2009 to 2010, grains used in the production of ethanol are expected to account for about 6% of cereal production worldwide and 40% of maize production in the United States alone.¹⁴⁸ This growth in demand can also be enhanced by government policies aimed at increasing biofuel production and consumption, such as tax credits, investment subsidies, and consumption mandates.¹⁴⁹ In addition,

[b]iofuels push[] up the prices not only of the crops used for energy, such as maize and vegetable oil, but also of other foods, because of substitutions in production or consumption through cost-push effects. Approximately 60 percent of global maize production is currently used for animal feed, having an effect on meat and dairy prices.¹⁵⁰

During the 2008 food price crisis, World Bank President Robert B. Zoellick urged the United States and Europe to adopt policies that would encourage production of sugarcane biofuels, as opposed to corn ethanol, in part because it would not directly compete with

145. *Id.* at 5–6.

146. TROSTLE, *supra* note 134, at 15.

147. MARK GEHLHAR ET AL., EFFECTS OF INCREASED BIOFUELS ON THE U.S. ECONOMY IN 2022, at iii (2010).

148. Brinkman & Hendrix, *supra* note 56, ¶ 44.

149. See STEWART, *supra* note 78, at 7.

150. Brinkman & Hendrix, *supra* note 56, ¶ 44.

food production.¹⁵¹ Similarly, as demand for maize increases, more land is used to supply that demand, detracting from the land dedicated to other foods.¹⁵²

Research regarding the extent to which biofuels actually affect the price of food vary greatly, with one study noting that “[s]everal institutions estimate that biofuels accounted for about 20 to 30 percent of the price increases [in 2007 and 2008], but some put this figure as high as 70 percent or as low as 3 percent.”¹⁵³ Nonetheless, the fact that biofuel production can impact food prices is unsurprising given the global division of food and ethanol production. The United States is by far the largest corn exporter in the world, exporting more than three times as much corn as Argentina, the second largest exporter;¹⁵⁴ however, the United States also has been—and is expected to continue to be—the largest ethanol producer, raising concerns that higher prices in the United States resulting from higher demand will “spill[] over onto world markets, triggering an international crisis.”¹⁵⁵ Thus, as demand for biofuels and, in turn, the commodities used to produce them, continues to grow, food prices will likely remain high due to both the primary and secondary effects of increased demand.

IV. ADDRESSING THE PROBLEM

Given the vast implications of food price increases, it is unsurprising that a wide variety of entities work toward ameliorating the impact of food price spikes and addressing global food insecurity. These entities pursue actions ranging from providing direct food aid during times of crisis to supporting local agricultural industries in order to build domestic production. These actions often focus on providing emergency assistance to those most affected and developing programs that will help minimize or ameliorate the impact of increased food prices.¹⁵⁶ However, the speed at which

151. Robert B. Zoellick, *A 10-Point Plan for the Food Crisis*, WORLD BANK, <http://go.worldbank.org/AQXYL87MN0> (last visited Jan. 19, 2012).

152. *E.g.*, HEADEY & FAN, *supra* note 11, at 29 (explaining that in the United States, an increase of maize area by 23% caused a 16% decrease in soybean area).

153. Brinkman & Hendrix, *supra* note 56, ¶ 45.

154. FAOSTAT, <http://faostat.fao.org/site/342/default.aspx> (select “Countries by commodity” hyperlink; select “Maize” and “2008”) (last visited Jan. 19, 2012). According to FAO statistics, in 2008, the United States exported 54,094,400 tonnes of maize, whereas Argentina exported 15,383,200 tonnes. *Id.*

155. MITTAL, *supra* note 8, at 7–8.

156. *See, e.g.*, *Action Plan on Food Price Volatility and Agriculture*, UNITED NATIONS, http://www.un.org/en/issues/food/taskforce/action_plan_on_food_price.shtml (last visited Jan. 19, 2012).

food prices increased in 2007–2008 and in 2010–2011, as well as the proximity of these increases, has demonstrated the need to focus on actions aimed at combating the causes of food price volatility in addition to actions designed to protect populations from the negative effects of food price increases. In response to the 2007–2008 food price crisis, and continuing through the following years, various international and intra-governmental organizations highlighted food price crises as a priority for the global community. For example, the U.N.'s High-Level Task Force on Global Food Security (HLTF), the FAO's High-Level Conference on World Food Security: The Challenges of Climate Change and Bioenergy and Summit on World Food Security, and the meetings of the G8 and G20 have all identified the necessity of policy responses to combat some of the causes of high food prices.¹⁵⁷ Consequently, a number of the obligations identified and the commitments undertaken as a result of these efforts have focused on addressing the causes of food price increases.

A. *Agricultural Research and Development*

With the onset of the 2007–2008 food crisis, the call for agricultural aid was renewed, and increased agricultural research and development has often been an aspect of proposals to address food insecurity. This is unsurprising given that agricultural research and development can not only help increase food supply through, for example, developing technologies for increased crop yields, but can also help address other factors that influence supply, such as weather and production costs, by exploring ways to develop harvests that are more resilient to weather and adaptive to climate change or that can be produced in more cost-effective ways. The HLTF identified increased contributions to agricultural research and development as a necessity to promoting medium- and long-term resilience, stating that significant increases in funding and dissemination of research “are required to avoid another food cri-

157. See generally, e.g., HIGH-LEVEL TASK FORCE ON THE GLOBAL FOOD SEC. CRISIS, UNITED NATIONS, COMPREHENSIVE FRAMEWORK FOR ACTION 21 (2008) [hereinafter CFA]; G20 Meeting of Agriculture Ministers, Paris, Fr., June 22-23, 2011, *Action Plan on Food Price Volatility and Agriculture*, ¶¶ 37–41 [hereinafter *Food Price Volatility*]; G8 Summit, Toyako, Japan, July 7-9, 2008, *G8 Leaders Statement on Global Food Security*, ¶ 7(i) (July 8, 2008) [hereinafter *G8 Leaders Statement*], available at http://www.mofa.go.jp/policy/economy/summit/2008/doc/doc080709_04_en.html; High-Level Conference on World Food Security: The Challenges of Climate Change and Bioenergy, June 3-5, 2008, *Declaration of the High-Level Conference on World Food Security* (June 5, 2008) [hereinafter *Declaration on World Food Security*].

sis in ten to fifteen years.”¹⁵⁸ Agricultural research and development is particularly important in light of the growing population and the impact of climate change.¹⁵⁹ Similarly, the declaration of the High-Level Conference on World Food Security “urge[d] the international community, including the private sector, to decisively step up investment in science and technology for food and agriculture. Increased efforts in international cooperation should be directed to researching, developing, applying, transferring and disseminating improved technologies and policy approaches.”¹⁶⁰

In recognition of the decline of agricultural aid, and the need to reverse the trend, over fourteen countries and the European Commission pledged more than \$20 billion over three years during the G8-plus meeting in July 2009, known as the L'Aquila commitments.¹⁶¹ Despite the push to increase contributions to agricultural aid, it is unclear to what extent agricultural research and development is being targeted. For example, both the United States and Germany have stated that their contributions under the L'Aquila commitments will be in addition to food aid and emergency assistance, whereas Canada stated that its commitment included food aid and other donors did not clarify what their contributions included.¹⁶² Additionally, as reviewed above, although overall contributions to agricultural research have increased in recent years, this appears to have been mainly the result of a few bilateral donors, as contributions to agricultural research as a percent of agricultural aid from many governments and multilateral institutions have decreased.¹⁶³

This, of course, is not meant to suggest that certain countries are necessarily taking the right approach whereas other countries are not; instead, it is simply intended to demonstrate the variety of approaches that donors can take and the difficulties that exist in identifying exactly where contributions are being focused and why. Given that there are a multitude of other areas in agriculture—all of which are important—that are in need of funding, it is difficult to say that the area of agricultural research and development is more worthy of funding than, for example, agricultural education

158. CFA, *supra* note 157, at 21.

159. *See id.*

160. *Declaration on World Food Security*, *supra* note 157, ¶ 7(d).

161. G8 Summit, L'Aquila, It., July 8-10, 2009, “L'Aquila” *Joint Statement on Global Food Security*, ¶ 12 (July 10, 2009), available at http://www.g8italia2009.it/static/G8_Allegato/LAquila_Joint_Statement_on_Global_Food_Security%5B1%5D%2c0.pdf.

162. COPPARD, *supra* note 121, at 6.

163. *E.g., id.* at 44–45 tbl.7.

and training or agricultural financial services, and should receive funding over other projects. Similarly, particularly in light of the economic difficulties that the world has been facing and continues to face, governments, international organizations, and non-governmental institutions have limited resources available, meaning that there is likely a lack of funding in all areas.

B. Trade Policy

A consistent theme among many proposals aimed at addressing food price increases is the role of individual countries' trade policies and the international trade system. Proposals emphasize the need to eliminate trade-distorting practices, by both exporting countries and importing countries, to better facilitate agricultural trade. For example, the HLTF highlighted trade policy changes as part of both the short- and long-term solution, specifically calling on exporting nations to reduce subsidies and export restrictions and on importing countries to minimize tariffs and taxes.¹⁶⁴ Similarly, the G8 and G20, as well as the declaration from the High-Level Conference on World Food Security, specifically identify liberalizing agricultural trade and minimizing trade barriers as critical to achieving global food security and mitigating food price volatility.¹⁶⁵ Moreover, in order to accomplish this, the international community has repeatedly highlighted the necessity of strong international rules and of completing the Doha Development Round of negotiations at the WTO.¹⁶⁶

1. World Trade Organization

The GATT, and subsequently the WTO, has worked toward reducing or eliminating impediments and distortions to trade for over sixty years, and although agriculture was taken into consideration during the creation of the GATT and subsequent negotiating rounds, it was not until the Uruguay Round Agreement on Agriculture was implemented in 1995 that agriculture was directly addressed.¹⁶⁷ The AoA sought to "mitigate [the] inequities in international agricultural trade and . . . gradually dismantl[e] agricultural subsidies and tariffs."¹⁶⁸ Indeed, the agreement itself

164. CFA, *supra* note 157, at 12–13.

165. *Food Price Volatility*, *supra* note 157, ¶¶ 37, 40; *Declaration on World Food Security*, *supra* note 157, ¶ 7(3).

166. *Food Price Volatility*, *supra* note 157, ¶¶ 37-38.

167. See Corinna Hawkes & Sophia Murphy, *An Overview of Global Food Trade*, in TRADE, FOOD, DIET AND HEALTH 16, 18 (Corinna Hawkes et al. eds., 2010).

168. Gonzalez, *supra* note 82, at 470.

notes the importance of trade reform to obtaining global food security and the need of the global trading community to account for the special needs of developing countries and countries dependent upon food imports.¹⁶⁹ Moreover, in the *Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least-Developed and Net Food-Importing Developing Countries*, the Trade Negotiating Committee of the Uruguay Round agreed to take steps to ensure that agricultural trade would not hinder the availability of food for Least Developed Countries (LDCs) and Net Food Importing Developing Countries (NFIDCs) through adopting mechanisms such as periodic reviews of the level of food aid, guidelines to ensure the provision of basic foodstuff, financial and technical assistance to improve agricultural productivity and infrastructure, and favorable differential treatment regarding agricultural export credits.¹⁷⁰

Currently, WTO negotiators are seeking to better address agricultural issues through the Doha Round negotiations, and agriculture has been both a driving force in and major impediment to completion of the negotiations.¹⁷¹ Understandably, countries' proposals reflect the particular concerns that the proposing country, or group of countries, faces. For example, a group of LDCs and NFIDCs have sought exemptions under WTO rules that would allow them to still receive food imports even if exporting nations have implemented export restrictions.¹⁷² Similarly, Japan, which is a major food importer, has suggested that, if a country determines it is necessary to impose temporary export restrictions, the country must consult with other members prior to imposing the restriction and must maintain a certain level of exports to allow "importing countries to secure the necessary level of imports."¹⁷³ The United States likewise proposed to strengthen disciplines regarding export

169. Agreement on Agriculture, *supra* note 89, pmb1.

170. Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least-Developed and Net Food-Importing Developing Countries arts. 2-4, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex, 1867 U.N.T.S. 60.

171. *E.g.*, CHARLES E. HANRAHAN & RANDY SCHNEPF, CONG. RESEARCH SERV., RL33144, WTO DOHA ROUND: THE AGRICULTURAL NEGOTIATIONS 2 (2007) ("Just as disagreement over agricultural issues was the principal cause of the July 2006 suspension of negotiations, agriculture has been at the center of efforts to restart the negotiations.").

172. Andrew Callus, *Poor Nations Seek Exemption from Food Export Bans*, REUTERS (Apr. 5, 2011), <http://af.reuters.com/article/kenyaNews/idAFLDE7341BO20110405>.

173. See Committee on Agriculture Special Session, *Negotiating Proposal by Japan on WTO Agricultural Negotiations*, ¶ 33, G/AG/NG/W/91 (Dec. 21, 2000).

restrictions, as well as to establish export reporting systems and parameters for agricultural export credits and credit guarantees.¹⁷⁴

Emerging from the 2008 negotiations in Geneva, the members had reached a number of agreements—contingent upon the passage of a comprehensive agreement—on issues involving each of the “three pillars” of the agriculture negotiations: domestic support, market access, and export competition.¹⁷⁵ With regard to domestic support, the members agreed to make significant cuts to overall trade distorting domestic support, ranging from 80% for the European Union, 70% for the United States and Japan, and 55% for other members; they also agreed to significant cuts and caps to Amber Box programs, limitations to Blue Box programs, and revised and tightened monitoring of Green Box programs.¹⁷⁶ With regard to market access, the members agreed to cut tariffs, with obligations for developed countries ranging from 50% to 70%, subject to a 54% minimum average, and with developing countries cutting tariffs at a rate of two-thirds of developed countries’ cuts and at a maximum average of 36%.¹⁷⁷ Additionally, smaller cuts could be taken by all countries for sensitive products and by developing countries for “special products.”¹⁷⁸ Finally, with regard to export competition, the members agreed to eliminate export subsidies, with a deadline of the end of 2013 for developed countries and longer for developing countries, and to revise the provisions on export credit, guarantees and insurance, international food aid, and exporting state trading enterprises.¹⁷⁹ Given the delay in completing the Doha Round—and the question of whether the negotiations will be abandoned all together—there is

174. Committee on Agriculture Special Session, *Proposal for Comprehensive Long-Term Agricultural Trade Reform Submission from the United States*, 5–6, G/AG/NG/W/15 (June 23, 2000).

175. *Agriculture: Negotiating Modalities*, WORLD TRADE ORG., http://www.wto.org/english/tratop_e/dda_e/status_e/agric_e.htm (last visited Jan. 19, 2012); see also HANRAHAN & SCHNEPF, *supra* note 171, at 21 (noting that these issues are known as the “three pillars”).

176. *Agriculture: Negotiating Modalities*, *supra* note 175. Under WTO terminology, domestic support programs are defined as “boxes,” where Amber Box programs are domestic support measures that distort trade and production, Blue Box measures are Amber Box programs with conditions aimed at reducing distortion, and Green Box programs are subsidies that do not distort, or cause minimal distortion to, trade. *Domestic Support in Agriculture: The Boxes*, WORLD TRADE ORG. 1 (Oct. 1, 2002), http://www.wto.org/english/tratop_e/agric_e/agboxes_e.pdf.

177. *Unofficial Guide to the Revised Draft Modalities – Agriculture*, WORLD TRADE ORG. 3 (Dec. 6, 2008), http://www.wto.org/english/tratop_e/agric_e/ag_modals_dec08_e.pdf.

178. *Id.*

179. *Id.* at 4.

uncertainty surrounding whether and when these agreements will be implemented.¹⁸⁰

2. Food Sovereignty and Free Trade

One of the debates that has arisen regarding trade policy is whether food security would be better accomplished by focusing on trade liberalization in the agricultural sector or by developing individual countries' abilities to be food-self-sufficient. For example, in January 2008, the Report of the Special Rapporteur on the Right to Food (Report) noted that "[s]everal States and civil society organizations have been active in questioning the whole paradigm of free trade in agriculture, as they believe that the inequities of the global agriculture trade system are a disaster for food security, particularly for poor countries and poor people."¹⁸¹ The Report explained that, while the concept of food sovereignty is not "anti-trade," it focuses on developing individual countries' food policies and agricultural industries opposed to prioritizing the facilitation of international markets.¹⁸² In other words, "[f]ood sovereignty emphasizes locally-oriented small-scale peasant agriculture producing for consumption inside the country, as opposed to the current model of export-oriented, industrialized agriculture."¹⁸³ The Report concluded that promoting the policy of food sovereignty would better ensure the right to food and stimulate global food security.¹⁸⁴

In contrast, the Director-General of the WTO, Pascal Lamy, has countered suggestions that there should be a move away from international trade and toward food sovereignty. For example, when speaking at the XIIIth Congress of the European Association of Agricultural Economists, he acknowledged that trade distorting agricultural subsidies and high tariffs on agricultural goods are still common, but asserted that the Doha Round provides the opportunity "for vital agricultural reform."¹⁸⁵ Mr. Lamy contended that

[i]nternational trade in agriculture is less than 10% of world trade. Furthermore, whereas 50% of the world's production of

180. See Robinson, *supra* note 86.

181. Special Rapporteur on the Right to Food, *Promotion and Protection of All Human Rights, Civil, Political, Economic, Social and Cultural Rights, Including the Right to Development*, ¶ 71, Human Rights Council, U.N. Doc. A/HRC/7/5 (Jan. 10, 2008) (by Jean Ziegler).

182. *Id.* ¶ 73.

183. *Id.*

184. See *id.* ¶ 75.

185. Pascal Lamy, Dir.-Gen., World Trade Org., Opening Address at the XIIIth Congress of the European Association of Agricultural Economists (Aug. 30, 2011), available at http://www.wto.org/english/news_e/sppl_e/sppl203_e.htm.

industrial goods enters international trade, it is important that you know that only 25% of the world's agricultural production is traded globally. In the case of rice, this figure drops to 5-7%, making for a particularly thin international rice market. In addition, of the world's 25% of food production that enters international trade, the vast majority (two-thirds) is processed food, and not rice, wheat, or soya as some would like to claim. To suggest that less trade, and greater self-sufficiency, are the solutions to food security, would be to argue that trade was itself to blame for the crisis. A proposition that would be difficult to sustain in light of the figures I just cited.¹⁸⁶

Instead, he argued that international trade should be used as part of the solution to the global food crisis by developing international rules that better allow for the transmission of food.¹⁸⁷

As these two approaches clearly have different emphases, they implicate the need for different efforts by the global community. These approaches both implicate policies that affect the supply of food, but they differ in how the additional supply should be developed and distributed. To establish food sovereignty, resources would have to be directed toward providing countries with the ability to develop sufficient and sustainable agricultural industries, which would include providing things like financing, education, and supplies. Additionally, international rules would likely have to be developed to allow these countries to undertake steps that may be inconsistent with or contradict other international obligations—in particular, the WTO—and to identify the countries for and situations in which these rules would apply. Policies such as these may help combat food price increases as well as establish a safety net for countries that are particularly dependent on food imports and vulnerable to food price volatility through creating an increased and maintainable domestic supply.

On the other hand, to develop enhanced international trade rules would require, first and foremost, the completion of trade negotiations. As demonstrated by the ongoing Doha Round, this has proven quite difficult given that countries are seeking to protect and promote their own national interests as well as the concepts that the countries believe are in the best interest of the global community. However, countries have been able to liberalize agricultural trade through bilateral and multilateral agreements as WTO negotiations have stalled.¹⁸⁸ These agreements have worked

186. *Id.*

187. *Id.*

188. Hawkes & Murphy, *supra* note 167, at 20.

toward further agricultural trade liberalization through measures such as lowering tariffs and removing restrictions on foreign direct investment in and opening the market for services that affect the food supply chain.¹⁸⁹ Liberalized trade can help facilitate the flow of supply and ensure that food is produced by the most efficient producers, helping to decrease overall pressures on food prices.

C. *Biofuel Policy*

Given the role that demand for biofuel can have on demand for staple foods like maize, there have been recommendations aimed at reducing the competing pressures between food production and biofuel production. Many of these suggestions have focused on increasing biofuel production that does not directly compete with food production and reducing mandates and subsidies that encourage development and consumption of biofuel that may not be efficient. For example, in the *Comprehensive Framework for Action*, the HLTF called on the global community to develop an international consensus regarding biofuel policy, recognizing the need to address the dual concerns of food security and climate change mitigation and adaptation.¹⁹⁰ The HLTF specifically suggested that nations reassess biofuel targets, subsidies, and tariffs and facilitate private investment in biofuel production in developing countries as a way to reduce price volatility and pressures on grain and oil-seed demand.¹⁹¹ Similar recommendations have promoted removing barriers in the international market so that biofuels are produced by the most efficient producers and increasing research in alternative technologies.¹⁹² For example, the Statement on Global Food Security by the G8 leaders promoted the development and commercialization of biofuels from non-food plant materials and inedible biomass.¹⁹³

A number of governments have taken action to pursue alternative biofuel policies. For example, in reviewing the commitments expressed during the 2008 G8 summit, the expert group on global food security at the 2009 G8 summit noted that Canada has invested \$500 million over eight years in developing and commer-

189. *Id.* at 21.

190. CFA, *supra* note 157, at 24.

191. *Id.* at 25.

192. See FOOD & AGRIC. ORG. OF THE UNITED NATIONS ET AL., *supra* note 79, at 26 recommendation 6.

193. *G8 Leaders Statement*, *supra* note 157, ¶ 7(i).

cializing second-generation biofuels.¹⁹⁴ Similarly, Germany has promoted the establishment of policies that incorporate and prioritize food security concerns and has supported projects dedicated to the breeding and cultivation of new plants for second-generation biofuels.¹⁹⁵ While there has been widespread consensus regarding the need to address the role of biofuels in food price crises, international and national actors are faced with competing concerns. Much of the emphasis on biofuel production is a response to the need to develop new technologies that are environmentally friendly and sustainable, and therefore there may be reluctance to move away from current biofuel technology until a feasible alternative is established. Additionally, many governments and private entities have made large investments to develop biofuels and related technologies and to conform to government mandates regarding these alternative technologies. In other words, governments and other entities “may not want to forego the environmental or energy security benefits they believe the [current biofuel] policies generate, or they may not want to see the substantial investment that has already taken place in biofuel production under-utilized.”¹⁹⁶

D. *Financial Market Regulation*

There is also recognition among the international community that there needs to be greater regulation of the futures market in order to reduce the ability of the futures market to cause large fluctuations in food prices. Given that these markets exist in a number of countries, individual actions will need to be taken to address the policies and regulations that exist with regard to each specific market. For example, in the wake of the financial crisis, the United States and the European Union have both pursued regulatory reform for their financial markets, including, but not limited to, the agricultural commodity markets, to increase transparency and reduce the likelihood of market abuse.¹⁹⁷

Recommendations to address the volatility caused by the futures market have typically focused on increased information sharing and transparency in order to establish appropriate market over-

194. G8 Summit, L'Aquila, It., July 8-10, 2009, *G8 Efforts Towards Global Food Security*, 22-23 (July 9, 2009), available at http://www.g8italia2009.it/static/G8_Allegato/G8_Report_Global_Food_Security%2c2.pdf.

195. *Id.* at 42-43.

196. FOOD & AGRIC. ORG. OF THE UNITED NATIONS ET AL., *supra* note 79, Annex D, ¶ 2.

197. *Id.* ¶¶ 85, 87.

sight. As was stated in the Action Plan on Food Price Volatility and Agriculture produced during the meeting of the G20 Agricultural Ministers in June 2011, “appropriately regulated and transparent agricultur[al] financial markets are indeed key for well-functioning physical markets.”¹⁹⁸ Consequently, the G20 Agricultural Ministers recommended increased transparency as well as enhanced collaboration between the regulatory bodies responsible for futures markets.¹⁹⁹ Other policy responses that have been debated by the international community have included the use of speculative position limits, maximum limits to daily price changes, and limits on inventories held by non-commercial participants.²⁰⁰ Despite the agreement that there should be greater regulation, there is also concern that over-regulation may stifle the beneficial aspects of the futures market. A policy report by the FAO noted, as follows:

Efforts to reduce speculation in futures markets might even have unintended consequences. Mechanisms to intervene in futures markets, if the futures price diverges from an equilibrium level determined by market fundamentals . . . , might divert speculators from trading and thus lower the liquidity in the market available for hedging purposes.²⁰¹

Thus, in order to be effective, any policy change must meet the appropriate balance between regulating the market and allowing the market to function effectively.

V. CONCLUSION

The negative correlation between high food prices and global food security is clear. This has only been emphasized by the discrepancy seen in the reduction in poverty compared to the reduction in hunger over the past twenty years. Addressing the causes of high food prices is a fundamental part of achieving global food security. Regardless of increases in the amount of food available and individuals' incomes, food security cannot be achieved if food prices are so high that the food is not accessible to the populations in need. Similarly, food security cannot be achieved if populations' ability to access sufficient food is continually threatened by price volatility. Thus, the global community must continue its efforts to address the root causes of food price increases and volatility.

198. *Food Price Volatility*, *supra* note 157, ¶ 52.

199. *Id.* ¶¶ 53, 55.

200. See FOOD & AGRIC. ORG. OF THE UNITED NATIONS ET AL., *supra* note 79, ¶ 87.

201. *Price Surges in Food Markets*, POL'Y BRIEF (Food & Agric. Org. of the United Nations, Rome, It.), June 2010, at 2, available at <http://www.fao.org/docrep/012/al296e/al296e00.pdf>.

Despite the efforts that have been made in recent years, the current situation demonstrates that the international community still must make substantial strides before global food security will be a reality.

