

# How do Food Prices Affect Producers and Consumers in Developing Countries?

*In August of 2008, as global financial markets panicked, observers of commodity markets witnessed the nearly simultaneous collapse of commodity prices, which had been nearing historical peaks. Since then, the financial crisis, increased protectionist policies, continued rich country subsidies, and climate-induced changes in patterns of agricultural production have been blamed for the rise in prices. The spike in prices shook markets, toppled regimes and deprived millions of adequate access to food.*

*The rise and fall of commodity prices is likely to impact those that rely on agriculture for a livelihood the most. Many such farmers in developing countries remain disconnected from the root causes of the change in prices and had little influence over their direction. Policy makers need to address this ongoing crisis that has left 1.02 billion people hungry. This note examines the trends agricultural commodity prices and begins by assessing historical prices, patterns of production and demand, and reviews the implications in the context of trade and climate change. Although the food crisis has left the media spotlight, it continues to remain a challenge for many developing country consumers and producers.*

## What is the 'Food Crisis'?

Although the media spotlight focused on the riots that ensued in the face of high prices, the ongoing crisis of food insecurity has been years in the making.<sup>1</sup> For nearly fifty years now, many developing countries have implemented a variety of plans to raise incomes by investing in manufacturing goods for export at the expense of agriculture or diversified their agricultural exports in the hope of avoiding the risks of depending on one commodity alone.<sup>2</sup> Over this same period, developed countries have poured support into their agricultural sectors and famously piled mountains of butter and lakes of wine while maintaining high tariff barriers to goods of export interest to developing countries.<sup>3</sup> A long-term glut of



International Centre for Trade  
and Sustainable Development

<sup>1</sup> UN Food and Agriculture Organization (2009). *The State of Food Insecurity in the World 2009*. Rome.

<sup>2</sup> Razzaque, M. A., Osafa-Kwaako, P., & Grynberg, R. (2007). *Secular decline in relative commodity prices*. In Grynberg, R. & Newton, S. (Eds.), *Commodity Prices and Development* (pp. 17-35). Oxford: Oxford University Press.

<sup>3</sup> *Mountain of Butter* (1973, April 30). *The New York Times*.

subsidized commodities in international markets has driven prices down and devastated farmers in countries too poor to provide government funding for agriculture.<sup>4</sup> These policies have worked together to create a paradox where both declining and rising prices are cause for concern for developing country farmers.<sup>5</sup>

Prices have been declining for a broad set of export commodities in developing countries, but especially on cash crops such as cotton, coffee and tobacco.<sup>6</sup> Many governments and development organizations formulated export oriented policies that diversified their economies by privileging certain cash crops over food, assuming that a boost in exports would drive incomes higher and allow consumers to import any additional food.<sup>7</sup> This has led to a situation where countries, previously self-sufficient for food, now increasingly rely on imports.<sup>8</sup> Such policies by themselves would not be detrimental. However, when they are coupled with the absence of domestic food stocks or other means to protect the most vulnerable from price shocks, they tie the well being of both consumers and producers to volatility in international markets.<sup>9</sup> If governments do not apply

the proper flanking policies to protect consumers and producers, the movement of global prices can curtail access to food for millions.<sup>10</sup>

The table below lists the LDCs that rely on one commodity for more than 50 percent of their daily caloric intake, as an average of the period 1993-2003.<sup>11</sup> The table also lists if they have been net importers of the commodity in the most recent years for which data is available, 2005-6. The table suggests that some LDCs will be disproportionately affected by a change in commodity prices, since demand for commodities that compose the majority of daily caloric intake is unlikely to vary greatly. This means that consumers are likely to spend a greater portion of their income acquiring the given commodity if prices rise. This problem is hardly confined to LDCs, even developing countries with higher incomes face similar challenges. The increase in food prices was responsible for nearly 8 percent of the 21 percent inflation in consumer prices experienced in Pakistan and 2.5 percent of the 5.9 percent inflation experienced in Brazil in 2008. Similar figures for developed countries have been a fraction thereof.<sup>12</sup>

**Table 1: Cases of Commodity Dependence**

		Percent of Daily Caloric Intake	Net Importer
Maize	Lesoto	64%	Yes
	Malawi	58%	Yes
Rice	Cambodia	74%	Yes
	Bangladesh	73%	Yes
	Myanmar	73%	No
	Lao (PDR)	69%	Yes

Source: Author's calculations based on FAOSTAT

<sup>4</sup> Watkins, Kevin and Akthar Mahmood (2006). *WTO Negotiations on Agriculture: What Can Be Achieved?* In *Agricultural Commodities, Trade and Sustainable Development*. Thomas Lines (Ed.) International Centre for Trade and Sustainable Development and International Institute for Environment and Development. Herts: Earthprint.

<sup>5</sup> Grynberg, R. & Newton, S. (2007). *Commodity Prices and Development*. Oxford: Oxford University Press.

<sup>6</sup> This can be observed in FAOSTAT and is discussed in Green, Duncan (2006). *Conspiracy of Silence*. In *Agricultural Commodities, Trade and Sustainable Development*. Thomas Lines (Ed.) International Centre for Trade and Sustainable Development and International Institute for Environment and Development. Herts: Earthprint.

<sup>7</sup> Grynberg, R. & Newton, S. (2007). *Commodity Prices and Development*. Oxford: Oxford University Press.

<sup>8</sup> Honduras, among smaller economies, typifies this case. Over the last 29 years they have increasingly imported more of their food. For further information, see: Ng, F. K. T., & Aksoy, M. A. (2008). *Who are the Net Food Importing Countries?* Policy Research Working Paper 4457. Washington, D.C.: The World Bank.

<sup>9</sup> Cudjoe, Godsway, Breisinger, Clemens, & Diao, Xinshen (2008). *Local impacts of a global crisis: Food price transmission and poverty impacts in Ghana*. Discussion Paper 842. Washington, D.C.: International Food Policy Research Institute.

<sup>10</sup> *Ibid*

<sup>11</sup> These are the years for which the most recent data is available. An average was applied over the period to account for year-to-year variance. Additionally, at lower threshold, such as 30 percent, this list expands substantially. However, for the sake of focusing on the most demonstrable examples a 50 percent threshold has been applied.

<sup>12</sup> Organisation for Economic Co-operation and Development & Food and Agriculture Organization. (2009). *OECD-FAO Outlook 2009-2018* (2009). Rome.

A food crisis has therefore been an ongoing phenomenon for the last few decades. The loss of revenue to exporters, especially in developing countries, has left farmers without the means to buy food while other policies have provided disincentives for them to grow their own. The 2008 spike in prices, alone, cannot be described as the 'food crisis.' A food crisis has been ongoing. The following sections examine the historical incidence of price spikes, agricultural production, investment, trade policy and speculation to explain the causes of the 2008 spike.

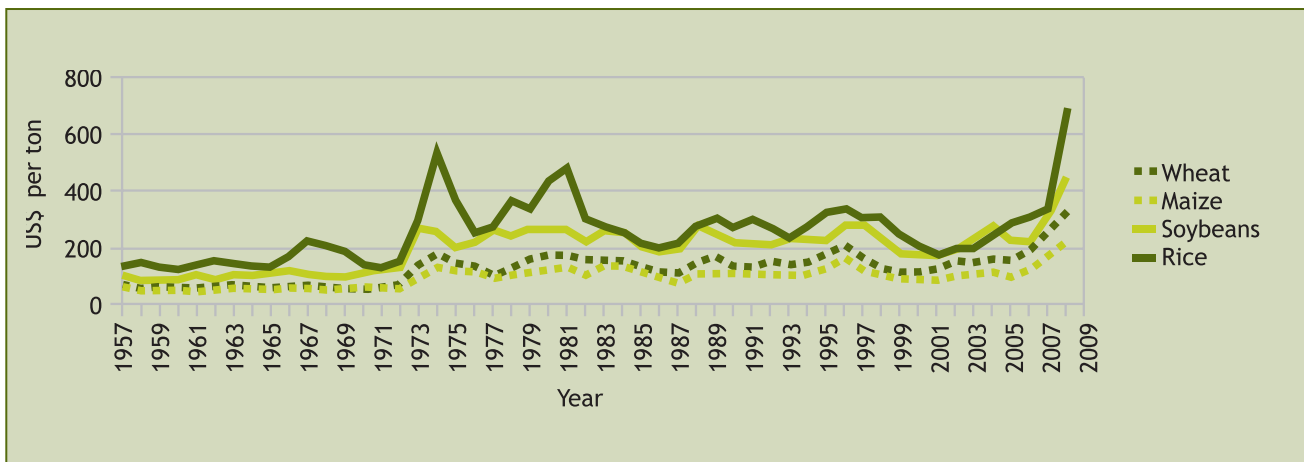
### Previous Price Spikes

Historically, the confluence of a series of events has led to dramatic price rises. The steepest increase in prices of the post-war period occurred in the 1970s - two spikes - that coincided with an oil crisis. Another smaller spike occurred in the mid-nineties. The characteristics common to these three price spikes were a depreciation of the US dollar, weather induced crop losses, export led demand growth, and government support of prices through supply-side policies.<sup>13</sup> The spikes of the 1970s and 2008 had more in

common with the each other than with the price rise of the mid-nineties. They both occurred in times of rising oil prices, expanding foreign reserves in import markets, and a global growth in demand.

The cereal price spikes of the 1970s were preceded by the entry of planned economies, such as the Soviet Union, into the commodity markets as importers. These economies, unable meet domestic demand due to weather related crop failures, entered global markets to buy up cereals at an unprecedented rate. Their emergence as large importers during a period of oil driven inflation and a weak dollar pressed prices skyward. Many exporting countries responded to these changes by instituting export taxes, or in the case of the US, idling farmland to reduce production, driving up prices, and reducing agricultural subsidy costs to the government. Importers, such as oil rich states, decided to subsidize domestic consumption to shield their populations from the spike. The short-term signals provided by commodity markets set off a chain of events that reverberated across government policies and market decision-making.

Figure 1: Agricultural Commodity Prices



Source: IMF-IFS Online

The 2008 price spike, similar in character to the 1970s spike, may have been precipitated by a similar set of events. Global trade in agriculture increased by 50 percent between the year 2000 and 2006, driven by an increase in agricultural

exports to developing countries.<sup>14</sup> Changing diets in developing countries that include more meat and vegetable oil, many have argued, contributed to a rapid increase in demand for grains and oilseeds - and feed for livestock in particular.<sup>15</sup>

<sup>13</sup> Trostle, Ronald (2008). *Global Agricultural Supply and Demand: Factors Contributing to the Recent Increase in Food Commodity Prices. WRS-0801*. Washington, D.C.: USDA Economic Research Service.

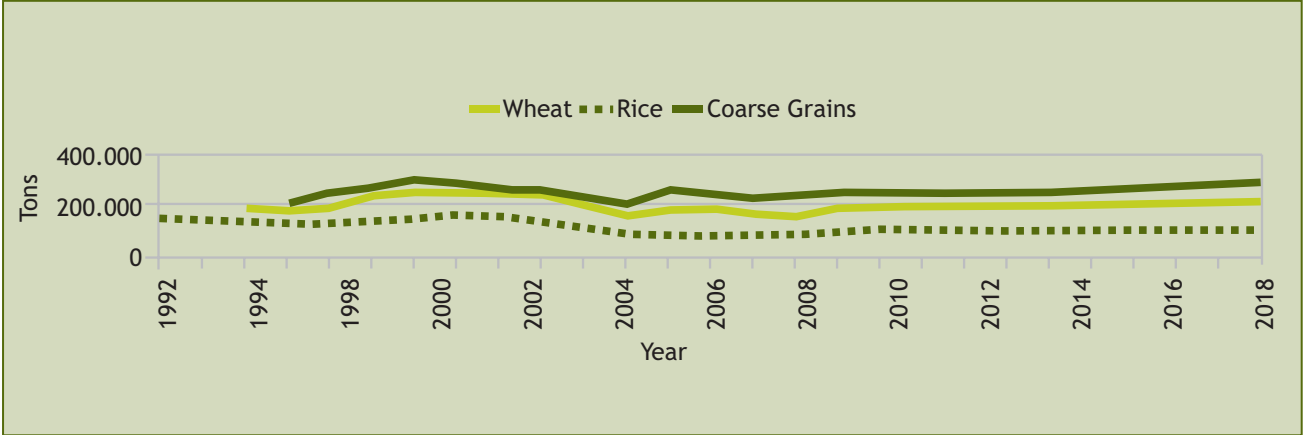
<sup>14</sup> Peters, May, Suchanda Langley & Paul Westcott (2009). *Agricultural Commodity Price Spikes in the 1970s and 1990s: Valuable Lessons for Today*. United States Department of Agriculture Amber Waves 7 (1)

<sup>15</sup> Ibid

Population growth alone does not explain this trend. The late 1990s and early 2000s saw a rise in developing country incomes, particularly in large emerging economies such as Brazil, India and China.<sup>16</sup> At the same time bio-fuels put pressure on corn prices in US, vegetable oils in the EU, and sugar in Brazil.<sup>17</sup> Almost simultaneously, weather related crop failures put pressure on declining global stocks for cereals as demonstrated in Figure [2]. Although the popular press was abuzz with China and India as the source of the price spike, their long-term growth in demand was an unlikely immediate shock to markets or prices.<sup>18</sup>

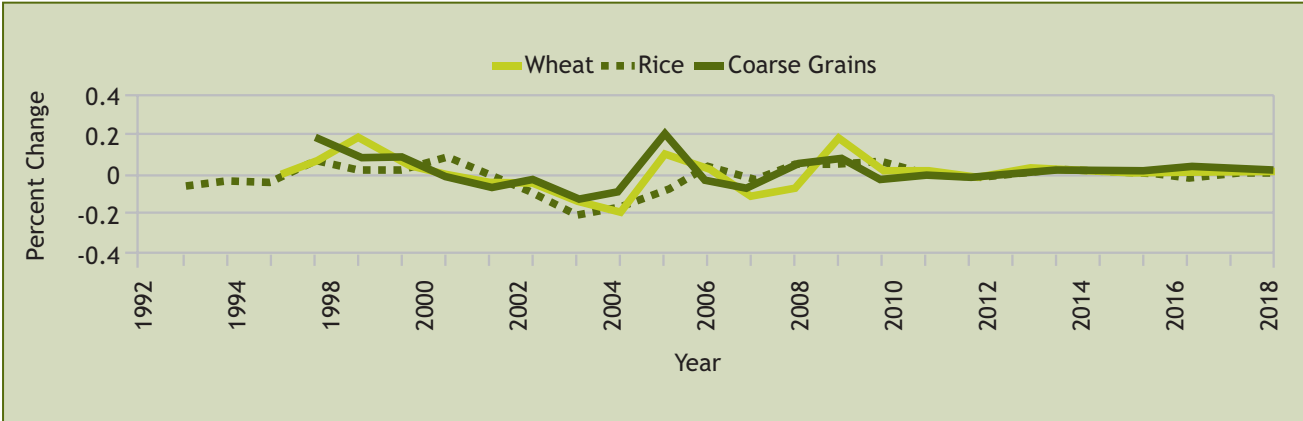
A decline in wheat stocks sent an already surging trade area into shock over prices and affected thin markets such as rice, where 4 percent of the consumed good is internationally trade.<sup>19</sup> The OECD has argued that the tightness of the agricultural commodity market was a key reason for the rise in prices.<sup>20</sup> The stocks that usually functioned as a buffer between global demand and shortfalls in production had been depleted to an alarming degree and caused investors in commodity futures markets to drive up prices. Moreover, long-term projections view them as an essential component of the years to come.<sup>21</sup>

**Figure 2: World Cereal Stock**



Source: FAO-OECD

**Figure 3: Percent Change in Cereal Stocks**



Source: FAO-OECD

<sup>16</sup> Organisation for Economic Co-operation and Development & Food and Agriculture Organization. (2009). *OECD-FAO Outlook 2009-2018* (2009). Rome.  
<sup>17</sup> Peters, May, Suchanda Langley & Paul Westcott (2009). *Agricultural Commodity Price Spikes in the 1970s and 1990s: Valuable Lessons for Today*. United States Department of Agriculture Amber Waves 7 (1)  
<sup>18</sup> Alexandratos, Nikos (2008). *Food Price Surges: Possible Causes, Past Experience, and Longer Term Relevance*. *Population and Development Review*, 34 (4): pp 663-697  
<sup>19</sup> Organisation of Economic Cooperation and Development (2008). *Rising Food Prices: Causes and Consequences*. Paris.  
<sup>20</sup> Ibid  
<sup>21</sup> Ibid

## Trends in Production

Since the 1960s, global agricultural production of the most important cereal crops has grown tremendously and largely kept pace with growth in population since cereals provide the bulk of global calories consumed.<sup>22</sup> Rice and wheat has tripled in production while maize has quadrupled. The figures below delineate the tremendous increase in global production of cereals, especially rice for LDCs, over the last four and a half decades. Production has increased across the board - thanks to improved techniques, tailored plant varieties, and capital intensive inputs such as fertilizer and mechanization.<sup>23</sup>

Production patterns vary greatly across regions and economies. Rice continues to remain a significant cereal to LDC producers while wheat and maize figure prominently in European and North American cereal output. Ethanol subsidies have been a boon for US producers of maize, where production has risen dramatically.<sup>24</sup> Growth in demand for wheat and soybeans, often for animal feed, has driven investment and production of these cereals.<sup>25</sup> The USDA, OECD and FAO projections show that these production patterns are likely to continue. However, climate induced changes in the long term future are likely to engage additional production in Central Asia of cereals, with the exception of rice.

The green revolution increased the productivity of rice in a manner that made more calories accessible to more people. In developing economies, with low levels of subsidies, this has

meant a shift towards rice production.<sup>26</sup> In recent years, some non-traditional exporters, such as Vietnam, have moved to capitalize on their comparative advantage by growing and trading more of it.<sup>27</sup> Nonetheless, some LDCs, such as Bangladesh, that grow rice primarily for domestic consumption, depend on rice to feed their populations and have not shifted to other crops.<sup>28</sup> Since rice prices, among cereals, saw the greatest increase in prices in 2008, some developing country net-exporters, such as India, Pakistan, Thailand and Vietnam, were able to benefit by increasing their export revenues from the crop. While farmers in other countries, such as Senegal, became competitive because of unusually high rice prices and are unlikely to do so in the longer term.<sup>29</sup> Rice is likely to be an important source of food for developing country consumers and also, it is important to note that crops such as cassava and maize, important to many African consumers, are not projected to grow in production to keep up with demand on the continent and sorely need research and investment.<sup>30</sup>

A growing global population's demand for meat and developed country subsidies for bio-fuels will change long term production patterns.<sup>31</sup> Having surpassed wheat, soybeans and soybean products are now the most heavily traded agricultural commodities in the world.<sup>32</sup> Demand for vegetable oils and soybean meal for livestock feed is expected to continue to rise and may lead Brazilian, Malaysian, and Indonesian farmers to use previously uncropped land for soybean and palm oil production.<sup>33</sup> Bio-fuel production in

<sup>22</sup> An important caveat for such an observation is that growing incomes and demand for animal protein will require even greater increases in future cereal production to keep pace with demand. Trends in population, production and consumption can be observed in FAOSTAT. Graphs on agricultural production are included in this note.

<sup>23</sup> Razzaque, M. A., Osafa-Kwaako, P., & Grynberg, R. (2007). *Secular decline in relative commodity prices*. In Grynberg, R. & Newton, S. (Eds.), *Commodity Prices and Development* (pp. 17-35). Oxford: Oxford University Press.

<sup>24</sup> Trostle, Ronald (2008). *Global Agricultural Supply and Demand: Factors Contributing to the Recent Increase in Food Commodity Prices*. WRS-0801. Washington, D.C.: USDA Economic Research Service.

<sup>25</sup> *Ibid*

<sup>26</sup> See FAOSTAT

<sup>27</sup> *Ibid*

<sup>28</sup> *Ibid*

<sup>29</sup> *West African villagers stake their fortunes on rice* (2009, January 26). *New York Times*.

<sup>30</sup> Neweke, Felix (2005). *The Cassava Transformation In Africa. A review of cassava in Africa with country case studies on Nigeria, Ghana, the United Republic of Tanzania, Uganda and Benin*. International Fund For Agricultural Development & Food And Agriculture Organization: Rome.

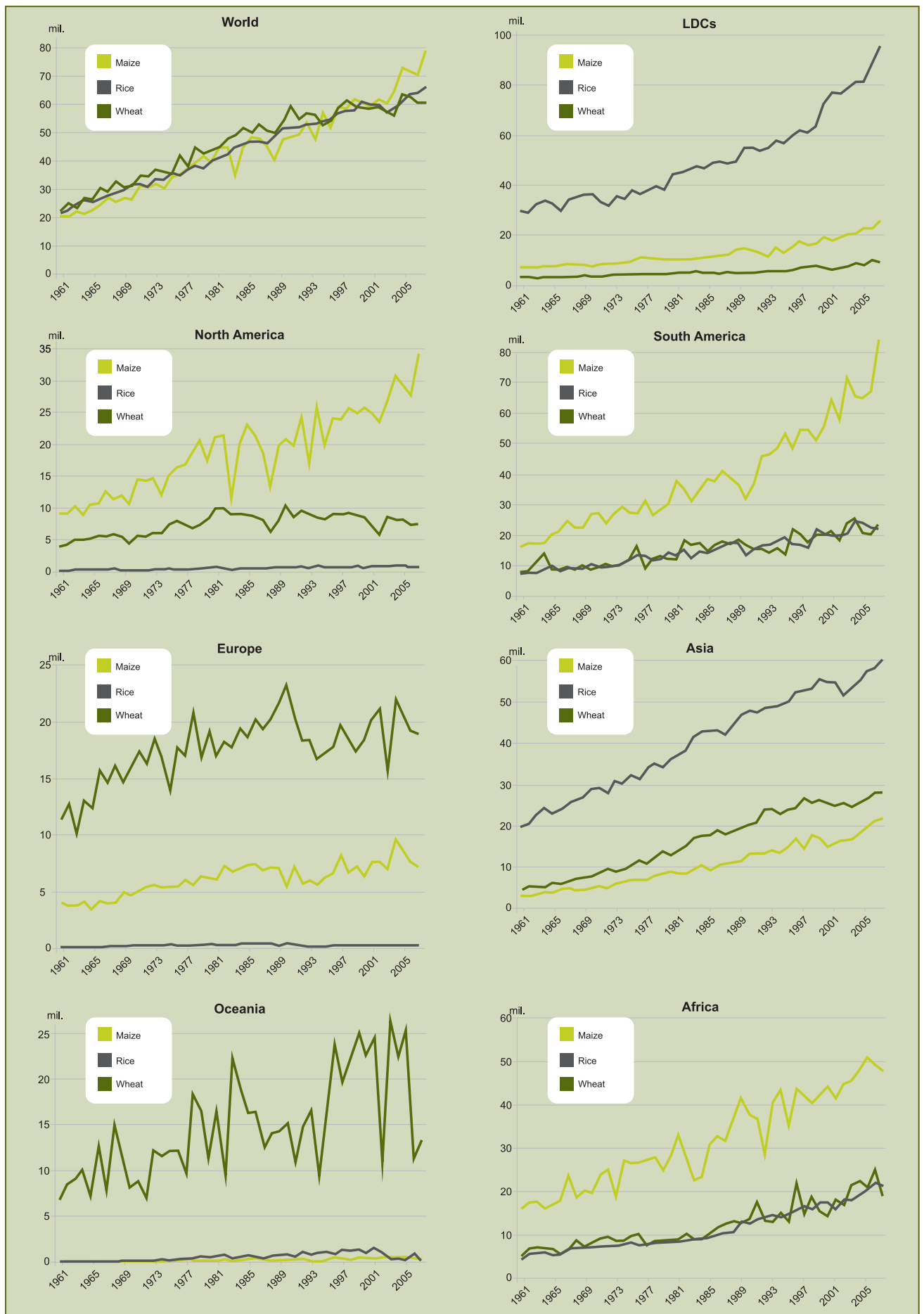
<sup>31</sup> Organisation for Economic Co-operation and Development & Food and Agriculture Organization. (2009). *OECD-FAO Outlook 2009-2018* (2009). Rome.; United States Department of Agriculture. (2009). *2009-18 Long-Term Agricultural Projections*. Long-term Projections Report OCE-2009-1. Washington, D.C.

<sup>32</sup> United States Department of Agriculture. (2009). *2009-18 Long-Term Agricultural Projections*. Long-term Projections Report OCE-2009-1. pp. 65. Washington, D.C.

<sup>33</sup> *Ibid*



Figure 4: Cereal Production (tonnes)



Source: Faostat

many countries, especially the largest consumers such as the EU, US and Brazil, is a policy driven outcome - not one necessarily based on concrete life-cycle environmental assessments or market fundamentals. Such policies, coupled with other externalities, may lead to downward pressure on production of staple cereals for human consumption - such as wheat, rice, and maize.<sup>34</sup> Nonetheless, Argentina, Kazakhstan, Ukraine and Russia are expected to start cultivating more land for both wheat and maize, possibly boosting global production.<sup>35</sup>

Over two-thirds of gains in existing production come from rising yields.<sup>36</sup> However, increases in

total production have occurred largely through the expansion of land use.<sup>37</sup> Long-term projections on agricultural productivity indicate that historical rates of yield growth are unlikely to continue; rather, farmers are likely to see slowing growth in their yields.<sup>38</sup> There is reason for optimism; developing country crop yields for many products increased at a faster rate between 1981-2000 than 1961-1980, the period immediately after the “Green Revolution.”<sup>39</sup> This suggests that developing country farmers could help increase global food production by utilizing their resources more effectively to increase yields. However, to increase production in such a manner will require the mobilization of resources to invest in agricultural productivity.

### Smallholder and rain-fed agriculture

The potential output of smallholder and rain-fed agriculture is likely to decline significantly since such farming depends disproportionately on external conditions, such as the climate and soil quality.<sup>40</sup> Intensive agricultural practices are often out of reach of such producers because of the lack of access to finance and the absence of economies of scale. Smallholders, are often keenly aware of the sensitivities of the land they farm, making them especially efficient producers. However, an increased likelihood of extreme meteorological events, decreased water supply or increased susceptibility to tropical diseases due to changes in precipitation may present significant hurdles for their crop output. Moreover, climate change is expected to disproportionately decrease output potential in the semi-arid tropics, an area almost entirely dependent on rainfall for agriculture. Along with decreased precipitation in such areas, temperature increases may also induce declines in crop yields. The situation for smallholders in the tropics and semi-arid tropics is precarious at best.

### Climate Change

The overall situation for those dependent upon agriculture in areas affected by changes in precipitation or temperature is grave. The figures below contrast the decline in potential agricultural output, through changes in precipitation, with the dependence of the affected country economies on agriculture as a percent of value added to GDP.

Much of Sub-Saharan Africa appears in purple, in map (c) below, signifying that those countries depend on agriculture for more than a quarter of their economic output. The figures on changes in precipitation over the coming 80-100 years, maps (a) and (b), suggest that some of the countries on the East coast of Africa will fare well while, others on the Western and Southern coasts may suffer from decline in precipitation and agricultural output.<sup>41</sup>

<sup>34</sup> Given that maize is used as a bio-fuel, there may be more maize produced overall but smaller amount available for human consumption.

<sup>35</sup> United States Department of Agriculture. (2009). 2009-18 Long-Term Agricultural Projections. Long-term Projections Report OCE-2009-1. pp. 65. Washington, D.C.

<sup>36</sup> United States Department of Agriculture. (2009). 2009-18 Long-Term Agricultural Projections. Long-term Projections Report OCE-2009-1. pp. 65. Washington, D.C.

<sup>37</sup> Ibid

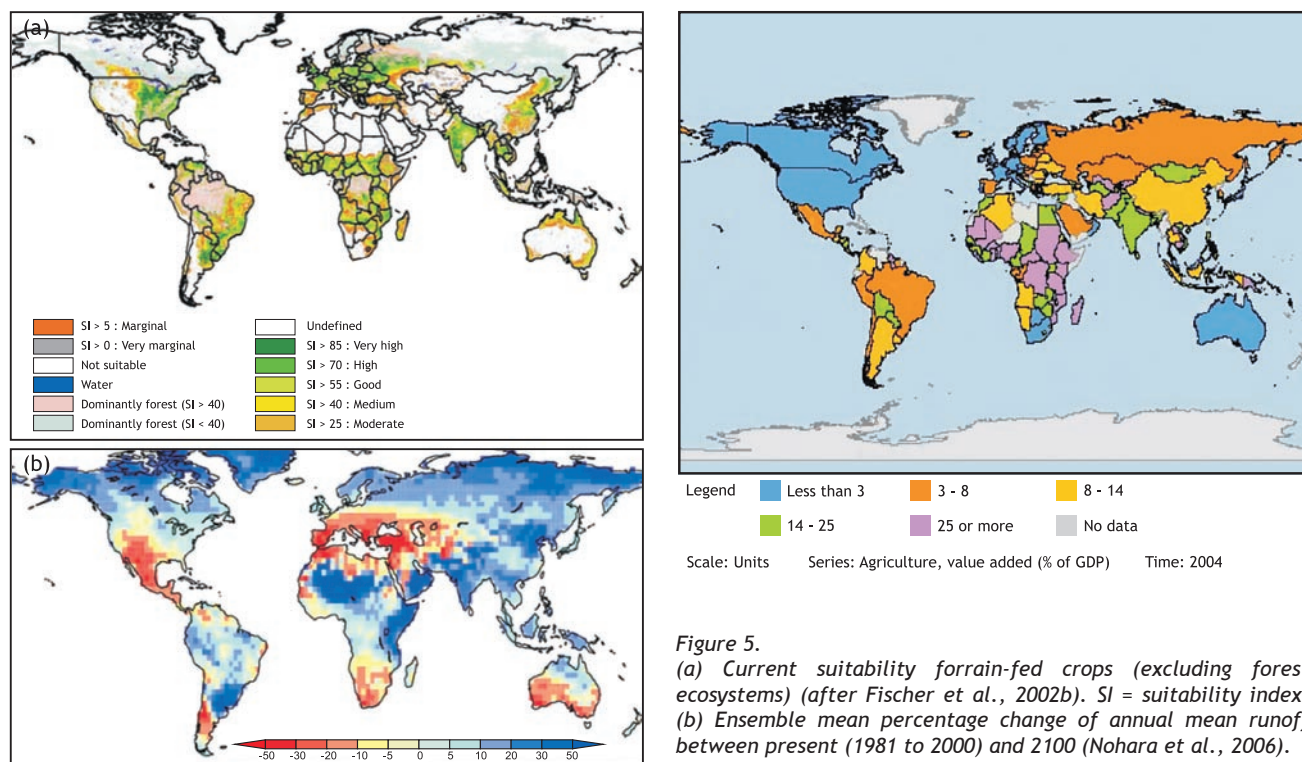
<sup>38</sup> United States Department of Agriculture. (2009). 2009-18 Long-Term Agricultural Projections. Long-term Projections Report OCE-2009-1. pp. 65. Washington, D.C.

<sup>39</sup> Evenson, R. E. & Gollin, D. (2003). Assessing the Impact of the Green Revolution, 1960 to 2000. *Science*, 300 (5620). 758-762. [DOI: 10.1126/science.1078710]

<sup>40</sup> UN Food and Agriculture Organization (2008). *The State of Food Insecurity in the World 2008*. Rome.

<sup>41</sup> Smith, P., D. Martino, Z. Cai, D. Gwary, H. Janzen, P. Kumar, B. McCarl, S. Ogle, F. O'Mara, C. Rice, B. Scholes, O. Sirotenko, 2007: Agriculture. In *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

**Figure 5: Changes in Precipitation and Those Most Affected**



**Figure 5.** (a) Current suitability forrain-fed crops (excluding forest ecosystems) (after Fischer et al., 2002b). SI = suitability index; (b) Ensemble mean percentage change of annual mean runoff between present (1981 to 2000) and 2100 (Nohara et al., 2006).

The IPCC, based on earlier studies, estimates that the total impact of climate change on agricultural GDP will be between -1.5 and 2.6 percent by 2080.<sup>42</sup> This range, and the increase, is due to the potential increase in agricultural production in mid to high latitudes and declines in low latitudes. The IPCC studies suggest that global temperatures will influence production potentials and thereby prices. Agricultural productivity is expected to increase within a window of a temperature increase of 1-2°C. However, it is expected to decline past a threshold of 3°C.<sup>43</sup> Following a decrease in production, if demand remains constant, prices should rise significantly. Additionally, the increased likelihood of extreme weather events may test food stocks, putting further pressure on prices.

In the near term, the FAO predicts that yields for cereals in 2009 are likely to be below last year's levels.<sup>44</sup> For example, winter wheat harvests are expected to fall by 50 percent in Argentina

and some parts of China.<sup>45</sup> At the global level, though, more cereal will be produced than will be consumed. World cereal stocks are expected to return to levels not seen since 2002, possibly providing a cushion against volatility.<sup>46</sup> Wheat played a key role in driving prices up in 2008. Droughts in Australia, Canada, and other 'bread baskets' led to lowered levels of production, causing stocks to dry up and prices to rise, triggering panic in the market for wheat. Some experts argue that the failure of the wheat harvest lead to the spike in rice prices, a good that has a much smaller cushion in international trade than wheat.<sup>47</sup>

In 2009, with minor producers struggling, analysts say that total global output of wheat will largely hinge on the success of crops in Canada, Argentina and Australia, countries that represent more than a third of global exports.. At this point, though, wheat output for 2009 will be down from last year, which saw a record high. Droughts in South

<sup>42</sup> *Ibid*

<sup>43</sup> *Ibid*

<sup>44</sup> Food and Agriculture Organization (2009, June). *FAO Food Outlook: Rome*.

<sup>45</sup> *Ibid*

<sup>46</sup> *Ibid*

<sup>47</sup> Clay, Jason (2006). *Commodity Production and Trade: Public Policy Issues*. In *Agricultural Commodities, Trade and Sustainable Development*. Thomas Lines (Ed.) International Centre for Trade and Sustainable Development and International Institute for Environment and Development. Herts: Earthprint.; See also USDA, OECD&FAO Projections.



American planting regions and increased planting costs are helping reduce the expected output of maize. Rice, which witnessed an unprecedented price spike in 2008 and which played an important role in drawing attention to the issue of food prices, is expected to have an increased output for the coming year.<sup>48</sup>

## Investment in Agriculture

If the changes in production patterns noted above, especially in the context of climate change, continue, greater investments in developing country agriculture will be needed since they will be amongst the hardest hit. The World Bank's World Development Report 2008 (WDR) focused on agriculture and highlighted the need for increased investment in agriculture as a key finding. It noted that the past two decades have witnessed a slump in agricultural investment as a percent of Official Development Assistance (ODA) from OECD countries and that public sector investment in agriculture, in relation to GDP, has declined in the countries that need it the most.

According to the WDR, donor support for agriculture declined for a variety of reasons, but falling commodity prices for developing agricultural goods made investment in this area particularly undesirable. Donors instead focused on where they believed their returns would be better - areas such as health and education. The report also cited developed country farm lobbies, fearing increased competition in their export markets, environmental groups concerned about the climate issues surrounding agriculture, and disaster relief as reasons for decreased donor funding in agriculture. Given declining funding from traditional development donors, the WDR recommended that developing countries provide fewer monetary transfers to farmers through subsidies and instead focus on providing for the infrastructure, research and development, health and education requirements of their rural poor. It cited a complex set of political constituencies as lobbying developing country governments to continue subsidizing inefficient agricultural production. It is important to note that subsidies in developing countries for agriculture do not

compare favourably with developed countries. OECD estimates suggest that global commodity prices are depressed by 5 percent on average by developed country subsidies. However, developing countries, with limited budgets, are unable to affect commodity prices in such a manner.

Fortunately, there has been a rise in developing country research and development expenditures on agriculture in both the public and private sectors. These are detailed in the figures below using data provided by the Agricultural Science and Technology Indicators (ASTI). These figures represent the investment in staff and infrastructure that have been made by developing countries in recent years. Emerging developing economies, such as China, India, and Brazil, along with Mexico and Iran, are some of the largest funders of agricultural research and development (R&D) among developing countries. It is likely that the data beyond 2001 for the private sector and 2002 for the public sector do not accurately reflect the underlying trends. For example, China, the largest contributor to the total figure has been increasing its agricultural R&D at an exponential rate, growing nearly four-fold between 1981 and 2006. Nominal total spending on agricultural R&D in developing countries compares favourably with OECD ODA in agriculture for the same years, as demonstrated in the figure below. It is important to note that inflation adjusted figures for OECD ODA show total agriculture spending to be decline. The nominal OECD figures are cited below because they better depict the upward trend in recent spending, which is the case for inflation-adjusted figures as well.

ICTSD research on developing country WTO 'Green box' spending also shows similar trends.<sup>49</sup> Developing countries, especially emerging economies, are spending large amounts to support agricultural capacity in their countries. Green box payments are exempted from WTO rules on limits on subsidies if they are seen to minimally trade distorting. There has been an upward trend, in years for which data is available, for such spending, which covers research and development as well as the crucial extension services which are needed to translate research based productivity gains into a farmer's yields. Figure 7 highlights these trends.

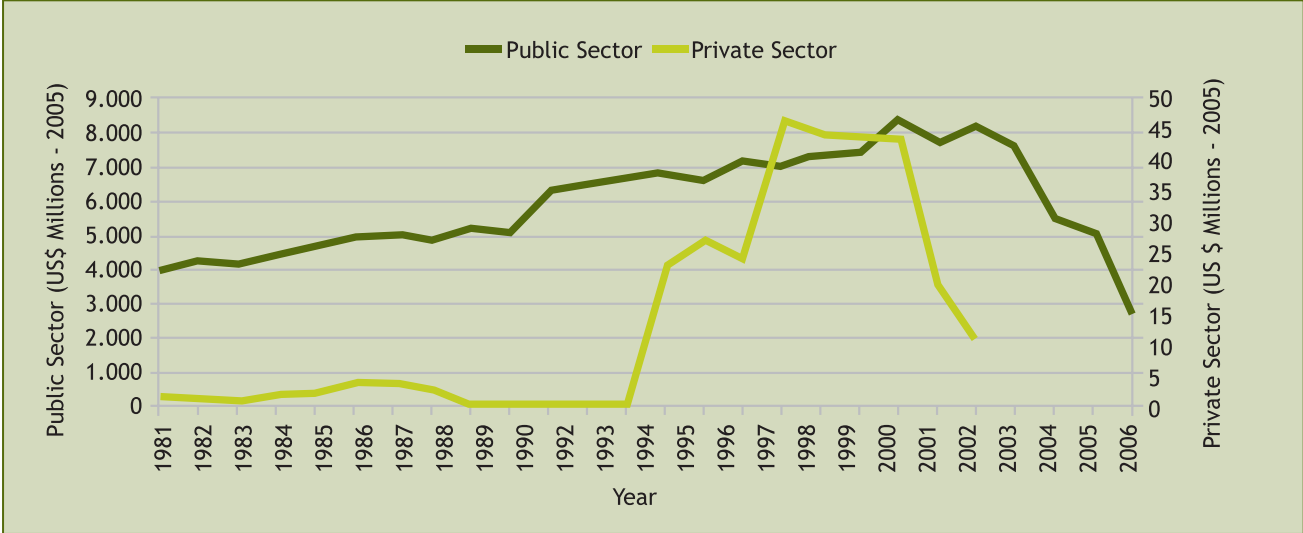
<sup>48</sup> Food and Agriculture Organization (2009, June). *FAO Food Outlook: Rome*.

<sup>49</sup> Dhar, Biswajit (2009). *Use of green box measures by developing countries: An Assessment. In Agricultural Subsidies in the WTO Green Box*. Eds. Melendez-Ortiz, Ricardo, Christophe Bellmann and Jonathan Hepburn. Cambridge: Cambridge University Press.

An important caveat when comparing the ASTI figure and the Green box is that there may be potential for overlap. The ASTI figure examines only R&D whereas the Green box figure is a WTO specific measure. The 'General Services' category of the Green box covers all infrastructural, extension, and related spending. Though the figures for R&D may have declined increasing Green box spending suggests that developing countries are trending in the right direction when it comes to agricultural support. More specifically, large developing countries such as China and India have committed significant R&D as well as extension services within their agricultural spending.

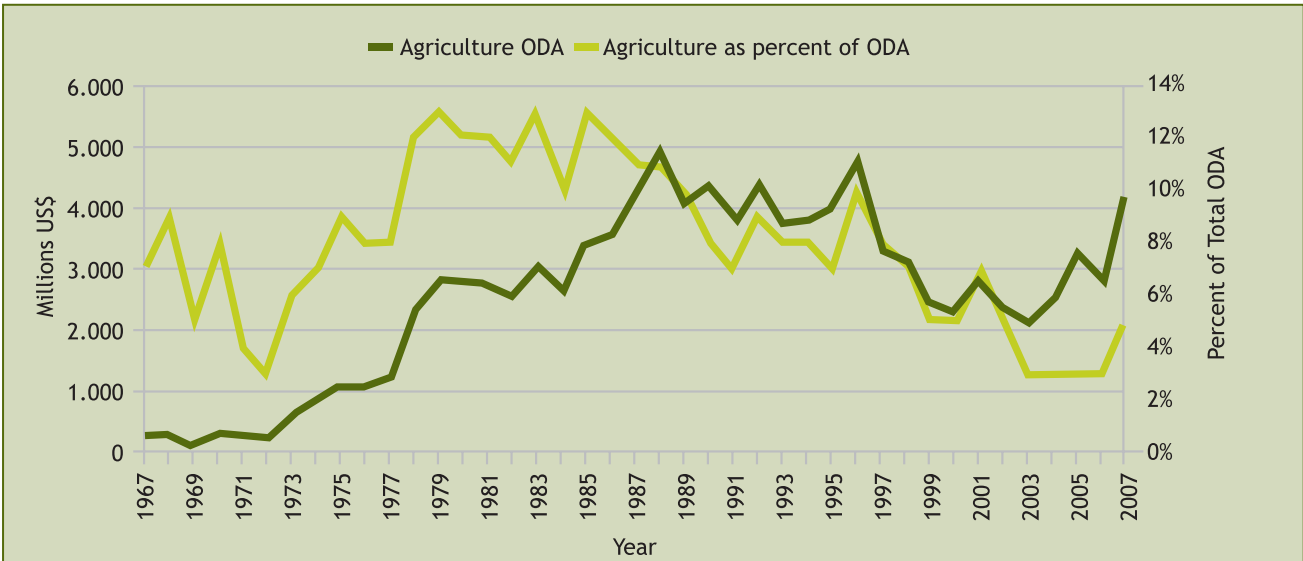
Although the data and literature suggest a declining trend since the 1980s for spending on agriculture, ODA, or otherwise, there is has been a clear upward trend this decade on increased spending by developing countries and an upward trend by donors. One can viably argue that this is reason for optimism. However, there is still reason to hold donors to their commitments and developing country governments to better policies and implementation. For example, of the US\$ 24 billion pledged at the Summit on Food Security organized by the FAO in Rome in 2008, only a fraction of that amount has actually been given.

**Figure 6: Agriculture Research & Development Expenditure in Developing Countries**



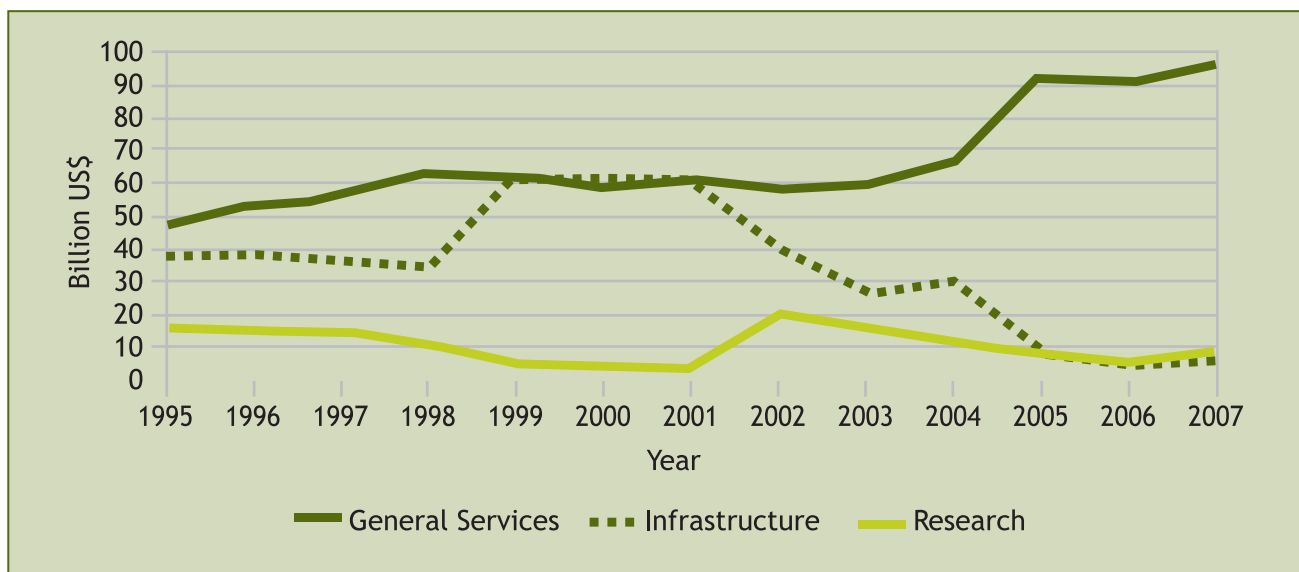
Source: Agricultural Science and Technology Indicators Database (ASTI).

**Figure 7: OECD Agriculture ODA**



Source: OECD.

**Figure 8: Developing Country Green Box Spending**



Source: Dhar (2009), forthcoming.

### Speculation

Several studies have been conducted on the relationship between speculation in the agricultural commodity markets and the increase in prices. Agricultural commodity futures and options contracts, financial instruments that facilitate risk management, have ballooned from 2.4 billion contracts in 1999 to 17.7 billion in 2008. Similarly, the volume traded and capitalized in the commodity markets has also increased.<sup>50</sup>

Some, such as the International Food Policy Research Institute, have argued that there is a statistically significant relationship between the rise in food prices and these financial flows.<sup>51</sup> Even the Director-General of the UN Food and Agricultural Organization, Jacques Diouf, suggested that hedge funds are responsible for the rise in food prices.<sup>52</sup> Others have argued that no such phenomenon is occurring.<sup>53</sup> Although there is an ongoing debate, the role that speculation has played in increasing food prices is unclear in the literature at this moment.

### Trade Policy

Restrictive trade policies have also been blamed for contributing to high food prices. The World Bank recently issued a study warning that protectionist policies were increasing amid the global financial crises.<sup>54</sup> According to the report, 17 members of the Group of 20 leading financial powers have taken steps to restrict trade since November, when the group vowed to resist such policies. The study also reported that China has banned imports of certain European agricultural goods. Ecuador raised tariffs on nearly 600 goods by between five and 20 percent. Indonesia is now requiring that all food items, as well as some other goods, pass through five designated ports and airports.

According to the FAO, nearly 67 countries, including the EU, implemented new measures by the end of 2008 to restrict trade in agriculture so as to limit the impact of high food prices. Though many of these measures were short term and relaxed within a few months of implementation. The role that export

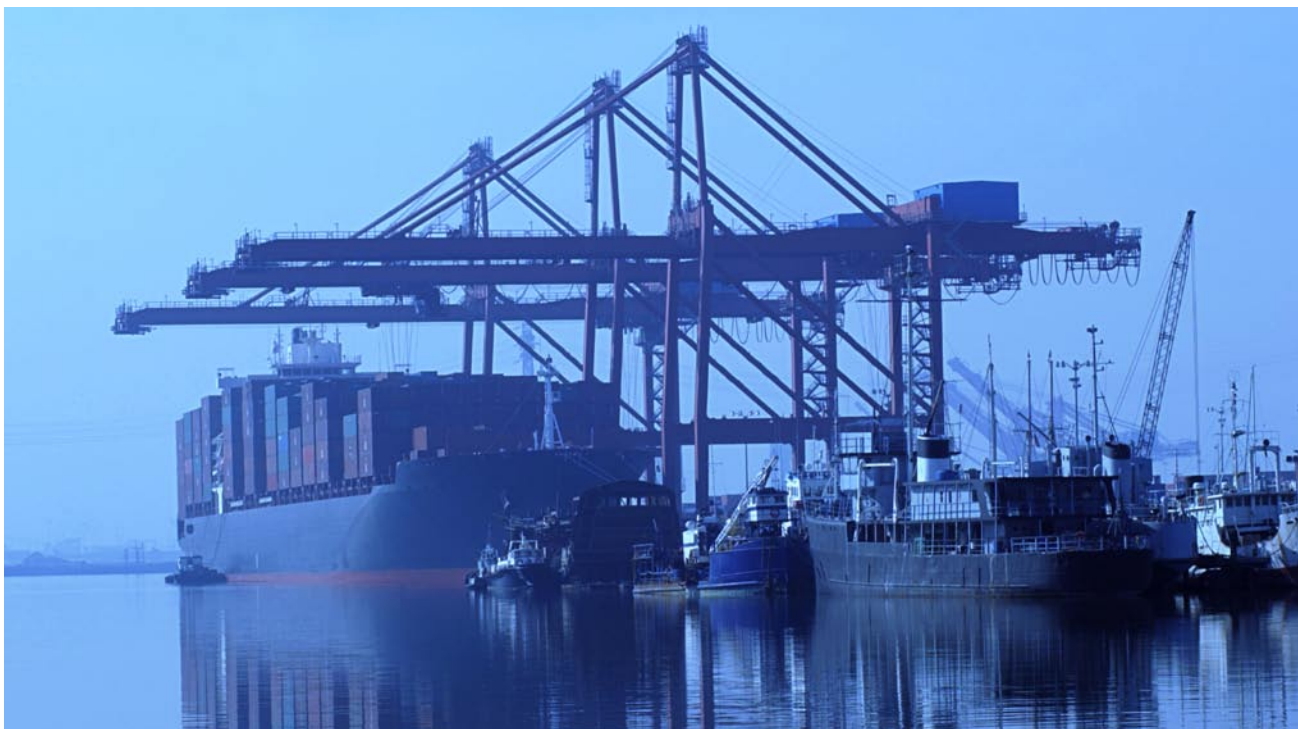
<sup>50</sup> Robles, Miguel, Torero, Maximo & von Braun, Joachim (2009). *When speculation matters*. International Food Policy Research Institute: Washington, D.C.

<sup>51</sup> Ibid

<sup>52</sup> Young, J.E. (2008). *Speculation and World Food Markets*. IFPRI Forum. Washington, D.C.: International Food Policy Research Institute and its 2020 Vision Initiative.

<sup>53</sup> Sanders, D.R., Irwin S.H., & Merrin R.P. (2008). *The Adequacy of Speculation in Agricultural Futures Markets: Too Much of a Good Thing? Marketing and Outlook Research Report 2008-02*. Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign.

<sup>54</sup> Gamberoni, Elisa and Richard Newfarmer (2008). *Trade Protection: Incipient but Worrisome Trends*. The World Bank: Washington, D.C.



restrictions and taxes played in the spike of 2008 has yet to be quantified. The EU, even in the face of criticism from agricultural exporters in recent months, has introduced new subsidies for certain dairy exports. Developing countries such as China and India have also increased the support prices they pay farmers of certain crops, but the scale and effect of such measures pale in comparison to those implemented by the largest subsidizers.

## Conclusion

The spike in food prices of 2008 is unlikely to be a singular phenomenon. Increased volatility due to climate change, changing production and consumption patterns are likely to drive future trends. However, prices for wheat, rice and coarse grains are expected to resume their historical decline, after reaching record levels in 2008.<sup>55</sup> Upward pressure on prices for some goods, especially those used for bio-fuels, such as vegetable oils and corn for ethanol,

will not decline until government mandates are altered.

Since food is a basic necessity, the agricultural sector will be relatively resilient in the face of the economic crisis, even if prices for many commodities will be lower than last year. Prices for the next ten years are likely to be 10 to 20 percent on average higher than the period 1997-2006, but in a pattern that continues the global decline in agricultural commodity prices. This is explained in part by decelerating global population growth and a projected increase in the productive capacity of many of the world's farms.

The amount of food available will increase in the world even as access declines for the poorest, if adequate policy measures are not taken. Aid targeted toward improved infrastructure and research and development in agriculture, along with a reduction in developed country subsidies, may give developing country producers the opportunity to mitigate future price shocks.

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<sup>55</sup> See *OECD-FAO Projections (2009)*.