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## Revisiting the Global Food Architecture: Lessons from the 2008 Food Crisis

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### Abstract

The 2008 episode of food price explosion, political turmoil, and human suffering revealed important flaws in the current global food architecture. This paper argues that to safeguard the strengths of the current system, four failures in market functioning and policymaking must be addressed. First, governments must reinvest in agriculture with a focus on public goods and subject to increased public accountability to re-ensure the global food supply. Second, the policy-induced link between food and fuel prices must be broken through a revision of EU and US agro-fuel policies. Third, better sharing of information on food stocks, stricter WTO regulation of export restrictions, and some form of globally managed buffer stock will be minimum requirements to prevent the resurgence of inefficient national food self-sufficiency policies. Fourth, a market-based food security system is only sustainable given well functioning national social safety nets.

Keywords: agriculture, agro-fuels, food crisis, food security

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## Abbreviations

Association of Southeast Asian Nations	ASEAN+3
European Union	EU
Food and Agriculture Organization of the United Nations	FAO
Genetically modified organisms	GMOs
Gross Domestic Product	GDP
Information and communication Technologies	ICT
International Monetary Fund	IMF
International Rice Research Institute	IRRI
Organization for Economic Co-Operation and Development	OECD
United States	USA
World Trade Organization	WTO

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## 1 Introduction

In 2008, the world saw food prices explode, causing havoc in developed and developing countries alike. Poor people were hit especially hard<sup>1</sup> and many more became poor<sup>2</sup>. Malnutrition among pre-schoolers rose and children dropped out of school early, rendering the damage long lasting. World food prices have come down since, and the attention has shifted to staving off worldwide depression. Nonetheless, the 2008 bumper harvest and the subsequent decline in world food prices have only provided temporary relief. In effect, the world can consider itself fortunate in not having experienced even higher price peaks. Given the 2008 record low cereal stock-to-use ratios (second lowest in 30 years), prices may have gone up much further if aggregate harvests had been even a few per cent lower. And, domestic food prices have remained high in many developing countries (FAO 2009).

This paper argues that the food crisis and the ensuing policy responses have revealed fundamental market and policy failures in the current market-based food architecture. These must be urgently addressed. The shift towards more market-based food systems started in the 1980s. Under high price protection and input subsidization food supply in the European Union (EU) and the United States (USA) expanded rapidly, leading to record food stock-to-use ratios and the subsidization of exports. This model was gradually questioned because of its inefficiency and its destabilizing effects on the world market. At the same time models of food self-sufficiency and food price stabilization through domestic buffer stocks became fiscally unsustainable in developing countries. Efficiency considerations and market-based solutions began to permeate, and subsequently, dominate the food policy debates, as they did in most other spheres of society in the 1980s and 1990s.

The premise of more market-based food systems found implicit support in the seminal microeconomic work on famine and hunger by Sen (1981). He highlighted that massive hunger often exists in the midst of plenty. A sufficient supply of food at the national level is merely a necessary, but not sufficient condition for food security. Food security comes about if everyone is assured of access to food. This can be achieved either through self-production, or through market purchases, which further necessitates having sufficient income and well functioning market systems. These arguments resonated well amidst global food abundance. The food security debate shifted from ensuring national food self-sufficiency to ensuring individual access to food. The policy focus shifted to fighting income poverty and the establishment of proper food marketing systems, complemented by social safety nets that assist the chronically food insecure and the crisis struck.

At the national and international level, these insights fostered a global market mediated food security model. In this view, market interventions are to be minimized to allow

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<sup>1</sup> More than 90 per cent of the estimated increase in urban poverty depth derived from already poor households becoming poorer and less than 10 per cent from (non-poor) households falling into poverty (Dessus et al. 2008).

<sup>2</sup> Ivanic and Martin (2008), Wodon et al. (2008), and Dessus et al. (2008) predicted US\$1 a day poverty rising by three to five per cent in developing countries.

allocation of the factors of production to their most productive use, in line with their true scarcity, as revealed by market forces and prices (Timmer 1986). Countries engage in staple crop production according to their comparative advantage and secure sufficient supply of staples in the world market. National food buffer stocks to stabilize prices are to be kept to a minimum. They are costly and often a major source of rent seeking. Countries rely instead on the much larger world markets to manage domestic price volatility. World food markets are less volatile because they are larger, and thus better able to weather supply shocks, which are often synchronized at the domestic level.<sup>3</sup>

The above policy shift to a more market-based global food architecture has served the world relatively well with staple foods abundantly available and cheap throughout the 1990s and early 2000s. Real agricultural GDP in developing countries, largely driven by yield growth and better policies, grew by 2.6 per cent per year between 1980 and 2004 (World Bank 2007). Asia was particularly successful. Yet, despite improvements since the mid-1990s (Pratt and Yu 2008), agricultural performance in Sub-Saharan Africa remained dismal. The recent food crisis revealed further important flaws in the system.

First, the increasing reliance on market incentives went hand in hand with an erosion of public investment in agriculture. Yield growth slowed down and trend demand began outweighing trend supply, rendering the system ill-prepared for growing food supply uncertainty precipitated by looming land constraints, rising water scarcity, and climate change. Second, as world food stocks were depleted, structural demand shocks induced by new agro-fuel policies in the EU and the USA, and temporary supply shifts following weather shocks, led to sharp rises in world food prices. Third, the escalation of export restrictions by key food exporters in the face of rising food prices reminded the world of the deeply political nature of food as a commodity. This had been vastly underappreciated in the promotion of the food trading edifice. Fourth, in the absence of social safety nets countries had little choice but to revert to costly universal food subsidies to assist the poor.

Addressing these four shortcomings—public underinvestment in agriculture, integration of food and fuel markets through agro-fuel policies, loss of confidence in market mediated food security, and the absence of functioning social safety nets—is critical to safeguarding the strengths of the current system. This paper reviews guiding principles in addressing these market and policy failures, emphasizing the need for both political astuteness and enhanced public accountability to maximize the impact of the necessary increase in public spending. Section 2 proceeds to give a more detailed account of the key factors behind last year’s food crisis, the governments’ responses, and the implications for the global food architecture. Key principles for making reinvestment in agriculture effective and environmentally sustainable are discussed in Section 3. Section 4 revisits the desirability and sustainability of agro-fuel expansion. Section 5 explores how trust in world food markets can be restored to avoid full reversal to national food self-sufficiency policies. Section 6 reviews modalities for building effective social safety nets and Section 7 concludes.

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<sup>3</sup> Dawe (2008) provides an excellent exposition of these arguments in ‘Can Indonesia Trust the World Rice Market?’.

## 2 Fundamental Flaws in Global Food Architecture

For several decades, real food prices trended downward and the world became accustomed to plenty and continuously cheaper food.<sup>4</sup> However, from early 2000 on, standard food models began predicting a slight upward trend in prices.<sup>5</sup> This trend reversal did not follow from the oft-purported acceleration in per capita grain or meat demand among rapidly growing countries.<sup>6</sup> It rather reflected looming supply constraints from rising land and water scarcity and slowing technological progress,<sup>7</sup> which followed from a systematic reduction in public investment in public goods such as rural roads, irrigation, agricultural research, and extension services. This is the first important market failure.<sup>8</sup> The emerging gap between trend demand and trend supply was further compounded by substantial rice destocking in India and China in the early 2000s. In 2004, world stocks-to-use ratios of grains and vegetable oils reached their lowest levels since the early 1980s. These ‘slow and steady’ shifters of supply and demand help explain the gradual increase in world grain prices observed in the first half of 2000. They are the first factor in understanding last year’s crisis.

To understand the subsequent acceleration, one cannot go around the critical role of EU and US agro-fuel policies. Between 2000–07, the harvested grain area grew at 0.4 per cent and grain yields grew at 1.3 per cent per year. In normal circumstances, this should have covered growth in demand for food and feed (Mitchell 2008; Lustig 2008). After legislation on mandates, tariffs, and subsidies was passed in the EU in 2001, and the USA in 2005, both the demand for corn to produce ethanol, and the demand for vegetable oils to produce biodiesel, exploded.<sup>9</sup> The upward price pressures in the corn and oilseed markets filtered through to the wheat and (to a lesser extent) the rice markets as corn was substituted by wheat (especially as feed), wheat by rice (in certain parts of Asia), and land from wheat was reallocated to oilseed production (Mitchell 2008). Estimates of the exact contribution of agro-fuels to the food price hike vary.<sup>10</sup>

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4 Real prices of grains in world markets declined by about 1.8 per cent per year between 1980 and 2004 (World Bank 2007).

5 Rosengrant et al. (2006), for example, predicted an increase in food prices, by 0.26 per cent per year between 2000–30 and by 0.82 per cent between 2030–50.

6 Rather the contrary, the model rests on a predicted decline in annual cereal consumption growth from 1.9 per cent between 1969 to 1999 to 1.3 per cent from 2000 to 2030; growth in meat consumption was expected to slow from 2.9 per cent to 1.7 per cent per year.

7 Annual cereal yield growth declined, especially in developing countries, from more than 3 per cent around 1980 to about 1.5 per cent per year in 2009.

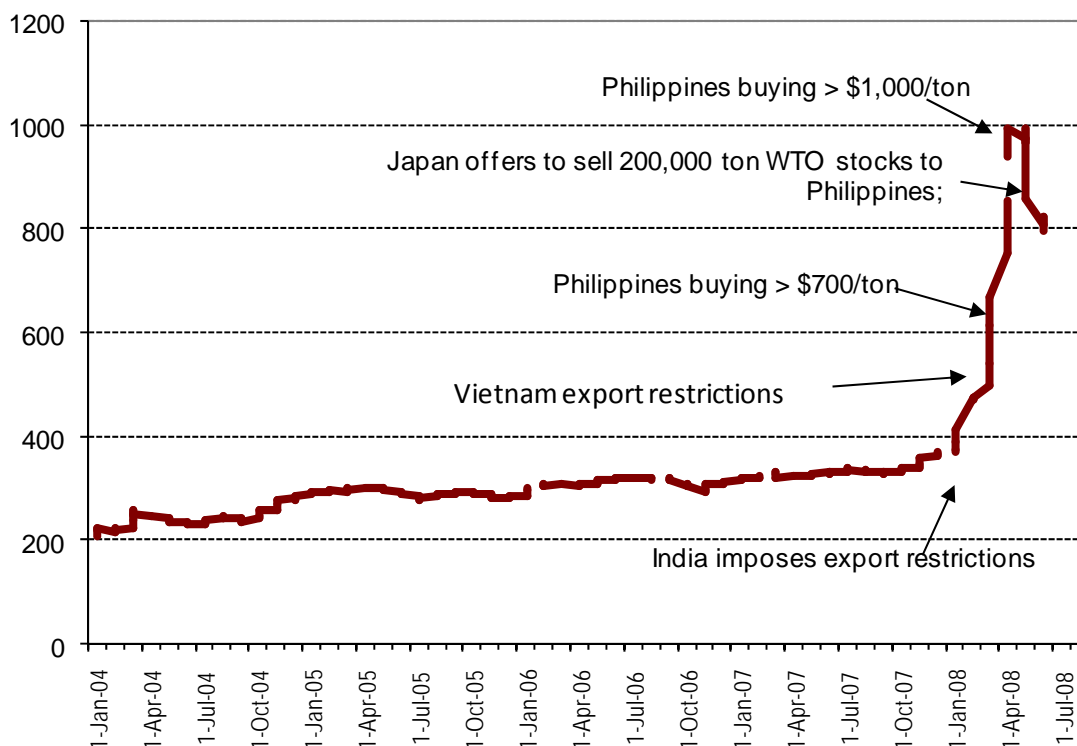
8 Public spending on agriculture declined from 6.9, 14.3, and 8.1 per cent of total public spending in agriculture-based, transforming and urbanized countries in 1980 respectively, to four, seven, and 2.7 per cent in 2004 (World Bank 2007). As individual investors cannot fully appropriate the benefits from investments in these goods and services, it is up to the public sector to fill the gap, especially when it comes to staple crops.

9 Seventy per cent of the increase in global corn production between 2004 and 2007 was used for ethanol production, while biodiesel accounted for one-third of the consumption increase in oilseeds during the same period.

10 Computable general equilibrium models (Rosegrant et al. 2008) estimated the impact of accelerated ethanol use on weighted cereal prices between 2000 and 2007 to 30 per cent in real terms. Collins (2008) attributes 60 per cent of the increase in maize prices between 2006 and 2008 to the increased

Figure 1: Export restrictions induce a run on rice driving world rice prices to unseen highs

### Rice Price (Thai 100B) 2004-08 US \$/mt



Source: Brahmhatt and Christiaensen (2008).

Nonetheless, there is consensus that the policy induced structural demand surge for corn and oilseeds (aided by rising oil prices) added significant pressure to already tight cereal markets, reflected in the low stock-to-use ratios. Temporary supply shocks in key exporting countries (such as the back to back droughts in 2006 and 2007 in Australia) only added fuel.

By 2007 global corn and wheat stock-to-use ratios were down to their lowest levels since the 1970s. To protect consumers from soaring world prices, several key cereal exporting countries imposed export restrictions. This behaviour was especially pronounced among rice exporters, resulting in a ‘Run on Rice’ (Brahmhatt and Christiaensen 2008; Slayton 2009). World rice prices tripled between October 2007 and April 2008. The process began when India (Figure 1), the second largest rice exporter (6.3 mt in 2006), introduced export restriction on non-Basmati varieties of rice in October 2007. It did so because importing the necessary amounts of wheat at the prevailing high world prices to compensate for its wheat harvest failure was too expensive (both economically and politically). India decided to retain more rice for

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use of maize for ethanol, based on partial equilibrium models. Using a residual accounting framework, Mitchell (2008) argues that almost three quarters of the increase in food commodity prices can be ascribed to agro-fuels, and the ensuing reduction in grain stocks, land use shifts, speculation, and export bans.

domestic consumption instead. Instantly, three to four million tons were taken off the thinly traded world market of 28–30 million tons per year and world rice prices rose within a matter of weeks.

Other rice exporting countries (China, Vietnam, and Egypt) quickly followed suit and introduced export restrictions of their own. In an attempt to ensure domestic supply the Philippines, a major importer, issued large tenders at increasingly high prices further stirring up the rice price fire. Hoarding in domestic markets further exacerbated the situation.<sup>11</sup> Though there was no shortage of rice in the world at any point, panicked hoarding caused world rice prices to peak beyond 1000 US\$/ton. Prices eased back by the end of June, 2008, following forecasts of record harvests, announcement by Japan to release 200,000 tons of rice stocks it holds under World Trade Organization (WTO) agreements, and Vietnam's decision to lift export restrictions. Nonetheless, trust in international markets as a source of food security was already substantially damaged. The uncoordinated response by the major exporters, each driven by internal political dynamics and national self-interests, underscores the continuing political nature of food as a commodity and the need for a global governance mechanism to better coordinate a global response in times of emerging tensions in the world food balance.

Other macroeconomic factors contributing to the food price increase include the depreciation of the dollar, which Mitchell (2008) estimated to explain about 20 per cent of the increase in commodity prices between January 2000 and June 2008. Low interest rates in the USA and the resulting expansionary monetary policy and inflow of capital in commodity index funds, likely also accelerated the food price increase (Frankel 2006; Lustig 2008). Its relative importance remains however disputed, especially in the case of rice where the direct opportunities for speculation in futures and options by outside investors are limited (Timmer 2009).

Agricultural trade and tax policies were especially popular in staving off the most severe consequences. FAO (2008a) reports that 50 out of 99 countries surveyed reduced grain import tariffs and that more than 20 countries imposed export controls of some kind—either in the form of taxes or outright quantitative controls (such as export quotas and bans). Social protection responses were tilted heavily toward food tax reductions and food subsidies rather than targeted safety nets. According to the IMF (2008) 84 out of 146 countries surveyed reduced food taxes, 29 increased food subsidies, and only 39 expanded their safety nets. Producer support measures, to instigate a short run supply response, were predominantly geared towards input subsidies to help farmers cope with the even more rapidly rising fertilizer and seed prices.

High visibility and ease of implementation characterize these responses, making them politically expedient, even though often economically inefficient. Export restrictions reduce earnings and incentives for domestic farmers and undermine trust in the world market as a source of food security. Universal food subsidies are costly, regressive, and once installed, typically hard to remove, jeopardizing future fiscal stability. Similar economic arguments hold against the use of universal input subsidies. Yet, the importance of their political expedience should not be belittled, as demonstrated by their

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<sup>11</sup> In May 2008 for example, there was at times no rice to be found in Ho Chi Minh, the largest city in Vietnam, the second largest rice exporting country in the world.

popularity. The review of last year's food crisis and the ensuing policy response reveals the need for:

1. public reinvestment in agriculture
2. a revision of agro-fuel policies
3. a restoration of trust in world markets
4. the establishment of social safety nets.

### **3 Sow Responsibly Today to Reap Sustainably Tomorrow**

Higher food prices provide important incentives for increasing production. However, structural and institutional constraints in input and food markets and poor agronomic practices usually yield low supply elasticities, especially in Africa (Kherallah et al. 2002). That the 2008 bumper supply response has been concentrated in high and middle income countries is no surprise. Public investment in agriculture and rural development, especially in developing countries, must be increased to enable smallholder farmers to overcome their supply constraints. In addition, the investment modalities are as important as the spending level itself.<sup>12</sup> To maximize their impact, public investments should be focused on (1) providing public goods, (2) closing the production frontier, (3) making agriculture environmentally sustainable, and (4) subjected to better planning, rigorous evaluation, and increased public scrutiny.

An important distinction is between spending on public goods<sup>13</sup> such as rural infrastructure (roads, electricity, ICT), plant and animal protection, soil conservation, agricultural research, development and extension, and spending on private goods such as farm inputs (fertilizers, seeds) or commodity-specific marketing and promotion programmes. Lopez and Galinato (2007), for example, estimate that, keeping total expenditure constant, a reallocation of ten per cent of subsidy expenditures to supplying public goods would increase agricultural per capita income in Latin America by five per cent. On the other hand, an increase in public spending on agriculture by ten per cent keeping the spending composition constant, would increase per capita agricultural income only by two per cent.

Nonetheless, farm input subsidies are once again riding high on Africa's agricultural agenda. The governments of Malawi and Zambia are currently spending more than 60 per cent of their agricultural budgets on input and crop marketing subsidies, leaving little room for investments that pay off for sustained periods such as rural roads, irrigation, agricultural research, development, and extension. Whether Malawi's input vouchers turn out to be smart (i.e. inducing sustainable use of fertilizer among needy

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<sup>12</sup> Most recently, public investment in agriculture and rural development has been increasing from historical lows in the early 2000s, and even though the actual spending is still far below commitment (International Food Policy Research Institute 2008), the pace of increase has accelerated since the 2008s food price spike.

<sup>13</sup> Goods are considered public if they generate positive externalities (soil conservation, sanitary protection), palliate the effects of market failures (research and development), and when participation cannot be excluded and participation does not directly reduce the benefits to others (infrastructure of unrestricted use, ICT).



non-adopters) and fiscally sustainable remains to be seen.<sup>14</sup> Given this policy's opportunity costs, its political popularity, and thus likely entrenchment, caution is warranted and rigorous impact evaluation called for. Clearly, input subsidies are not a quick fix justifying more than half of a country's agricultural budget. A much better understanding of the relative role of other demand (risk, credit constraints, knowledge, profitability) and supply (input supply constraints) factors that determine technology adoption is needed. The evidence so far especially supports investment in public goods.

There is a lot of scope for increasing food production in the short run through better use of existing agronomic practices, not only in Africa, but also in Asia. Closing the existing one to two ton/ha rice yield gap (including through improved nitrogen and potassium management) and reducing post-harvest loss (estimated at about 20–25 per cent of the *value* of the rice crop in Southeast Asia) are thus the first two priorities in the recently adopted 2008 Rice Action Plan of the International Rice Research Institute (IRRI). The enormous potential from closing the productivity gap also holds in Africa, where maize yields on farmers' fields are routinely two to four ton/ha below those achieved on farm demonstrations plots (World Bank 2007). Doing so does not require the introduction of genetically modified organisms (GMOs) and the debates surrounding the potential and introduction of GMOs with pro-poor traits (World Bank 2007; Collier 2008) should not distract from what can be speedily achieved with efficient agricultural services and better functioning markets. In effect, both are equally necessary for GMOs to be successful.

Given the vast underutilization of modern inputs, there is tremendous scope for environmentally sustainable expansion of the Green Revolution in Sub-Saharan Africa. Where possible, this should be done in combination with organic farming practices. Complementary fertilization of maize fields through intercropping of maize with *Faidherbia albida* (ex-Acacia), a leguminous tree that loses its leaves during the growing season of maize, provides one promising example. Yet, organic practices are often labour and knowledge intensive and in need of upfront investment, such as trees in the example above. This has often hindered their breakthrough on the ground. In Asia, the primary challenge is greening the Green Revolution, especially to overcome rising water scarcity. This can be done through better water management, proper incentives, and regulation. Just addressing poor land layout, for example, through adequate levelling and higher embankments to retain wet season water, increased yields in Cambodia by 27 per cent. And, a shift from area-based to volume-based charges in China's Tarim Basin resulted in a 17 per cent decrease in water use. How climate change will affect the agroecological conditions for agriculture must be taken into account in future agricultural investments across the world.

In order to maximize the impact of public spending on agriculture and politically sustain its increase, demand-driven, evidence-based policymaking and public accountability should be fostered. On the supply side, this requires agricultural ministries to shift from primarily providing agricultural services (such as extension services), to facilitating,

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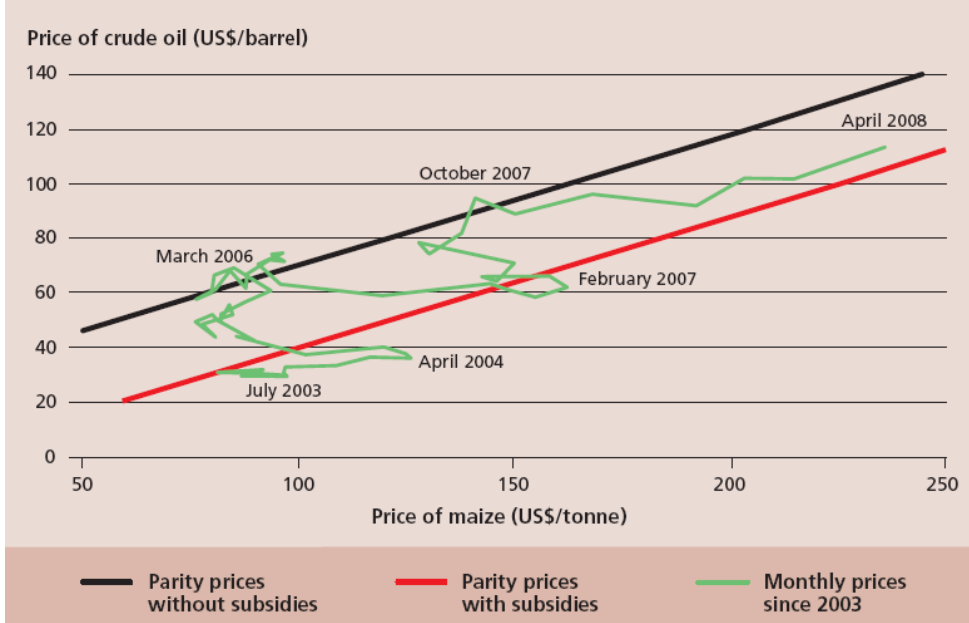
<sup>14</sup> Ricker-Gilbert and Jayne (2008) find evidence of substantial overcrowding of commercial fertilizer use in Malawi's fertilizer programme—for every kilogramme of subsidized fertilizer use they estimate a reduction of 0.61 kg in commercial fertilizer use. The yield impact of fertilizer subsidies is maximized when they induce non-users to adopt.

coordinating, and regulating them. In this view, extension services can for example be provided through mixed public-private systems, involving public agencies contracting out extension services, as in Uganda. Through the issue of extension vouchers, competition among extension providers and direct accountability of the service provider to the farmer, the relevance and quality of extension services can substantially increase. On the demand side, more detailed disaggregation of agricultural public spending and the establishment of public spending tracking systems can increase transparency and foster public accountability. Citizen report cards can feed information about the performance and relevance of government agricultural services back into the policymaking process.

**4 Revisit agro-fuel policies**

Once food and fuel markets are integrated, energy prices will drive food prices, because the demand for the former is infinitely larger than for the latter. The strengthened integration of food and fuel markets has so far been largely policy induced. This is nicely illustrated for maize in Figure 2, which plots monthly crude oil and maize price pairs from June 2003 to April 2008 relative to a break even line with and without subsidies. Left of the parity line, maize ethanol is profitable. Right of it, it is not. By looking at different price pairs, the dynamic feedback effects of higher fuel prices on feedstock prices are also taken into account. Almost all pairs lie to the right of the parity price-without-subsidy-line; without subsidies, maize ethanol was virtually never competitive over the past five years. With subsidies (and tariff protection), maize was competitive most of the time (pairs lying to the left of the parity price with subsidy). FAO (2008b) concludes that with the important exception of ethanol produced from sugar cane in Brazil, first generation agro-fuels produced in OECD countries with current technology are not generally competitive with fossil fuels without subsidies, even at high crude oil prices.

Figure 2: US maize-based ethanol not profitable without subsidies



Source: FAO (2008b), adapted from Tyner and Taheripour 2007.

The FAO (2008b) simulations further indicate that a removal of agro-fuel subsidies (tax concessions, tax credits, and direct support for the production of agro-fuels) and trade restrictions in OECD and non-OECD countries, even when retaining agro-fuel use targets,<sup>15</sup> will reduce global ethanol and biodiesel consumption by ten to 15 per cent and 15–20 per cent respectively and reduce vegetable oil and maize prices by five per cent. It will also increase OECD imports from Brazil and other developing country suppliers (Thailand, African countries) substantially. Given policy and regulatory frameworks that permit long term investments, properly arrange land acquisitions, uphold decent labour standards, and promote adequate production structures (including outgrower schemes), this may further reduce oil dependence in developing countries and help reduce poverty among farmers.

While the collapse in fuel prices since the second half of 2008 has attenuated the upward pressure on food prices (and poverty) from agro-fuels and despite substantial sunk investments by the OECD agro-fuel industry, removal of EU and US subsidies and import tariffs is clearly a very minimal first step in reducing distortions in the food market and concentrating agro-fuel production to more economically and environmentally suitable locations. Not only does current maize-based ethanol in the US and oilseed-based biodiesel in the EU come at a high cost to tax payers and consumers, it contributes only marginally to reducing greenhouse gas emissions and increasing energy security. Production methods and crops that exploit marginal lands, do not compete with land for food production or forests, minimize environmental impacts (including on water and soil resources and biodiversity), and maximize reduction in greenhouse gases should be promoted. Secondary generation agro-fuels that use lignocellulosic feedstock such as wood, tall grasses, and forestry and crop residues hold most promise in this regard and their commercial development should be accelerated.

## **5 Restore Trust in the World Food Market**

Reversal to grain self-sufficiency combined with larger national buffer stocks to stabilize domestic markets presents a costly alternative to many net importers with no comparative advantage in grain production. It also leads to thinner and more volatile grain world markets, which countries may in effect have to rely upon more frequently as climate change increases the occurrence of natural disasters, and domestic supply shocks are more likely to exceed their buffer stocks. Alternatively, food importing countries could circumvent world markets by outsourcing their staple crop production directly to land abundant countries (The Economist 2009).

Especially rich Arab countries and China, which suffer from water scarcity, are taking this route. Such deals can help revive agricultural production in many developing countries through infrastructure building and knowledge spillover and reduce poverty through employment generation and the provision of social services. Much will depend on how land acquisitions and production are organized. In the absence of proper regulatory frameworks and land tenure security, land resources risk being contracted out cheaply to the larger benefit of few, and marginal populations (especially) risk losing

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<sup>15</sup> The EU target is currently to replace 10 per cent of transport fuels with agro-fuels by 2020, while the US is aiming for around 15 per cent.

their livelihoods without compensation. As production is set to take place on mechanized, large scale farms, employment generation may be limited. International codes of conduct to govern these government-to-government deals are being developed. They should include respecting customary land rights, sharing the benefits with the locals, and increased transparency.

Irrespectively, these developments do not reduce the need for the restoration of trust in world markets. This requires at a minimum (1) a global food intelligence unit to generate and share reliable grain stock information, (2) a revision of WTO regulation on export restrictions, and (3) and likely also the establishment of an internationally coordinated strategic reserve system. Part of last year's price run-up was related to uncertainty about existing stocks, especially in the rice markets. As the introduction of India's rice export restrictions created a perception of shortage, countries, farmers, and consumers alike raised their price expectations, inducing a surge in the demand for rice for hoarding. This transformed the gradual increase in rice prices since the turn of the century, into an explosion. More reliable information<sup>16</sup> about the state of supplies could mitigate inaccurate perceptions of shortage. Given the politically sensitive nature of food stocks, this will require an independent global intelligence unit. Useful lessons can be learned in this regard from the International Energy Agency, which receives and reports on public and private petroleum stocks (Wright 2008).

Second, WTO leadership can go a long way in preventing an escalation of export restrictions as observed last year. WTO regulations are largely geared towards the challenges faced by exporters and thus focused on import restrictions, such as high border protection, domestic support, and export subsidies. The use of quantitative restrictions and embargoes on agricultural exports is permitted to relieve shortages of 'basic foodstuffs or other materials of importance to the exporting country'. And, the requirement in the WTO Agreement on Agriculture that such restrictions must be notified has been notably ineffective (Mitra and Josling 2009). There are no bounds on export taxes. While the focus on import restrictions might have been appropriate when low world prices dominated the agenda, it fundamentally ignores the plight of importers who argue that export restrictions reduce the reliability of their supplies. By better disciplining export restrictions the balance of benefits from the trade system between exporters that want assured market access, and importers that want assured supplies, could be restored. This is an important topic for the Doha Round, though not very high on the agenda so far.

Third, given the highly political nature of staple foods (in particular rice), the further establishment of an internationally coordinated strategic reserve system may be needed. Von Braun et al. (2009) recently proposed this, including the introduction of a virtual reserve. The introduction of internationally coordinated emergency, physical, and virtual grain stocks all have merit, but deserve careful analysis before implementation. Past experience has not been promising and the challenge of multilateral coordination and determination of optimal operation procedures should not be underestimated.

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<sup>16</sup> This is especially difficult in the rice market where rice is stored all along the marketing chain (farmers, small scale and wholesale traders, and governments) and where even government stocks are not well known as attested by the wide divergence in FAO and USDA estimates of China's rice supply stock-to-use ratios.

Wright (2008) refers to the US Strategic Petroleum Reserve that emphasizes the interplay between public and private stockholdings for further lessons on how such a system can be designed. Given the much thinner nature of the world rice markets, examination of the contours of an optimal international reserve system within ASEAN+3 could provide an excellent starting point.

## **7 Build Effective Social Safety Nets**

Reliable social safety nets that assist the neediest are an essential ingredient of a global food architecture anchored in markets. In the absence of such systems, governments see themselves obliged to revert to politically expedient but economically inefficient universal tax reductions and subsidies. A hopeful lesson from worldwide experience with social safety nets is that they can be successfully designed and implemented in all country settings (Grosch et al. 2008). In low income settings this entails adapting the design in accordance with the administrative capacity.

Effective safety nets consist of several programmes that complement each other as well as other public and social policies, including the food policies described above. These programmes provide full coverage and meaningful benefits to various groups in need of assistance in a fair and equitable way, i.e. the same benefits to beneficiaries equal in other respects (horizontal equity) and more generous benefits to those more in need (vertical equity). They should be cost-effective—target most of the resources to the intended beneficiaries—and incentive compatible—minimize disincentives. Individual programmes should be financially and politically sustainable to avoid stop/start cycles. They should evolve over time in line with the countries' level of development.

There is a whole range of safety net programmes including unconditional and conditional cash and food transfers, public works, general price subsidies, and fee waivers for access to social services. Cash and near-cash transfer programmes are in many respects the most preferred way to mitigate poverty, promote equity, manage shocks, and facilitate reforms. They have lower administrative costs and do not distort prices. The transfers can directly meet critical household needs and be adapted according to need. They can be easily scaled up and down in response to shocks. As they are more information intensive they require some time to set up, an important task governments should embark upon now.

Cash transfer programmes also assume that essential commodities (such as food) are available. If this is not the case, in-kind food transfer programmes, which are much more costly to administer, may be inevitable. Cash transfers may also be used for unintended purposes. Conditional cash transfers, whereby transfers are conditional on behavioural change such as school attendance or use of preventive health care can help mitigate such concerns. They are more effective when health and education systems function properly. They also only reach households with children. In addition to distributing transfers, typically through self-targeting, public work programmes avoid labour disincentives and create much needed infrastructure, provided they are complemented with proper technical assistance. They are well-suited when unemployment is high and can be scaled up and down, including to address seasonal

unemployment. Yet, they can only cover able bodied and are administratively demanding.<sup>17</sup>

## **7 Concluding remarks**

The review of the 2008 food crisis revealed four areas of market and policy failure that deserve immediate attention to safeguard the strengths of the current global food architecture. First, the erosion of public investment in agriculture and global destocking has left the global food system ill prepared to cope with the longer running challenge of global food supply uncertainty. Governments, especially in developing countries, will need to reinvest in agriculture focused on the provision of public goods supporting environmentally sustainable production of food. To increase efficacy and sustain the current shift in financial and political commitment to agriculture, enhanced public accountability through more demand driven and evidence-based agricultural policymaking with agricultural ministries focused on coordination, regulation, and facilitation should be pursued.

Second, the world cannot afford to have its food prices determined in the infinitely larger fuel market. The current policy-induced link between food and fuel markets must be broken. This requires removal of US and EU subsidies and import tariffs supporting first generation agro-fuels and a revision of EU and US usage targets to allow production of agro-fuels in economically and environmentally more suitable locations. Second generation agro-fuels hold more promise and their commercial development deserves to be accelerated.

Third, the introduction of export restrictions by food exporters to protect their domestic markets from rising food prices has eroded confidence in the world grain markets. Yet, a global food architecture anchored in national food self-sufficiency and larger domestic food stocks will result in higher domestic food prices, a larger total global reserve, and even more volatile, international grain markets. Especially, globally coordinated action will be necessary to restore trust in the world grain markets through a combination of improved information exchange on grain harvests and stocks, strengthened WTO regulations on export restrictions, and potentially some sort of global reserve.

Finally, to more efficiently assist the poorest in accessing food in times of crisis and make a market-based national food policy politically sustainable, countries need to establish effective social safety nets.

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<sup>17</sup> See Grosh et al. (2008) for a comprehensive and operationally oriented discussion of the design and implementation of effective safety nets.

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