Centre for Development Innovation

Strategic food grain reserves

Desk review

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Project Report

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The paper reviews recent publications on the causes for the 2007-08 food price crisis and the volatility of food grain prices. The focus of the paper is on the role strategic food grain storage at national, regional and global level may play in responding to food crises, ensuring food security crises and stabilizing food grain prices in markets at different levels. The paper concludes with recommendations aimed at assisting the Dutch Minisitry of Economic Affairs, Agriculture and Innovation in formulating a position on the issue of strategic food grain reserves.

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Executive summary

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Chapter 6 gives an executive summary of conclusions and recommendations.

1 Background

The 2007/08 Food Price crisis led to increased concern about development of global food security and the risks of price hikes in global and domestic food markets, which have seriously affected poor people and countries and which have led occasionally to political instability. Since the crisis ,volatility in food grain markets has become the subject of an ongoing policy debate involving politically sensitive issues such as market (de-)regulation, export bans and maintaining strategic reserve stocks.

In the 1990s and early 2000s, operating public controlled strategic food grain reserves as an instrument to control prices was discouraged in the context of structural adjustment and trade liberalisation policies. In the present debate questions are raised whether (re-) establishment of such reserves would contribute to prevent similar steep food price hikes and ensure food security in future. In order to assist in its policy regarding this issue, the Ministry of Economic Affairs, Agriculture and Innovation has requested Wageningen UR to implement a desk review.

The central question in this review is: Should the Dutch government support the (re-) establishment of public sector held food grain reserves, and if so at what levels, under what conditions and in combination with which complementary actions or programmes?

To put the role of (strategic) food grain reserves in perspective, this paper starts with a brief outline of the causes of the 2007-08 Food Price Crises and the expected long-term developments in global food production and markets. This is followed by an outline of the different policy aims that food grain reserves may serve and a categorization of the different types of food grain reserves and related instruments. A review of past experiences with maintaining public sector held reserves illustrates the importance of the context in which food grain reserves at different levels operate. We then discuss the recent developments as well as recent multilateral policy proposals and formulate a number of conclusions and considerations that may assist the Ministry of Economic Affairs, Agriculture and Innovation in formulating a position on the issue of strategic food grain reserves.

2 Food Security and Food Crises: causes and influences

2.1 Emergency food crises

Acute crises in food supply and food security are nearly almost always localised affairs, due to failed harvests as a result of natural disasters (drought, flood, storm, earthquakes etc.) or a result of social or political conflicts leading to breakdown of infrastructure and market functioning. Characteristically, such crises require very short-term supply of foods of a specific nature befitting the emergency situation and the local food patterns. Acute emergencies may develop into more or less 'chronic emergencies' that cannot be solved by supplies from local production or by restoration of normal market situations (e.g. in refugee camps). In both acute and chronic emergencies, food reserves can play a vital role.

2.2 Food market crises

Prices in food markets at all levels are volatile as a result of inelastic supply and demand. The world food grain market is a thin market in which only about 15% of the total global production/consumption is traded by a limited number of buyers and sellers (Meijerink and Danse, 2009). Nevertheless, price development in the world market influences domestic prices, especially those in developing countries which have varying domestic production and which therefore often depend on imports to ensure food security[1].

The 2007/08 global Food Price Crisis has led to a large number of publications and proposals analysing and debating causes, contributing factors and expected developments (Wiggins et al., 2010; Willoughby et al., 2009 ; Von Braun & Torero, 2009 ; Murphy, 2009 and 2010 ; de Schutter ,2010). There is however, no consensus about what the main causes have been or their importance (Wiggins et al., 2010).

In analysing food market crises it is helpful to make a distinction between the long term underlying causes and short-term factors that trigger the actual crisis.

On the ***long- and medium term***, production and supply will be influenced by:

- global climate change which is expected to negatively affect production levels in agriculture through lower yields and climatic instability (droughts and floods) in both the large grain producing countries as well as tropical developing countries;
- a levelling off of the productivity improvements in agriculture through research and innovation in the coming decades;
- the global availability of fossil fuels and fertilizer ingredients which is expected to tighten, leading to further cost increases in food production and transport.

On the consumption and demand side:

- the global population is expected to increase from 6 billion to 9 billion people in 2050. Moreover the population growth rate in the poorer developing countries is (still) highest;
- rapid economic growth in China, India and other developing economies is expected to lead to increased per capita food consumption and changes in food consumption patterns from plant- to animal based foods leading to higher demands for animal feed;

[1] In more developed countries, where value addition through processing forms an important part of the value chain (e.g. EU , USA), the effects of changes in raw material prices on consumer prices is usually more limited than in developing countries with a very short production consumption chain.

– an increasing demand for bio-fuel crops may lead to direct competition in food markets (e.g. maize, sugar, palm oil) but also to competition for land and water for production of 2nd and 3rd generation non-food bio-fuel crops such as grasses and wood.

Besides these direct supply and demand factors, there are also important financial, political and legal factors that influence the functioning and stability of food grain markets and thus food security:

– deregulation of food commodity markets in the recent past is argued to have led to speculation leading to price levels unjustified by the actual supply/demand situation;
– market liberalisation through WTO regulations has given developing countries better access to western markets (e.g. sugar) but in the case of food grains, liberalization may disadvantage the small local producers in poorly functioning domestic and regional markets;
– farming and export subsidies by exporting countries (US , EU) lead to price distortions;
– in the poorer and often importing developing countries, market infrastructure (storage, transport, information, processing) is often poorly developed and domestic markets are influenced or dominated by government interventions. At regional level, markets are poorly integrated;
– increased demand for food grains and other agricultural commodities may lead to competition for land and water ('land grabbing');
– bio-fuel utilization policies to address climate change problems may create alternative demand for food crops intensifying competition for land and water.

An actual crisis is usually triggered by a combination of ***short term*** developments in demand and supply and/or policy changes. The combination of poor harvests and low stocks is generally an important direct cause of crises which may also serve as a warning signal. As Wiggins et al. (2010) state: 'All spikes seen in the last 40 years have been associated with low stock-to-use ratio's. Better information on stock levels and awareness of the dangers of low ratio's may help'.

Once a crisis starts, several policy and market reactions can aggravate the crisis, such as:

– export bans to keep low domestic prices , reduction of import tariffs to maintain consumption and avoid social/political unrest;
– re-stocking national reserves by government agencies in reaction to price increases and/or low stocks;
– stocking or 'hoarding' by households and traders to hedge against or avoid absolute shortages.

2.3 The 2007-08 crisis

In the case of the 2007/2008 Food Price Crisis there appears to be general agreement that is was triggered through the multiplicative effect of the combination of:

– a series of poor harvests in exporting countries;
– low global stocks as a result of poor harvests and market policy decisions;
– a rather sudden increased demand for bio-fuel crops due to policies (e.g. US , EU);
– general inflation and a fuel price crisis through rapid growth of the global economy and depreciation of US dollars leading to high cereal prices in dollars.

However, there is an ongoing debate on the relative contributions of the various factors to the crisis in particular those on the demand side of the market and the possible effects of increased 'speculative' trading of food commodity derivates in financial markets. (Wiggins et al., 2010; Baffes & Haniotis, 2010).

2.4 Increased demand?

The short-term effect of the increased demand in booming Asian economies was almost certainly minimal since China and India at the time hardly imported any rice and consumption in these countries did not grow suddenly. The estimated contribution of the increased demand for bio-fuel to the price hike varies from minimal to a (likely exaggerated) 75%. It is agreed that US ethanol production almost certainly contributed to the rise in the maize price, but much less or hardly to the prices of wheat and rice respectively. The increased demand for bio-fuel in the US had two policy drivers: In 2005 the US Energy Act set mandatory targets for bio-fuel production focused on bio-ethanol, while under the US policy and subsidy regime, ethanol distilled from grains become commercially feasible once the oil price rises over US$ 60-70/barrel. The oil price rise from US$ 20 in 2001 to more than US$ 130 in 2008 resulted in a considerable demand. It is debated whether the US$ 60/barrel threshold will remain tenable or realistic on the long term. The long term demand for food crops for bio-fuel will depend on the development of prices of bio-fuel crops relative to price development of fossil fuels and alternative energy sources.

2.5 Financial markets and speculation?

Investments in futures markets by index funds have increased substantially in the past decade, this has been termed the 'financialization of commodity futures markets'. The large size of these investments (some 100 billion US$) has led to a heated discussion about the role of index funds and speculators in general in commodity futures markets. Several papers that appeared state that this influx has led to a bubble in commodity futures prices (de Schutter, 2009; Robles,Torero & von Braun, 2009; Baffes & Haniotis, 2009). The role of commodity futures markets in reducing price risk and in price discovery has thus been questioned. The arguments seem intuitively obvious, but a number of scientific publications have refuted the bubble theory by econometric studies, pointing out both logical inconsistencies in the arguments made and pointing out contradictory facts. A recent review of the relevant scientific studies is given by Irwin and Sanders (2010).

Based on the belief that speculative trading in food-commodity futures and derivatives leads to increased volatility and food price hikes, IFPRI and De Schutter advocate measures to intervene and/or regulate in 'virtual' commodity markets including the use of physical and 'virtual' food grain reserves. Their proposals are further discussed in Chapter 5.

3 Food grain reserves (levels, functions, disadvantages)

Keeping reserve stocks of staple foods is about as old as mankind and food reserves have always been an instrument in 'food security policies' by rulers and governments. 'Strategic food reserves' were already kept in biblical Egypt, in China and in the Roman Empire which maintained its peace by 'bread and games' for the people.

A review of the history of (strategic) food reserves in the context of food security policy making (Shaw, 2007 ; Murphy, 2009) shows that attention for food reserves is strongest in times of crisis caused by shortages or oversupply leading to low producer prices and farmer incomes. Reserves have been and are being used for a variety and often combinations of policy objectives such as price control, emergency preparedness, export buffer, up to 'buying' political goodwill.

Food grain reserves may be kept at different levels. In less developed market situations, stocks are often kept at household or 'village' level or by (small) traders and processors to safeguard supply levels over the season. In more advanced economies private sector companies maintain 'working' or 'pipeline' stocks which may be considerable.[2]

'Strategic' food grain reserves are held by the public sector. While the option of holding or controlling stocks internationally has been discussed since the 1950s, this has never been implemented. At national level, a large number of African countries maintain food reserve systems and regional coordination is being developed. In various Asian countries including China, large national reserves are maintained. In the South East Asian region, regional coordination between national reserves is being piloted. National food reserves are also held in some Latin American countries but at lower levels.

There are two main functions or objectives of public held food grain reserves:

- ***price stabilization and/or price control***. Through buying (at harvest) and later releasing stocks, market prices can be stabilized throughout production seasons within a price-band with maximum and minimum price levels. In many countries governments have used National Food Reserves to maintain fixed prices throughout the country with the objective to ensure food availability throughout the country, often with a focus on urban consumers/voters. This is only possible through operating (para-)statal organisations like Marketing Boards or National Food Security Agencies with monopolistic powers;
- ***emergency response*** Food reserves at all levels can serve to meet emergencies in food supply.

In addition, food grain reserves may contribute to long-term food security through:

- ***stimulating agricultural production***. The basic market failure of in-elastic food markets can be corrected by buying and stocking if prices are low, thus supporting production levels and ensuring farmer income. However, the reverse action, discouraging overproduction through release of stocks, generally does not work since farmers will tend to produce more to maintain their income level when prices are low;

[2] In grain producing and exporting countries (temporary) export bans may lead to 'reserve stocks' held by the private sector in excess of normal pipeline stocks.

– ***complement or replace private sector capacities.*** In countries where the private sector operators (traders and processors) lack capital and expertise to invest in and maintain proper 'working' stock positions and where storage, transport and processing infrastructure is poorly developed, public storage and handling capacity can play an important role in facilitating further market development.

Since the essential function of strategic food grain reserves is buffering against short-term developments and crises in food markets and/or emergencies, they are only of limited value in addressing the long-term developments in global food security outlined above. As Sophia Murphy (2009) states: 'a grain reserve cannot solve chronic hunger, although it can be used to improve market function and in that sense reduce poverty and vulnerability to hunger'. Besides immediate emergency response, food grain reserves thus may be helpful in avoiding crises and addressing volatility of prices in food markets.

While food reserves can be a valuable food security tool, maintaining and operating public held reserves also has important disadvantages:

– reserves *are* costly both in investment cost and maintenance. Although efficient buying and selling policies may allow recovering some of the cost, they remain a recurring expense on the national budget (whether as a national operation or as a contribution to a regional or global programme);
– reserves are designed to intervene where markets fail or are unstable. Thus while reserves may complement and stabilize private sector market development, too large a role in trade volumes and in price control (e.g. by fixed price setting rather than using a price band approach) may lead to market distortion stifling normal market functioning and private sector initiatives;
– in order to react timely and effectively, management of reserves need to have accurate and early information on expected developments in production and demand. This requires early warning systems and monitoring systems which are again costly and difficult to operate. Even when good information is available, management of reserves involves a large element of guesswork;
– operating reserves requires transparent, professional and accountable management. To effectively fulfil the role of stabilizing and complementing normal private sector food markets, the management of reserves should be 'at arm's length' of both political and/or government influences as well as private sector operators. Their position should be similar to that of the management of a Central Bank (Byerlee et al., 2006). Lack of transparency and trust between the public and private sector may actually lead to increased prices and volatility due to unanticipated interventions;
– in order to effectively operate, marketing boards need to interact in world and regional markets. To arrest domestic food price hikes they need access to imports (FAO, 2010). However, the private sector competition in these markets is often better informed and financed and political powerful (e.g large companies).

4 Past experiences

Government policy making involving food reserve stocks in a 'modern' sense started around the end of the 19th century when the 'agricultural revolution' in the USA and elsewhere led to large food grain surpluses and consequently to low farming incomes. Government intervened to protect farm incomes and built up reserves. These were used to provide food-aid to countries in need, especially just after the 1st World War. Thus the combination of market interventions and (emergency) food-aid developed.

Between the World Wars most (colonial) governments intervened in food markets. Exporting countries actively supported and protected farm income through marketing boards, importing countries protected their own farming through quota's, import regulations and bilateral preferential trade agreements.

In the aftermath of the 2nd World War in the late 1940s and 1950s the issue of 'freedom from want' (President Roosevelt) and the question of how a world food reserve might contribute to food security and peace became an important issue in international policy. Discussions under the auspices of FAO and the World Bank focused on the possibilities of a food reserve at the international level. With the establishment of UNCTAD in 1964 the question of how to manage agricultural markets became a second major point of attention. The discussions generated a series of interesting ideas and proposals to manage food security, but implementation of international controlled stocks did not follow. Political agreement on purpose and implementation strategy could not be reached.

Interest in operating Strategic Food Reserves renewed when the food shortages of the early 1970s hit. An international grain reserves system in the form of a collective of national reserves was proposed. But again political agreement could not be reached. In practice, the global action focused on reserves to meet emergency shortages, and countries were encouraged to develop national food stocks as a safeguard against poor harvests.

While internationally held or coordinated food grain reserves never really came off the ground, the international collaboration in the field of early warning and market information has been quite successful. Since the 1950s a system of regular reporting of commodity market information for its statistical publications was operated by member governments. In 1968 an early warning system for food shortages was established by FAO and WFP (World Food Programme). Over the years, this system was improved and expanded. Presently, the FAO's Global Information and Early Warning and Information System (GIEWS) operates an network of data collection and information sharing with national and international agencies. It monitors world food supply/demand and provides the international community with prompt information on crop prospects and the food security situation on a global, regional and country-by-country basis. In case of impending food emergencies, the system dispatches rapid crop and food supply assessment missions, often jointly with the WFP. Using modern information technologies, GIEWS has developed the GIEWS Workstation, which gives access to geographic and statistical data, country food situation updates, and early warning messages. GIEWS Workstation also facilitates data sharing among national and international institutions for early warning and other food security related purposes.

Prompted by the 1984-85 famines in Africa, the United States created the Famine Early Warning System (FEWS) to anticipate possible pending famines and advise policymakers on how such famines might be prevented and their effects mitigated. When the programme started to assist in 2000 in creating and strengthening of local food security information systems and famine warning and response planning systems within Africa , the name was changed to the Famine Early Warning Systems Network (FEWS NET).

The information used by GIEWS and FEWS NET originates mainly from international and national public sector sources and statistics. Trading and stock positions held by (large) private sector operators are so far not monitored.

4.1 Sub Sahara Africa

Upon independence most African countries had inherited national marketing boards with monopolistic powers in agricultural markets including control of imports, domestic farmer and consumer price control, distribution and storage of staple foods. In this context of heavily managed agriculture, National Food Reserves were created to respond to food emergencies.

When the Sahel suffered a widespread and severe drought in the early 1970s, the region needed to import grain with world prices that were at record high levels in global grain markets because increased demand coincided with low stock levels in exporting countries (e.g. USA). Governments of developing countries concluded that world markets were not a sufficiently secure source in an emergency and security stocks were established in several countries in sub-Saharan Africa between 1975 and 1980, including Burkina Faso, Kenya, Mali, Mozambique, Niger, Ethiopia, Tanzania and Zimbabwe.

These national food reserve systems have been criticized as costly, inefficient and impeding the development of domestic markets. However, the problems the national systems faced were not all similar and some systems functioned much better than others. Some governments used the reserves to keep grain prices as low as possible for urban consumers, at the expense of farmer income and investments in agriculture. Management of reserves proved difficult and was plagued by corruption and bureaucracy. In the course of the 1980s and 90s the high costs of maintaining and operating reserves for emergency response and price control could no longer be supported by governments, and under IMF/World Bank Structural Adjustment Programmes the role of food reserves changed. While agreeing that market liberalization was needed to allow domestic markets to develop, many countries have been reluctant to give up completely the price stabilization objective. However, policies have been changed to emphasize food security in emergency situations while allowing sustainable market development.

In the Sahel region there has been a gradual development of integrated food security systems consisting of three components: (i) early warning and food information, (ii) coordination with food-aid donors and (iii) safety net interventions. In 1990 CILSS/Club du Sahel agreed to integrate food-aid interventions into long-term agricultural and rural development plans. In recent years (FAO NEPAD, 2004) physical reserves are still maintained in many countries (e.g. Burkina Faso, Chad, Mali, Mauritania, Niger) but at much reduced levels and reserved for emergency relief with maximum stocks of 3 months of anticipated import requirements in a poor harvest year. Most national food reserve systems also include a financial component (food reserve fund) to allow emergency imports.

4.1.1 The Mali model

The system that was put in place in Mali in 1981 is seen as one of the best models for national food security reserves. The Programme de Restructuration du Marché Céréalier (PRMC) is considered an effective model for coordination between government and donor partners and combines information, financial tools and physical reserves in six elements:

1. an early warning system;
2. a market information system;
3. a national security stock of 35,000 tonnes;
4. an emergency intervention unit;
5. a joint counterpart fund;
6. a food security fund.

4.1.2 The Ethiopia model

The countries in the Horn of Africa experienced recurring drought, conflict and war leading to loss of agricultural production and severe food emergencies. The region is heavily reliant on food-aid. Ethiopia established in 1982 the Emergency Food Security Reserve (EFSR) which is managed by an autonomous administration (the EFSRA) since 1991.[3] The maximum stock level is maintained at 407,000 tonnes.(FAO NEPAD, 2004) The initial stock and investments as well as training were donor funded. Stocks are released to distribution agents in a national donor funded safety net programme and borrowers restock when their supplies arrive. There is an early warning system with local antennae. The Ethiopian Government carries the cost of management and maintenance. The model is followed in Niger, Malawi and Mauritania.

Elsewhere in Eastern Africa, Kenya attempted to continue maintaining a fixed price policy with limits on private trade. This has discouraged market development, and brought a parallel market into existence which cost a great deal of public money. In contrast, Uganda has traditionally held no stocks and has encouraged private market development.

In Southern Africa in the 1980s-90s some governments let their (para-) statal marketing boards hold reserve stocks for emergencies and food-aid, while at the same time competing in the open markets (e.g. ADMARC in Malawi). Others, such as Tanzania and Zambia, created special units to manage emergency reserves. Zimbabwe has attempted to keep a combination of physical stocks and financial reserves. However, reserves were not (directly) linked to safety net programmes like in the Sahel and governments in southern Africa continued to intervene in grain markets , often politically motivated, thus discouraging structural development of private trade. Since the early 2000s, WFP in Mozambique has prepositioned food-aid reserves in strategic locations and Mozambique does currently not hold other reserves.

In reaction to food shortages in various African countries in the early 2000s (e.g. Malawi) and the 2007-08 food price crises, new initiatives aimed at improving food security and market functioning are being developed as a complement to emergency food reserves. Instruments to improve market functioning include (FAO NEPAD, 2004):

- use of trade insurance to remove credit constraints in regional trade;
- use of warehouse receipts to cover credit requirements in the chain; (e.g. Ivory Coast, Mali, Mauritania, Zambia and the East African Grain Council);
- Commodity Exchanges to manage the risk of increased price volatility associated with market liberalization (e.g. South Africa);
- market information systems;
- donor financing of local purchases (e.g. the Purchase for Progress or P4P programme of WFP).

During the March 2004 FAO 23rd Regional Conference for Africa (FAO NEPAD, 2004) on the NEPAD Comprehensive Africa Agriculture Development Programme (CAADP), the establishment of regional food security reserves systems was discussed. Policy recommendations included:

- development of integrated national food security systems combining minimum physical reserves with well-defined and managed food safety-net programmes;
- establishment of regional food security networks within natural trading areas. National reserves would be part of such networks;
- encouragement of cross-border trade;
- maximization of reliance on local production for local markets and safety-net programmes.

3 http://www.dppc.gov.et/pages/about3.htm

In June 2004, a combined NEPAD/WFP study explored further options for regional food security systems. In 2006, the establishment of regional collaboration was endorsed by African governments. In response, various regional initiatives have been proposed.

For the Sahel region the CILSS since 2007 has facilitated the initiative to establish RESOGEST[4], a coordinating unit which is to ensure the availability of a regional emergency stock made up by reserving 5% of the national stocks of the participating countries, improve management capacities at national level, facilitate cross-border exchanges and provide information on public, private sector and farmer's stocks and information on tenders and prices. RESOGEST has not been implemented yet.

In the SADC region[5] a framework for a SADC Regional Food Reserve Facility is being developed but progress appears to be slow. Current proposals for the implementation of this regional mechanism are based on the establishment of a physical stock, a financial instrument, and an insurance against risks in support of farmers. Such a facility would benefit from and collaborate with the existing SADC Food Security Early Warning System.

4.2 The Asian region

The situation in the Asian region differs in many respects from Africa. Rice is the major staple in the region and is produced and traded in vast quantities all over the region. Domestic and regional markets and infrastructure are generally much better developed. As an IFPRI study from 2005 stated (Rashid et al. 2005):

'Our results suggest that conditions in the region have improved significantly over the past thirty years; and none of the four commonly agreed rationales-that is, poorly integrated domestic markets, thin and volatile world market, promoting modern technology and the scarcity of foreign exchange reserves-for public intervention in food-grain markets are now persuasive. Domestic food-grain markets are integrated, international markets for both wheat and rice are significantly more robust than they were thirty years ago..'

Nevertheless, most large countries in South East Asia maintain national stocks for price stabilisation and (partly) for emergency response. In Indonesia, Thailand, Malaysia and Singapore, these are managed by private entities or state owned enterprises, while in China, Japan, and Brunei, stocks are directly controlled and managed by the government. Stock levels vary but are generally large. According to the Indonesian state enterprise BULOG the rice reserve stock in Indonesia is at about 350,000 tons, China reaches 34 million tons, Thailand two million tons, Vietnam one million tons, Japan one million tons, South Korea 1,1 million tons and the Philippines 750 thousand tons[6]. With a share of 90% of the global rice production of about 430 million tons produced and consumed in the region, these stocks are relatively limited and are to be regarded partially as 'pipeline' stocks rather than pure 'strategic' reserves.

[4] Réseau des Societés, Commissariats, Offices Charges de la Gestion des Stocks de Securité Alimentaire au Sahel et en 'I Afrique de 'I Ouest

[5] Southern African Development Community

6 http://www.bulog.co.id/eng/history_v2.php

In India, the government and parastatals also play a major role in domestic markets and India maintains large reserve stocks of rice[7] and wheat. In Pakistan, PASSCO[8] was expected to have an surplus stock of 3 MMT of wheat in early 2010. After the 2007-08 food price crisis and in reaction to fears of new crises, governments and agencies appear to be stocking at higher levels (e.g. the NFA in Philippines end 2009 planned to stock up to some 3-4 million tons of rice to avoid importation in 2010).

There are two emergency reserve systems operational in Asia, the East Asia Emergency Rice Reserve (EAERR) in the ASEAN region and the South Asian Association for Regional Cooperation (SAARC) Food Security Reserve

4.2.1 East Asia Emergency Rice Reserve (EAERR)

In 1979 the ASEAN countries agreed to establish a common rice reserve to meet emergency requirements from natural disasters and man-made calamities: the ASEAN Emergency Rice Reserve(AERR). During its more than 27 years of existence, the stock level never exceeded 87,000 tons, not even sufficient to meet a half-day ration for the rice-consuming populations of the ten ASEAN member countries and the AERR thus never really became operational. In 2003 the East Asia Emergency Rice Reserve started as a three year pilot. EAERR is a regional cooperation programme among the ten ASEAN Member States, China, Japan and the Republic of Korea. (the ASEAN Plus 3). The objectives of the scheme are to provide food assistance and strengthen food security in emergencies caused by disasters, and for poverty alleviation purposes, but also aims to contribute to price stability of rice in the region. Under the scheme, the 13 participating countries pledge contributions and mutually share and exchange stocks. A management team operates a detailed mechanism on the release of its stocks and distribution. Apart from its objective of food security, it is also geared towards intra and inter-regional trade and in fostering competitiveness of member countries through technology transfer, regional cooperation and private-sector participation. Transportation and operational costs are borne by the country in receiving supplies.

Since the EAERR not only aims at emergency response but also aims at fostering regional trade it appears to be specifically beneficial to Japan and Thailand. For Thailand, the reserve is a potential market for its rice exports. For Japan, the scheme is a way of safeguarding its domestic rice market because of its obligations to the World Trade Organization (WTO). While holding a large stock of imported rice in its market would adversely affect Japan's rice farmers, the East Asia reserve enables Japan to have a supply of rice whenever domestic demand rises while still complying with its WTO commitment.

In 2010 the EAERR was changed to the *ASEAN*+3 Emergency Rice Reserve (APTERR) The new scheme is based on the principle of voluntary contribution by member countries to two types of reserves: the 'allocated' physical stock for which a certain quantity of rice is reserved in national stock for a specific need, and another 'stored' stock in kind or in the form of funds.

4.2.2 SAARC Food Bank

In 1988, a regional emergency reserve scheme was established by the SAARC[9] member countries: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. Being the modelled after the first ASEAN scheme, it met the same problems.

[7] In July 2010 India stocked 24,3 MMT of rice while the buffer norm is 9,8 MMT (Bloomberg)

[8] Pakistan Agriculture Storage and Services Corporation

[9] South Asian Association for Regional Cooperation

In 2007 by the SAARC countries agreed to establish the SAARC Food Bank (SFB) The objectives of the scheme expanded beyond emergencies to act not only as a regional food security reserve for member countries during emergencies, but also to provide regional support to national food security efforts, foster regional integration and solve regional food shortages through collective action. The stocks under the Bank are held in the member countries and decisions on release are taken by a board. Releases by the Bank are to be restocked in kind by the receiving country. The SFB Board is to periodically review prices according to agreed principles. The SFB is not yet fully operational and has not yet been able to reserve adequate food grains to ensure regional food security. At present, around 243,000 tons of food grains – 153,000 tons in India, 40,000 tons each in Bangladesh and Pakistan, 4,000 tons each in Nepal and Sri Lanka, 1,200 tons in Afghanistan, 200 tons in Bhutan and 180 tons in Maldives – are available with the SFB. In October 2010 it was proposed to increase the strategic reserves to 400,000 tons, which may later be increased to one million tons. Implementation will involve the construction of new food warehouses in member countries, local procurement and international purchase of additional food grains and also the development of an administrative and distribution network.

4.3 The Latin America & Caribbean region

Similar to the situation in Africa, in South America and the Caribbean, government involvement in food-grain markets has been reduced under World Bank/IMF structural adjustment policies and market liberalisation agreements (e.g. NAFTA). Government controlled stocks have been reduced and privatised.

Most countries in Central America and the Caribbean are net importers of food grain with imports making up 30% of the total supply. Market liberalisation and deregulation of agriculture in these countries has had severe consequences for the position of local agriculture and food production. According to Olson from IATP (Olson 2008):

'A few transnational agribusinesses, like U.S.-based Cargill and Mexican-based (but partly U.S.-owned) corn giant Maseca, now exercise unprecedented market control over key agricultural sectors, including yellow and white corn and beans. This means that whenever prices rise for these commodities in the Mexican market, Cargill can stop buying in the Mexican market and turn to their own imported reserves. By doing so, they are able to undermine producer prices for Mexican farmers and push them out of their own market....'

The larger grain producing countries in Southern America are probably less affected since domestic markets do not depend on imports.

4.3.1 Latin America & Caribbean Emergency Response (LACERN)

The only regional food reserve programme directed at emergency response is the LACERN a co-operation between the governments of Latin America and the Caribbean and WFP The LACERN network, established in 2005, has the logistical capacity of both storage and delivery of food rations and emergency equipment, as well as warning systems. Specifically, three regional stocks supplied by the host states (Ecuador, Barbados and El Salvador) allow pre-positioning of high-energy biscuits for countries affected by disasters. Each depot operates on the basis of an initial stock of 150 tons of biscuits, systematically and immediately refilled after each distribution.

4.4 The World Food Programme (WFP)

The WFP plays a central role in emergency response as well as in longer term food security programmes all over the world. As such it is a major player in world, regional and domestic markets. While WFP has a large 'annual turnover' in food, it does not keep large physical stocks. For storage of commodities WFP

relies on commercial channels and government agencies. In many countries WFP has arrangements which allows drawing on national or regional reserves (e.g. the Ethiopia model)[10].

In the first period of its existence WFP relied for its food-aid deliveries mainly on in-kind donations from surplus stocks of donor countries. The 1973 global food shortages led to a gradual change from in-kind to financial contributions and WFP has become a major purchaser of food. The Netherlands has strongly supported this policy development.

In 1975 the UN General Assembly established the International Emergency Food Reserve (IEFR), to be placed at the disposal of WFP. This reserve is the only international facility available to respond to food emergencies. It receives contributions from governments and has a minimum annual target of 500,000 tons. It is a voluntary facility to provide emergency relief from food stocks and budgeted funds kept in donor countries. It includes an Immediate Response Account (IRA), a cash reserve to purchase food to respond to emergency food needs quickly. Country offices can borrow up to US$ 500,000 from the IRA in case of emergencies. The IEFR has not fully lived up to its original expectations. It is not like a bank account ready for WFP to use, nor is it a physical stock of food kept by WFP to be used directly in emergency response. In addition, a high proportion of the contributions are tied to specific commodities, and contributions have been announced after emergencies occurred and have fluctuated considerably.

In 2004, the WFP Board approved a pilot US$180 million Working Capital Financing Facility, which allows advances to operations to procure food before a contribution to a project had been confirmed by donors.

In 2008, US$60 million from the Working Capital Financing Facility was used for a pilot Forward Purchase Facility to enable WFP to buy food based on estimated aggregated regional needs and funding forecasts to further reduce lead times for the delivery of food. It has been successful in achieving both time and cost savings and it reduces the need for large in-country stocks. In November 2010 the WFP Board was asked to approve the increase of the Working Capital Financing Facility ceiling to US$557 million to enable the Executive Director to provide advance financing to operations including the Forward Purchase Facility.

[10] For direct response to emergencies and disasters, the logistics operations of WFP manage the network of **United Nations Humanitarian Response Depot (UNHRD)** which is able to deliver humanitarian relief items worldwide within 24/48 hrs . The Network provides storage, logistics support and services to UN humanitarian agencies, international humanitarian organizations, governmental and non-governmental organizations. The network so far consists of 5 depots in different regions: Europe (Brindisi / Italy), Africa (Accra / Ghana) , Middle East (Dubai / UAE) , South East Asia (Subang / Malaysia) and Latin America (Panama City / Panama). These depots are primarily stocking non-food items but also keep limited stocks (e.g. 100 tons) of food commodities specifically Oils and Fats and High Energy Biscuits.

5 The importance of context

The review in the previous sections shows that food grain reserves have been and are being used in different forms usually in combination with a variety of other instruments depending on the specific policy objectives and local, regional or international context. The question whether (re-) establishment and operation should be supported thus depends on purpose and context.

The present policy debate on the role of food grain reserves focuses on their contribution to three goals:

- further ***improvement of emergency response*** through developing an internationally coordinated system of limited physical reserves that would fit in local and regional food security policies and programmes;
- ***stabilization and further development and integration of domestic and regional markets*** to stimulate increased public and private investments in development of agricultural production;
- addressing ***price volatility in the world food market***.

The proposals by IFPRI (Braun and Torero, 2009) in collaboration with Justin Lin, senior vice president and chief economist at the World Bank, have played a central role in the policy discussion. Their paper proposes three global collective actions to address the key issues above:

- a modest ***independent emergency reserve*** to be supplied and funded by a group consisting of the main grain-producing countries (the Club[11]) and managed by WFP. The reserve would consist of a physical stock of 300,000 – 500,000 MT of basic grains (= 5% of current food-aid flows) held decentralized in national storage facilities and used solely for emergency response and humanitarian programmes. The reserve would be managed by the WFP, which would have access to the grain at pre-crisis market prices to reduce the need for short-term ad hoc fundraising (von Braun et al., 2009).
- an ***international coordinated global food reserve*** held under an agreement under UN Auspices by the members of the Club and controlled by a high-level technical commission appointed by the Club. Reserve stocks would be held by participating countries in addition to the private sector commercial 'pipeline' stocks. The stock held by each country would correspond to a percentage of its annual domestic demand. These reserves would be drawn upon by the high-level technical commission only when needed for intervention in the spot market.
- a '***virtual reserve***' which would be a coordinated commitment by the Club members to supply funds to intervene in the international food-commodity futures market. The high-level technical commission would intervene in case of feared excessive price development by 'short' selling in the futures market to move speculators out of the market and return prices to reflect market fundamentals. The fund would (provisionally) be expected to be 12-20 billion US$ being some 30-50% of normal grain trade volume in the world market.

A second key participant in the debate is the Institute for Agriculture and Trade Policy (IATP). In various publications Sophia Murphy and others argue that development of trade and operating food grain reserves are to be regarded as complementary rather than contradictory strategies. IATP puts emphasis on collaboration between governments and private sector operators and their organisations and the role of existing local, national and regional food grain reserves in the development of food markets.

[11] members of the G8+5 plus major grain exporters such as Argentina, Thailand, and Vietnam

IATP proposes (Murphy 2009, 2010):

- ***increase foreign and domestic investment*** to achieve culturally appropriate local and regional food security reserves;
- lead efforts to ***establish an international commission on reserves***, which could be coordinated by the FAO Committee on Food Security, to make recommendations on the establishment of a coordinated global food reserve system;
- ***support multilateral, regional and bilateral trade rules*** that allow developing countries to invest in the production and infrastructure necessary to support food reserves;
- ***renegotiate the Food Aid Convention*** to ensure that contributions towards food security reserves are eligible to be counted towards meeting commitments under the convention.

So while IFPRI emphasizes internationally coordinated/controlled reserves for emergency and price stabilization in predominantly the world market, IATP(and others) [12] see a more important role for regional collaboration, improvement of local private markets and adaptations in international and local market regulation. In their view, the existing national reserves should be limited to a supportive role and fit into food-safety net and market development programmes.

The recent publications offer important criteria that should be met to allow effective functioning of food reserves for each of the three purposes outlined above.

5.1 Reserves for emergency response

When considering food reserves in the context of the need for effective emergency response, it is clear that such reserves:

- are needed on short-term;
- needed locally;
- require specific foods fit for the specific situation and population concerned.

Therefore emergency reserves should be decentralised and limited in size but large enough to allow time (1-3 months) for further imports if needed. (FAO NEPAD, 2004). Preferably they should be combined with earmarked financial reserves for purchase of additional supplies if needed; this will reduce the cost of maintaining physical stocks and allow flexibility of purchase and logistics (Murphy, 2009 ; FAO Easypol, 2010).

Furthermore, while emergency and food-aid reserves may be physically combined with reserves aimed at market stabilisation, a clear distinction between both purposes should be maintained and translated management and administrative rules.

Emergency reserves should be an integral element of comprehensive food security safety-net programmes, combining such elements as early warning and market information systems, monitoring of farm level and private stock positions etc. The globally operating Early Warning Systems operated by FAO/WFP and FEWS NET are of great value and can support local systems.

Operating emergency reserves should aim at stimulating development and integration of domestic and regional markets and not replace private sector investments but complement these. Consequently re-stocking of reserves should preferably be by local /regional purchasing.

[12] Amongst others. Share the World's Resources, ODI, The UN Rapporteur on the Right to Food and FAO

In this respect the development of the Purchase for Progress (P4P) programme[13] of the WFP which aims specifically at purchasing food-aid commodities from smaller local producers and processors rather than tendering on international markets provides a good example of utilizing food-aid funds as investment in local agricultural production and market development.

The Mali and Ethiopia models described in Section 4, which primarily aim at emergency response and humanitarian programmes, already to a large extent meet these criteria. The RESOGEST and SADC Regional Food Reserve Facility initiatives aim to add the dimension of regional coordination and integration.

The independent emergency reserve as proposed by IFPRI differs in two aspects from the present situation of national schemes and efforts to achieve regional coordination. IFPRI puts emphasis on independent coordination by WFP and proposes funding by the main grain producing countries (the Club). This would offer the opportunity of improving regional coordination and limit the risk of each country trying to protect its food supply by uncoordinated imports in times of scarcity, leading to increased volatility in already thin markets. In practice, WFP often already plays an important coordinating role in meeting emergencies. However, assigning a central role to WFP would require reaching broad agreement with the countries involved in each of the regional schemes which would have to surrender part of their authority to WFP.

The proposed expanded Forward Purchase Facility operated by WFP could be an important instrument to complement the financial tools available for (re-)stocking regional emergency response reserves.

While negotiating agreement on international coordination and funding may not be easy, it may be concluded that maintaining limited emergency stocks based on existing national reserves would contribute to global emergency response efficiency and food security.

5.2 Reserves for Price stabilization and development of national and regional markets

In domestic markets, price shocks can have serious negative consequences for long-term development of agriculture and food security, especially for the poor. Domestic price instability tends to be highest in Africa especially in land-locked countries that are close to self-sufficiency in a major staple. Low income countries with large populations and depending on imports are more susceptible to world market price variations (Byerlee et al. 2006).

In many developing countries, government or parastatal agencies controlling national grain reserves still play an important role in food security and domestic food markets. However, in line with market liberalisation and structural adjustment policies their role has changed considerably. Their monopolist position in trade has been abandoned and fixed price policies have been replaced by price-band policies and/or interventions targeted at vulnerable groups. The total volume of reserves held also was reduced considerably.

Many developing countries, especially smaller land-locked countries in Sub Sahara Africa, still suffer from poorly developed food markets. The intended take-over by the private sector has often led to short-term profit oriented trading practices, while market infrastructure and professional expertise of the state owned marketing organisations was neglected and often lost.

13 http://www.wfp.org/purchase-progress/overview

When the food price crisis of 2007-08 hit, government actions in several countries have shown protectionist reflexes. In the ensuing policy debate there is general agreement that agencies holding national reserves still can have a role to play in food security. Their role should be primarily focused on:

– stimulating the development of agriculture which is often still dominated by large numbers of small (semi-subsistence) farmers;
– operating early warning systems and provision of market information (prices, demand, supply, stocks);
– complement private sector shortcomings and facilitate private sector development in logistics, storage and processing. An important tool to support private sector functioning directly related to stock keeping is the use of a Warehouse Receipts system under which farmers, traders and processors can obtain credit for storage costs. The use of Warehouse Receipts also offers the opportunities to monitor stocks held by the private sector.

Various publications (FAO NEPAD, 2004 ; Byerlee et al. 2006 ; FAO Easypol, 2010 ; Murphy, 2009 ; FAO CFS, 2010) offer criteria to be met in structuring and management of national reserves aimed at price stabilization:

– reserves for price stabilization should be limited in size, large enough to meet emergency demands (3-6 months of requirements) but avoid a dominant position in the market;
– its management should have a Central Bank type of autonomy, independent from political influences and within a framework of clear and well defined policies;
– flexibility to hold combinations of physical stocks and financial reserves because this minimises costs and is in particular relevant for countries that have easy access to imports;
– clear, transparent and predictable rules for market intervention. Unexpected interventions create uncertainty and mistrust impeding private sector investments and often leading to increased volatility;
– price interventions should be price-band type and aim to maintain private sector competition. Preferably, interventions should be targeted to specific vulnerable groups;
– while under normal circumstances reserves should ideally rely on local production, in order to be effective, national reserves should have access to imports.

FAO (FAO NEPAD 2004) and others have emphasized the need for regional coordination of national reserve programmes and the need for integration of regional markets. The rationale behind this is that the world grain market covers only about 15% of total production and consumption and that most staple food is produced and consumed locally and are often region specific. However, cross border trade and exchanges so far meet many barriers. The recent initiatives in the sphere of coordinating and sharing emergency reserves like RESOGEST and the SADC Regional Food Reserve Facility both partially aim at improving regional trade conditions.

The discussion paper for the FAO Committee on World Food Security (CFS) meeting in Rome in October 2010 (FAO CFS 2010) noted the risks and possible costs of operating national reserves in developing countries and concluded that national reserves are not necessary in countries/regions with well-developed national markets (including futures markets). The CFS is also rather sceptical regarding the possibilities to stabilize prices at regional level through internationally held/managed food reserves. According to the paper, the difficulties to agree on collective actions encountered in the EAERR and the SAARC SFB are likely to be even larger with more participants and higher stock levels.

However, the CFS paper saw possibilities for:

– public sector held smaller strategic food reserves specifically targeting vulnerable groups, possibly in the form of a combination of physical stocks and reserved funds;
– establishment of clear and transparent rules for market interventions by governments in terms of price-bands to enhance market functioning;
– improvement of market information systems and better coordination between government and private sector the enhance the effectiveness of food reserve management.

The CFS thus largely supports the position that regional coordinated national reserves should primarily aim at combining well designed emergency response with efforts to complement and stimulate development of private sector operated food markets, rather than aim at price stabilization.

The IFPRI proposal for a system of international but decentralized held physical stocks to be used for intervention in the spot market(s) in times of price crises, in many respects resembles the current regional initiatives. However, this system would primarily aim at price stabilization and be coordinated by a an international technical committee and thus be further removed from the actual market stakeholders: governments, farmer organisations and private sector traders and processors.

5.3 Reserves to curb price volatility in the World Market

World grain trade constitutes only a small share of world production (from 7% for rice to 18% for wheat; FAOSTAT, 2010). Price variability in the world market at around 20-30% tends to be higher than in domestic markets, reflecting transactions costs in transmitting international prices into domestic markets as well as policy interventions in domestic markets (Byerlee 2006). However, price fluctuations of many grains in African countries are usually higher than world price variability. World market prices influence domestic price levels and volatility through imports. With increasing urbanisation[14] and possibly increasing demand for bio-fuel crops, the world market share of global production/consumption may increase further.

The global trade is handled increasingly by only a handful of companies. Cargill, ADM and Bunge are the major players (Meijerink & Danse, 2009). In the grains market, and in food markets in general, there is a continuing trend towards horizontal and vertical integration. Horizontal integration consists of merging firms at the same level in the supply chain while vertical integration consists of merging firms at different stages in the supply chain (for instance input and output sectors). The concentration of 'market power' in a few large multinational buyers against a multitude of relatively small producers characterizes an imperfect market and could lead to increased volatility

The FAO (2009:122) has listed several factors that may cause a return to even higher food prices. Resumed income growth in developing countries after the financial crisis will lead to renewed expansion of demand for agricultural commodities. Secondly, higher real energy prices are linked to food prices through input and transportation costs on the one hand and increased demand for agricultural crops for biofuel production on the other hand. Thirdly, because of declining agricultural productivity growth , growing demand may not be met by growing supply, this adding pressure on prices.

[14] Prof. Paul Collier in a WFP Interview : 'Food prices have risen, some of the biggest food exporting countries have banned exports and we're facing a relatively thin market on which a lot of poor, urban, coastal populations are dependent,' he said. 'They're very exposed to this volatility in global market prices and that's a relatively recent phenomenon. It's only in the last couple of decades that you have coastal megacities emerging, with lots of poor people in them who spend typically half of their income on food, and are dependent on global market prices, because they're fed from the world market rather than from the hinterland of their own countries.'

5.4 An international coordinated global food reserve?

During the food price crisis of 2006-2008, many (grains) importing countries faced difficulties in obtaining sufficient amounts at reasonable prices. One of the repercussions of this is that several countries have less confidence in the international grain markets and have reinstated grain self-sufficiency as a goal. IFPRI (von Braun et al., 2009) caution that this may result in an inefficient global production system with large total global reserves and a very thin and volatile global grain market. In a future food crisis, it will be even more difficult to import grain. The IFPRI proposal for an international coordinated global food reserve, aims at addressing these problems in the world market.

The proposal has some features in common with the current security provisions of the International Energy Agency for dealing with disruptions of petroleum markets. Wright and Cafiero (2010) warn that a major challenge will be to ensure commitment by the participants themselves to honour their obligations and make their stocks available when markets are under stress. If exporters fail to commit, this can lead to turmoil in the global grain trade, as was the case in the food price crisis.

The paper prepared for the FAO Committee on World Food Security (CFS) for their meeting in Rome in October 2010 (FAO CFS 2010) was rather sceptical about the possibility of stabilizing spot market prices through internationally controlled reserves. The paper states:

'51. In general, market regulation policies at national and international levels based on global or regional buffer stocks cannot prevent price spikes. In addition, with the exception of the most well-financed intervention activities, they may be unsuccessful in managing the market during a price surge. The experience with public buffer stocks suggests that, often, such interventions havebeen disruptive rather than stabilizing. Given the current state of knowledge about markets and previous experiences with collective action problems, it is not likely that such initiatives present practical solutions on a multilateral basis.'

In view of the arguments brought forward, and the fact that domestic food grain prices , although linked to world market prices, are primarily based on local and regional market fundamentals of supply and demand, it appears that restrained use of national reserves and combined with further improvement of domestic and regional market functioning , is to be preferred over the proposed international held reserves.

5.5 Virtual Global Food Grain reserves and Regulation of Commodity Trading

As mentioned in Section 2. there is an on-going debate concerning the role that increased trading in food-commodity futures and derivates has on food grain prices in the world markets and indirectly in regional and domestic markets. Further research appears necessary to clarify the issue.

Meanwhile IFPRI, believing that the large influx of index funds caused a bubble on the futures markets and pushed up food prices even more, propose a mechanism that would intervene in futures markets to bring the price down : A Virtual Reserve. Simply put, the mechanism would buy futures on a large scale at a lower price, which would force the futures price down.

Irrespective of the outcome of the debate, it may be doubted if such a mechanism could operate successfully and have the intended effect of stabilizing prices.

Part of the proposed mechanism is a Global Intelligence Unit (GIU) that would predict future prices on the basis of analysis. It is debatable whether this GIU can actually forecast prices correctly, which is not an easy task. Getting the estimates wrong would be a very costly mistake. The GIU would set a price band

that would be used to determine whether prices are too high or too low. If the prices are 'too high' it is assumed that this is because of speculators. However, bubbles are very hard to detect, and most are discovered only after they have burst.

IFPRI proposes that futures are sold 'silently' against a lower price. However, in practice, it will be very difficult to buy or sell futures unnoticed, especially at a large scale which is necessary for futures prices to decrease. Selling futures at a lower price is very costly and will lead to speculators making large profits. The idea comes down at 'paying speculators to go away'. If high prices are not the result of a bubble, but the result of actual scarcity in the markets, the virtual fund is distorting markets and giving wrong price signals, which could have harmful effects.

Again the FAO Committee on Food Security (FAO CFS 2010) has also been critical about the idea of a virtual reserve:

'*any attempt to publicly influence the prices in futures markets might become extremely expensive and could lead to a withdrawal of the agents who use the futures markets for hedging purposes, thus rendering futures markets purely speculative'.*

The UN rapporteur on the Right to Food Olivier de Schutter, (2010) also believes that 'momentum based' speculative trading of food commodity derivates as well as direct speculation in spot markets may lead to unwanted price hikes. He argues for 'comprehensive reform of all derivates trading…' in the financial markets. This would include measures aimed at transparency and limiting of positions such as registration of transactions, 'clearing' thresholds and limiting access to agricultural/food commodity markets to traders and investors with direct commercial interest.

At an emergency intergovernmental meeting hosted by FAO in September 2010 it was agreed that 'insufficient market transparency and the impact of financialization on futures markets … were among the root causes of price volatility.

Currently both the US Commodity Futures Trading Commission CFTC and the European Union[15] are considering changes in regulations to make markets more transparent and curb the risks of unwanted speculative trading in food commodity derivates.(FAO CCP 2010).

The EU DG Internal Market is planning to launch measures to regulate commodity exchanges and curb speculation, as well as step up transparency in food trade. The planned reform of the law, known as the Markets in Financial Instruments Directive (MiFID), and the envisaged review of the EU directive on market abuse will provide an opportunity for 'an ambitious overhaul of the markets of raw materials' (EurActiv, 2010).

In the US, the Commodity Futures Trading Commission (CFTC) in collaboration with stakeholders is working out definitions and rules to implement Title VII of the Dodd-Frank Wall Street Reform and Consumer Protection Act('the Dodd-Frank Act') which strives to regulate and clarify trading in the presently opaque physical and futures markets in agricultural commodities.

In view of the fact that the influence of increased trading in food-commodity trading on spot market prices in global and domestic markets should be further clarified and the fact that the feasibility and effectiveness of operating a virtual reserve can be questioned, it may be concluded that supporting establishment of such a reserve is at least premature. Market regulation to increase transparency as currently proposed is probably more effective in reducing risks of price hikes.

15 http://www.tradeobservatory.org/library.cfm?refID=107771

5.6 The WTO and stockholding[16]

The WTO Agreement on Agriculture (AoA) contains a number of restrictions relevant support (i.e. public spending) for public held food grain reserves held at national, regional and international levels. The focus of the Uruguay Round AoA (1986-1994) was on limiting the policy space that countries had to over-produce with the help of protection and subsidies. The focus of the AoA rules on agriculture, and its continuation under the Doha Round, has been on addressing the problems of an era of cheap food. Therefore, a legitimate question is whether WTO agricultural rules, designed for an era of cheap food, are adequate to address also the opposite problem of expensive food and food crises.

In the AoA there are two relevant provisions on stockholding and domestic food distribution provisions. These two are both placed under Green Box: i) public stockholding for food security purposes; and ii) domestic food aid. In general, domestic food aid programmes are WTO-compatible. Developing countries are permitted to implement governmental stockholding programmes for food security purposes. This includes government programmes that acquire and release stocks of foodstuffs at administered prices for food security purposes. The condition placed in the AoA is that the difference between the acquisition price and the external reference price is accounted for in the Aggregate Measurement of Support (AMS).

Domestic food aid is defined by the AoA as the provision of foodstuffs at subsidised prices with the objective of meeting food requirements of urban and rural poor in developing countries on a regular basis at reasonable prices. This is allowed under the AoA rules.

5.7 The World Bank (WB) and stockholding

Since the 2007/08 crises the WB has undertaken a number of actions to address food security problems.

The Global Food Crisis Response Program (GFRP) was set up in May 2008. This programme has a budget of US$ 2 billion up to June 2011 and is combined with an additional US$ 352 million in Trust Funds provided by various donors (including the EU Food Crisis Rapid Response Facility). The funds are used to address immediate needs, support safety net programmes (e.g. food for work, school feeding, feeding of children and vulnerable groups). The funds are further used to meet additional expenses of food imports and to provide support for food production through supply of seeds and fertilizer and improving irrigation for small-scale farmers.

The Agriculture Finance Support Facility was announced in June 2009 (with a US$ 20 million contribution by the Bill & Melinda Gates Foundation). This facility will increase farmers' access to savings, investments, credits and insurance.

The WB further helps countries to develop financial market insurance products and risk management strategies to respond increases in prices of futures, such as weather derivates and crop insurance.

In the debate on the causes of the food crisis, the WB cautions not to assign the crisis to any specific cause but emphasises the need for further development of agriculture and food production through investments in knowledge networks, research and development and programmes aimed at increased food production. With regard to response to crises, the Bank appears to be in support of the establishment of limited sized and decentralized WFP controlled emergency reserves. In order to limit price volatility in

[16] This section is based on Sharma and Konandreas (2008).

world markets (spot and futures) Mr. Voegele[17] emphasised the need for improved monitoring and inspections of both public and private sector held stocks.

While Mr. Justin Lin, senior vice president and chief economist at the World Bank collaborated in the IFPRI proposals to establish physical and virtual reserves, the World Bank has so far not contributed financially to the (re-)establishment of reserve stocks aimed at price interventions in either spot or futures markets.

[17] In a meeting with Mr Waalkens, (Member of Dutch Parliament) in November 2009.

6 Summary of conclusions and recommendations

1. Food grain reserves may be kept at different levels: local, national, regional and global and stock keeping can serve a variety of policy aims. This paper concerns public held food grain reserves at national, regional and/or global level.

2. Holding and operating 'strategic' reserves by the public sector (i.e governments, parastatals or international agencies) generally has two distinct but linked purposes: emergency response and price stabilisation in food markets.

3. Since the essential function of strategic food grain reserves is always buffering against short-term developments and crises in food markets and/or emergencies, they are only of limited value in addressing the long-term developments in national or global food security such as the effects of climate change and changes in consumption patterns in upcoming economies.

4. However, strategic food grain reserves may contribute to longer-term food security provided they are integrated in clear policies aimed at food security and/or development of agricultural production and private sector food markets.

5. Whether used for emergency response or for price stabilisation or a combination of both, effective operation of strategic reserves requires (access to) comprehensive early warning and market information systems (e.g FAO/WFP , FEWS NET and local systems) , professional, transparent and accountable management and predictable intervention policies to avoid negative effects. The management of reserves should have an 'Central Bank' type autonomy with respect to government policy and political influences.

6. While emergency and food-aid reserves may be physically combined with reserves aimed at market stabilisation, a clear distinction between both purposes should be maintained and translated in management and administrative rules.

6.1 Reserves for emergency response

7. There appears to be wide support for further improvement of emergency response and safety-net programmes including the establishment of emergency food grain reserves and financial reserves coordinated by the WFP.

8. Emergency/food aid reserves should fit in integrated food security programmes and be linked to domestic and/or regional markets to stimulate the long-term development of such private sector operated markets. (e.g the WFP operated P4P programme).

9. Emergency response reserves at national level should by preference be combined with financial reserves since this will reduce the cost of maintaining physical stocks and allow flexibility of purchase and logistics.

10. An internationally WFP coordinated system of Emergency Response Reserves along the lines proposed by IFPRI, with stocks to the level of 300,000 – 500,000 mt based on existing national and/or regional reserve programmes, would contribute to global emergency response efficiency and food security. However, negotiating agreement on international coordination and funding may not be easy.

11. The proposed expanded Forward Purchase Facility operated by WFP could be an important instrument to complement the financial tools available for (re-)stocking regional emergency response reserves.

12. Efforts to develop regional coordination of national food reserve programmes aimed primarily and emergency response and targeted humanitarian programmes (e.g. RESOGEST and SADC Regional Food Reserve Facility) deserve support.

6.2 Reserves for price stabilisation

13. Following the statement proposed for the October 2010 meeting of the FAO Committee on Food Security, it may be concluded that: 'market regulation policies at national and international levels based on global or regional buffer stocks cannot prevent price spikes (…) The experience with public buffer stocks suggests that, often, such interventions have been disruptive rather than stabilizing. Given the current state of knowledge about markets and previous experiences with collective action problems, it is not likely that such initiatives present practical solutions on a multilateral basis.'

14. In developed countries or regions with well-developed production and consumption value chains like the EU and North America, keeping reserve stocks for food security and/or price interventions should not be necessary. Price interventions and farmer subsidies in the EU and USA have a negative influence on development of food production and investments in agriculture in developing countries. The Dutch Government has a long term commitment to reduce such subsidies and to avoid interventions in the world food markets based on excess stocks.

15. The role of reserves in price stabilisation in less developed domestic markets is probably limited. Intervening in markets with the use of reserves is often costly and demanding in terms of management (see also 5. above).

16. The existing reserves held at national level in developing countries should be limited in size and avoid a dominant position in domestic markets. Preferably, interventions should be targeted at vulnerable groups, possibly in the form of a combination of physical stocks and reserved funds.

17. National/regional reserves should only intervene in markets according to clear and transparent rules and in terms of price bands to enhance market functioning.

18. Improvement of market information systems (including registration/monitoring of private sector held stocks) and transparent market regulation.

19. Since domestic food grain prices, although linked to world market prices, are primarily based on local and regional market fundamentals of supply and demand, it appears that improved coordination and collaboration at regional level between existing national reserve programmes, combined with improved systems for market information and monitoring, is likely to be more effective and feasible than the IFPRI proposal for an international coordinated global food reserve controlled by a high-level technical commission of 'The Club'. (see also 13. above).

20. There is wide support for the view that 'insufficient market transparency' was among the root causes of price volatility. Improving market transparency through improvement of market information and introduction of registration and monitoring of public and private sector stock positions and transactions by an independent organisation, may be an effective option. The use of physical reserves to intervene in world markets, as proposed by IFPRI, is likely to be costly and probably less effective.

21. The influence of financialisation of commodity futures markets needs to be further clarified. This is why the establishment of a 'virtual reserve' to intervene in the futures markets as proposed by IFPRI is at least premature and possibly unwanted. Improved market regulation to make commodity futures markets more transparent and curb the risks of unwanted speculative trading in food commodity derivates as currently considered by the US Commodity Futures Trading Commission CFTC ('the Dodd-Frank Act') and the European Union (the Markets in Financial Instruments Directive MiFID) is likely to be more effective in reducing risks of price hikes.

22. Current WTO rules permit developing countries to implement governmental stockholding programmes for food security purposes. In the Agenda on Agriculture, there are two relevant provisions, both placed under Green Box and relate to public stockholding for food security purposes (paragraph 3) and domestic food aid (paragraph 4), respectively. However, the WTO rules of government support to agricultural development were designed for an era of cheap food. In that era, the aim was to promote exports and discipline situations leading to depressed prices in world markets adversely affecting exports. Also, production subsidies and import barriers that lead to lower prices have been the target for reform, while policies that have to opposite effect, such as export taxes and prohibitions as well as consumption subsidies, have been largely tolerated. WTO rules and disciplines are therefore much less effective in situations of high world market price years than they are when they are low (Konandreas, 2010).

Therefore, a legitimate question is whether the current rules, require adaptation to address the opposite problem of dear food and food crises.

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Annex 1

Some relevant key figures[18]

	World production grains 2010	World consumption grains 2010	Global stocks End 2010	Global stocks 2009	Global stocks 2008
Wheat	645	662	175	194	165
Rice	460	454	97	95	90
Corn-maize	831	830	139	139	147
Total	1936	1946	411	428	402

in millions of metric tonnes (Source USDA Grain World Marlets & Trade Aug. 2010)

World Trade volumes:

- Wheat approx. 120 million MT

- Coarse grains approx. 120 million MT

Total approx. 240 million MT

(source USDA Agric. Projections to 2017 . Febr 2008)

World market volume is approximately 10-15 % of total global production/consumption level. (Murphy 2010) (Meijerink and Danse 2009)

The multinational companies Cargill and Archer Daniels Midland (ADM) control approximately 75 % of world market trade volume or approximately 180 million MT. (Murphy 2010)

Biofuel production from grains consumes approximately 100 million MT (2009)

Food Aid flows represent approximately 6.7 million MT Wheat equivalent or 7-10 million MT of grains (IFPRI)

Variability in food grain prices in the world market is normally in the order of 20-30 %. Prices in domestic markets are generally more stable. Variability of prices in domestic markets is highest in African countries due to poor market functioning and harvest variability.

The proposed decentralized Emergency Reserves to be coordinated by WFP with a volume of 300.000 – 500.000 MT would represent only 0.025 % of global consumption.

The IFPRI proposed 'virtual reserve' for intervention in futures/derivates markets with a funding of 12 – 20 billion US$ would correspond to approximately 30-50% of global trade volumes or 70-120 million MT.

[18] These figures are partly rough estimates.

The paper reviews recent publications on the causes for the 2007-08 food price crisis and the volatility of food grain prices. The focus of the paper is on the role strategic food grain storage at national, regional and global level may play in responding to food crises, ensuring food security crises and stabilizing food grain prices in markets at different levels. The paper concludes with recommendations aimed at assisting the Dutch Minisitry of Economic Affairs, Agriculture and Innovation in formulating a position on the issue of strategic food grain reserves.

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